

**The Impact of the Patient Protection and Affordable Care Act's Medicaid Expansion on  
Maternal Health Outcomes**

by

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BA Biochemistry, Duquesne University, 2020

Submitted to the Graduate Faculty of the  
School of Public Health in partial fulfillment  
of the requirements for the degree of  
Master of Health Administration

University of Pittsburgh

2023

UNIVERSITY OF PITTSBURGH  
SCHOOL OF PUBLIC HEALTH

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2023

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University of Pittsburgh, 2023

## **Abstract**

Maternal health outcomes, including mortality and morbidity, have been increasing in the U.S. over the last several decades and highlight striking racial/ethnic disparities. Insurance coverage is vital for maternal health as it provides increased access to pre-pregnancy, prenatal, and postpartum care that can help reduce complications and death. Medicaid, the largest payer in the U.S. and financer of more than 40 percent of births, plays a considerable role in providing maternal health coverage and services to low-income women. With the passage of the Patient Protection and Affordable Care Act (ACA) in 2010, Medicaid eligibility was expanded to low-income non-pregnant women, increasing access to pre-pregnancy and postpartum care. The ACA initially included an all-or-nothing condition that threatened to rescind existing Medicaid funding for non-compliant expansion states; however, the Supreme Court ruled this as coercive and unconstitutional in *National Federation of Independent Business v. Sebelius*. As a result, Medicaid expansion was made optional to states free of consequence.

The literature review examines the current research assessing the ACA's Medicaid expansion on maternal health outcomes overall and among various racial/ethnic groups. Although some results were inconclusive, the majority of studies reported positive effects on maternal health outcomes, highlighting its importance in care continuum for low-income women. However, lack of evidence surrounding racial/ethnic disparities and social determinants of health needs indicate

a greater need for future research. Ultimately, expanding Medicaid in the remaining non-expansion states is a crucial consideration for policymakers and health care providers alike.

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## **Preface**

I want to give a special thanks to my essay committee – Dr. Evan Cole, Dr. Lisa Bodnar, and Professor Tina Batra Hershey – for their continued advice and guidance throughout my essay process. I greatly appreciate the time, attention, and feedback that I received, and their unique knowledge and expertise were instrumental in the success of this paper. Lastly, I would like to thank my family, friends, and my partner, Felix, for their continued love and support during my graduate studies.

A note on language: Throughout the essay, gender-specific terms are used such as women, maternal, and mother as they were most consistently used in legislation, research articles, and publications from national health organizations. However, people who do not identify as women can get pregnant and deliver babies.

## **1.0 Introduction**

### **1.1 Overview of Maternal Health and Health Care Access in the U.S.**

Maternal health pertains to the well-being of women throughout the stages of pregnancy, delivery, and the postpartum period.[1] Despite spending significantly on technologically-advanced health care and being one of the wealthiest nations in the world, the United States (U.S.) faces significant maternal health challenges.[2] Over the last several decades, the maternal mortality ratio in the U.S. (number of pregnancy-related deaths per 100,000 live births) has increased approximately 140 percent from 7.2 in 1987 to 17.3 in 2018, the highest of all developed nations.[3] Maternal morbidity, which refers to any short- or long-term health complications related to pregnancy and childbirth, is also a cause for concern in the U.S. From 1993-2014, the rate of severe maternal morbidity (SMM) increased 20 percent and impacted 25,000 pregnancies in 2017 alone.[2, 4]

Maternal health in the U.S. also exhibits striking racial disparities. For example, Black women have the highest rate of pregnancy-related death of any racial/ethnic group.[2] The maternal mortality ratio among Black women is a staggering 40.8, over three times higher than their White counterparts.[2] Women of color also disproportionately experience pregnancy-related complications. American Indian/Alaska Native women have a SMM rate of 115.4, almost two times higher than White women.[2]

## 1.2 Maternal Health as a Public Health Concern

The U.S.'s high rates of maternal mortality and morbidity, especially among women of color, are concerning. Although death represents the gravest outcome of maternal morbidity, women may encounter severe complications that could significantly impact the rest of their lives.[5] Women who experience pregnancy-related complications like placental abruption, preterm labor, preeclampsia, and gestational diabetes are at increased risk for similar complications in future pregnancies.[6] These complications also increase a woman's risk for certain metabolic and vascular diseases later in life.[6, 7] Women with preeclampsia and gestational diabetes are more at-risk for cardiovascular disease and Type-2 diabetes mellitus respectively.[7]

Maternal mortality and morbidity not only affect the health of the mother, but they also have far-reaching consequences for the well-being of families and communities.[5] Families experience devastation from the loss of the deceased or resulting disabilities and illnesses.[5] Children may experience social isolation, depression, and other psychological problems after losing their mother.[5] Other family members must cope with similar emotional challenges in addition to adjusting household management and care due to the death or reduced productivity of the mother.[5] In some instances, the family unit may dissolve altogether.[5] Communities also experience negative effects of maternal mortality and morbidity from the increase in single-parent households and the number of orphans.[5] Lastly, community cohesion may be dismantled through the loss of women leaders.[5]

Poor maternal health also creates economic burden for families, communities, and society at large. Families are responsible for any funeral costs, legal fees, and ongoing medical costs of treatment following maternal death or pregnancy-related complications.[5] Additionally, there

immense costs to society. When studying children born in 2019, The Commonwealth Fund projected that maternal morbidity costs would amount to \$32.3 billion from conception through the child's fifth birthday.[8] Over a quarter of the costs was a result of poor maternal health outcomes including mental health conditions, hypertensive disorders, and gestational diabetes, among others.[8] While most of the costs were borne by the health care system, the study discovered other non-medical costs including loss of productivity and increased use of social programs with estimates of \$6.6 billion and \$239 million respectively.[8] The study estimated maternal mortality costs at \$30.8 million; however, long-term familial and societal costs were not considered.[8] A separate study published the following year reported a much higher national economic burden by analyzing years of potential lost life and the value of a statistical life.[9] For 2018-2020 alone, the study reported that maternal mortality cost society \$27.4 billion.[9]

Numerous domestic and international organizations have been working to address and improve maternal health in the U.S. For example, the American College of Obstetricians and Gynecologists (ACOG) raises awareness regarding women's health, provides clinical guidance to health care professionals to achieve the highest standards of care, and advocates for legislation focused on improving maternal health and safety.[10] ACOG has advocated for federal Medicaid expansions to at least one year postpartum, and the organization also encourages states to swiftly implement Medicaid expansions.[10] The Center for Reproductive Rights is another organization that works to improve maternal health by raising awareness of the issue through research, partnering with ally organizations, and advocating for political change.[11] The Center for Reproductive Rights launched their Maternal Health & Rights Initiative to provide resources and advocacy tools for leaders and policymakers to motivate change in the U.S.[12]

Government agencies have also been working to raise awareness and implement positive changes in maternal health in the U.S. In 2020, the Department of Health & Human Services (DHHS) published The Surgeon General’s Call to Action to Improve Maternal Health outlining the current and future states of maternal health in the U.S.[13] The report also provides strategies and actions that various stakeholders – families, communities, employers, health care professionals, payors – can take to improve maternal health.[13] The Centers for Medicare & Medicaid Services (CMS) has also been playing a large role in improving maternal health by launching several phases of its Maternal and Infant Health Initiative (MIHI).[14] In 2014, CMS launched its first phase focused on improving postpartum visit quality and increasing the use of effective contraceptives among women in Medicaid.[14] Then, in 2020, CMS launched the second phase of MIHI which emphasized improving postpartum care, improving well-child visits for infants, and reducing low-risk cesarean delivery.[14] Additionally, CMS has increased its quality measurement program. In 2022, CMS added two additional maternal health measures for inpatient hospital reporting, and by 2024, all states will be required to report six quality measures in its Maternity Core Set.[15] Lastly, the Biden Administration has introduced legislation to improve women’s health which will be discussed in later sections.

## **2.0 Insurance and Its Role in Maternal Health**

### **2.1 Impact of Insurance Coverage on Maternal Health**

Insurance coverage plays a crucial role in maternal health by providing access to various health care services. Family planning and preconception health are the start of ensuring a healthy pregnancy and delivery. According to Mayo Clinic, women should wait at least 18 to 24 months before attempting another pregnancy following a live birth; otherwise, both mother and baby are at greater risks of complications including placental abruption, maternal anemia, premature birth, and others.[16] Family planning services, including access to contraception, help ensure wanted pregnancies in addition to safe interpregnancy intervals.[16] Additionally, early pre-pregnancy and prenatal coverage provide access to tests, procedures, and other health care services to promote healthy pregnancies and births.[17] For example, pre-pregnancy and prenatal care can help women control physical and mental health conditions, maintain a healthy diet and weight, and ensure safe consumption of medication and supplements.[17] Lastly, postpartum care helps to address difficulties following childbirth such as pain, infections, and postpartum depression and anxiety.[18] Overall, women with insurance are more likely to receive timely and comprehensive care that reduces the risk of complications and death.

Medicaid plays a considerable role in providing health coverage and services to low-income women. Nearly two-thirds of women with Medicaid coverage are in their reproductive years, and Medicaid covers an extensive range of preventative and reproductive services including family planning and pregnancy-related care.[19] According to the Kaiser Family Foundation (KFF), Medicaid financed just over 1.5 million or 42 percent of total births in the U.S. in 2020.[20]

The following sections outline Medicaid’s eligibility basics and legislative history to emphasize the importance of its role in maternal health coverage and help identify potential coverage or benefit gaps.

## **2.2 Overview of Medicaid Program and Eligibility Basics**

The Medical Assistance Program, commonly known as Medicaid, is a joint federal-state, needs-based program administered by CMS. Medicaid was authorized by Title XIX of the Social Security Amendments and signed into law by President Lyndon B. Johnson in 1965.[21, 22] At its inception, Medicaid was constructed as a medical care extension of federally-funded cash income assistance programs for the underprivileged.[23] In the decades following its enactment, however, Medicaid experienced significant expansions going beyond its original ties to cash income assistance to include other disadvantaged groups.[23] Today, Medicaid coverage is provided to five general groups of people: low-income adults, pregnant women, children, the elderly, and individuals with disabilities.[24] While the federal government establishes broad guidelines, states administer their own programs and have extensive flexibility regarding eligibility requirements, program offerings, and payment rates.[24] Medicaid is the largest payer for health care in the U.S., covering nearly 85 million people as of October 2022.[25]



## **2.3 Medicaid Legislative Milestones for Pregnant and Reproductive-Age Women**

### **2.3.1 Medicaid Legislation of the 1980s and 1990s**

Although the Reagan Administration targeted Medicaid for cuts and restructuring during the early 1980s, significant legislation was passed to protect low-income pregnant women due to growing concerns over infant mortality and maternal morbidity. Under the Deficit Reduction Act of 1984, states were required to initiate Medicaid coverage to pregnant women if they were eligible for Aid to Families with Dependent Children (AFDC).[26] Then, in 1985, the Consolidated Omnibus Budget Reconciliation Act (COBRA) mandated states to cover pregnant women meeting AFCD requirements regardless of employment or marital status as well as provide 60 days postpartum coverage.[26] Over the next two years, states were given enhanced discretion regarding eligibility requirements. However, in the late 1980s, the federal government mandated certain aspects of prior legislation. With the Medicare Catastrophic Coverage Act (MCCA) of 1988, states were required to provide coverage for women and children with familial incomes up to 100 percent of the federal poverty level (FPL)<sup>1</sup> which was increased to 133 percent under the OBRA of 1989.[26, 27] Then, under the OBRA of 1990, states were mandated to provide continuous medical coverage to pregnant women throughout the duration of the pregnancy up to 60-days postpartum regardless of changes in income or assets.[26]

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<sup>1</sup> The FPL is calculated by DHHS every year and is used to determine one's eligibility for reduced-cost health insurance.[27]

### 2.3.2 The Passage of the Affordable Care Act

While the same volume of legislation pertaining to Medicaid did not continue in the following decades, one of the most significant changes to the program was signed into law by President Barack Obama in 2010. The Patient Protection and Affordable Care Act (ACA), commonly referred to as the Affordable Care Act and colloquially known as “Obamacare,” was the most significant health care legislation since the Social Security Amendments of 1965. The ACA’s provisions led to major health care reform and expansions which lowered the U.S. uninsured rate from 46.5 million Americans in 2010 to 27.5 million in 2021.[28]

The ACA’s Medicaid provision, which was fully implemented in 2014, mandated Medicaid coverage for all U.S. citizens and legal residents with incomes up to 138 percent of the FPL.[29]<sup>2</sup> This revision was critical because, prior to the ACA, Medicaid eligibility was generally not afforded to low-income women who were not disabled or pregnant.[30] Although the ACA did not impact pregnant women’s coverage directly, the loosened eligibility requirements provided greater insurance stability around the time of pregnancy. More specifically, the ACA extended coverage during the preconception and postpartum periods.[30]

The ACA was exceedingly controversial, and its constitutionality was challenged in *National Federation of Independent Business v. Sebelius*[31]. One point of contention was the ACA’s threat to rescind all Medicaid funding for states unwilling to expand.[31] This all-or-nothing condition was ultimately struck down by the Supreme Court in 2012, and states were given

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<sup>2</sup> The original text of the ACA only included incomes up to 133 percent of the FPL. However, due to a revised income calculation, the threshold was essentially set to 138 percent of the FPL.[29]

the option to expand Medicaid without consequence.[31] As of January 2023, 39 states plus Washington, D.C. have expanded their Medicaid programs under the ACA.[32] See **Appendix Table 1** for a full listing of states, expansion status, and expansion year.

## **2.4 Impact of Medicaid Coverage on Maternal Health Outcomes**

Not unexpectedly, the Medicaid expansions of the 1980s as well as the ACA greatly improved insurance coverage and care access for pregnant women. One study found that from 1987 to 1991, Medicaid-financed births rose dramatically, with the proportion of births rising to 40 percent or higher in some states.[33] However, the study concluded that states had difficulty at enrolling pregnant women early in their pregnancy.[33] Michigan, the most successful state included in the study, enrolled only 54 percent of pregnant women during their first trimester in 1991.[33] The study reported that despite efforts to remove financial barriers to timely prenatal care, the temporary nature of the Medicaid expansions of the 1980s was problematic.[33] Thus, continuous health insurance coverage unrelated to pregnancy may be an important factor in promoting earlier use of prenatal care.[33] A study published in 2015 found that in 2009, the year before the passage of the ACA, approximately one-third of women experienced unstable insurance coverage around the time of pregnancy.[34] Unstable insurance coverage was defined by the authors as women who reported a change in health insurance before pregnancy, during pregnancy, and at the time of delivery.[34] Of those women, 94.5 percent moved from no insurance in the month before pregnancy to Medicaid coverage at delivery (95% CI).[34] The study concluded that stable health insurance coverage could improve maternal health by providing greater access to care necessary to treat and manage conditions that are present before and in-between pregnancies.[34]

Thus, the ACA was a vital piece of legislation because the expanded eligibility requirements made it easier for women to obtain pre-pregnancy, early prenatal, and postpartum health care.[35, 36] According to KFF, 59 percent of women with a live birth in expansion states were enrolled in Medicaid at least 11 months prior to pregnancy compared to just 26 percent of women in non-expansion states in 2019.[35] The study also found that women in non-expansion states were more likely to enroll in Medicaid later in their pregnancy than women in expansion states (34 vs. 22 percent), building upon previous research that found most newly-enrolled pregnant women were uninsured beforehand.[35, 37] KFF found that 29 percent of women were disenrolled within one year of delivery in expansion states compared to 61 percent in non-expansion states.[36] Thus, the continuity of insurance coverage afforded by the ACA promotes healthier pregnancies and positive maternal health outcomes following delivery.[35]

Interestingly, research has indicated that when parents gain health insurance coverage, so do their children. This is referred to as the “welcome mat effect”.[38] One study found that participation rates for children in Medicaid and the Children’s Health Insurance Program (CHIP) in 2014 rose at a faster rate in expansion states compared to non-expansion states (3.0 vs. 1.9 percentage points respectively).[39] Another study analyzing U.S. population data from 2013 – 2015 found that children with newly Medicaid-eligible parents were 4.1 percentage points less likely to be uninsured, and children’s public coverage increased by 5.6 percentage points.[38] There have been several postulations as to why the welcome mat effect occurs. For the ACA specifically, there was significant outreach campaigns at both the federal and state levels notifying people of insurance benefits and eligibility changes.[38] The study suggested that the intense marketing of the ACA better informed parents and reduced stigma around public health insurance.[38] Another potential reason is the “No Wrong Door” policy, one of the provisions of

the ACA.[38] The No Wrong Door policy assessed an applicant's eligibility for Medicaid, CHIP, and ACA Marketplace coverage regardless of the program they initially applied for.[38] Because of this, parents faced less burden with applications processes, and thus, their children were funneled to the appropriate program.[38] Because of the welcome mat effect, the ACA's Medicaid expansion may contribute to improved adolescent maternal health as well.[39]

### **3.0 Objective of Literature Review**

Previous research has suggested that the ACA's Medicaid expansion was associated with improved maternal health outcomes through increased access to care. The aim of this literature review is to assess the validity of those claims by identifying and synthesizing studies that examine the law's impact on various pre-pregnancy, pregnancy, and postpartum health outcomes. Because women of color often disproportionately experience negative maternal health outcomes, this literature review will also examine if the studies stratified results by race/ethnicity. This step will assess the ACA's association with racial disparities in maternal care. This literature review is intended to provide valuable insight into the potential benefits of Medicaid expansion and could have important implications for policymakers and health care providers working to improve maternal health outcomes in the U.S.

## 4.0 Methodology

A literature search was conducted utilizing PubMed and ScienceDirect Databases. PubMed is a biomedical literature database that houses over 22 million citations. ScienceDirect contains more than 25 percent of the world's science, technology, and medicine materials. The following terms were searched for in the articles' title or abstract: ("Affordable Care Act" OR ACA OR "Medicaid Expansion") AND (maternal OR perinatal OR pregnancy OR preconception OR prenatal OR postpartum). The search yielded 833 and 114 total results in PubMed and ScienceDirect respectively. Because the ACA was not passed until 2010, the results were filtered for the time period 2010 – 2023 resulting in 545 and 84 articles in PubMed and ScienceDirect respectively.

Each article's title and abstract were reviewed to ensure the article's relevance to maternal health and the ACA's Medicaid expansion. Articles regarding infant health outcomes were excluded due to this literature review's focus on maternal health. Additionally, articles that studied <5 states were excluded as those results cannot be accurately generalized to the rest of the U.S. Lastly, articles studying changes in private insurance and ACA Marketplace coverage following the ACA's implementation were excluded. A full-text screening was performed on articles that met the criteria resulting in 14 total articles included in this literature review.

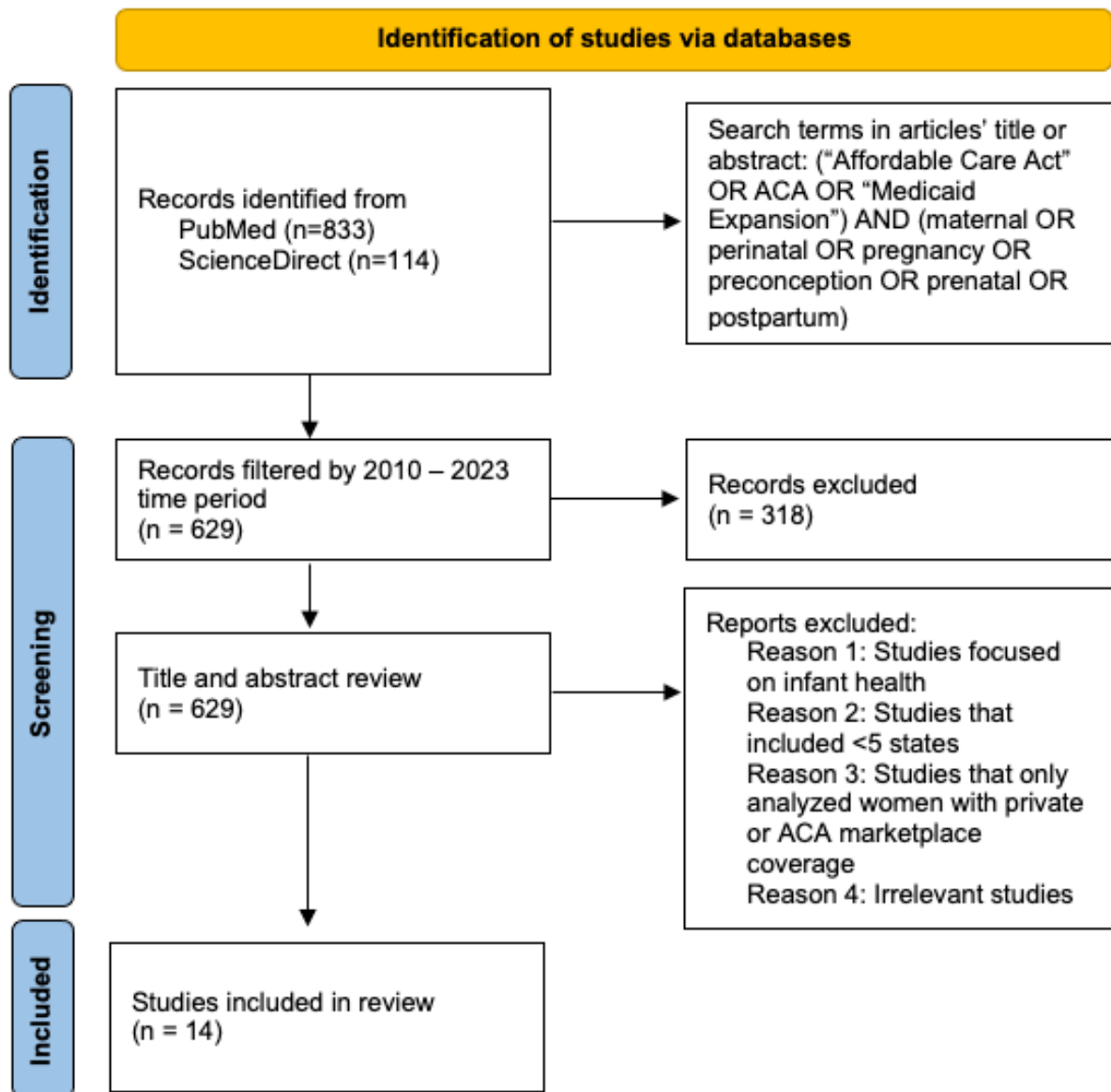


Figure 1: Analysis of the literature utilizing PRISMA flow diagram.



## 5.0 Results

The following section discusses the impact of the ACA's Medicaid expansion on maternal health outcomes. A few common themes emerged upon a thorough analysis of each article, and related articles were grouped accordingly. The themes were listed alphabetically and include birth outcomes, contraceptive use, mortality, perinatal mental health, postpartum hospitalizations, and pre-pregnancy and pregnancy health. The results describe trends for the whole study population, and when applicable, were stratified by race/ethnicity. Fourteen articles were included in the results section. See **Appendix Table 2** for a summary of the literature.

### 5.1 Birth Outcomes

The literature search resulted in four studies that examined the effect of the ACA's Medicaid expansion on birth outcomes. Using publicly available birth certificate data from 2009-2017, one study found that the ACA's Medicaid expansion was associated with a decrease in the number of adolescent births.[40] Immediately following the ACA's implementation, the odds of Medicaid-funded adolescent births dropped by 22 percent with an additional 0.4 percent decline in odds in the following quarters (95% CI).[40]

A second study analyzed the effect of the ACA's Medicaid expansion on interpregnancy intervals utilizing birth certificate data from 2009-2018.[41] The respondents included all women aged 19 and older with a singleton live birth.[41] The study found that for all births, expansion states experienced a lower prevalence of short interpregnancy intervals than non-expansion states

(14.9 vs. 16.3 percent).[41] However, the adjusted model found no changes in interpregnancy intervals; thus, the study concluded that the ACA's Medicaid expansion did not impact the risk of short interpregnancy intervals.[41] While the studied stratified short interpregnancy intervals by race/ethnicity, there were no changes found except for Hispanic women.[41] Among Hispanic women, there was a 3.4 percentage point increase in the risk of short interpregnancy intervals in expansion states compared to non-expansion states; however, the authors noted that this may have been due to a rising trend prior to the ACA's implementation.[41]

A third study analyzing Pregnancy Risk Assessment Monitoring (PRAMS) survey data from 2012-2019 similarly indicated that there was no association with the ACA's Medicaid expansion and short interpregnancy intervals.[42] The study restricted respondents to low-income women aged 18 and older, and low-income women were defined as those with household incomes at or below 138 percent of the FPL.[42] The study found no overall changes in early postpartum pregnancy. Early postpartum pregnancy was defined by the authors as women being pregnant during the PRAMS survey conducted, on average, four months postpartum.[42] The third study also stratified early postpartum pregnancy by race/ethnicity. For non-Hispanic White women and Hispanic women, the study found minimal increases in early postpartum pregnancy (1.6 and 0.5 percentage points respectively, 95% CI).[42] For non-Hispanic Black women, however, there was a decrease in early postpartum pregnancy by 4.8 percentage points (95% CI).[42]

A fourth study analyzed the impact of the ACA's Medicaid expansion on unintended pregnancies utilizing PRAMS survey data for all women ages 20 to 44 with a first live birth from 2009-2017.[43] This study developed a Medicaid generosity index to estimate the percent of women eligible for Medicaid. Instead classifying states as simply expansion vs. non-expansion, the Medicaid generosity index allowed the authors to incorporate the extent of each state's

Medicaid expansion and the size of the population impacted.[43] The Medicaid generosity index also allowed the authors to examine changes in individual states' Medicaid eligibility over the study period.[43] Overall, the study found that increased Medicaid generosity was associated with a reduction in unintended pregnancies across the full sample.[43]

## **5.2 Contraceptive Use**

The literature search resulted in four studies that examined the effect of the ACA's Medicaid expansion on contraceptive use. The first study utilized 2012-2017 PRAMS survey data to assess the changes in contraceptive use among low-income women.[44] The study defined low-income women as those with household incomes at or below 138 percent of the FPL who would be eligible for Medicaid under the ACA's Medicaid expansion.[44] The study found that the ACA's Medicaid expansion was associated with a 3.8 percentage point increase in use of effective contraceptive methods (95% CI).[44]

This evidence was corroborated by a second study that utilized 2012-2019 PRAMS survey data studying low-income women aged 18 and older.[42] Similarly, low-income women were defined as those with household incomes at or below 138 percent of the FPL. [42]The study found there was an overall increase in postpartum contraceptive use by 3.6 percentage points in states that expanded Medicaid (95% CI).[42] This result was driven primarily from a 7.0 percentage point increase in postpartum mothers utilizing long-acting reversible contraception (LARC) methods such as IUDs and implants (95% CI).[42] There was a decrease in the number of postpartum mothers utilizing short-term birth control (e.g., birth control pill, patch, ring) as well as non-prescription birth control (e.g., condoms, rhythm method, withdrawal method) by 3.1 and

3.9 percentage points respectively (95% CI).[42] Overall, there were no changes in permanent contraception methods (e.g., sterilization) (95% CI).[42] Additionally, the study stratified postpartum contraceptive use by race/ethnicity. Among non-Hispanic White women, the ACA's Medicaid expansion was associated with a 6.2 percentage point increase in LARC and a 5.7 percentage point decrease in non-prescription contraception (95% CI).[42] Additionally, the study indicated a 4.1 percentage point increase in overall postpartum contraceptive use and a 3.5 percentage point decrease in short-acting contraception (95% CI).[42] Postpartum contraceptive changes were greatest among non-Hispanic Black women. Non-Hispanic Black women experienced a 6.9 percentage point increase in overall postpartum contraceptive use as well as a 10.4 percentage point increase in LARC (95% CI). Also, there was a significant decrease in short-acting contraception and permanent contraception by 8.2 and 5.0 percentage points respectively (95% CI).[42] The study reported minimal changes in overall contraceptive use among Hispanic women (0.3 percentage point increase with 95% CI).[42] However, all forms of postpartum contraception were utilized more following the ACA's Medicaid expansion.[42]

The third study analyzed the effect of the ACA's Medicaid expansion on contraceptive use among all women ages 15-44 receiving care at community health centers (CHCs). The study utilized electronic health record (EHR) data from the Accelerating Data Value Across a National Community Health Center Network (ADVANCE) database for 2013, 2014, and 2016.[45] The study found that the ACA's Medicaid expansion was associated with an increase in LARC methods.[45] In states that expanded Medicaid, LARC use increased by 1.7 percentage points compared to just 0.6 percentage points in non-expansion states from 2013 to 2016.[45] The increase in LARC use was particularly strong among the adolescent population ages 15-20.[45] Non-expansion states experienced no change in adolescent LARC use while expansion states saw

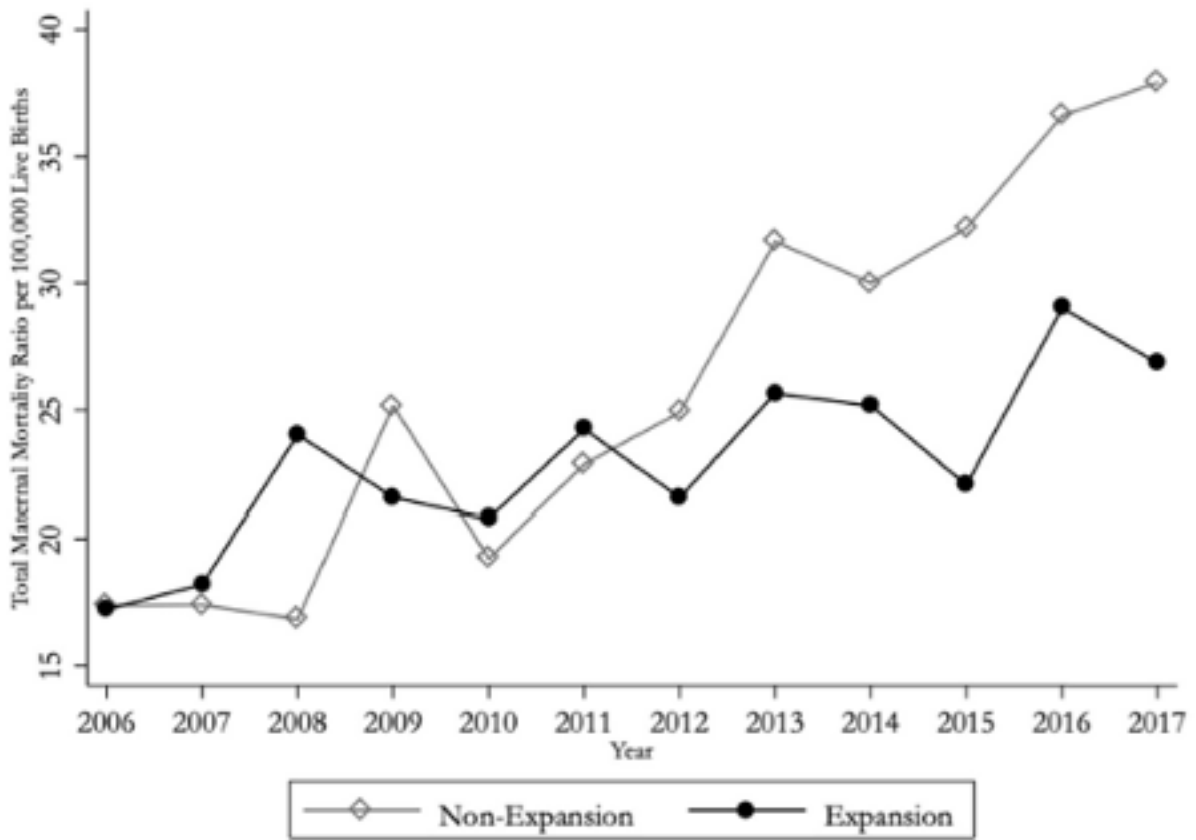
an increase of more than two percentage points.[45] Lastly, expansion states had higher overall rates of moderate or most effective birth control methods; however, non-expansion states saw a greater increase of these methods in the immediate post-expansion period.[45]

The fourth article researched deeper into adolescent contraceptive use by studying sexually active high school students. The study assessed all sexually active females in grades 9-12 from 2013-2019 utilizing Youth Risk Behavior Survey (YRBS) data.[46] For both expansion and non-expansion states, the study found an increase in the use of any moderately or highly effective contraception following the ACA's Medicaid expansion.[46] From 2013-2019, the increases for expansion and non-expansion states were 13.1 percent and 15.1 percent respectively.[46] Despite non-expansion states experiencing a greater change over time, the use of moderately or highly effective contraception was more common in expansion states in the pre- and post-expansion periods.[46] In expansion states, there was an increase in LARC usage by 238.1 percent, a decrease in certain short-term birth control methods by 32.9 percent, and no change in birth control pill usage.[46] In non-expansion states, there was an increase in LARC and birth control pill usage by 120.0 and 24.4 percent respectively as well as a decrease in injectable, patch, and ring methods by 42.7 percent.[46]

### **5.3 Maternal Mortality**

Despite the U.S.'s concerning maternal mortality ratio, the literature search yielded only one article that studied its change following the ACA's Medicaid expansion. The study utilized the Underlying Cause of Death 2006-2017 data from the National Center for Health Statistics to assess maternal and late maternal mortality which was defined as deaths up to 42 days after

delivery and deaths later than 42 days after delivery respectively.[3] The study concluded that states that implemented the ACA’s Medicaid expansion experienced a lower maternal mortality ratio compared to states that did not.[3] Specifically, expansion states had 7.01 fewer maternal deaths per 100,000 live births and 6.65 fewer maternal deaths per 100,000 live births when late maternal mortality was excluded.[3] As seen in **Figure 2**, the maternal mortality ratio rose over the measurement period; however, the rise was slower in expansion states when compared to non-expansion states.[3] Since 2012, expansion states consistently had lower maternal mortality ratios than non-expansion states.[3] The divergence was particularly large in 2015, the year after nearly half of states expanded their Medicaid programs.[3]



**Figure 2: Total maternal mortality ratio by Medicaid expansion status and year.**

**Reprinted from “Adoption of Medicaid Expansion Is Associated with Lower Maternal Mortality” by Erica L. Eliason, Women’s Health Issues p 147-152, Copyright 2020 by Erica L. Eliason**

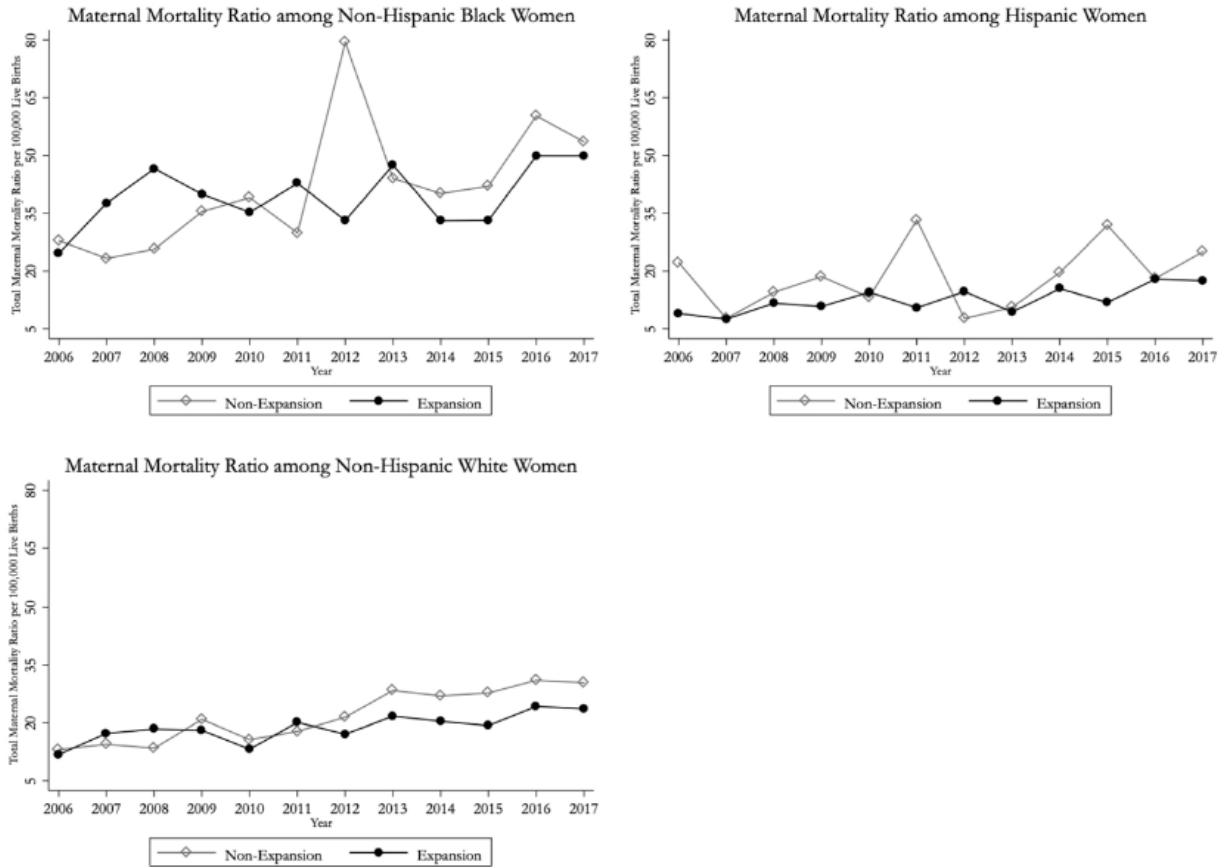
The study stratified maternal mortality ratios by race/ethnicity and included non-Hispanic White women, non-Hispanic Black women, and Hispanic women.[3] The effects of the ACA’s Medicaid expansion were greatest for non-Hispanic Black women with 16.27 fewer maternal deaths per 100,000 live births in expansion states when compared to non-expansion states (95% CI).[3] As seen in **Figure 3**, the maternal mortality ratio for non-Hispanic Black women rose over the measurement period and was the highest among all the racial/ethnic groups.[3] Still, there was an apparent divergence between expansion and non-expansion states following the ACA’s implementation in 2014.

Hispanic women also experienced decreased maternal mortality following Medicaid expansion as there were 6.01 fewer maternal deaths per 100,000 live births (95% CI).[3] When graphed, the maternal mortality ratios among Hispanic women in expansion and non-expansion states were more variable compared to other racial/ethnic groups.[3] There were clear divergences in 2015 and 2017; however, ratios were similar in 2016.[3]

Non-Hispanic White women experienced the smallest change in maternal mortality among all racial/ethnic groups as there were 3.74 fewer maternal deaths per 100,000 live births (95% CI).[3] There was little variability in maternal mortality ratios in both expansion and non-expansion states; still, expansion states remained consistently lower since 2012.[3]

The author noted that there were outliers in 2011 and 2012 for Hispanic women and non-Hispanic Black women respectively due to casualties occurring in predominantly non-Hispanic White states.[3] Because those particular racial/ethnic populations were so little, a single death

resulted in disproportionately high maternal mortality ratios for that year.[3] However, the overall trends remained the same even with the removal of the outliers.



**Figure 3: Total maternal mortality ratio by Medicaid expansion status and year, stratified by race/ethnicity.**

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### 5.4 Perinatal Mental Health

The literature search resulted in two studies that examined the effect of the ACA’s Medicaid expansion on perinatal mental health. One study analyzed perinatal mental health



changes among low-income women utilizing PRAMS survey data from 2012-2018.[47] The study defined low-income women as those with household incomes less than or equal to 137 percent of the FPL.[47] The study found that states that expanded Medicaid saw an increase in pre-pregnancy depression screenings which asked women if their provider inquired about depressive symptoms or evaluated them for depression in the 12 months before pregnancy.[47] For women giving birth between 2012 and 2018, the ACA's Medicaid expansion was associated with a nine percent increase in pre-pregnancy depression screenings.[47] Over the same period, there was a 16 percent decrease in women self-reporting pre-pregnancy depression.[47] Self-reported pre-pregnancy depression included women who were told by a health care professional they had depression as well as women who indicated they had depression in the three months before pregnancy.[47] For both pre-pregnancy depression screenings and self-reported depression, the associations became larger with increasing time (three to four years following Medicaid expansion).[47] However, the study found no changes in postpartum depression. Postpartum depression was defined as women responding "Always" or "Often" to questions about having little pleasure in doing things or feeling down, hopeless, or depressed following delivery.[47] Conversely, postpartum well-being was defined as women answering "Never" or "Rarely" to the same questions.[47] The study found that postpartum depression and well-being measures changed by less than one percent indicating no substantial effects following the ACA's Medicaid expansion.[47]

A later study similarly analyzed postpartum depression following the ACA's Medicaid expansion utilizing PRAMS surveys from 2009-2018.[48] This study included three more years of PRAMS survey data than the first study, and it also adjusted results for numerous individual- and state-level variables.[48] Respondents were restricted to women with household income levels less than 138 percent of the FPL. [48] The study determined that the rate of postpartum depression

was consistently higher among non-expansion states in both pre- and post-expansion periods (95% CI).[48] Additionally, Medicaid expansion was responsible for only a small reduction in the likelihood of depressive symptoms for postpartum women in expansion states.[48]

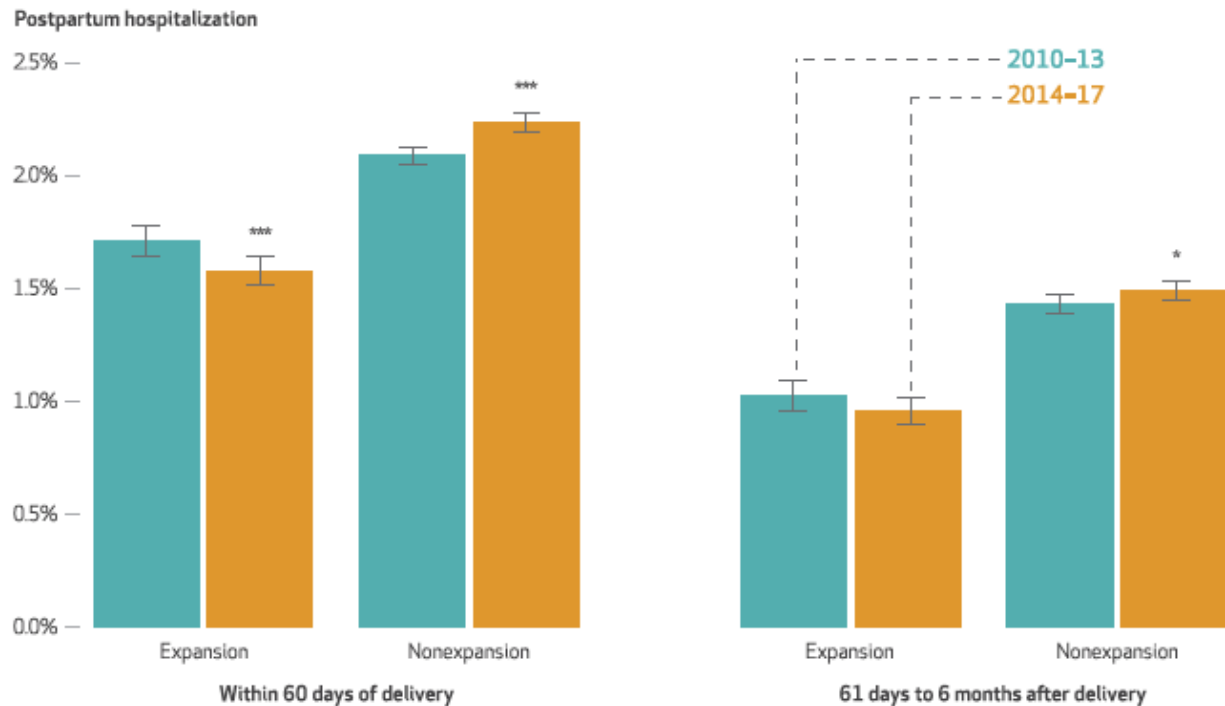
## 5.5 Postpartum Hospitalizations

The literature search resulted in only one study that examined the effect of the ACA's Medicaid expansion on postpartum inpatient hospitalizations. The study utilized 2010-2017 data from the Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project State Inpatient Databases and restricted the sample to women age 19 and older with Medicaid-financed deliveries.[49] The postpartum period was segregated into two groups: 0-60 days postpartum and 61 days-six months postpartum.[49] This differentiated women who were already eligible for Medicaid up through 60 days and those that would be eligible in expansion states under the ACA's Medicaid expansion in the later postpartum period.[49]

As seen in **Figure 4**, the study found that rates of postpartum hospitalizations decreased in both groups in states that expanded Medicaid.[49] Within 60 days postpartum, there was a decrease in the number of hospitalizations by 17 percent over the baseline rate in expansion states (95% CI).[49] For results 61 days-six months postpartum, expansion states experienced an eight percent decline in hospitalizations over the baseline rate (95% CI).[49] Over the same period, an increase in postpartum hospitalizations occurred in both measurement groups in non-expansion states.[49] Additionally, the study stratified postpartum hospitalization rates by race/ethnicity – including non-Hispanic White women, non-Hispanic Black women, and Hispanic women – and indicated

that there was a decline in postpartum hospitalizations in expansion states in both measurement periods for all groups.[49]

**Unadjusted rates of postpartum hospitalization among people with Medicaid-financed deliveries in 6 states before (2010-13) and after (2014-17) Medicaid expansion, by state expansion status**



**SOURCE** Authors' analysis of 2010-17 data for Florida, Georgia, and Utah (nonexpansion states) and Iowa, New Mexico, and Washington (expansion states) from the Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project State Inpatient Databases. **NOTES** "Medicaid expansion" refers to Affordable Care Act Medicaid expansions starting in 2014. Two states with missing years of data during the study period were excluded (Mississippi, a nonexpansion state, and Maryland, an expansion state). Statistical significance notation reports differences in hospitalization rates between 2010-13 and 2014-17. \* $p < 0.10$  \*\*\* $p < 0.01$

**Figure 4: Unadjusted rates of postpartum hospitalizations among people with Medicaid-financed deliveries in 6 states before (2010-13) and after (2014-17) Medicaid expansion, by state expansion status**

Reprinted from “Medicaid Expansion Led to Reductions in Postpartum Hospitalizations” by Maria W. Steenland and Laura R. Wherry, *Health Affairs* p 18-25, Copyright 2023 by Maria W. Steenland and Laura R. Wherry

Prior to states implementing the Medicaid expansion in 2014, the most common reasons for hospitalizations among both groups were complications of pregnancy, childbirth, and the

puerperium; diseases of the digestive system; mental disorders; diseases of the genitourinary system; injury and poisoning; and other.[49] The majority of hospitalizations occurred within 60 days postpartum, and the number one reason for hospitalizations during this time was complications of pregnancy, childbirth, and the puerperium.[49] The later postpartum period saw 50 percent fewer hospitalizations overall with pregnancy-related complications being the least common cause.[49] Following the ACA's implementation, the decline seen in expansion states within 60 days postpartum was mostly due to a reduction in pregnancy-related complications making up 75 percent of the decline.[49] Due to the rarity of late postpartum hospitalizations, the study was not able to conclude specific reasons for lowered hospitalization rates between 61 days-six months postpartum.[49]

## **5.6 Pre-pregnancy and Pregnancy Health**

The literature search resulted in five studies that examined the ACA's Medicaid expansion on pre-pregnancy and pregnancy health. One 2020 study analyzed data from the Behavioral Risk Factor Surveillance System (BRFSS) from 2011-2016 to determine changes in preventive health among low-income women of reproductive age.[50] Outcomes included 16 measures across preventive health care, overall health, chronic disease diagnoses, and health behaviors.[50] The study found that Medicaid expansion resulted in minimal increases in women receiving preventive checkups, taking blood pressure medication, and taking insulin by 3.7, 6.8, and 4.9 percentage points respectively.[50] After adjusting for individual covariates, the study also found that Medicaid was associated with decreases in avoiding care due to costs and heavy drinking by 7.4

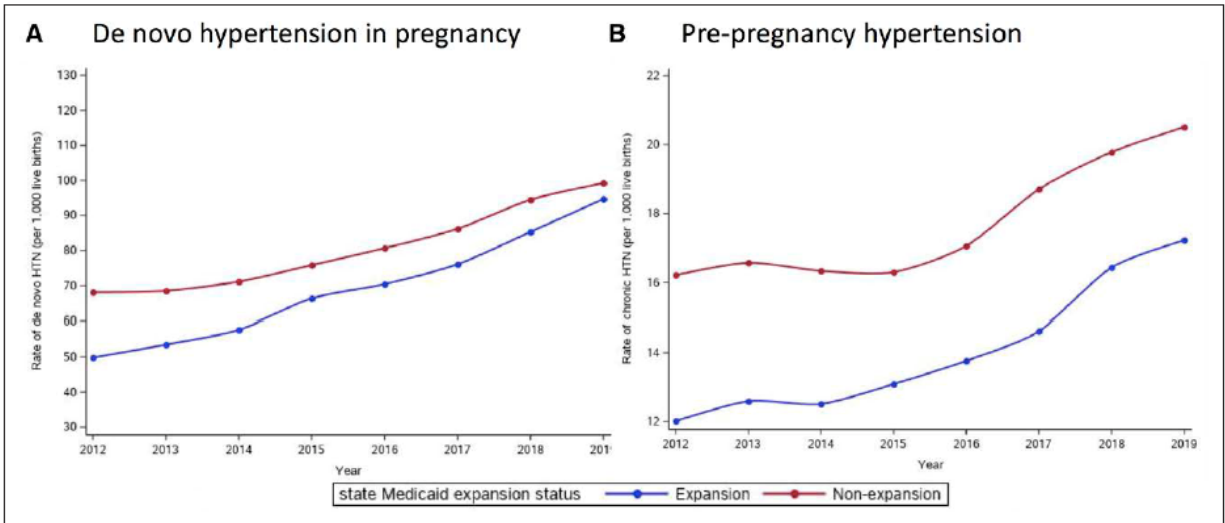
and 1.0 percentage points respectively.[50] However, the study found no impact on chronic condition diagnoses, smoking cessation, or BMI.[50]

A second study utilized birth certificate data from 2011-2017 to analyze pre-pregnancy and pregnancy health following the ACA's Medicaid expansion.[51] The study focused on pre-pregnancy health measures including smoking, BMI, diabetes, and hypertension and pregnancy health measures including level of prenatal care, gestational diabetes, gestational hypertension, and eclampsia.[51] Overall, the study did not find any changes in tested outcomes even in adjusted models.[51]

A study published in 2021 analyzed some pre-pregnancy and pregnancy diagnoses utilizing 2009-2017 PRAMS data for women ages 20-44 with a first live birth. [43] No association was found between the ACA's Medicaid expansion and pre-pregnancy and pregnancy diagnoses of high blood pressure and diabetes.[43] This was corroborated by another study that utilized 10 preconception measures from 2012-2017 BRFSS and PRAMS data.[44] Upon the ACA's Medicaid expansion, the study found no changes in pre-pregnancy depression, diabetes, hypertension, smoking, BMI, and physical activity.[44] However, the study did find evidence of increases in preconception health counseling and pre-pregnancy daily folic acid intake by 4.0 and 1.9 percentage points respectively (95% CI).[44]

The final study analyzed 2012-2019 data from the CDC WONDER database to assess the ACA's Medicaid expansion on hypertensive disorders of pregnancy (HDPs) for women ages 20-39.[52] For both pre-pregnancy hypertension and de novo hypertension (hypertension beginning at pregnancy), the study found rate increases over the measurement period regardless of Medicaid expansion as seen in **Figure 5**. [52] However, the rate increase was greater in expansion states for de novo hypertension compared to non-expansion states.[52] The result indicated an association

between the ACA’s Medicaid expansion and de novo hypertension.[52] For pre-pregnancy hypertension, though, no such association was found.[52]



**Figure 1. Annual trends in age-standardized rates of de novo hypertension diagnosed in pregnancy and prepregnancy hypertension among individuals aged 20 to 39 years with a singleton, first live birth\*.**

\*Medicaid expansion states included Alaska, California, Colorado, Delaware, Illinois, Louisiana, Maryland, Massachusetts, Minnesota, Nevada, New York, North Dakota, Oregon, Pennsylvania, Vermont, Virginia, Washington, and District of Columbia; Medicaid nonexpansion states included Florida, Georgia, Idaho, Kansas, Mississippi, Missouri, Nebraska, North Carolina, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Wisconsin, and Wyoming. HTN indicates hypertension.

**Figure 5: Annual trends in age-standardized rates of de novo hypertension diagnosed in pregnancy and prepregnancy hypertension among individuals aged 20-39 years with a singleton, first live birth**

Reprinted from “Association of State Medicaid Expansion Status With Hypertensive Disorders of Pregnancy in a Singleton First Live Birth” by Ian K. Everitt et.al, *Circulation: Cardiovascular Quality Outcomes* p 27-35, Copyright 2022 by Ian K. Everitt et.al

## **6.0 Discussion**

### **6.1 Results and Interpretation**

The literature review demonstrated that the ACA's Medicaid expansion improved some maternal health incomes. One of the most profound effects was seen in contraceptive use, as all four studies concluded a positive result. Because LARCs have a higher upfront out-of-pocket cost than short-term birth control, the shift from short- to long-term methods indicate that the ACA's Medicaid expansion removed a cost barrier.[42, 45] Thus, women were able to select their preferred method of choice.[42, 45] The increase in adolescent contraceptive use could possibly be explained by them gaining Medicaid coverage because their parents became eligible. Overall, the increase in contraceptive use in general indicates that the ACA's Medicaid expansion improved access to contraceptives.

Despite the positive effect on contraceptive use, there were mixed results regarding birth outcomes. Although the rate of adolescent births decreased, there was no effect on unintended pregnancies or short interpregnancy intervals. The change in the birth rates over the study period may have been too small to detect a meaningful change. Additionally, family planning services may have experienced unmanageable patient volumes following the ACA's Medicaid expansion, preventing some patients from receiving care.[41]

Maternal mortality and postpartum hospitalizations were positively affected following the ACA's Medicaid expansion and may be explained by uninterrupted pre-pregnancy, prenatal, and postpartum care. Regarding maternal mortality, results were especially promising for women of color as non-Hispanic Black women and Hispanic women were the most impacted groups.

Possible explanations of reduced postpartum hospitalizations include increased diagnosis of chronic conditions early in pregnancy and timely prenatal care.[49]

For perinatal mental health, the results were conflicting. One study found that the ACA's Medicaid expansion was associated with a decrease in likelihood of postpartum depression symptoms while the second study did not. The contradictory results may be explained by a difference in study periods; the former study included one additional year and began in 2010 before any states began implementing any Medicaid provisions. The decrease in self-reported pre-pregnancy depression could allude to women using more preventative mental health care before pregnancy.[47]

The most inconclusive results were seen in pre-pregnancy and pregnancy health measures. While some studies reported positive results (de novo hypertension, preconception health counseling, and folic acid intake), the majority of studies saw no effects. Although the ACA's Medicaid expansion increased pre-pregnancy access to care, women may not know the importance of pre-pregnancy care and where to receive it. Another explanation could be that many of the pre-pregnancy and pregnancy measures were related to chronic conditions and lifestyle; thus, the study period may have been too small to detect noticeable changes.

## **6.2 Literature Gaps and Limitations**

There were several limitations to the literature. The articles varied in the number of states studied, with some focusing on extensive samples and others not. The inconsistency in the states included in the studies makes it difficult to draw definitive conclusions about the effects of the ACA's Medicaid expansion. Additionally, eight states expanded Medicaid since 2019, and only



three articles included data from that year, further limiting the scope of the findings. Lastly, many of the studies relied on data from self-reported survey results like PRAMS. Because PRAMS is not a state requirement, data may be missing from some years. Self-reported data also runs the risk of being inaccurate or misreported.

Another limitation of the studies is that the majority (approximately 70 percent) did not stratify the data by race/ethnicity. Some studies cited lack of available data as the reason why this was the case. Even in studies that did stratify by race/ethnicity, many lower population minority groups were excluded like Asian or Pacific Islander women, American Indian and Alaska Native women, and other racial/ethnic groups. This lack of information can obscure the true impact of the ACA's Medicaid expansion on maternal health disparities.

Lastly, there were several limitations to the literature search. First, other known names for the ACA such as Obamacare, The Patient Protection and Affordable Care Act, and the abbreviation PPACA were excluded from the search terms that could have yielded additional results. Search terms were limited to pregnancy designations and the timing around pregnancy; however, more relevant articles could have resulted from inclusion of specific medical conditions like postpartum depression. Lastly, articles that assessed <5 states were not included because they could not be meaningfully generalized to the entire U.S.; however, these studies could have potentially discovered meaningful results in maternal health outcomes.

Lastly, the studies varied in their control for confounding variables. Confounding variables are any additional factors that may affect the relationship between the ACA's Medicaid expansion and maternal health outcomes. Thus, the presence of confounding variables make it difficult to determine whether the observed changes in maternal health outcomes are solely due to Medicaid expansion. While most included studies controlled for individual characteristics such as age,

race/ethnicity, language and level education, almost none addressed other social determinants of health (SDOH) such as safe and affordable housing, access to transportation, food security and access to healthy options, and others that are known to heavily influence health outcomes. SDOH needs are particularly relevant to the effectiveness of Medicaid expansion as they affect an individual's ability to access and utilize health services. Low-income women and women of color are also disproportionately affected by SDOH, so further investigation into specific factors may help explain maternal health disparities. Few studies analyzed state-level characteristics such as employment and poverty rates, provider reimbursement rates, family planning waivers, clinician availability and access, among others. Differences in states' cultural and political climates could also lead to different maternal health outcomes, yet these factors were not addressed. Lastly, the ACA's Medicaid expansion was implemented by states at various times with differing eligibility requirements. The majority of studies classified states as expansion vs. non-expansion; however, many sociopolitical changes could have happened over the study period. To more carefully control for this, future studies could divide the timing of ACA implementation into smaller intervals as well as designate states based on Medicaid generosity.

Overall, while studies on the ACA's Medicaid expansion have provided valuable insights into its effects on maternal health care access and outcomes, more research must be conducted to address the unanswered questions and limitations in existing research.

### **6.3 Medicaid Expansion Alternatives**

Because stable health insurance coverage around the time of pregnancy provides greater access to care, and thus, results in positive effects on maternal health outcomes, several alternative

policy options can be proposed to close the Medicaid coverage gap. First, the federal government could encourage non-expansion states further by providing additional financial incentives. The Biden Administration attempted this through a temporary fiscal benefit in the American Rescue Plan Act of 2021.[53] States would receive a 90 percent federal match rate plus a five percentage point increase in federal matching funds for two years following expansion.[53] A KFF study indicated that the additional resources would more than offset the states' expansion costs; however, no state has taken the offer.[53]

The federal government could create a workaround by providing Medicaid-like coverage to those in the coverage gap through a federal option. However, this option would not be easy to implement as it would be administratively burdensome and politically challenging. Non-expansion states would likely not expand Medicaid, and there would be a risk of current expansion states dropping Medicaid coverage to shift costs to the federal government.[53] Although Biden's plan outlines incentives for expansion states to maintain their existing Medicaid programs, this would increase overall costs.[53, 54]

Lastly, the federal government could revise ACA marketplace eligibility. Through expanded financial assistance, those in the coverage gap would be eligible for premium subsidies to purchase marketplace coverage.[55] Because there is existing marketplace infrastructure, it could be a quicker, less administratively complex task. However, the policy would have to be carefully crafted to address topics such as covered benefits and out-of-pocket costs.[55]

In addition to federal policies, Medicaid managed care organizations (MCOs) can play a critical role in improving maternal health and reducing disparities. One example is the Blue Cross Blue Shield Association (BCBSA), an association that serves over seven million Medicaid beneficiaries nationwide through independent MCOs.[56] In 2021, BCBSA announced its bold

plan to improve maternal health and reduce racial disparities by 50 percent.[57] BCBSA's comprehensive strategy outlined several elements including increased community engagement, provider education, and access to culturally competent care like doulas and midwives.[57] Additionally, BCBSA is committed to implementing value-based contracts that hold providers accountable for maternal health outcomes.[57] In conclusion, MCOs are influential organizations that can positively affect maternal health outcomes through the combination of targeted initiatives.

## 7.0 Conclusion

Maternal mortality and morbidity have been of growing concern in the U.S. in recent decades. Poor maternal outcomes have long-lasting physical, emotional, and economic effects on mothers, families, communities, and society. As a result, various organizations and government agencies have raised awareness on poor maternal health and developed strategies in response. The literature review provides evidence that the ACA's Medicaid expansion was associated with a positive impact on maternal health outcomes, specifically in the areas of contraceptive use, maternal mortality, and postpartum hospitalizations. However, the impact on other areas such as birth outcomes, perinatal mental health, and pre-pregnancy and pregnancy health measures were inconclusive. The limitations of the literature including the inconsistency in number of states studied, the lack of stratification by race/ethnicity, the absence of addressing SDOH, and the impacts of other confounding factors make it difficult to draw definitive conclusions about the effects of the ACA's Medicaid expansion. Thus, the findings highlight the need for more research to address the unanswered questions and limitations in existing research. Ultimately, Medicaid plays a crucial role in improving access to care and some maternal health outcomes. So, it is essential that policymakers and health care providers continue to explore ways to improve and expand Medicaid programs to ensure positive health outcomes for women, especially those from marginalized communities.

## Appendix

**Appendix Table 1: Status of state Medicaid expansion decisions. Reproduced from KFF, 2023.[32]**

**\*South Dakota has adopted Medicaid expansion but has not yet implemented it. The expected implementation date is 7/1/2023.[32]**

State	Status of Medicaid Expansion Decision	Implementation Date	State	Status of Medicaid Expansion Decision	Implementation Date
Alabama	Not Adopted	N/A	Montana	Adopted	1/1/16
Alaska	Adopted	9/1/15	Nebraska	Adopted	10/1/20
Arizona	Adopted	1/1/14	Nevada	Adopted	1/1/14
Arkansas	Adopted	1/1/14	New Hampshire	Adopted	8/15/14
California	Adopted	1/1/14	New Jersey	Adopted	1/1/14
Colorado	Adopted	1/1/14	New Mexico	Adopted	1/1/14
Connecticut	Adopted	1/1/14	New York	Adopted	1/1/14
Delaware	Adopted	1/1/14	North Carolina	Not Adopted	N/A
District of Columbia	Adopted	1/1/14	North Dakota	Adopted	1/1/14
Florida	Not Adopted	N/A	Ohio	Adopted	1/1/14
Georgia	Not Adopted	N/A	Oklahoma	Adopted	7/1/21
Hawaii	Adopted	1/1/14	Oregon	Adopted	1/1/14
Idaho	Adopted	1/1/20	Pennsylvania	Adopted	1/1/15
Illinois	Adopted	1/1/14	Rhode Island	Adopted	1/1/14
Indiana	Adopted	2/1/15	South Carolina	Not Adopted	N/A
Iowa	Adopted	1/1/14	South Dakota*	Adopted	7/1/23
Kansas	Not Adopted	N/A	Tennessee	Not Adopted	N/A
Kentucky	Adopted	1/1/14	Texas	Not Adopted	N/A
Louisiana	Adopted	7/1/16	Utah	Adopted	1/1/20
Maine	Adopted	1/10/19	Vermont	Adopted	1/1/14

State	Status of Medicaid Expansion Decision	Implementation Date	State	Status of Medicaid Expansion Decision	Implementation Date
Maryland	Adopted	1/1/14	Virginia	Adopted	1/1/19
Massachusetts	Adopted	1/1/14	Washington	Adopted	1/1/14
Michigan	Adopted	4/1/14	West Virginia	Adopted	1/1/14
Minnesota	Adopted	1/1/14	Wisconsin	Not Adopted	N/A
Mississippi	Not Adopted	N/A	Wyoming	Not Adopted	N/A
Missouri	Adopted	10/1/21			

**Appendix Table 2: Summary of literature review.**

Title of Study	Year Published	Outcomes Measured	Years in Study	Race & Ethnicity Analysis ?	Effect
Affordable Care Act (ACA) Implementation and Adolescent Births by Insurance Type: An Interrupted Time Series Analysis of Births between 2009 and 2017 in the United States	2022	Birth Outcomes	2009-2017	No	Positive effect
Impact of Medicaid Expansion on Interpregnancy Interval	2022	Birth Outcomes	2009-2018	Yes	No effect overall
Medicaid expansions, preconception insurance, and unintended pregnancy among new parents	2021	Birth Outcomes Pre-Pregnancy and Pregnancy Health	2009-2017	No	<b>Birth Outcomes:</b> No effect across entire sample Positive effect for mothers with high-school degree or less  <b>Pre-Pregnancy and Pregnancy Health:</b> No effect

<b>Title of Study</b>	<b>Year Published</b>	<b>Outcomes Measured</b>	<b>Years in Study</b>	<b>Race &amp; Ethnicity Analysis ?</b>	<b>Effect</b>
Medicaid Expansion and Contraceptive Use Among Female High School Students	2022	Contraceptive Use	2013-2019	No	Positive effect overall Increase in use of moderately and highly effective BC Increase in LARC, decrease in short-term BC
Evaluation of Medicaid Expansion Under the Affordable Care Act and Contraceptive Care in US Community Health Centers	2020	Contraceptive Use	2013, 2014, 2016	No	Positive effect Increase in LARC among expansion states, particularly for adolescents
Association of the Affordable Care Act Medicaid Expansions with Postpartum Contraceptive Use and Early Postpartum Pregnancy	2022	Contraceptive Use Pre-Pregnancy and Pregnancy Health	2012-2019	Yes	<b>Birth Outcomes:</b> No effect overall  <b>Contraceptive Use:</b> Positive effect overall Increase in LARC, decrease in short-term BC, no effect on permanent BC
Medicaid Expansion Increased Preconception Health Counseling, Folic Acid Intake, and Postpartum Contraception	2020	Contraceptive Use Pre-Pregnancy and Pregnancy Health	2012-2017	No	<b>Contraceptive Use:</b> Positive effect  <b>Pre-Pregnancy and Pregnancy Health:</b> No effect
Medicaid Expansion Led to Reductions in Postpartum Hospitalizations	2023	Hospitalizations	2010-2017	Yes	Positive effect overall



<b>Title of Study</b>	<b>Year Published</b>	<b>Outcomes Measured</b>	<b>Years in Study</b>	<b>Race &amp; Ethnicity Analysis ?</b>	<b>Effect</b>
Adoption of Medicaid Expansion is Associated with Lower Maternal Mortality	2020	Maternal Mortality	2006-2017	Yes	Positive effect overall
Medicaid Expansion and Postpartum Depressive Symptoms: Evidence From the 2009-2018 Pregnancy Risk Assessment Monitoring System survey	2022	Perinatal Mental Health	2009-2018	No	Positive effect in likelihood of postpartum depressive symptoms No effect on postpartum depressive symptoms
Medicaid Expansion Associated With Some Improvements in Perinatal Mental Health	2021	Perinatal Mental Health	2012-2018	No	No effect on pre-pregnancy depression screenings Decrease in self-reported pre-pregnancy depression No effect on postpartum depression
Association of State Medicaid Expansion Status With Hypertensive Disorders of Pregnancy in a Singleton First Live Birth	2022	Pre-Pregnancy and Pregnancy Health	2012-2019	No	Positive effect
Impacts of Medicaid Expansion on Health Among Women of Reproductive Age	2020	Pre-Pregnancy and Pregnancy Health	2011-2016	No	Positive effect on some measures including preventative checkups, taking blood pressure medication, and taking insulin

<b>Title of Study</b>	<b>Year Published</b>	<b>Outcomes Measured</b>	<b>Years in Study</b>	<b>Race &amp; Ethnicity Analysis ?</b>	<b>Effect</b>
Impacts of Medicaid Expansion Before Conception on Prepregnancy Health, Pregnancy Health, and Outcomes	2021	Pre-Pregnancy and Pregnancy Health	2011-2017	No	No effect

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