

**HEALTHY
MOMS.
STRONG
BABIES.**



NOWHERE TO GO: MATERNITY CARE DESERTS ACROSS THE U.S.

2020 REPORT



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Moms and babies need us now more than ever. Today in the U.S., we face an urgent maternal and infant health crisis that has only intensified with the COVID-19 pandemic. Every 12 hours a woman dies due to complications resulting from pregnancy. Additionally, 2 babies die each day. These numbers are disproportionately higher for moms and babies of color. Nothing sums up the state of the situation that we face in America as well as this one fact: In 2020 the U.S. remains among the most dangerous developed nations for a woman to give birth.

There are numerous health, societal and economic factors that collectively contribute to this crisis. Unequal access to health care is one of these factors. In our 2020 report: *Nowhere to Go: Maternity Care Deserts Across the U.S.*, we shine a light on the impact of no or limited access to maternity care on the health of moms and babies. Today, 7 million women of childbearing age live in counties without access or with limited access to maternity care. These women are giving birth to more than 500,000 babies a year and this is putting them at risk of serious health complications. Without access to routine, quality health care these moms and babies have an increased chance of maternal and infant mortality and morbidity, including low birth weight and preterm birth.

Communities and policymakers must take immediate action to better serve the women and children in our country. While no single solution exists to address limited access to care, in our report we speak to key policy actions that can create positive change. These policy items include improving access to quality and affordable preconception, prenatal and postpartum care (e.g., expand Medicaid, provide coverage to telehealth services, expand access to midwifery care), focusing on prevention and treatment (e.g., create paid family leave systems and address social determinants of health) and expanding research and collection of surveillance data on maternal mortality and morbidity.

We imagine a nation where every mom and every baby is healthy, regardless of wealth, race or geography. Providing women with access to quality health care during the perinatal period is a critical part of this equation. We hope you join us in this fight for maternal and infant health. Learn about the actions you can take at [BlanketChange.org](https://www.blanketchange.org).

A handwritten signature in black ink, appearing to read "Stacey D. Stewart".



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In these difficult and unprecedented times, ensuring the health of moms and babies remains essential. The year 2020 has brought hardship across the nation and families are experiencing life in unfamiliar ways. Where a mom lives and her ability to access health care during pregnancy are important determining factors for the health of mom and baby. We believe that where you live should not determine the level of care you receive.

In our 2020 report on maternity care deserts, we build upon the 2018 report and continue to identify counties where a woman's access to maternity health services may be limited or absent. March of Dimes continually advocates for increases in health insurance coverage, quality and equity of maternal health care; this report informs researchers, policymakers and families alike so that we all move toward the best outcomes for moms and babies. In addition to information on COVID-19 and pregnancy, this report includes birth centers as a component of our analysis of maternity care deserts, a section on the topic of telemedicine, information on the role of doulas in maternity care and an extended section on policy recommendations. Since our report in 2018, six percent of counties have shifted in their maternity care designation; however, only three percent of these counties moved towards a better designation indicating greater levels of care.

We know that societal, economic and environmental determinants of health influence maternal health outcomes. In addition, structural and systemic inequities exist in the health care system resulting in health disparities. There are well known examples of disparities in birth outcomes, such as racial differences in the rates of maternal mortality, prematurity and infant mortality, that have been present for decades. Throughout this report, we highlight where some of these inequities exist in the context of maternity care deserts.

As our nation continues to face COVID-19, the serious public health threat could exacerbate the nations maternal and infant health crisis. Many health systems and/or hospital-based maternity care centers located in both urban and rural areas, are facing unprecedented financial declines that could necessitate the increased closure of maternity care centers as well as entire hospitals.

ACKNOWLEDGEMENT

This report was supported by RB and their Enfa portfolio of brands, our partner in the Better Starts for All pilot initiative, aimed at providing easier access to care for moms-to-be in maternity care deserts.

POLICY SOLUTIONS AND ACTIONS

With approximately 10 percent of births nationwide occurring in counties with limited access to maternity care, action is needed now to help ensure that all women receive the care and support they need before, during and after pregnancy. Policymakers must take swift action to better serve the women and children in our country. No single solution will address the problem of limited access to care; however, key opportunities include:

SUPPORT ELIMINATING MATERNITY CARE DESERTS

- **Implement perinatal regionalization**, a strategy to improve both maternal and neonatal outcomes. By coordinating a system of care within a geographic area, pregnant women would receive risk-appropriate care in a facility equipped with the proper resources and health care providers.
- **Expand Medicaid** for individuals who fall at or below 138 percent of the Federal Poverty Level (FPL). New research shows that states that expand Medicaid improve the health of women of childbearing age by increasing access to preventive care, reducing adverse health outcomes before, during and after pregnancies, and further reducing maternal mortality rates.
- **Expand access to midwifery** care and further integrate midwives and their model of care into maternity care in all states. This can help improve access to maternity care in under-resourced areas, reduce interventions that contribute to risk of maternal mortality and morbidity in initial and subsequent pregnancies, lower costs and improve the health of moms and babies.

IMPROVE ACCESS TO QUALITY AND AFFORDABLE PRECONCEPTION, PRENATAL AND POSTPARTUM CARE

- **Extend the Medicaid postpartum coverage period** to 12 months. The need for postpartum services exists well beyond the current limit in federal law of 60 days after the end of pregnancy.
- **Reimbursement for doula care.** Support increased access to doula care as one tool to help improve birth outcomes and reduce the higher rates of maternal morbidity and mortality among women of color in the U.S. In some states, coverage of

doula services is provided under the full range of private and public insurance programs, including Medicaid, the Children's Health Insurance Program (CHIP), TRICARE and others. Payment levels should be sufficient to support the care provided. Efforts should be made to make the doula profession more accessible to people of diverse socio-economic and cultural backgrounds.

- **Provide coverage for evidence-based telehealth services for pregnant and postpartum women and support alignment of telehealth reimbursement approaches across payers.**

PREVENTION AND TREATMENT

- **Create paid family leave systems** that make benefits available to all workers while also distributing the responsibility for funding this system among employers.
- **Address determinants of health** caused by social, environmental and economic factors to reduce disparities to improve health equity.
 - Expanding the scope of research on social determinants of health as fundamental drivers for population maternal and infant health.
 - Engaging in health system reform, including educating providers on implicit racial bias to better serve the highest risk populations; empowering communities through inclusion, education, social activism and advocacy; and advancing work to change social and economic conditions (poverty, employment, low wages, housing, education, etc.) as well as underlying health inequities.

RESEARCH AND SURVEILLANCE

- Improve maternal mortality and morbidity data collection and surveillance and prioritize policy recommendations from Maternal Mortality Review Committees.

INTRODUCTION

Maternity care encompasses health care services for women during pregnancy, delivery and postpartum.¹ There are nearly four million births in the United States, each year.² Access to quality maternity care is a critical component of maternal health and positive birth outcomes, especially in light of the high rates of maternal mortality and severe maternal morbidity in the U.S. In our 2018 report, *Nowhere to Go: Maternity Care Deserts Across the U.S.*, maternity care deserts are defined as counties in which access to maternity health care services is limited or absent, either through lack of services or barriers to a woman's ability to access that care. This report builds upon the 2018 report by updating the maternity care desert status of all counties based on the most recent data on availability of hospitals, birth centers, health care providers and health insurance.

BACKGROUND

Every year in this country, approximately 700 women die of complications related to pregnancy and childbirth³ and more than 50,000 women experience severe maternal morbidity, a life-threatening complication as a result of labor and delivery.⁴ Maternal Mortality Review Committees around the country have estimated that 60 percent of maternal deaths are preventable^{5,6} and despite many countries around the world successfully reducing their maternal mortality rates since the 1990s, the U.S. rate remains higher than most other high income countries.⁷ In fact, the U.S. maternal mortality rate has been increasing for the past three decades (Figure 1)⁸ and significant racial and ethnic disparities exist in maternal health care in the U.S. Non-Hispanic Black women and American Indian/Alaskan Native women have higher rates of maternal mortality (3 and 2.5 times, respectively) as compared with non-Hispanic White women.⁹ Some of this disparity can be addressed through equal access to quality health care as a way towards achieving health equity.¹⁰ The data indicate women in the U.S. do not have equal access to maternity care. This report examines some key factors related to maternity care access such as access to hospitals, maternal health care providers and health insurance. Along with efforts to reduce preventable maternal mortality and morbidity, ensuring access to maternity care for all women has the potential to reduce disparities across the U.S. and improve birth outcomes for all.

KEY FINDINGS

More than 2.2 million women of childbearing age live in maternity care deserts (1,095 counties) that have no hospital offering obstetric care, no birth center and no obstetric provider.

- In this 2020 report, birth centers were included as an additional factor used to identify maternity care deserts.

In 2017, almost **150,000** babies were born to women living in maternity care deserts.

- Among women of childbearing age living in maternity care deserts, 1 in 3 live in a large metropolitan area or urban setting.
- Maternity care deserts have a higher poverty rate and lower median household income than counties with access to maternity care.

An additional **4.8 million** women of childbearing age live in counties with limited access to maternity care.

- This report combines three factors (access to obstetric care, obstetric providers and insurance) to identify limited access counties.

In 2017, approximately **514,000** babies were born to women living in rural areas.

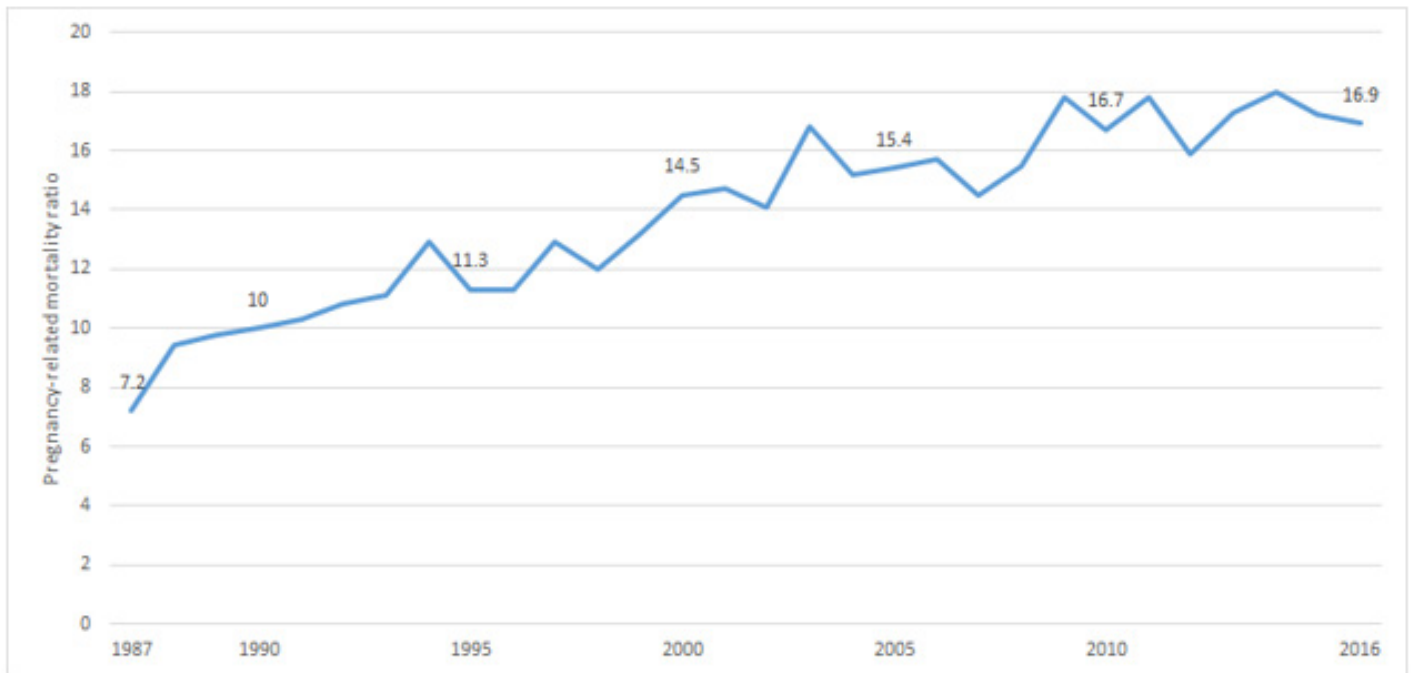
- Only 8 percent of obstetric providers report practicing in rural areas.

Due to the addition of birth centers in this 2020 report, **13** counties shifted to a higher level of access to care between 2018 and 2020.

Overall, between 2018 and 2020, 6 percent of counties shifted in their level of access to care.

- 3 counties moved from a maternity care desert to a higher level of access to care
- 3 percent of counties shifted to a higher access of care
 - » Of these counties,
 - » **14** shifted due to an increase in hospitals
 - » **44** shifted due to an increase in obstetric providers
 - » **5** shifted due to a combination of increases in obstetric providers, birth centers or hospitals
- 3 percent of counties shifted to a lower access of care
 - » Of these counties,
 - » **24** shifted due to a decrease in hospitals
 - » **52** shifted due to a decrease in obstetric providers
 - » **5** shifted due to a combination of decreases in obstetric providers and hospitals

Figure 1. Pregnancy-related mortality ratio*, United States, 1987-2016



*Pregnancy-related mortality ratio is the number of pregnancy-related deaths per 100,000 live births.

Source: CDC, Pregnancy Mortality Surveillance System, 1987-2016 (<http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>)

MATERNITY CARE DESERTS

In this report, March of Dimes (MOD) defines a maternity care desert as any county without a hospital or birth center offering obstetric care and without any obstetric providers. Women may have low access to appropriate preventive, prenatal and postpartum care if they live in counties with few hospitals or birth centers (one or fewer) providing obstetric care, few obstetric providers (fewer than 60 per 10,000 births) or a high proportion of women without health insurance (10 percent or more). Moderate access to care is defined as living in a county with access to few hospitals/ birth centers or OB providers and adequate health

insurance coverage (less than 10 percent of women of reproductive age uninsured). Full access to maternity care can be defined by availability of hospitals or birth centers providing obstetric care and availability of providers offering obstetric care (Table 1). To further understand counties with full access to maternity care, we examined those counties' levels of uninsured women. We found that some counties that are classified as having full access to maternity care, also have high rates of uninsured women.

Table 1: Definitions of maternity care deserts and access to maternity care

Definitions	Maternity care deserts	Low access to maternity care	Moderate access to maternity care	Full access to maternity care
Hospitals and birth centers offering obstetric care	zero	<2	<2	>2
Obstetric Providers (obstetrician, CNM/CM) per 10,000 Births	zero	<60	<60	≥60
Proportion of women 18-64 without health insurance*	any	≥10%	<10%	any

Notes: CNM/CM = certified nurse midwives/certified midwife

*U.S. average is approximately 11%. Source: Kaiser Family Foundation

<https://www.kff.org/womens-health-policy/fact-sheet/womens-health-insurance-coverage-fact-sheet/>

The inclusion of birth centers into our methodology improved access in 13 counties in the 2020 report (Figure 2). Birth centers were included because they provide an alternative option for women to receive prenatal care and delivery services outside of the hospital setting. These centers operate independently of hospital systems and have autonomy in choosing patient populations as well as manner of care delivery. There were three counties that shifted from being classified as maternity care deserts to a level of greater access due to the inclusion of birth centers.

44 of these counties shifted due to an increase in obstetric providers. 14 of these counties shifted due to an increase in hospitals, and 5 counties shifted due to a combination of increases in obstetric providers, birth centers or hospitals. 3 percent of counties shifted to a lower level of access. Of these counties, 52 counties shifted due a decrease in hospitals. 24 counties shifted to a lower level of access due a decrease in obstetric providers.

Between 2018 and 2020, 6 percent of counties across the U.S. shifted between classifications of access to care. These shifts occurred for varying reasons such as changes in the number of providers or in health insurance. Of these counties, 3 percent were classified at a higher level of access than they were in 2018.

Figure 2: Change in county maternity care classification between 2018 and 2020 Nowhere to Go: Maternity Care Deserts Across the U.S Report

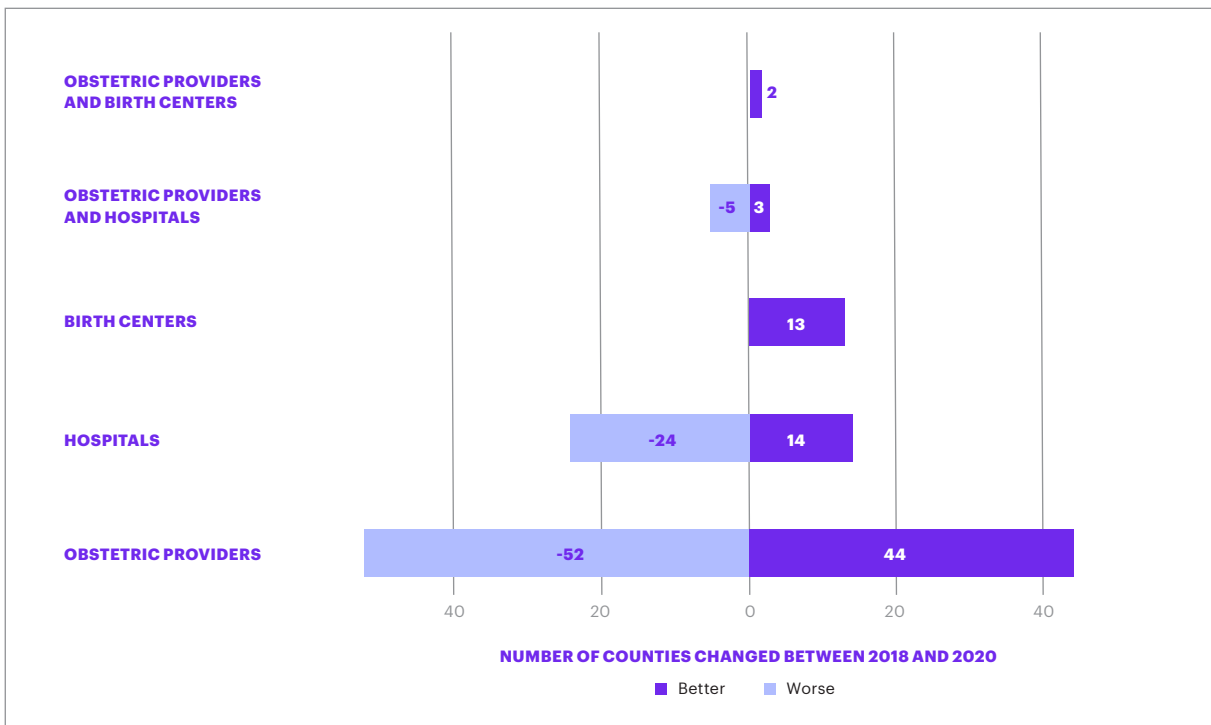
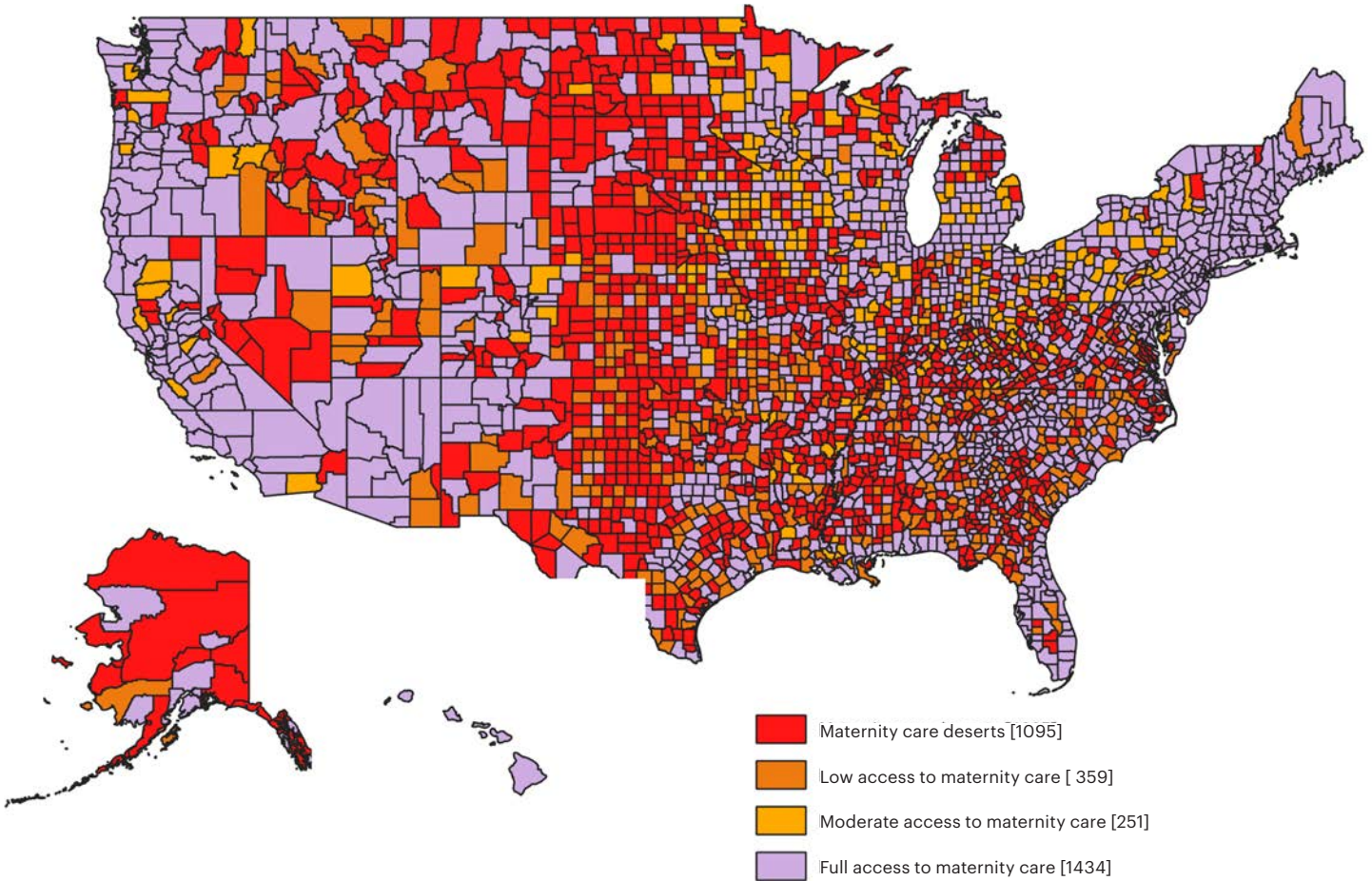


Figure 3: Maternity care deserts, United States, 2018



Source: U.S. Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019

Table 2: Distribution of counties, women and births by access to maternity care

	Maternity care deserts		Low access to maternity care		Moderate access to maternity care		Full access to maternity care		Total
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
Counties	1095	34.9	359	11.4	251	8.0	1,434	45.7	3139
Women 15–44yr*	2,232,000	3.5	2,852,000	4.5	1,919,000	3.0	57,133,000	89.1	64,136,000
Births	146,451	3.8	187,964	4.9	123,722	3.2	3,397,363	88.1	3,855,500

ACCESS TO AND QUALITY OF CARE

One way that quality of health care can be affected is through the availability of access to care. Since 2010 there has been an increase in the percentage of rural obstetric units that have closed their doors.¹¹ The focus of maternity care deserts is often in rural areas, but this problem also occurs in urban areas and areas adjacent to urban centers.² Closing of hospital maternity care units in cities disrupts continuity of care and can create barriers to access needed for prenatal and obstetric services due to issues such as transportation, finding/coordinating new services and health insurance. This is concerning if hospital closings are concentrated in low income areas or contribute to the exacerbation of racial/ethnic disparities in that community. Hospital closings in urban areas means that the remaining birthing care facilities experience a surge in patient volume and can introduce a new mix of patient populations into an already stressed health care setting.¹³

Hospital quality, defined through structural, organizational and clinical process measures, differs between facilities that mainly serve Black, Hispanic or American Indian women compared to a mostly

White-patient population.¹⁴ In one study, hospitals that serve Black women were lower-quality as compared to hospitals that have a higher proportion of White women receiving care.¹⁴ These differences between hospitals lead to higher rates of morbidity and mortality for the minority women, especially Black women.¹⁵ Black women have died at a rate 2.4 to 3.3 times higher from pregnancy complications than White women⁹ and it's been estimated that that up to 50 percent of maternal deaths could be prevented with focused improvements at the provider, system and patient levels with the provider level being the most impactful.¹⁵ Quality improvement initiatives in hospitals, such as standardization of care through safety bundles utilizing protocols/checklists, and staff training on implicit bias can improve care at all hospitals.

To create a culture of equity, it's important to address providers' implicit bias¹⁵—especially when research has demonstrated providers have the same varying degree of implicit bias as the public,¹⁶ and nearly 50 percent of all providers practicing in obstetrics and gynecology admit to having some bias.¹⁷

CHARACTERISTICS OF MATERNITY CARE DESERTS

Table 3: Access to maternity care and economic characteristics

Characteristic	Maternity care deserts (n=1095 counties)	Counties with full access to maternity care (n=1434 counties)
	Mean	Mean
Median household income+	\$45,804	\$55,761
Women without health insurance (18-64 yrs)*	13.6%	10.7%
Population in poverty**	16.9%	15.1%
Urban Counties	18.1%	49.4%

*Source: U.S. HRSA, Area Health Resource File, 2019, Data from 2017 **Source U.S. HRSA, Area Health Resource File, 2019, Data from 2013-2017

Table 4: Urban and rural county maternity care desert characteristics

Characteristic	Urban Counties (n=206 counties)	Rural Counties (n=889 counties)
	Mean	Mean
Median household income+	\$50,018	\$44,827
Population in poverty**	16.1%	17.1%
Women without health insurance (18-64 yrs)*	12.7%	13.8%

*Source: U.S. HRSA, Area Health Resource Files, 2019. Data from 2017 **Source U.S. HRSA, Area Health Resource Files, 2019. Data is from 2013-2017

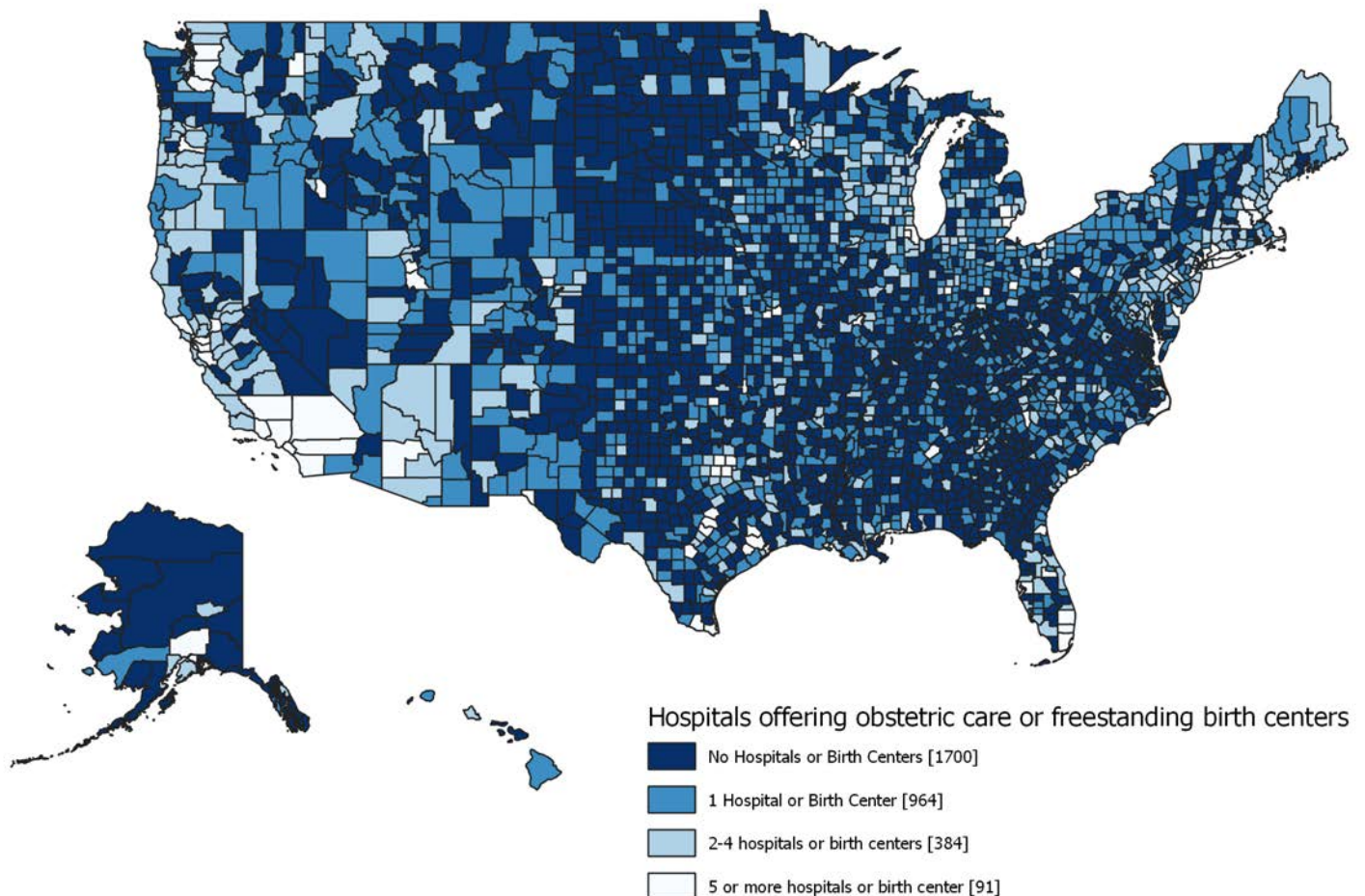
HOSPITALS

One measure of lack of maternity care access is the proximity of hospital obstetric services. Women who live in rural areas have excess risk for childbirth complications due to both clinical factors and social determinants of health.¹⁸ Analysis of trends in hospital obstetric service closures found a 7.2 percent decline in the percentage of rural counties with hospital-based obstetric services in the U.S. between 2004 and 2014.¹⁹ A total of 179 rural counties (about one in ten) lost hospital-based obstetric services during those ten years.²⁰ Of these counties, 150 were areas with less than 10,000 residents, indicating that closures disproportionately affected more remote areas.²⁰ As of January 1, 2020, 120 rural health care facilities have closed.²¹ States in the Southeastern U.S. and lower Great Plains and those states that have not expanded Medicaid have the greatest risk of rural health closures.²¹ The areas where rural facilities are most likely to close are also those areas of greater need, experiencing higher levels of negative maternal health outcomes.²² Factors that contribute to hospital closures include having higher rates of uninsured patients, large

amounts of uncompensated care, financial distress, hospital size and community poverty rates.²²

According to data from the 2018 American Hospital Association Annual Survey,²³ there are 5,198 hospitals in the U.S. and 45 percent (1,418 hospitals) offer obstetric care services.²⁴ While more than two-thirds of counties in the U.S. have at least 1 hospital (65.1 percent, n=2,043), not all of these hospitals provide obstetric care. Almost half (45.2 percent, n=1,418) of counties have at least one hospital providing obstetric care (Figure 4), which is almost a 2 percent decrease since the 2018 report. Urban counties are more likely to have a hospital providing obstetric care than rural counties (58.0 percent and 37.6 percent, respectively) but urban counties have fewer hospitals providing that care per 10,000 births than rural counties (6 hospitals per 10,000 births in urban counties compared to 17 in rural counties).²⁴ In counties with at least 1 hospital had a higher median income (\$54,824 compared to \$48,030) and lower percent of the population in poverty (15.3 percent compared to 16.5 percent) than counties with no hospitals.²⁴

Figure 4: Access to hospitals or birth center offering obstetric care by county, United States



Source: U.S. Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019; American Association of Birth Centers, 2020

BIRTH CENTERS

Birth centers are another option for women with low-risk pregnancies to receive delivery services, prenatal and postpartum care. In general, birth centers are defined as health facilities that are independent from hospital systems or physicians and are dedicated to health care for the perinatal period.²⁵ Birth centers also provide a home-like environment and practice the midwifery model of care, which emphasizes a little to no intervention approach to birthing.²⁶ Midwives employed at birthing centers often have relationships with hospital systems in the event that medical intervention is needed.²⁶

Of the 234 birthing centers in the U.S., 98 percent are located in counties that already have access to maternity care,²⁶ with 16 percent of urban counties having 1 or more birthing centers and only 2 percent of rural counties having at least 1 birth center.²⁶ Over the past few decades, less than

1 percent of births in the U.S. have been in a birth center or at home, however, interest in out-of-hospital births has been rising.²⁷ Midwifery-led models of care have proven to improve outcomes for socially at-risk communities.²⁸ Analysis in 2018 of nationwide birth center data shows that women receiving prenatal care at a birth center had lower rates of preterm birth, low birth weight and Cesarean delivery and reduced racial disparities for Black and Hispanic women.²⁸ With midwifery care as the foundation of birth centers, there's opportunity to achieve similar outcomes on a larger scale.²⁸ State regulatory environments for births outside of hospitals are varied across the U.S. and this may be a factor in the availability of other options for women.²⁹ A map showing the density of both birth centers and hospitals across the U.S. can be seen in Figure 3 on page 9.



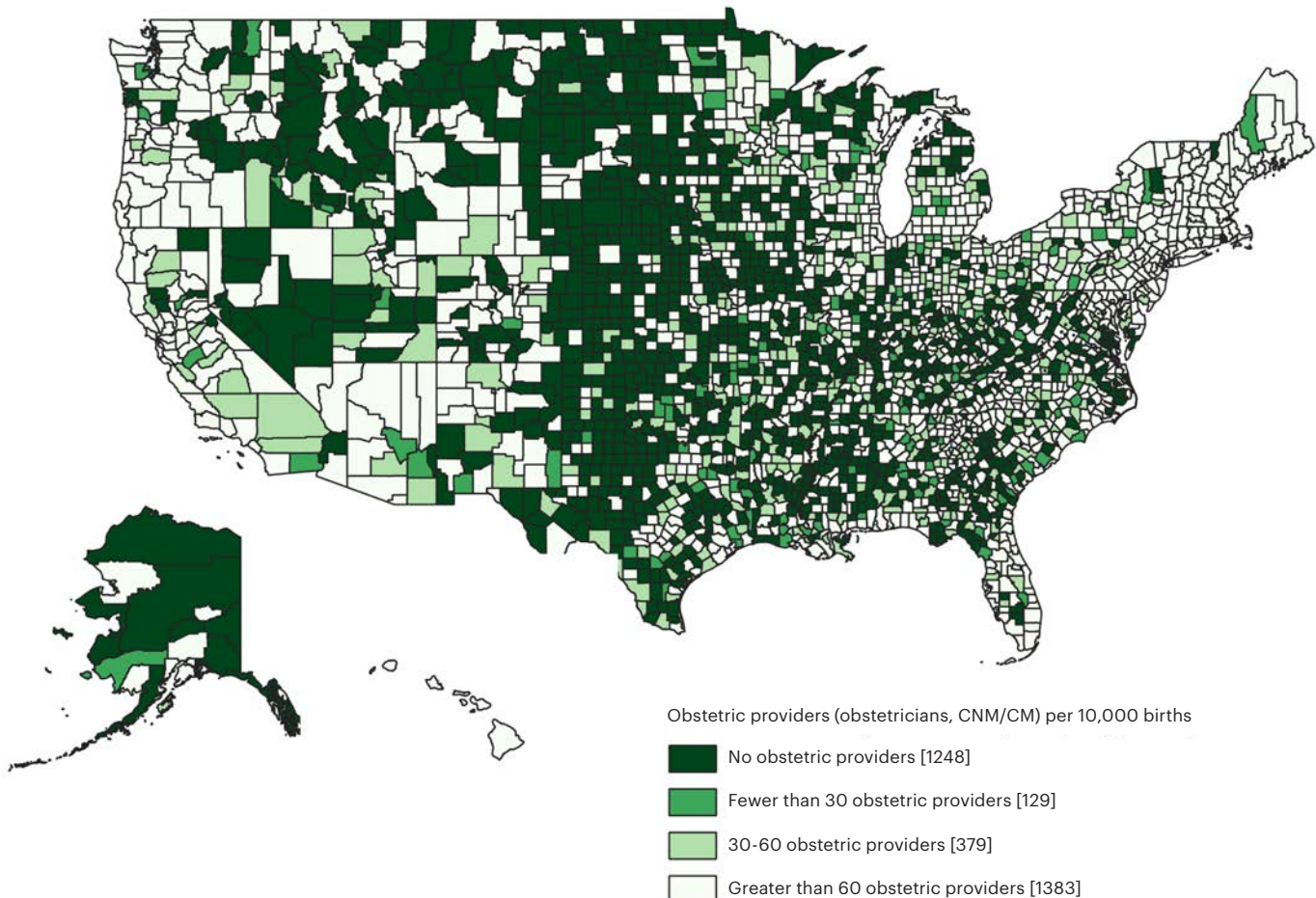
PROVIDERS

Maternity care providers include obstetricians, certified nurse-midwives/certified midwives (CNM/CM), and family physicians. These providers are distributed unevenly across the U.S. and approximately half of all counties lack a single obstetrician,³⁰ leading to access inequities in certain communities such as rural counties. It's estimated that fewer than 10 percent of obstetric providers practice in rural areas.¹⁸ Shortages of maternity care providers can result in long waiting times for appointments and/or long travel times to prenatal and postpartum care or birth sites. Previous studies on the availability of obstetricians and CNM/CM at the county level show distribution of providers were mostly concentrated around metropolitan areas.^{31,32} Rural communities face further challenges due to trends in obstetrician movement from rural and impoverished areas to urban and wealthier areas.³⁰ Higher rates of maternal mortality and morbidity and other adverse birth outcomes among women of color, and Black women in particular, have prompted interest in models of care that can improve outcomes, including midwifery and specific evidence-based supportive and preventive care programs developed

and led by midwives.³² March of Dimes supports efforts to increase the number of midwives of color and diversify the maternity care workforce with individuals who represent the lived and cultural experiences of the patients they serve.³³

In 2017, about half of the 3,139 U.S. counties lacked a single obstetrician (n=1,512, 48.2 percent), and more than half of the counties did not have a CNM (n=1,730, 55.1 percent). More than 1,200 counties had neither an obstetrician nor a CNM (n=1,248, 39.8 percent) and an additional 508 counties had 60 or less obstetric providers per 10,000 births (16.2 percent) (Figure 4).²⁴ More than 2.9 million women of reproductive age lived in counties without an obstetric care provider. In 2017, there were almost 146,000 births in these counties.²⁴ Counties with more than 60 or more OB providers had a higher median income (\$55,866 compared to \$47,345) and a lower percent (16.7 percent compared to 15.1 percent) of the population on poverty compared to counties with less than 60 obstetric providers.²⁴

Figure 5: Distribution of obstetric providers by U.S. county, 2017



Source: U.S. Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019

MIDWIVES

Most babies in the U.S. are born in a hospital (98.4 percent) and attended by a doctor of medicine (MD, 80.9 percent) or doctor of osteopathic medicine (DO, 8.0 percent). Nationally, nearly 1 in 10 births is attended by a certified nurse midwife (9.4 percent) or other midwife (0.8 percent).^{24,35} Efforts to further integrate health care professionals, such as midwives, into maternity care could help improve access to providers and quality of care. In a statement further reinforced by research, the American College of Obstetricians and Gynecologists (ACOG) and the American College of Nurse-Midwives supported that the highest quality of care for women occurs when physicians and midwives are working together to provide maternal health care.³⁴ March of Dimes encourages states to ensure that their laws foster access to midwifery care and also supports efforts to further integrate their model of care, with full autonomy, into maternity care in all states.

Considerable variation in births attended by midwives is observed by state. In 2018, the proportion of births attended by a certified nurse midwife was 5 percent or less in Alabama, Arkansas, Louisiana, Mississippi, Missouri, Nevada, Oklahoma and Texas. More than 1 in 5 births was attended by a midwife in Alaska, Maine, New Hampshire, New Mexico, Oregon and Vermont in 2018 (Table 4).³⁵

DOULAS

Doulas are non-clinical professionals who provide physical, emotional and informational support to moms before, during and after childbirth, including continuous labor support.³⁷ They offer guidance and support around topics related to childbirth, breastfeeding, pregnancy health and newborn care. Supportive care during labor may include comfort measures, information and advocacy.³⁸ While there's no reliable estimate of the number of doulas in the U.S., a centralized online doula registration service, not affiliated with any one certifying organization, had over 10,000 registered doulas in 2020.³⁹

Women who receive continuous labor support are less likely to have medical intervention during delivery and more likely to have a satisfying birth experience.³⁸ Moms who use doulas are also more likely to practice healthy infant care by initiating breastfeeding and practicing safe sleep for infants.⁴⁰ Increased access to doula care in under-resourced communities can help

Births to American Indian/Alaskan Native women are more likely than other racial and ethnic groups to be attended by a certified nurse midwife (CNM) (19.7 percent compared to 11.2 percent among non-Hispanic White women). A lower percent of midwives is used by other women of color (9.4 percent among Hispanic women, 8.4 percent among Black women and 8.0 percent among Asian/Pacific Islander women).³⁵ This may be because historical American Indian values and birth practices are more aligned with the way that midwives provide care.³⁶ There's a long history of intention behind incorporating CNMs into the Indian Health Services across the country since the 1960s.³⁶

Over decades, changes to maternity care have created educational pathways, programs and structure for providers to work collaboratively between obstetricians and CNMs, which have led to improved infant outcomes.³⁶ Collaborative care has become the predominant model of maternity care and is a way to provide culturally-aligned care.³⁶ One such model showed a correlation between higher levels of collaboration and significantly higher rates of positive birth outcomes, such as vaginal delivery and vaginal birth after Cesarean, as well as significantly lower rates of Cesarean sections, preterm birth, low birthweight infants and neonatal death.²⁹

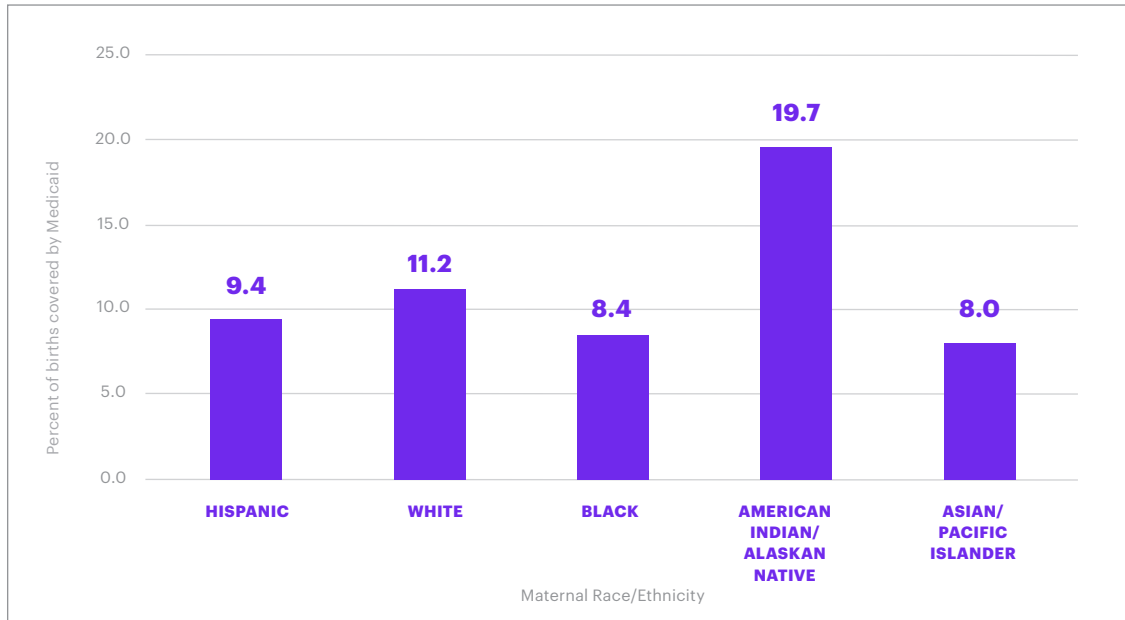
reduce the effects of social determinants of health by addressing health literacy, improving patient/provider communication, social support needs and decreasing anxiety and depression.⁴¹ Further evidence tells us that women who are low income, socially disadvantaged or who experience cultural or language barriers to accessing care experience the positive effects of doula care more strongly.⁴²

Women who utilize doula services tend to pay out of pocket and work in urban areas.^{42,43} Access to doula care is further limited as services are not routinely covered by health insurance providers. This can leave those who may benefit the most from doula care with the least access to it—both financially and culturally.^{44,45} Insurance coverage for doula support through Medicaid, the Children's Health Insurance Program, private insurance and other programs may be a way to improve birth outcomes and close the gap in birth outcomes between African American and White

women.⁴⁴ Just like midwives, doulas have the ability to practice in the homes of patients, which can have an impact for socially and economically vulnerable families.⁴⁶ Increasing access to doula care, especially in under-resourced communities, may improve birth outcomes, improve the experience of care and lower costs by reducing non-beneficial and unwanted medical interventions.⁴⁷⁻⁴⁹

March of Dimes supports increased access to doula care as one tool to help improve birth outcomes and reduce the higher rates of maternal morbidity and mortality among women of color in the U.S. and advocates for all payers to provide coverage for doula services. Additionally, March of Dimes recognizes the importance of increased training, support and capacity development for doulas, including doulas from racially, ethnically, socioeconomically and culturally diverse communities.

Figure 6: Percent of births attended by midwives, by race/ethnicity, U.S., 2018



Source: National Center for Health Statistics. Final natality data, 2018

Table 5: States with the highest and lowest percentage of births attended by midwife (CNM), 2018

5 states with highest percent of births attended by midwife (CNM):		5 states with lowest percent of births attended by midwife (CNM):	
Alaska	29.0%	Arkansas	0.4%
New Mexico	27.5%	Alabama	1.2%
Vermont	24.7%	Mississippi	1.8%
Maine	21.1%	Louisiana	2.8%
Oregon	20.7%	Texas	3.6%

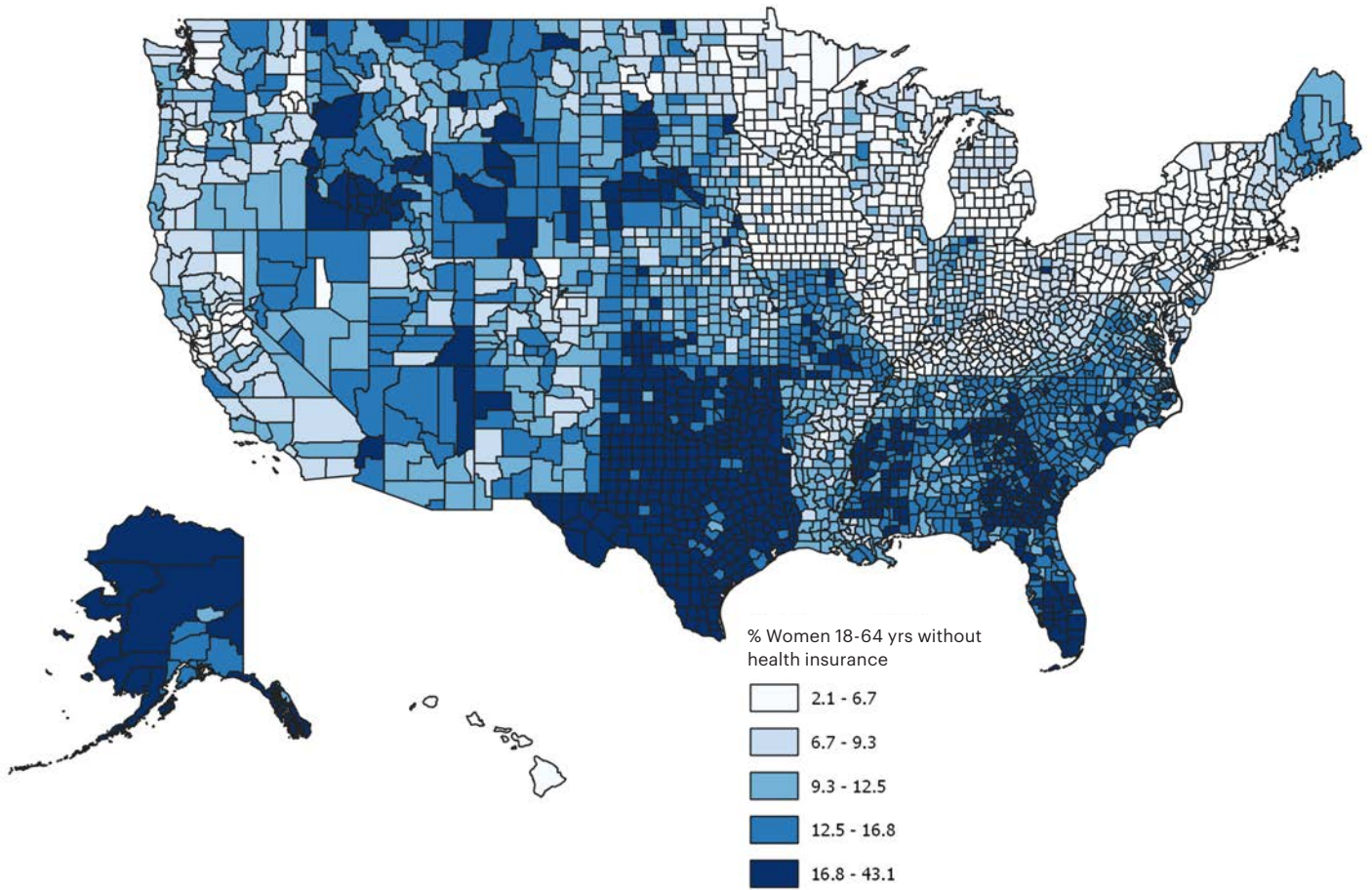
Source: National Center for Health Statistics. Final natality data, 2018

HEALTH INSURANCE COVERAGE AMONG WOMEN

Health insurance coverage is a critical aspect of making health care accessible and affordable for women. Health insurance is especially important during a woman's reproductive years. Lack of health insurance can be a significant barrier to obtaining regular preventive health care, which may identify and manage adverse health conditions that may affect pregnancy such as diabetes, hypertension, obesity and sexually transmitted diseases.⁵⁰ In addition, there's evidence that adequate prenatal care beginning in the first trimester can decrease the likelihood of adverse birth outcomes.⁵¹ Women who do not receive prenatal care are also 3 to 4 times more likely to have a pregnancy-related death than women who receive any prenatal care.⁵² Although the rate of uninsured women ages 19 to 64 has declined since the passage of the Affordable Care Act, about 1 in 10 (11 percent) women in the U.S. still did not have health insurance in 2018.⁵³ At the state level, the percentage of uninsured women under age 64 ranged between 3 percent and 23 percent.⁵³ This variation is evident when examining health insurance rates at the county level (Figure 6). In 2017, about 45 percent (n=1,412) of all U.S. counties had a greater than 10 percent proportion of women without health insurance. Across counties with full access to maternity care, the variation in health insurance rates is evident. Half (52.7 percent) of the counties with full access to maternity care have a high proportion of women without health insurance (10 percent or more). In the U.S., the majority of counties with a high proportion of women without health insurance are located in the south.²⁴ Four counties in Massachusetts and 1 county in New Mexico have the lowest percentage of uninsured women in the country (2.1 percent) (Figure 6). Counties with the highest percentage of uninsured women were found in Texas, ranging from 37 percent to 45.1 percent of women uninsured (Figure 6).

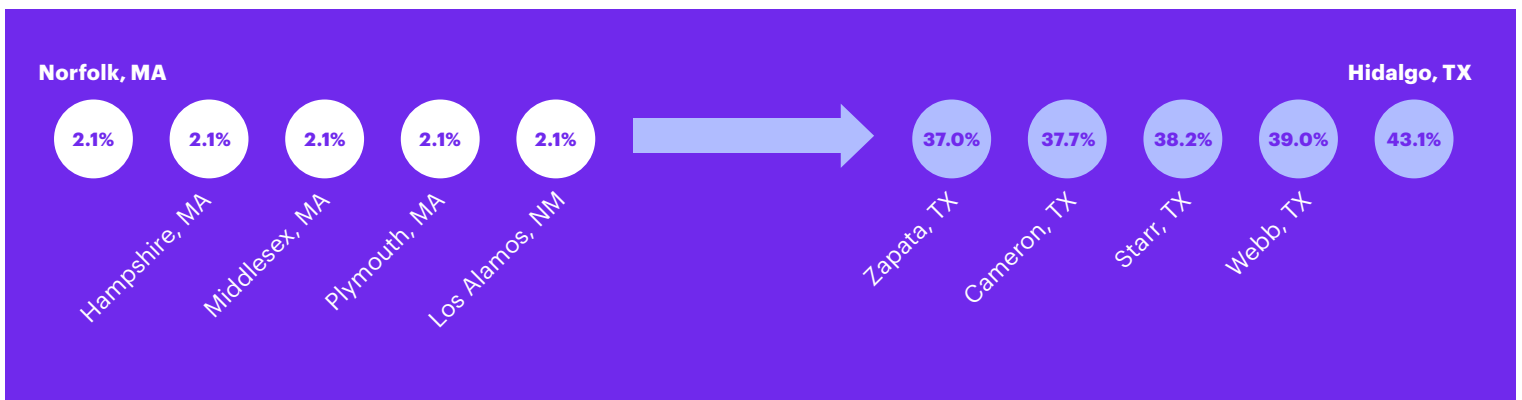


Figure 7: Women without health insurance, 2017



Source: US Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019

Figure 8: Counties with the lowest and highest proportion of women without health insurance, 2017



Source: US Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019

HEALTH INSURANCE BEFORE, DURING AND AFTER PREGNANCY AMONG WOMEN

Access to health insurance is critical before, during and after pregnancy to identify and treat chronic health conditions, address behavioral health needs and plan for a healthy pregnancy. Ensuring access to continuous care is also important for addressing our nation's growing rates of maternal mortality and severe maternal morbidity. In 2017, 39 states and the territory of Puerto Rico collected information on insurance status prior to pregnancy through the Pregnancy Risk Assessment Monitoring System (PRAMS). The data reveals that almost 1 in 7 (13.2 percent) women did not have any health insurance coverage in the month prior to their pregnancy. This is an increase in health insurance coverage for women during this critical period compared to the 1 in 5 women covered in 2015. The rates of coverage widely range from a high of 95.1 percent in Massachusetts to a low of 69.5 percent in Oklahoma.⁵⁴

In 2018, Medicaid covered the delivery care costs of more than 1.6 million pregnant women, or 42 percent of births in the U.S., who would have otherwise been uninsured during a critical period for them and their baby.⁵⁵ The proportion of births covered by Medicaid varied by state and by county. Between 2008/2009 and 2015/2016, states that expanded Medicaid had a much greater decline in the uninsured rates for low-income adults living in rural areas and small towns compared to states that did not expand (a decline from 35 percent to 16 percent and 38 percent to 32 percent, respectively).⁵⁵ This finding suggests Medicaid expansion as a way to help close the gap in health insurance access between rural and urban areas in states with disparities in coverage that haven't yet expanded.

By federal law, all states must provide Medicaid coverage to pregnant women with incomes up to 133 percent of the federal poverty level (FPL) through 60 days postpartum. In states that have adopted Medicaid expansion, many women are now able to remain on Medicaid once they become moms because of the higher eligibility threshold for parents in these states. However, in the 14 states that have not adopted Medicaid expansion, many women lose Medicaid coverage 60 days after the birth of their child because their income is above the eligibility level for parents in those states.⁵³

March of Dimes has long advocated in support of efforts to extend postpartum Medicaid coverage beyond 60 days to 1 year. The need for postpartum services exists well beyond the current limit in

federal law of 60 days after the end of pregnancy, which was established with the Social Security Act of 1902. The need for extending Medicaid coverage to 1 year is rooted in clinical evidence. Since 1986, when Congress established the 60-day postpartum period for Medicaid coverage for pregnant women, we've learned much more about pregnancy-related deaths and delivering postpartum care. Nearly 12 percent of pregnancy-related deaths—not counting those that were caused by suicide or overdose—occur 43 to 365 days postpartum.⁹ Some states' analyses of pregnancy-associated deaths, which include behavioral health-related causes, find that 50 percent or more of deaths occur beyond the 60-day period.^{56,57} Currently, the states that have expanded postpartum Medicaid coverage past the 60-day period include South Carolina and California with major restrictions. South Carolina only covers care for addiction treatment and California only covers care for mental health conditions.

We must ensure that women maintain access to coverage and are not subject to disruption in access to insurance coverage.⁵⁸ Adequate postpartum coverage enables new moms to obtain the services they need for a full recovery and to prepare for future healthy pregnancies. This includes postpartum visits where their physical, emotional and psychosocial well-being can be evaluated. For this reason, medical professionals have recognized the importance of providing postpartum care and supports during this time based on each woman's specific needs.⁵⁹ This allows women to receive the treatment needed to manage chronic conditions that can put them at higher risk for pregnancy-related complications, including cardiovascular disease, diabetes and chronic hypertension. A wide array of conditions, including mental health challenges, domestic violence and substance use disorders all play a role in maternal mortality and broader maternal health outcomes. Nearly 70 percent of women report at least 1 physical problem in the postpartum period and 1 in 7 experience symptoms of postpartum depression in the year after giving birth.^{60,61} In addition, women with substance use disorder are more likely to experience relapse and overdose 7-12 months postpartum.⁶²

42% OF BIRTHS IN THE U.S. WERE COVERED BY MEDICAID IN 2018

Source: National Center for Health Statistics. Final natality data, 2018

PERINATAL REGIONALIZATION AND RISK-APPROPRIATE LEVELS OF MATERNAL AND NEONATAL CARE

Development of systems for perinatal regionalization and for the provision of risk-appropriate maternal care is a key strategy to decrease maternal morbidity and mortality, including existing disparities, by providing risk-appropriate care specific to maternal health needs.⁶³ Emerging data indicate disproportionate rates of COVID-19 infection, severe morbidity and mortality in some communities of color, particularly among Black, Latino and American Indian people.⁶⁴ Social determinants of health, current and historic inequities in access to health care and other resources and structural racism contribute to these disparate outcomes. These inequities also contribute to disproportionate rates of comorbidities in these communities that place individuals at higher risk of severe illness from COVID-19.⁶⁵

The perinatal regionalization movement began in the 1970s when March of Dimes, along with other partners, published a report entitled *Toward Improving the Outcome of Pregnancy (TIOOP)* which described an integrated regional system that stratified maternal and neonatal care into levels based on complexity so that high-risk patients would be referred to higher-level centers with appropriate technology and specialized health care providers to address their needs.⁶⁶ In order to standardize an integrated system of perinatal regionalization and risk-appropriate maternal care, this classification system establishes levels of maternal care that pertain to basic care (level I), specialty care (level II), subspecialty care (level III) and regional perinatal health care centers (level IV). Similarly, neonatal levels of care are organized beginning with well newborn nursery (level I), special care nursery (level II), neonatal intensive care unit (level III) and regional neonatal intensive care unit (level IV). Levels of maternal and neonatal care may not match within facilities, but a woman who's pregnant should be cared for at a facility that best meets both her and her newborn infant's needs.⁶⁷

The second and third editions of TIOOP, published in 1993 and 2010, respectively, have continued to emphasize the importance of establishing both levels of maternal and neonatal care. Further statements from organizations such as the American Academy of Pediatrics, American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine have provided clinical support for a coordinated regional system of care.^{68,69} Perinatal regionalization



is managed at the state level, and initiatives such as the HRSA-led Collaborative Improvement & Innovation Network (CoIIN) to Reduce Infant Mortality is working to enhance perinatal regionalization to reduce infant mortality and improve birth outcomes.⁷⁰

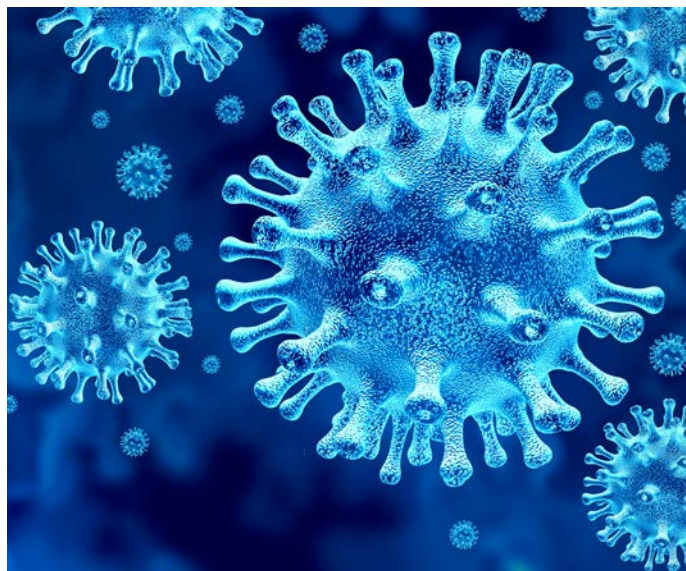
A meta-analysis found that very low birth weight or very preterm infants born outside of a level III (higher level of complexity) hospital are at an increased risk of neonatal death or death before discharge from the hospital.⁷¹ A study examining geographic gaps in access in the availability of obstetric and neonatal care found that while the majority of women of reproductive age in the U.S. have access to critical care, there are significant differences.⁷² Nearly all obstetric and NICU units were concentrated in urban areas with clusters of hospitals operating close to each other, which meant that the majority of the population did have access to (defined as living within 50 miles of) perinatal critical care units. However, large geographic areas in this country were not covered by either of the perinatal facility zones, indicating a significant gap in access for women in rural areas. In addition, the fastest access to both obstetric and neonatal critical care for almost 10 percent of women was in a neighboring state, underscoring the need for coordination between states as well as within. Also of note, access to obstetric critical care lagged behind that for neonatal critical care based on measures such as the number of nearby maternal-fetal medicine specialists compared to neonatologists, and the number of hospitals with obstetric critical care units compared to neonatal intensive care units (NICUs).⁷² The clustering of facilities and providers are barriers to accessing needed services in maternal and neonatal critical care, and addressing this access gap could help improve outcomes for both mom and baby.

COVID-19 PANDEMIC AND ACCESS TO MATERNITY CARE

In early 2020, COVID-19, a novel coronavirus, was identified in the U.S. Active surveillance has increased our understanding of the impact this virus has on pregnant women. According to the CDC, pregnant women may be at increased risk for severe illness related to COVID-19 infections.⁷³ These women have a greater likelihood to be hospitalized, admitted to the ICU and require mechanical ventilation.⁷⁴ An increase in risk of fatality has not been seen with pregnant women as compared to non-pregnant women, based on available data. Despite some studies documenting possible vertical transmission of COVID-19, the overall risk appears to be low.⁷⁵ More research is needed in order to counsel patients on any pregnancy-related risks of COVID-19 and intrauterine transmission. Among pregnant women diagnosed with COVID-19, 46.2 percent were Hispanic, 23 percent were Non-Hispanic White, 22.1 percent were Non-Hispanic Black and 3.8 percent were Non-Hispanic Asian.⁷⁴

Other aspects of this pandemic are indirectly affecting women's health care access. The loss of employment, loss of health insurance and heightened food insecurity have potential to exacerbate the challenges in receiving adequate and quality maternity care.⁷⁶ The inequities raised in this report result in higher rates of maternal mortality, severe maternal morbidity and poor birth outcomes and are intensified with these additional challenges that disproportionately affect communities of color. Women in particular are facing increased unemployment at a rate of 11.2 percent compared to men (10.1 percent) as of May/June 2020.⁴ Job loss is also affecting women of color at a higher rate (Latinas have a rate of 15.3 percent and Black women at 14 percent).⁷⁷

Pregnant women are experiencing unforeseen changes to the way they are receiving prenatal care and to their birth plans.⁷⁸ Providers and health systems have responded to the need for reduced in-person contact for maternity care by incorporating telemedicine into their prenatal care programs. While uptake for telemedicine had occurred quickly, the transition to virtual care has been more challenging for women insured by Medicaid than those who hold private insurance.⁷⁸ Barriers for all women include language barriers, Wi-Fi access, child care and lower proficiency with electronic software.⁷⁹ Social distancing and child care center closures, school closures, stress and working from home during the pandemic have the possibility to further exacerbate challenges to receiving prenatal care.⁸⁰



A recent survey of more than 14,000 pregnant women shows the effect this pandemic has had on the way women are receiving care. (Ovia Health, unpublished data, 2020). Although the majority of visits appear to be occurring as planned, with appropriate precautions, approximately 20 percent of visits were altered. Of those altered visits, 40 percent occurred online and 35 percent occurred by phone. Approximately 45 percent of women surveyed who received care either online or by phone were asked to take measurements at home (weight, belly measurements, blood pressure or other) and over 60 percent were able to take those measurements. In order to assure that during a continued health crisis telemedicine is a viable option for all women, additional studies are needed to examine barriers within certain communities. A worrisome result of the survey was that 40 percent of the women reported not having received information about the coronavirus from their provider or hospital.

One solution may be found in prenatal and postpartum care via telehealth. March of Dimes supports increasing access to telehealth services for pregnant and postpartum women. Telehealth is increasingly used across a range of health care specialties, including obstetrics, maternal-fetal medicine and mental health.⁸¹ There's reason to focus specifically on telehealth in maternity care, as in recent years, telehealth has been incorporated into many aspects of women's health care, including: virtual patient consultation with specialists, remote observation of ultrasound recordings by maternal-fetal medicine experts, postpartum blood pressure monitoring using

Wi-Fi connected devices and fertility tracking with patient-generated data.⁸² Additionally, a robust and growing body of evidence shows largely positive outcomes associated with the provision of telehealth services in maternity care.

Evidence on a range of services and telehealth domains suggests telehealth services provide comparable outcomes to traditional methods of health care delivery. A 2020 systematic review of telehealth interventions⁸² found that a number of telehealth interventions were associated with outcomes known to improve the health of moms and babies. In particular, telehealth interventions were associated with improvements in obstetric outcomes related to perinatal smoking cessation and breastfeeding.⁸² For pregnant women, concern over COVID-19 may be even more heightened than the general public. Most women have frequent interactions with the health system during pregnancy for prenatal checkups. Current COVID-19 precautionary measures of social distancing, coupled with transportation and newly developed health care office procedures make routine prenatal care more difficult for pregnant women. The expanded use of telemedicine during pregnancy has enabled some pregnant women to stay home and participate in prenatal visits over videoconference or the phone without coming into the clinic where they risk COVID-19 exposure.⁸³ However, because some moms will face barriers to using telehealth, additional considerations on the part of the provider may help these women to utilize virtual care and minimize disruptions to care.⁷⁹ Coronavirus Preparedness and Response Supplemental Appropriations Act, which broadens coverage and reimbursement for telemedicine services for Medicare and Medicaid during this pandemic, is an opportunity to learn best practices for the future of telehealth services, cost sharing and reimbursement post-pandemic.⁸⁴



TECHNICAL NOTES

In 2020, March of Dimes re-examined the 2018 Nowhere to Go Report on Maternity Care Deserts in the United States. The current descriptive analysis utilized county-level data from the Area Health Resource File 2017-18 (AHRF) which includes data from the 2017 American Hospital Association (AHA) Annual Survey, 2017 Small Area Health Insurance Estimates (SAHIE), and National Center for Health Statistics (NCHS) natality data (2018). All variables were from 2017-2018 except where noted. Key variables from the AHRF include hospitals (short term general hospitals with obstetric care), providers (obstetrician, general, providing patient care, certified nurse midwives, 2013), social determinants of health (median household income, proportion of the population in poverty, urban rural continuum, 2013) and health insurance (females 18-64 without health insurance). Urban was defined as a county within a metropolitan area (1, 2 or 3 on the urban rural continuum). Rural was defined as a county with an urban population of 2,500 to 19,999, 20,000 or more, not adjacent to a metro area, or completely rural (4 on the urban rural continuum).⁸⁵ Data on population of women ages 15-44 years was obtained directly from U.S. Census data.

A county was classified as a maternity care desert if there were no hospitals providing obstetric care, no birth centers, no obstetrician and no certified nurse midwives. Counties were further classified as having low access to maternity care services if there was one or less hospital offering obstetric service and fewer than 60 obstetric providers per 10,000 births, and the proportion of women without health insurance was 10 percent or greater. Counties were classified as having moderate access to maternity care services if there was 1 or less hospital offering obstetric service and fewer than 60 obstetric providers per 10,000 births, and the proportion of women without health insurance was less than 10 percent. Counties with full access had either 2 or more hospitals offering obstetric services or more than 60 obstetric providers per 10,000 births. Although level of health insurance was not part of the definition for access, a separate analysis was conducted to examine the variation in this important factor among those counties with full access. After excluding 11 counties from the analysis because data was missing from 1 or more components of the access to maternity care were missing (obstetric hospitals, obstetrician, CNM, health insurance or number of births equaled zero), there were 3,139 counties in the dataset.

Other data utilized for this report include data from the Pregnancy Risk Assessment Monitoring System (health insurance before pregnancy, 2017), NCHS 2018 final natality file (Medicaid-covered births, type of provider attending births). The proportion of women without insurance by county from SAHIE was obtained through the AHRF for use in the limited access to maternity care indicator.

Differences in methodology from the 2018 report include the inclusion of birth centers. In the 2018 report the proportion of women without health insurance was split into two categories greater than 10 percent and less than or equal to 10 percent. In order to remain consistent with the definition used in the 2018 and 2020 report the proportion of women without health insurance was recategorized to greater than or equal to 10 percent or less than 10 percent. In the 2020 report, urban and rural designations were matched to metro and non-metro designation used in the urban-rural continuum. Updated data indicates that the proportion of women lacking health insurance is 11 percent in the U.S.; however, to remain consistent with the 2018 analysis, 10 percent level was still utilized in designations.

Limitations: The AHRF is a primary data source for this report. Estimates in the AHRF come from a variety of other data sources and are all reported by county. Suppression criteria, other analytic decisions and data source limitations are not known for every data source represented in the AHRF and may skew estimates when data are aggregated across counties. This report does not use any geospatial analysis, so, actual distance to a hospital providing obstetrician services is not considered. Utilizing county as the level of analysis provides access to data that's not available at smaller geographic areas, but it does not capture access to services in adjacent counties. The use of OB hospitals and birth centers do not account for the provision of prenatal care in other clinical care settings (i.e., federally qualified health care centers, hospital satellite clinics). The three main components of the main indicator (hospitals, providers and insurance) do not account for the quality of the health care received, nor the appropriateness of the level of care a woman might receive given particular health conditions. Access by health insurance for women is based on population level proportions among women age 18-64 years and does not account for women who have insurance during and after her birth through Medicaid.

REFERENCES

1. The Free Dictionary by Farlex, Medical Dictionary. Available at: <https://medical-dictionary.thefreedictionary.com/maternity+care>
2. Martin JA, Hamilton BE, Osterman MJK, Driscoll AK. Births: Final data for 2018. National Vital Statistics Reports; vol 68, no 13. Hyattsville, MD: National Center for Health Statistics. 2019.
3. Hoyert DL, Miniño AM. Maternal mortality in the United States: Changes in coding, publication, and data release, 2018. National Vital Statistics Reports; vol 69 no 2. Hyattsville, MD: National Center for Health Statistics. 2020.
4. Maternal Mortality Review Information Application (MMRIA). Report from Nine Maternal Mortality Review Committees. February 2018. Available at: <https://www.cdcfoundation.org/building-us-capacity-review-and-prevent-maternal-deaths>
5. CDC Foundation. Report from Maternal Mortality Review Committees: A View into Their Critical Role (2017). Available at: <https://reviewtoaction.org/content/report-mmrcs-view-their-critical-role>
6. Review to Action. Building U.S. Capacity to Review and Prevent Maternal Deaths. (2018). Report from nine maternal mortality review committees. Available at: http://reviewtoaction.org/Report_from_Nine_MMRCs
7. World Health Organization (WHO). Trends in Maternal Mortality: 1990-2015. Available at: <http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/>
8. Centers for Disease Control and Prevention (CDC), Pregnancy Mortality Surveillance System. Available at: <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>
9. 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(18):423-429.
10. Artiga S, Hinton E. Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity. Kaiser Family Foundation. <https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/> Published May 10, 2018. Accessed July 28, 2020.
11. Hung P, Kozhimannil KB, Casey MM, Moscovice IS. Why Are Obstetric Units in Rural Hospitals Closing Their Doors? [published correction appears in Health Serv Res. 2018 Jun;53(3):2005]. Health Serv Res 2016;51(4):1546-1560.
12. Kramer MR, Hogue CR. Is segregation bad for your health? Epidemiol Rev 2009;31:178-194.
13. Lorch SA, Martin AE, Ranade R, Srinivas SK, Grande D. Lessons for providers and hospitals from Philadelphia's obstetric services closures and consolidations, 1997-2012. Health Aff (Millwood) 2014;33(12):2162-9.
14. Howell EA, Egorova N, Balbierz A, et al. Black-white differences in severe maternal morbidity and site of care. Am J Obstet Gynecol 2016;214(1):122.e1-7.
15. Howell EA, Zeitlin J. Improving hospital quality to reduce disparities in severe maternal morbidity and mortality. Semin Perinatol 2017;41(5):266-272.
16. Cooper LA, Roter DL, Carson KA, et al. The associations of clinicians' implicit attitudes about race with medical visit communication and patient ratings of interpersonal care. Am J Public Health 2012;102(5):979-987.
17. Cornwall L. Physician Bias: Trends from the 2016 Medscape Lifestyle Report. CompHealth Blog. <https://comphealth.com/resources/physician-bias-trends-from-the-2016-medscape-lifestyle-report/> Published January 25, 2016. Accessed July 28, 2020.
18. Kozhimannil KB, Interrante JD, Henning-Smith C, Admon LK. Rural-Urban Differences in Severe Maternal Morbidity and Mortality in the US, 2007-15. Health Aff (Millwood) 2019;38(12):2077-2085.
19. Anderson B, Gingery A, McClellan M, Rose R, Schmitz D, Schou P. National Rural Health Association Policy Paper: Access to Rural Maternity Care. National Rural Health Association. 2019. Available at: <https://www.ruralhealthweb.org/advocate/policy-documents>
20. Hung P, Kozhimannil K, Henning-Smith C, Casey M. Closure of Hospital Obstetric Services Disproportionately Affects Less -Populated Rural Counties. University of Minnesota Rural Health Research Center, April 2017. Available at: <https://rhrh.umn.edu/publication/closure-of-hospital-ob-services/>
21. The Chartis Group, The Chartis Center for Rural Health. The Rural Health Safety Net Under Pressure: Rural Hospital Vulnerability. February 2020. Available at: <https://www.chartis.com/forum/insight/the-rural-health-safety-net-under-pressure-rural-hospital-vulnerability/>
22. Centers for Medicare & Medicaid Services. Improving Access to Maternal Health Care in Rural Communities: An Issue Brief. Available at: <https://www.cms.gov/About-CMS/Agency-Information/OMH/equity-initiatives/rural-health/09Q32019-Maternal-Health-Care-in-Rural-Communities.pdf>
23. American Hospital Association. AHA Hospital Statistics, 2020 edition. Available at: <https://www.aha.org/statistics/fast-facts-us-hospitals>
24. U.S. Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019
25. Alliman J, Phillippi JC. Maternal Outcomes in Birth Centers: An Integrative Review of the Literature. J Midwifery Womens Health 2016;61(1):21-51.
26. American Association of Birth Centers. Frequently Asked Questions about Birth Centers. Available at: <https://www.birthcenters.org/page/BirthCenterFAQs>
27. MacDorman MF, Declercq E. Trends and Characteristics of United States Out-of-Hospital Births 2004-2014: New Information on Risk Status and Access to Care. Birth 2016;43(2):116-124.
28. Alliman J, Stapleton SR, Wright J, Bauer K, Slider K, Jolles D. Strong Start in birth centers: Socio-demographic characteristics, care processes, and outcomes for mothers and newborns. Birth 2019;46(2):234-243.
29. Vedam S, Stoll K, MacDorman M, et al. Mapping integration of midwives across the United States: Impact on access, equity, and outcomes. PLoS One 2018 Feb 21;13(2):e0192523.

30. Xierali IM, Nivet MA, Rayburn WF. Relocation of Obstetrician-Gynecologists in the United States, 2005-2015. *Obstet Gynecol* 2017;129(3):543-550.
31. Rayburn WF, Klagholz JC, Murray-Krezan C, Dowell LE, Strunk AL. Distribution of American Congress of Obstetricians and Gynecologists fellows and junior fellows in practice in the United States. *Obstet Gynecol* 2012;119(5):1017-22.
32. DeClercq E. Four Numbers to Remember (plus a bonus). Presentation on May 14, 2017. Birth by the Numbers. Available at: <http://www.birthbythenumbers.org/slides-from-genes-talks/>
33. Black Mamas Matter Alliance. Black Paper: Setting the Standard for Holistic Care of and for Black Women. April 2018. Available at: <https://blackmamasmatter.org/resources/bmma-products/>
34. American College of Obstetricians and Gynecologists & American College of Nurse-Midwives. Joint Statement of Practice Relations between Obstetrician-Gynecologists and Certified Nurse-Midwives/Certified Midwives Available at: <https://www.acog.org/clinical-information/policy-and-position-statements/statements-of-policy/2018/joint-statement-of-practice-relations-between-ob-gyns-and-cnms> (Revised and Reaffirmed April 2018).
35. National Center for Health Statistics, final natality data, 2018.
36. Ogburn JA, Espey E, Pierce-Bulger M, et al. Midwives and obstetrician-gynecologists collaborating for Native American women's health. *Obstet Gynecol Clin North Am* 2012;39(3):359-366.
37. DONA International. What is a doula? Available at: <https://www.dona.org/what-is-a-doula/>
38. Hodnett ED, Gates S, Hofmeyr GJ, Sakala C. Continuous support for women during childbirth. *Cochrane Database Syst Rev* 2013 Jul 15;7:CD003766.
39. DoulaMatch.net. Available at: <https://doulamatch.net/>
40. Hans SL, Edwards RC, Zhang Y. Randomized Controlled Trial of Doula-Home-Visiting Services: Impact on Maternal and Infant Health [published correction appears in *Matern Child Health J* 2018 Aug 20]. *Matern Child Health J* 2018;22 (Suppl 1):105-113.
41. Kozhimannil KB, Vogelsang CA, Hardeman RR, Prasad S. Disrupting the Pathways of Social Determinants of Health: Doula Support during Pregnancy and Childbirth. *J Am Board Fam Med* 2016;29(3):308-17.
42. Kozhimannil KB, Hardeman RR. Coverage for Doula Services: How State Medicaid Programs Can Address Concerns about Maternity Care Costs and Quality. *Birth* 2016; 43: 97-99.
43. Gebel C, Hodin S. Expanding Access to Doula Care: State of the Union. MTHF (Maternal Health Task Force) Blog. January 8, 2020. Available at: <https://www.mhtf.org/2020/01/08/expanding-access-to-doula-care/>
44. Kozhimannil KB, Hardeman RR, Attanasio LB, Blauer-Peterson C, O'Brien M. Doula care, birth outcomes, and costs among Medicaid beneficiaries. *Am J Public Health* 2013 Apr;103(4):e113-21.
45. Lantz PM, Low LK, Varkey S, Watson RL. Doulas as childbirth paraprofessionals: results from a national survey. *Womens Health Issues* 2005;15(3):109-116.
46. Paulsell D, Avellar S, Martin SE, Del Grosso P. Home visiting evidence of effectiveness review: Executive Summary. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. 2010.
47. Green J, Amis D, Hotelling BA. Care practice #3: continuous labor support. *J Perinat Educ* 2007;16(3):25-8.
48. Strauss N, Giessler K, McAllister E. How Doula Care Can Advance the Goals of the Affordable Care Act: A Snapshot From New York City. *J Perinat Educ* 2015;24(1):8-15.
49. ACOG Obstetric Care Consensus No. 1. Safe Prevention of the Primary Cesarean Delivery. March 2014 (Reaffirmed 2016).
50. Johnson K, Posner SF, Biermann J, et al. Recommendations to improve preconception health and health care—United States. A report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care. *MMWR Recomm Rep* 2006;55(RR-6):1-23.
51. Partridge S, Balayla J, Holcroft CA, Abenhaim HA. Inadequate prenatal care utilization and risks of infant mortality and poor birth outcome: a retrospective analysis of 28,729,765 U.S. deliveries over 8 years. *Am J Perinatol* 2012;29(10):787-93.
52. Chang J, Elam-Evans LD, Berg CJ, et al. Pregnancy-related mortality surveillance—United States, 1991-1999. *MMWR Surveill Summ* 2003;52(2):1-8.
53. Kaiser Family Foundation. Women's Health Insurance Coverage. <https://www.kff.org/womens-health-policy/fact-sheet/womens-health-insurance-coverage-fact-sheet/> Published January 4, 2020. Accessed July 7, 2020.
54. Centers for Disease Control. PRAMS (Pregnancy Risk Assessment Monitoring System) Data. Selected 2016 through 2017 Maternal and Child Health (MCH) Indicators. Available at: <https://www.cdc.gov/prams/prams-data/mch-indicators.html>
55. Hoadley J, Alker J and Holmes M. Health Insurance Coverage in Small Towns and Rural America: The Role of Medicaid Expansion. Georgetown University Center for Children and Families & University of North Carolina NC Rural Health Research Program. September 2018. Available at: <https://ccf.georgetown.edu/2018/09/25/health-insurance-coverage-in-small-towns-and-rural-america-the-role-of-medicaid-expansion/>
56. Texas Health and Human Services (HHS) Maternal Mortality and Morbidity Task Force. Maternal Mortality and Morbidity Task Force and Department of State Health Services Joint Biennial Report, September 2018. Available at: <https://www.dshs.texas.gov/mch/pdf/MMMTFJointReport2018.pdf>
57. Illinois Department of Public Health. Illinois Maternal Morbidity and Mortality Report, October 2018. Available at: dph.illinois.gov/sites/default/files/publications/publicationsowhmaternalmorbiditymortalityreport112018.pdf
58. Daw JR, Kozhimannil KB, Admon LK. High Rates of Perinatal Insurance Churn Persist After the ACA. Health Affairs Blog. <https://www.healthaffairs.org/do/10.1377/hblog20190913.387157/full/> Published September 16, 2019. Accessed July 7, 2020.
59. ACOG Committee Opinion, No. 736. Optimizing Postpartum Care. *Obstet Gynecol* 2018;132(3):784-785.
60. Cheng CY, Fowles ER, Walker LO. Continuing education module: postpartum maternal health care in the United States: a critical review. *J Perinat Educ* 2006;15(3):34-42.

61. Wisner KL, Sit DK, McShea MC, et al. Onset timing, thoughts of self-harm, and diagnoses in postpartum women with screen-positive depression findings. *JAMA Psychiatry* 2013;70(5):490-498.
62. Schiff DM, Nielsen T, Terplan M, et al. Fatal and Nonfatal Overdose Among Pregnant and Postpartum Women in Massachusetts. *Obstet Gynecol* 2018;132(2):466-474.
63. Zahn CM, Remick A, Catalano A, Goodman D, Kilpatrick SJ, Menard MK. Levels of Maternal Care Verification Pilot: Translating Guidance into Practice. *Obstet Gynecol* 2018;132(6):1401-1406.
64. Centers for Disease Control and Prevention (CDC). Coronavirus Disease 2019 (COVID-19). COVID-19 Hospitalization and Death by Race/Ethnicity. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>
65. ACOG Practice Advisory, Novel Coronavirus 2019 (COVID-19) [Last updated July 1, 2020]. Available at: <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/03/novel-coronavirus-2019>
66. Committee on Perinatal Health. Toward Improving the Outcome of Pregnancy: Recommendations for the Regional Development of Maternal and Perinatal Health Services. White Plains, NY: March of Dimes Foundation, 1976.
67. American Academy of Pediatrics and American College of Obstetricians and Gynecologists. Guidelines for Perinatal Care, 8th ed. Elk Grove Village, IL: AAP; Washington, DC: ACOG, 2017.
68. American Academy of Pediatrics (AAP) Committee on Fetus and Newborn. Levels of neonatal care. *Pediatrics* 2012;130(3):587-97. Reaffirmed September 2015.
69. American College of Obstetricians and Gynecologists and Society for Maternal–Fetal Medicine. Menard MK, Kilpatrick S, Saade G, Hollier LM, Joseph GF Jr, Barfield W, Callaghan W, Jennings J, Conry J. Levels of maternal care. *Am J Obstet Gynecol* 2015;212(3):259-71.
70. Ghandour RM, Flaherty K, Hirai A, Lee V, Walker DK, Lu MC. Applying Collaborative Learning and Quality Improvement to Public Health: Lessons from the Collaborative Improvement and Innovation Network (CoIIN) to Reduce Infant Mortality. *Matern Child Health J* 2017;21(6):1318-1326.
71. Lasswell SM, Barfield WD, Rochat RW, Blackmon L. Perinatal regionalization for very low-birth-weight and very preterm infants: a meta-analysis. *JAMA* 2010;304(9):992-1000.
72. Brantley MD, Davis NL, Goodman DA, Callaghan WM, Barfield WD. Perinatal regionalization: a geospatial view of perinatal critical care, United States, 2010-2013. *Am J Obstet Gynecol* 2017;216(2):185.e1-185.e10.
73. Centers for Disease Control and Prevention (CDC). Coronavirus Disease 2019 (COVID-19). If You Are Pregnant, Breastfeeding, or Caring for Young Children. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnancy-breastfeeding.html>
74. Ellington S, Strid P, Tong VT, et al. Characteristics of Women of Reproductive Age with Laboratory-Confirmed SARS-CoV-2 Infection by Pregnancy Status—United States, January 22–June 7, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69(25):769-775.
75. Kotlyar A, Grechukhina O, Chen A, et al. Vertical Transmission of COVID-19: A Systematic Review and Meta-analysis [published online ahead of print, 2020 Jul 30]. *Am J Obstet Gynecol* 2020;S0002-9378(20)30823-1.
76. ACOG Position Statement, Addressing Health Equity During the COVID-19 Pandemic [Last updated May 11, 2020]. Available at: <https://www.acog.org/clinical-information/policy-and-position-statements/position-statements/2020/addressing-health-equity-during-the-covid-19-pandemic>
77. Ewing-Nelson C. June Brings 2.9 Million Women’s Jobs Back, Many of Which are at Risk of Being Lost Again. National Women’s Law Center. July 2, 2020. Available at: <https://nwlc.org/resources/june-jobs-report/>
78. Gildner TE, Thayer ZM. Birth plan alterations among American women in response to COVID-19 [published online ahead of print, 2020 May 24]. *Health Expect* 2020;10.1111/hex.13077.
79. Madden N, Emeruwa UN, Friedman AM, et al. Telehealth Uptake into Prenatal Care and Provider Attitudes during the COVID-19 Pandemic in New York City: A Quantitative and Qualitative Analysis. *Am J Perinatol* 2020;37(10):1005-1014.
80. Fryer K, Delgado A, Foti T, Reid CN, Marshall J. Implementation of Obstetric Telehealth During COVID-19 and Beyond. *Matern Child Health J* 2020;24(9):1104-1110.
81. National Consortium of Telehealth Resource Centers. Telehealth Resource Centers. A Framework for Defining Telehealth. Available at: https://www.telehealthpolicy.us/sites/default/files/2018-10/Telehealth%20Definintion%20Framework%20for%20TRCs_0.pdf
82. DeNicola N, Grossman D, Marko K, et al. Telehealth Interventions to Improve Obstetric and Gynecologic Health Outcomes: A Systematic Review. *Obstet Gynecol* 2020;135(2):371-382.
83. Weigel G. Novel Coronavirus “COVID-19”: Special Considerations for Pregnant Women. Kaiser Family Foundation. <https://www.kff.org/coronavirus-covid-19/issue-brief/novel-coronavirus-covid-19-special-considerations-for-pregnant-women/> Published March 17, 2020. Accessed July 7, 2020.
84. Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (Public Law No: 116-123). Available at: <https://www.congress.gov/116/bills/hr6074/BILLS-116hr6074enr.pdf>
85. Ingram DD, Franco SJ. 2013 NCHS urban–rural classification scheme for counties. National Center for Health Statistics. *Vital Health Stat* 2(166). 2014.

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