

INTRODUCTION

Maternity care encompasses health care services for women during pregnancy, delivery and postpartum.^{1,2} There are nearly four million births in the U.S. each year.³ 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. A **maternity care desert** is a county 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 begins to identify these areas by looking at the availability of hospitals, health care providers, and means to pay for that care through health insurance.

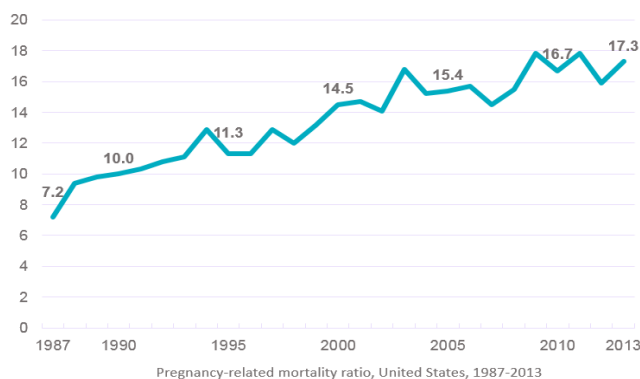
BACKGROUND

Every year in this country, approximately 700 women die of complications related to pregnancy and childbirth⁴ and more than 50,000 women experience severe maternal morbidity, a life-threatening complication as a result of labor and delivery.⁵ Despite many countries around the world successfully reducing their maternal mortality rates since the 1990s, the U.S. rate is still higher than most other high-income countries,⁶ and the U.S. maternal mortality rate has increased over the last few decades (*Figure 1*).⁷ In addition, a significant racial and ethnic disparity in maternal mortality exists in the U.S., with black women being three to four times more likely to die from pregnancy-related causes compared to white women.⁸ There are also geographical disparities, with many women in rural areas having challenges accessing care due to distance to services and other factors such as availability of providers.⁹

The data indicate that not every woman in the U.S. has access to maternity care. This report examines some key factors related to maternity care access such as distance to care, access to hospitals as well as 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 in maternity care across the U.S. and improve birth outcomes for all.

Figure 1. Trend in pregnancy-related mortality

Pregnancy-related death has more than doubled over the past 25 years.



Pregnancy-related mortality ratio is the number of pregnancy-related deaths per 100,000 live births. Source: CDC, 1987-2013 (<https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>)

KEY FINDINGS

More than 5 million women live in maternity care deserts (1,085 counties) that have no hospital offering obstetric care and no OB providers.

For the first time, this report combines both of these factors to identify maternity care deserts.

Almost 150,000 babies are born to women living in maternity care deserts.

- Maternity care deserts have a higher poverty rate and lower median household income than counties with access to maternity care.
- Among women living in maternity care deserts, 1 in 5 lives in a large metropolitan area or urban setting.

An additional 10 million women live in counties with limited access to maternity care.

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

MATERNITY CARE DESERTS

In a very broad sense, access to maternity care can be defined by availability of hospitals providing obstetric care, availability of providers offering obstetric care and access to that care through health insurance. Counties without a hospital offering obstetric care and without any obstetric providers is defined here as a maternity care desert. Women may have limited access to appropriate preventive, prenatal and postpartum care if they live in counties with few hospitals providing obstetric care, few OB providers and a high proportion of women without health insurance.

Definitions	Maternity care deserts	Limited access to maternity care (LAMC)	
		Level 1	Level 2
Hospitals offering obstetric (OB) care	zero	<2 Hospitals	<2 Hospitals
OB Providers (OB/GYN, CNM) per 10,000	zero	<60	<60
Proportion of women 18-64 without health insurance*	any	10% or greater	Less than 10%

Notes: OB/GYN = obstetrician/gynecologists; CNM = certified nurse midwives
*U.S. average is approximately 10%.

Map 1. Access to Maternity Care in U.S. Counties, 2016

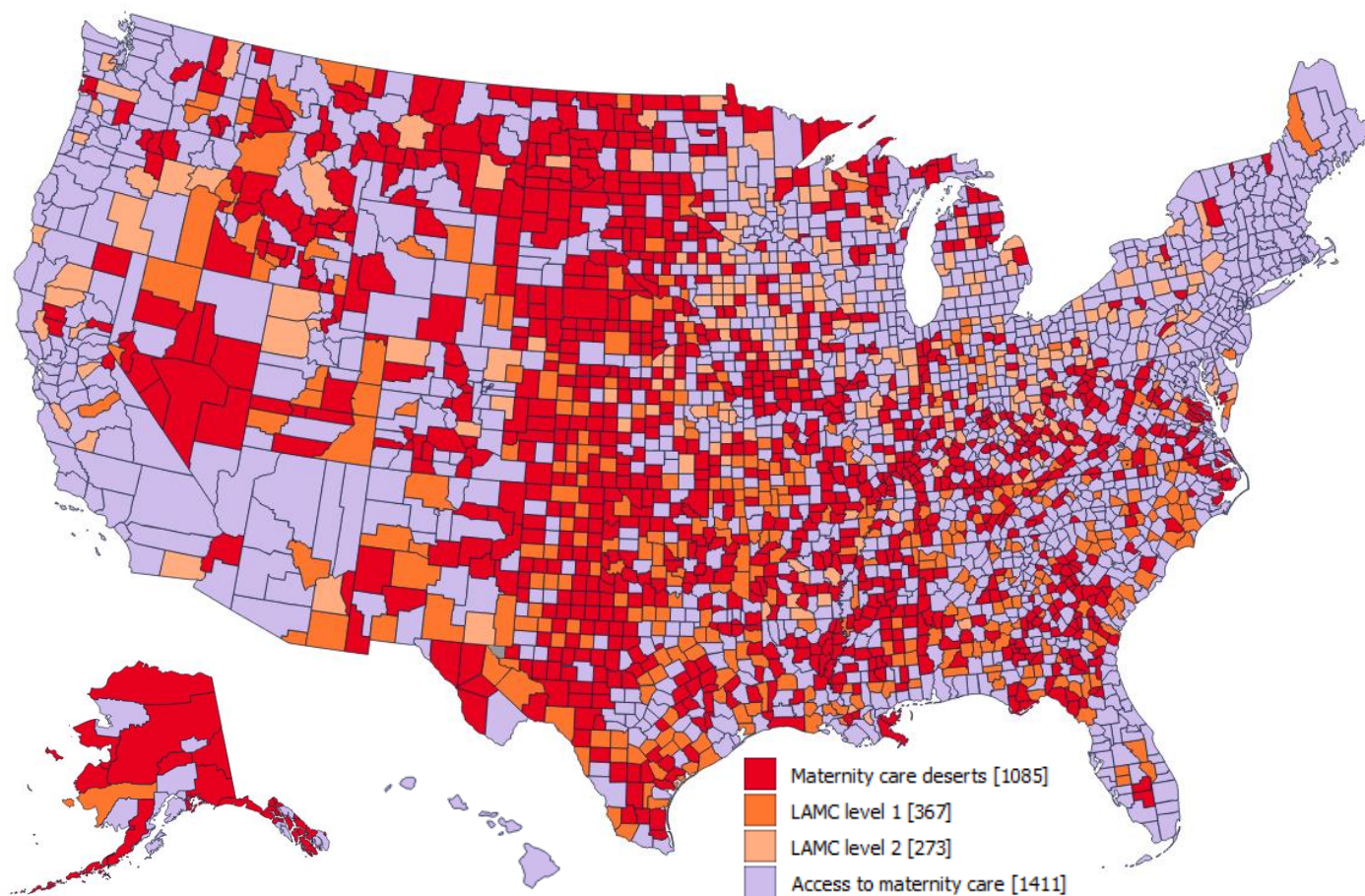


Table 1. Distribution of counties, women, and births by access to maternity care

	Maternity care deserts		Limited access to maternity care (LAMC)				Access to maternity care		Total
	Count	Percent	Level 1		Level 2		Count	Percent	Count
			Count	Percent	Count	Percent			
Counties	1,085	34.6	367	11.7	273	8.7	1,411	45.0	3,136
Women over 15 (in 1,000s)	5,306	4.2	5,857	4.7	4,546	3.6	109,237	87.4	124,946
Births	148,631	3.8	195,308	4.9	137,397	3.5	3,464,664	87.8	3,946,000

Quality of Care

While the focus of maternity care deserts is often in rural areas due to the long travel distance to hospitals and health care providers, this problem can also occur in urban areas or areas adjacent to urban centers. When hospital obstetric units close in cities, it disrupts continuity of care and can create barriers to access needed 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 certain neighborhoods, especially where low-income and/or women of color reside. It can exacerbate lack of access to maternity care for an already vulnerable population and may lead to women not receiving the services they need. A study documenting the experience of hospital obstetric unit closures in Philadelphia between 1997 and 2012 (thirteen of nineteen units) found that the remaining area units faced many challenges such as surges in delivery volume, changes in patient mix at individual hospitals, loss of continuity between prenatal and delivery care, and lag time for meeting new staffing needs and bed capacity.¹⁰ These closures were initially associated with an increase in neonatal mortality, but improved over time.¹¹

Existing studies show that hospital quality is related to maternal mortality and morbidity, and that there are racial/ethnic disparities in quality of obstetric care in hospitals, particularly in urban settings.¹² Studies in obstetrics and other areas of medicine suggest that minorities receive care in different and lower quality hospitals than whites.^{13,14} White and minority women may also deliver in different hospitals according to where they live, and the quality of care received by women during childbirth may differ by race and ethnicity within individual hospitals.¹⁵ Quality improvement initiatives in hospitals, such as standardization of care through safety bundles utilizing protocols/checklists, can improve care at all hospitals. Staff training to cultivate a culture of safety, and education around cultural competency as well as implicit bias are other ways to reduce disparities at the hospital level by improving care for all patients.¹²

CHARACTERISTICS OF MATERNITY CARE DESERTS

Table 2. Comparison of counties by access to maternity care and economic characteristics

Characteristic	Maternity care deserts			Counties with access to maternity care		
	Point estimate	Confidence interval (95%)		Point estimate	Confidence interval (95%)	
		Lower limit	Upper limit		Lower limit	Upper limit
Median household income (\$)	44,943	44,364	45,522	53,707	52,942	54,473
Women without health insurance (%)	13.1	12.8	13.5	10.4	10.1	10.6
Population in poverty (%)	17.3	16.9	17.7	14.7	14.4	15.0

Maternity care deserts have a higher poverty rate and lower median household income compared to counties with access to maternity care.

URBAN MATERNITY CARE DESERTS

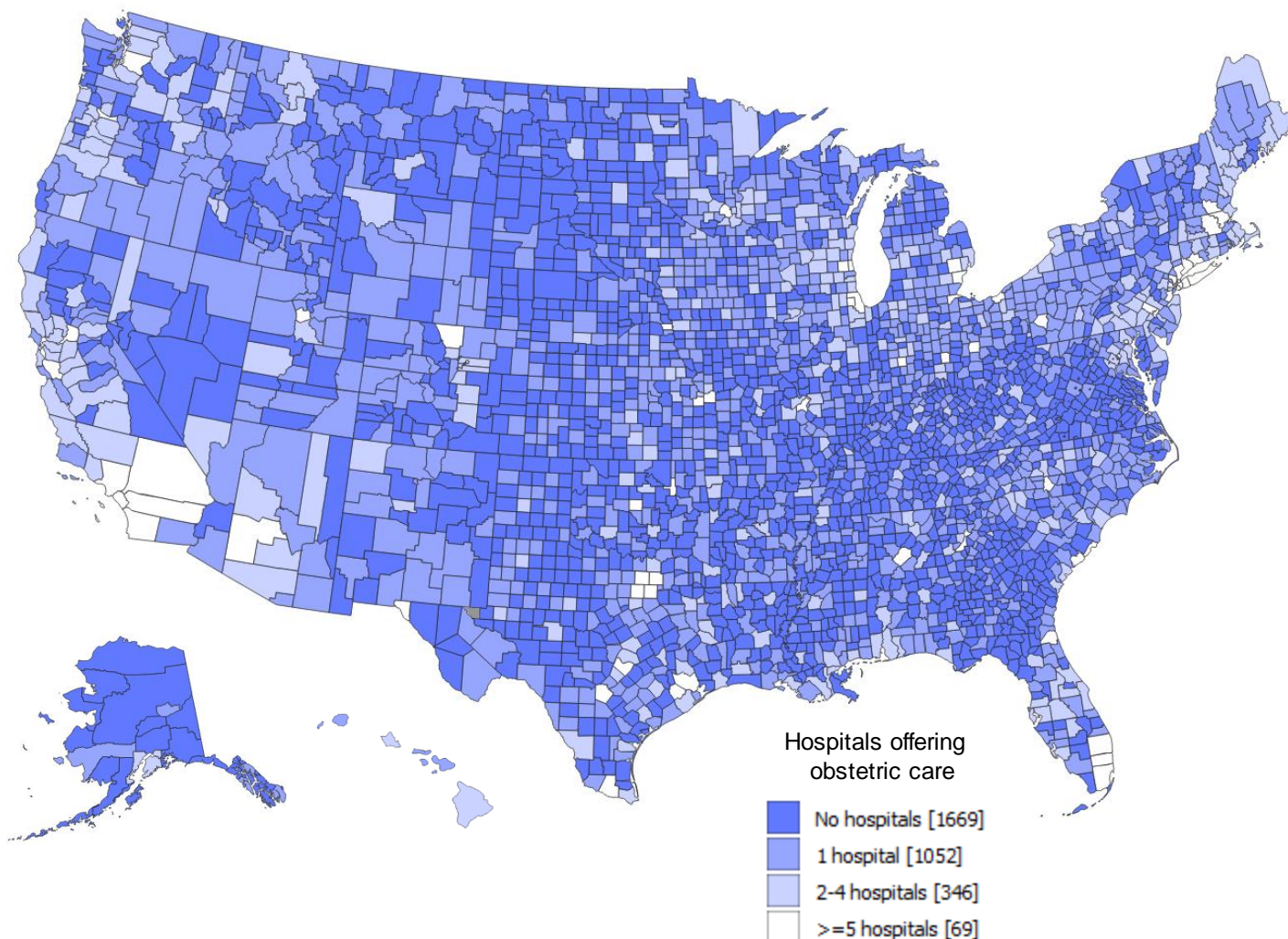
- 1.1 million women live in a maternity care desert located in a large metropolitan area or urban setting.
- These 125 counties have no hospitals offering OB care and no OB providers.
- In these settings 1 in 8 women does not have health insurance.

HOSPITALS

One measure of lack of maternity care access is the proximity of hospital obstetric services. News reports have described stories of pregnant women in rural areas having to drive hours to deliver their babies after local hospital closures.^{16,17} Hospital closures in urban settings can also disrupt access to maternity care for women in those neighborhoods.¹⁸ Analysis of trends in hospital obstetric service closures found a decline in the percentage of rural counties with hospital-based obstetric services in the U.S., from 54 percent to 45 percent between 2004 and 2014.¹⁹ A total of 179 rural counties (about one in ten) lost hospital-based obstetric services during those ten years.¹⁹ Of these counties, 150 were areas with less than 10,000 residents, indicating that closures disproportionately affected more remote areas.¹⁹

According to data from the 2016 American Hospital Association Annual Survey, there are 3,655 hospitals in the U.S. and 66.4 percent offer obstetric care services (2,428 hospitals). While more than two-thirds of counties in the U.S. have at least one hospital (68.0%, n=2,131), not all of these hospitals provide obstetric care. Almost half (46.8%, n=1,467) of counties have at least one hospital providing obstetric care. *Map 1.* Urban counties are more likely to have a hospital providing obstetric care than rural counties (60.5% vs 26.3%) but urban counties have fewer hospitals providing that care per 10,000 births than rural counties (5/10,000 births in urban counties compared to 19 in rural counties).

Map 2. Access to hospitals offering obstetric care by county, United States

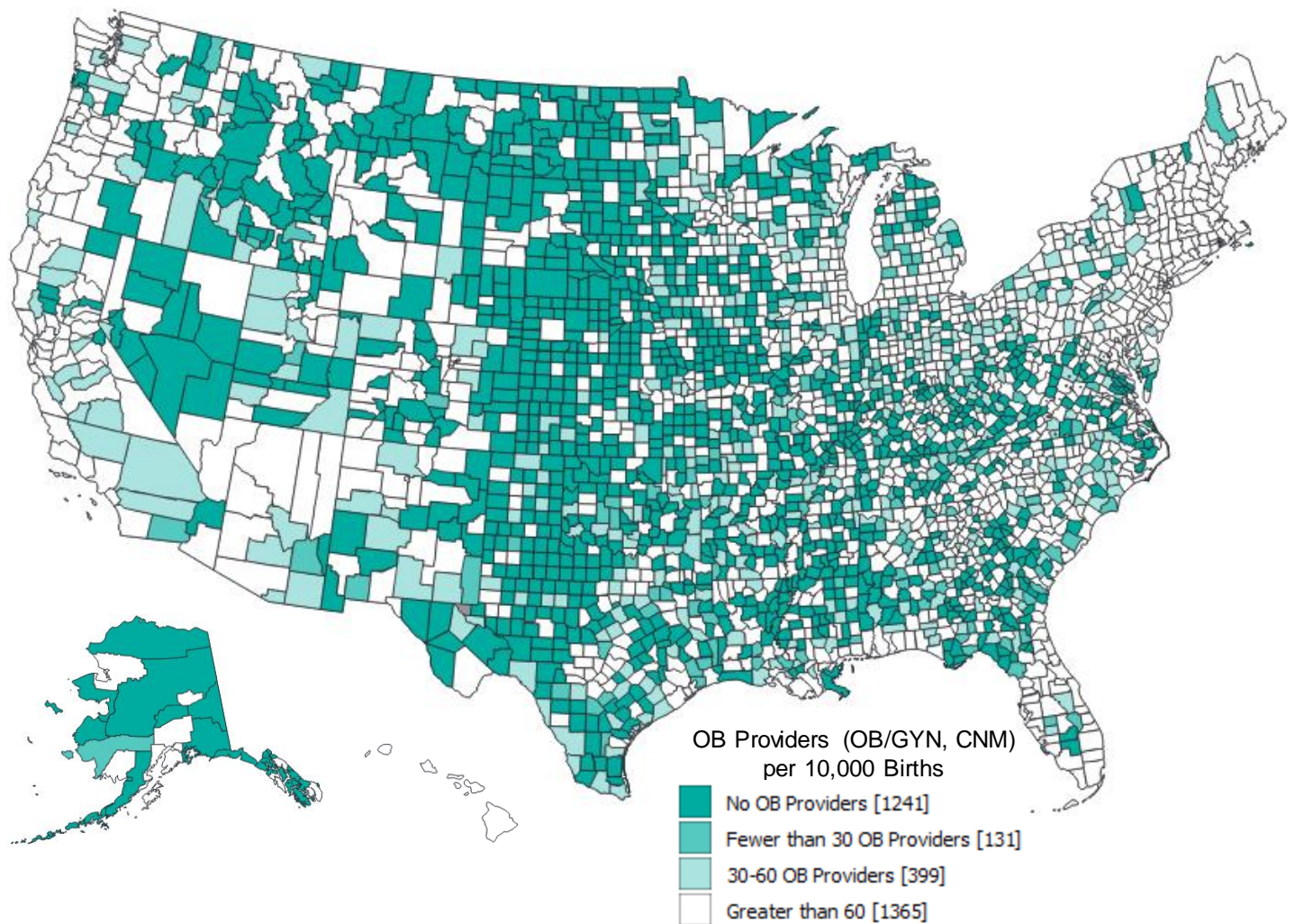


PROVIDERS

Maternity care providers include obstetrician/gynecologists (OB/GYN), certified nurse-midwives/certified midwives (CNM/CM), and family physicians (mostly in rural settings). These providers are distributed unevenly across the U.S., leading to access inequities in certain communities such as rural counties. Shortages of maternity care providers can result in long waiting times for appointments and/or long travel times to prenatal care or birthing sites. Previous studies on the availability of OB/GYN and CNM/CM at the county level have shown an unequal distribution of these providers, who were mostly concentrated around metropolitan areas.^{20,21}

About half of the 3,136 U.S. counties lacked a single OB/GYN (n=1510, 48.2%), and more than half of the counties did not have a CNM (n=1728, 55.1%). More than 1,200 counties had neither an OB/GYN or a CNM (n=1241, 39.6%) and an additional 530 counties had fewer than 60 OB providers per 10,000 births (16.9%). *Map 3.* More than 20 million women lived in counties without an OB provider. There were almost 670,000 births in these counties in 2016.

Map 3. Distribution of Obstetric Providers by U.S. County



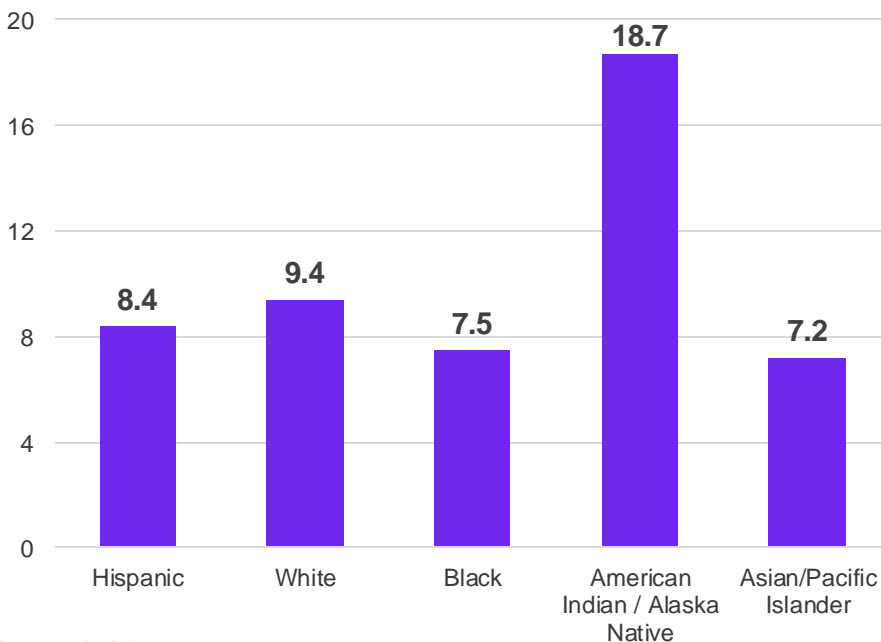
MIDWIVES

Most babies in the U.S. are born in a hospital (98.4%) and attended by a doctor of medicine (MD, 82.2%) or doctor of osteopathic medicine (DO, 7.4%). Nationally, nearly 1 in 10 births is attended by a certified nurse midwife (CNM, 8.8%) or other midwife (0.8%). But considerable variation in midwifery attendants is observed by state. In 2016, the proportion of births attended by a certified nurse midwife was 5% or less in Arkansas, Alabama, Mississippi, Louisiana, Wyoming, Texas, Missouri, and Oklahoma. More than 1 in 5 births was attended by a midwife in Alaska, New Mexico, Vermont, Maine, Oregon, and New Hampshire in 2016 (Table 3).

Efforts to further integrate health care professionals, such as midwives, into maternity care could help improve access to providers. One study used selected indicators to develop a scoring system to evaluate how well midwives are integrated into maternity care at the state level. There was variation in integration across states, with higher scores correlated to a higher density of midwives per state and a higher proportion of midwife-attended births across settings. They also found a correlation between higher scores 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.²²

Births to American Indian/Alaska Native women are more likely than other racial and ethnic groups to be attended by a certified nurse midwife (18.7% compared to 9.4% among white women, 8.4% among Hispanic women, 7.5% among black women, and 7.2% among Asian/Pacific Islander women).

Figure 2. Percentage of births attended by midwife, U.S., 2016



Source: NCHS, final natality data, 2016.

Table 3. Births by attendant type, 2016

State	Percentage of live births attended by:	
	Doctor (MD, DO)	Midwife (CNM)
United States	89.6	8.8
Alabama	98.6	0.7
Alaska	68.1	26.6
Arizona	91.7	7.9
Arkansas	98.3	0.4
California	88.5	10.0
Colorado	81.9	15.4
Connecticut	89.4	10.1
Delaware	88.3	9.9
D.C.	89.4	10.3
Florida	87.6	10.4
Georgia	84.3	13.3
Hawaii	88.9	9.4
Idaho	87.2	9.8
Illinois	92.6	6.8
Indiana	91.7	6.4
Iowa	89.6	9.3
Kansas	92.7	5.8
Kentucky	90.3	8.2
Louisiana	96.5	2.9
Maine	78.2	21.5
Maryland	88.0	11.3
Massachusetts	82.5	16.3
Michigan	91.3	7.3
Minnesota	86.6	12.1
Mississippi	97.3	1.9
Missouri	94.2	4.0
Montana	85.8	11.1
Nebraska	93.3	6.3
Nevada	91.7	6.3
New Hampshire	77.6	20.5
New Jersey	91.5	7.4
New Mexico	73.4	25.1
New York	88.5	10.7
North Carolina	87.1	12.3
North Dakota	92.3	6.7
Ohio	90.8	7.7
Oklahoma	94.3	4.5
Oregon	75.9	20.6
Pennsylvania	84.7	13.1
Rhode Island	86.9	12.9
South Carolina	93.4	5.3
South Dakota	92.1	6.9
Tennessee	91.9	6.7
Texas	95.3	3.3
Utah	87.8	9.1
Vermont	72.4	24.8
Virginia	90.0	8.9
Washington	83.5	6.9
West Virginia	86.4	13.0
Wisconsin	89.0	10.1
Wyoming	94.8	3.0

Source: NCHS final natality data 2016.

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 their reproductive years. Lack of health insurance can be a significant barrier to obtaining regular health care for women of reproductive age, which includes preventive care that may identify and manage health conditions that may adversely affect pregnancy such as diabetes, hypertension, obesity, and sexually transmitted diseases.²³ In addition, there is evidence that adequate prenatal care beginning in the first trimester can decrease the likelihood of adverse birth outcomes.²⁴ Women who do not receive prenatal care are also three to four times more likely to have a pregnancy-related death than women who receive any prenatal care.²⁵

Although the rate of uninsured women ages 18 to 64 has declined since the passage of the Affordable Care Act,²⁶ more than 10 million women 18-64 (10.6%) in the U.S. did not have health insurance in 2016. There is substantial variation in women’s health insurance coverage by state and by county (*Map 4*). In about 45% (n=1,412) of counties in the U.S. the proportion of women who are without health insurance is greater than 10%.

Map 4. Women without health insurance, 2016

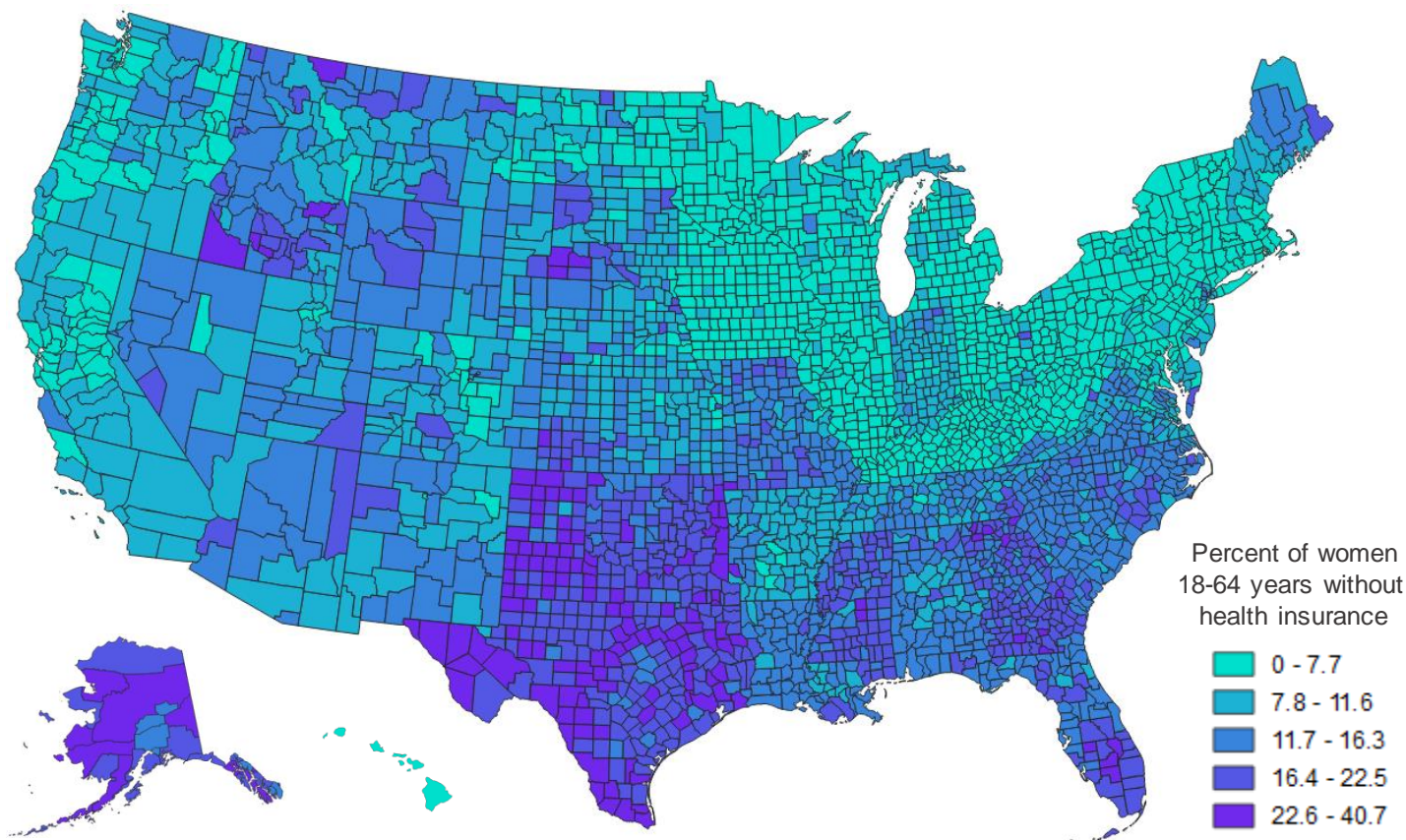
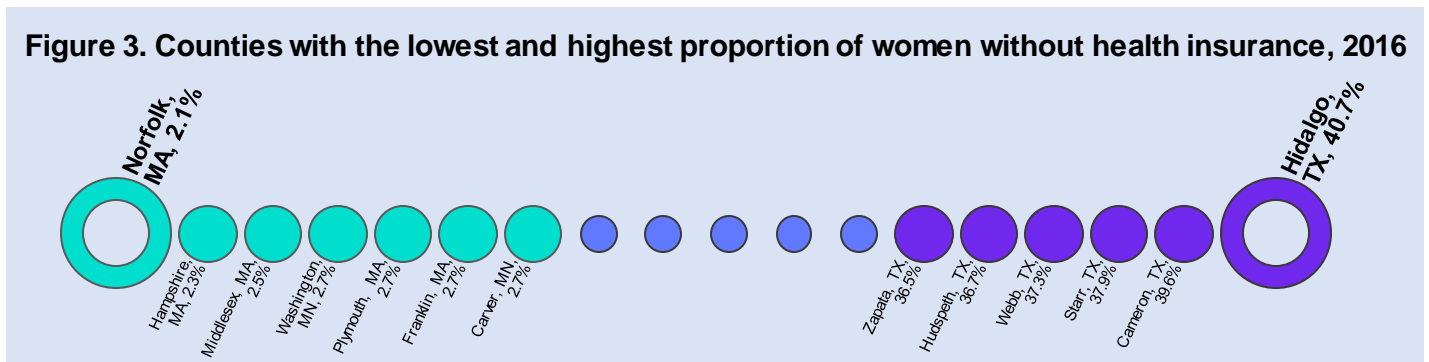


Figure 3. Counties with the lowest and highest proportion of women without health insurance, 2016



Source: Small Area Health Insurance Estimates, 2016. American Community Survey, U.S. Census Bureau.

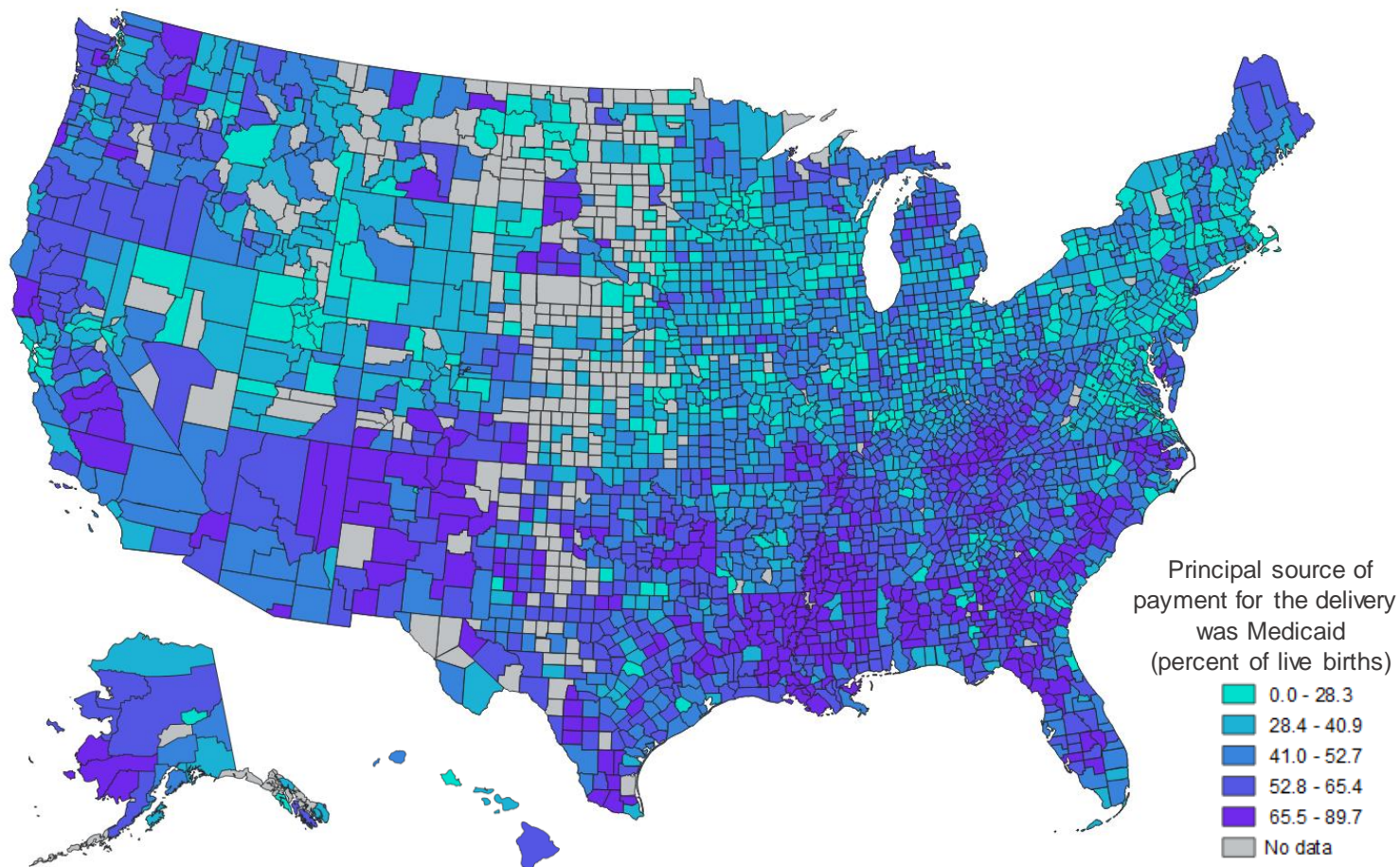
HEALTH INSURANCE BEFORE AND DURING PREGNANCY

Access to well-woman care, contraceptives, substance use treatment, medication for medical conditions, and tobacco cessation programs becomes nearly impossible when uninsured. Access to health care made easier by health insurance is all the more important prior to pregnancy.

In 2015 in the U.S. almost 1 in 5 (18.7%) women did not have any health insurance coverage in the month prior to their pregnancy (among those who had a pregnancy in the previous year). In 2015, twenty-two states collected information on insurance status prior to pregnancy through the Pregnancy Risk Assessment Monitoring System (PRAMS). Among these states the percentage of women who had health insurance in the month prior to their latest pregnancy ranged from a high of 95.5% in Massachusetts to a low of 68.3% in Oklahoma.

In 2016, Medicaid covered the delivery care costs of more than 1.5 million pregnant women, or 43% of births in the U.S., who would have otherwise been uninsured during a critical period for them and their baby. The proportion of births covered by Medicaid varied by state and by county (*Map 5*). A 2018 report examining the role of Medicaid expansion in the U.S. found that 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 in rural areas and small towns in states that expanded Medicaid compared to 38 percent to 32 percent for states that have not expanded).²⁷ This finding suggests that Medicaid expansion could be a way to help close the gap in health insurance access between rural and metro areas in states with disparities in coverage that have not yet expanded.

Map 5. Births covered by Medicaid, 2016



Source: National Center for Health Statistics, final natality data, 2016.

REGIONALIZATION OF PERINATAL CARE

Closely related to access and quality of care is 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. The perinatal regionalization movement began in the 1970s when the March of Dimes, along with other partners, published a report entitled *Toward Improving the Outcome of Pregnancy*²⁸ 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. Since then, the importance of both neonatal and maternal levels of care have been emphasized by recommendations from organizations such as the American Academy of Pediatrics, American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine.^{29,30} 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.³¹

When appropriate perinatal care is unavailable, pregnant women and newborns may experience increased morbidity and mortality. A meta-analysis found that very low birth weight or very premature 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.³² 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. do have access to critical care, there are significant differences.³³ 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 is that 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). 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 mother and baby.

SOLUTIONS AND ACTIONS

With approximately 10% of births 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.

No single solution will address the problem of limited access to care. Key opportunities include:

- Increase access to affordable preconception, prenatal, and postpartum care.
- Provide logistical support and financial assistance to women so that they can travel to receive care.
- Share resources across systems and settings by regionalizing care.
- Advance technology and telemedicine that could improve access to OB services in some cases.
- Expand innovative, proven models of supportive and preventive care, including group prenatal care.
- Incentivize providers to work in underserved areas.

SUPPORT #BLANKETCHANGE

Policies to protect moms and babies

Lack of access to care threatens the health of moms and babies all across the country. At marchofdimes.org/blanketchange, join March of Dimes in its fight to:

1. Prevent women from dying from pregnancy-related causes.
2. Require all health plans to cover people with pre-existing conditions.
3. Require all health plans to cover maternity and newborn care.
4. Ensure new moms don't have to trade maternal health benefits they need to afford health coverage.
5. Prevent and treat preterm birth.

TECHNICAL NOTES

March of Dimes undertook a descriptive analysis of county-level data from the Area Health Resource File 2016-17 (AHRF) which includes data from the 2016 American Hospital Association (AHA) Annual Survey, 2016 Small Area Health Insurance Estimates (SAHIE), and National Center for Health Statistics (NCHS) natality data. All variables were from 2016 except where noted. Key variables from the AHRF include population (total population, women >15 (2010), hospitals (short term general hospitals with obstetric care), providers (OB/GYN, 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), health insurance (females 18-64 without health insurance), births (Total Births July 1, 2016-June 30, 2017, births to black and Hispanic women (2014-16)). Urban was defined as a county within a metropolitan area of 250,000 or more (1 or 2 on the urban rural continuum). Rural was defined as a county with an urban population of 2,500 to 19,999, not adjacent to a metro area, or completely rural (7, 8, or 9 on the urban rural continuum). A county was classified as a maternity care desert if there were no hospitals providing obstetric care, no OB/GYN, and no certified nurse midwives. Counties were further classified as having limited access to maternity care services if there was only 1 hospital offering OB service and fewer than 60 OB providers per 10,000 births, and the proportion of women without health insurance was 10 percent or greater (Level 1) or the proportion of women without health insurance was less than 10 percent or greater (Level 2). After excluding 12 counties from the analysis because data was missing from one or more components of the access to maternity care were missing (OB hospitals, OB/GYN, CNM, health insurance, or number of births equaled zero), there were 3,136 counties in the dataset.

Other data utilized for this report include data from the Pregnancy Risk Assessment Monitoring System (health insurance before pregnancy, 2015), NCHS 2016 final natality file (Medicaid covered births, type of provider attending births), and the AHA Annual Survey 2016 (hospitals and providers). 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 and separately obtained directly from Census for the map.

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 OB services is not considered. Utilizing county as the level of analysis provides access to data that is not available at smaller geographic areas, but it does not capture access to services in adjacent counties. 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.

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