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## NOTES

### **MINDING BABY: THE LINK BETWEEN MATERNAL DEPRESSION AND INFANT HEALTH AND DEVELOPMENT**

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*We have a secret in our culture, and it's not that birth is painful.  
It's that women are strong.  
– Laura Stavoe Harm*

#### I. INTRODUCTION

In 2018, during the State of the State Address, Indiana Governor, Eric Holcomb, declared that Indiana would have the lowest infant mortality rate in the Midwest by 2024.<sup>1</sup> This was a lofty goal in light of Indiana's historically poor ranking in infant mortality.<sup>2</sup> In the two years since Governor Holcomb made this promise, several steps have been taken to work towards caring for mothers' and babies' physical health, but very little has been done to address maternal mental health or maternal trauma.<sup>3</sup>

There is a genetic and cyclical nature to trauma that causes mothers and babies to be disproportionately affected. Mothers who experience trauma in childhood are more likely to experience depression during or after pregnancy. Similarly, infants born to mothers who experienced untreated depression are at a higher risk for childhood trauma. Much of the policy surrounding maternal care focuses on important aspects of prenatal care such as physical health, but largely ignores mental health. Maternal depression can have devastating effects on babies ranging from attachment disorders to developmental delays. Left untreated, maternal depression can cause adverse health outcomes; not only for the mother but also for the baby.

Maternal mental health and trauma screenings during pregnancy and

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1. Governor Eric Holcomb, 2018 State of the State Address: The Next Steps to the Next Level (Jan. 9, 2018), <https://www.in.gov/gov/2972.htm> [<https://perma.cc/JSN3-YGNU>].

2. *Infant Mortality*, IND. U. SCH. MED., <https://medicine.iu.edu/expertise/indiana-health/infant-mortality> [<https://perma.cc/37DU-F26L>] (last visited Mar. 28, 2021) [hereinafter IND. U. SCH. MED.].

3. *My Health Baby: Indiana's OB Navigator Program*, IND. ST. DEP'T HEALTH, <https://www.in.gov/isdh/28233.htm> [<https://perma.cc/G2AV-BRMM>] (last visited Mar. 28, 2021).

postpartum should be the required standard of care for all Medicaid mothers, or for all mothers who are not enrolled in Medicaid, but whose child is Medicaid eligible. Screening for, and offering services to treat, maternal mental health disorders can reduce adverse outcomes for infants – including infant death – and end the epigenetic cycle of mental illness and toxic stress that is particularly rampant in low-income communities.

#### *A. Road Map*

This Note will begin with an overview of the background of maternal mental health in the United States. Section II will first describe in detail what maternal depression is and how it affects both mothers and infants. This section will give a brief history of maternal mental health in the United States and where the country, as well as the State of Indiana, currently stands in terms of maternal depression screenings. Section II will then draw a connection between maternal mental health and infant mortality. This section will delve into specifics on infant mortality in the United States as well as in the State of Indiana. Finally, Section II will discuss the concept of *adverse childhood experiences* (“ACEs”) and the role that these experiences play on maternal mental health and infant health. This section will define ACEs as well as toxic stress and draw connections between trauma and public health.

In Section III, this Note will present a full literature review. First, Section III will give a literature review of the connection between maternal depression and adverse outcomes in infant health. This portion will dive further into research about the severe effect that maternal mental health can have on infant mortality. Next, Section III will provide a full review of the research regarding the generational effect of maternal mental health and trauma. This section will define the term epigenetics and will provide research on the generational effects of toxic stress and mental health disorders on pregnant women and mothers. Finally, Section III will provide an overview of research connecting maternal ACEs and toxic stress with infant health outcomes. Specifically, this section will present research that draws a connection between maternal trauma and infant mortality rates.

Section IV will give a policy review of different jurisdictions in the United States. This section will go over various policies that touch on maternal mental health screenings, maternal ACEs screenings, as well as billing and reimbursement policies. Section IV will compare and contrast policies in states that are geographically near Indiana or states that are also in the bottom ten nationally for infant mortality. This portion will also discuss where Indiana currently stands on maternal mental health policies.

Finally, Section V will give policy recommendations for the State of Indiana. This portion will draw from other state policies and make a proposal for how Indiana can change and improve policy so as to better care for the mental health of mothers, and in turn, reduce infant mortality.

## II. BACKGROUND

### A. Maternal Depression

Maternal depression describes a wide variety of perinatal<sup>4</sup> mental health conditions that can affect women throughout their pregnancy and postpartum.<sup>5</sup> Prenatal depression is a mental health condition that occurs during pregnancy.<sup>6</sup> It is estimated that ten to twenty percent of mothers experience prenatal depression.<sup>7</sup> Symptoms can include crying or weepiness, lack of appetite, loss of enjoyment of regular activities, or poor fetal attachment.<sup>8</sup> Often prenatal depression can also include severe anxiety about the health of the baby or of the mother herself.<sup>9</sup> Depression during pregnancy is the greatest indicator for postpartum depression and women who present with depressive symptoms during pregnancy should be tested again after the birth.<sup>10</sup> Studies have shown that “[n]early [seventy-three] percent of women who report antepartum depression also experience postpartum depression, compared to [thirty-eight] percent of women who did not experience antepartum depression but later experienced it postpartum.”<sup>11</sup> Prenatal depression is easy to misdiagnose and is often reduced to a mother simply being hormonal. Antenatal depression can have significant health effects on both mom and baby.<sup>12</sup>

Experienced by as much as eighty percent of new mothers, the most common form of maternal depression is referred to as “baby blues.”<sup>13</sup> Baby blues tend to

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4. Perinatal refers to the period of time directly before (approximately twenty-two completed weeks of gestation) and after the birth of a child (seven completed days postpartum). *Maternal and Perinatal Health*, WORLD HEALTH ORG., [https://www.who.int/maternal\\_child\\_adolescent/topics/maternal/maternal\\_perinatal/en/](https://www.who.int/maternal_child_adolescent/topics/maternal/maternal_perinatal/en/) [<https://perma.cc/LTD4-BNME>] (last visited Mar. 28, 2021).

5. *What is Maternal Depression?*, N.Y. ST. DEP’T HEALTH, [https://www.health.ny.gov/community/pregnancy/health\\_care/perinatal/maternal\\_depression/providers/what\\_is\\_maternal\\_depression.htm](https://www.health.ny.gov/community/pregnancy/health_care/perinatal/maternal_depression/providers/what_is_maternal_depression.htm) [<https://perma.cc/9T6R-2H4J>] (last updated Jan. 2015).

6. *Id.*

7. See Anne-Claude Bernard-Bonnin, Can. Pediatric Soc’y, *Maternal Depression and Child Development*, 9 PAEDIATRICS & CHILD HEALTH 575, 575 (2004).

8. *What is Maternal Depression?*, *supra* note 5.

9. Juli Fraga, *Prenatal Depression May Be the Most Severe Form of Maternal Depression*, WASH. POST (Aug. 29, 2016), <https://www.washingtonpost.com/news/to-your-health/wp/2016/08/29/prenatal-depression-may-be-the-most-severe-form-of-maternal-depression/> [<https://perma.cc/57YF-ZEDN>].

10. MARGARET WILE, FROM PREGNANCY TO POSTPARTUM: THE EFFECTS OF MATERNAL DEPRESSION ON MOTHERS, INFANTS AND TODDLERS 1 (2019), <https://www.ncsl.org/research/human-services/from-pregnancy-to-postpartum-the-effects-of-maternal-depression-on-mothers-infants-and-toddlers.aspx> [<https://perma.cc/C4EJ-BD9P>].

11. *Id.* (footnote omitted).

12. Fraga, *supra* note 9.

13. *What is Maternal Depression?*, *supra* note 5.

begin “during the first few weeks after delivery” and typically last between one and two weeks.<sup>14</sup> Symptoms can include weepiness, anxiety, irritability, mood swings, insomnia, and an exaggerated sense of empathy.<sup>15</sup> Baby blues are categorized as the “least severe form of postpartum depression.”<sup>16</sup> The American Pregnancy Association recommends self-care such as maintaining a healthy diet and keeping a journal of feelings and moods as a way to combat baby blues.<sup>17</sup> It is also recommended that new mothers experiencing these symptoms find someone they trust to talk with and ask for help when they need it.<sup>18</sup>

Postpartum depression is the form of maternal depression that is most commonly discussed in literature and policy. Postpartum depression is categorized by a sense of more persistent sadness and is distinguishable from baby blues by the length of time the emotional distress lasts.<sup>19</sup> Symptoms of postpartum depression include many of the symptoms of baby blues but also can include more severe symptoms such as difficulty bonding with baby, recurrent thoughts of self-harm or harming the baby, panic attacks, feelings of worthlessness or hopelessness, and fear of being a bad mother.<sup>20</sup> In recent years, postpartum depression has been recognized as a major public health issue globally.<sup>21</sup> Studies conducted in the United States, the United Kingdom, and Australia show that, on average, ten to fifteen percent of new mothers experience postpartum depression.<sup>22</sup> Treatment for postpartum depression can include pharmacological therapy, cognitive behavioral therapy, or both.<sup>23</sup>

The most severe form of maternal mental illness is called postpartum psychosis (“PP”).<sup>24</sup> PP symptoms generally begin as early as two to three days after birth and can last between one and four weeks.<sup>25</sup> PP is rare and occurs only in one to two mothers out of 1000.<sup>26</sup> PP is characterized by hallucinations, paranoia, inability to perform simple tasks, obsessive thoughts about harming the

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14. *Id.*

15. *Id.*

16. *Baby Blues*, AM. PREGNANCY ASS’N (Jan. 25, 2019), <https://americanpregnancy.org/first-year-of-life/baby-blues/> [<https://perma.cc/7CXS-2EZA>]

17. *Id.*

18. *Id.*

19. *What is Maternal Depression?*, *supra* note 5.

20. Mayo Clinic Staff, *Postpartum Depression*, MAYO CLINIC (Sept. 1, 2018), <https://www.mayoclinic.org/diseases-conditions/postpartum-depression/symptoms-causes/syc-20376617> [<https://perma.cc/5EFF-26TD>].

21. See generally Elizabeth Fitelson et al., *Treatment of Postpartum Depression: Clinical, Psychological and Pharmacological Options*, 3 INT’L J. WOMEN’S HEALTH 1 (2010).

22. *Id.* at 1.

23. *Id.* at 3.

24. *What is Maternal Depression?*, *supra* note 5.

25. Dorothy Sit et al., *A Review of Postpartum Psychosis*, 15 J. WOMEN’S HEALTH 352, 353 (2006).

26. *Id.*

child, excessive energy or agitation, and confusion.<sup>27</sup> Overwhelming research has shown that PP is linked to bipolar disorder, schizoaffective disorder, or schizophrenia.<sup>28</sup> Women who have a personal or family history of one or more of the above disorders are at the highest risk for developing PP.<sup>29</sup> This disorder requires immediate medical attention and treatment that often includes both medical intervention as well as cognitive and behavioral therapy.<sup>30</sup>

Though any mother can experience depressive symptoms after the birth of any child, there are some risk factors that can make certain people predisposed to perinatal mental illness.<sup>31</sup> Those with a history of mental illness, both during pregnancy and prior to pregnancy, are more likely to experience some form of maternal mental illness.<sup>32</sup> Mothers who have a childhood trauma history (*e.g.*, ACEs), particularly of sexual assault, are also more at risk for maternal depression.<sup>33</sup> Higher-risk pregnancies and traumatic deliveries are also related to a higher risk of developing depressive symptoms.<sup>34</sup> Age can be a risk factor and the highest rates of depression have been observed in young mothers aged thirteen to nineteen years old.<sup>35</sup> Perhaps the biggest risk factor for developing maternal depression is social isolation. The existence of a poor relationship with the father of the child, or a lack of support from other family members has been shown to have a significant effect on the development of depressive symptoms.<sup>36</sup> “In addition to the [woman's] relationship with family members and [the] community, behaviors such as smoking during [the] prenatal period, [are] . . . social factors associated with increased incidence of postpartum depression a[t] 1.7 times.”<sup>37</sup> Finally, socioeconomic status, as well as education, play a role in the development of depressive symptoms.<sup>38</sup>

Though each of the above-mentioned maternal mental illnesses is incredibly important in its own right, this Note will focus largely on baby blues and postpartum depression due to the higher rate of occurrence of both conditions as well as the effect that they have on maternal and infant health.

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27. *Id.*; Mayo Clinic Staff, *supra* note 20.

28. See Sit et al., *supra* note 25; Kimberly A. Yonkers et al., *Management of Bipolar Disorder During Pregnancy and the Post-Partum Period*, 161 AM. J. PSYCHIATRY 608 (2004); Ian Brockington & Antoine Guedeney, *Motherhood and Mental Health*, 2 INFANT OBSERVATION 116 (1999).

29. Yonkers et al., *supra* note 28.

30. Mayo Clinic Staff, *supra* note 20.

31. *What is Maternal Depression?*, *supra* note 5.

32. *Id.*

33. See Maryam Ghaedrahmati et al., *Postpartum Depression Risk Factors: A Narrative Review*, 6 J. ED. & HEALTH PROMOTION art. 60 (2017).

34. *See id.*

35. *Id.* at 16.

36. *See id.* at 23-24.

37. *Id.* at 24 (footnote omitted).

38. *Id.* 24-25.

### B. Infant Mortality

Infant mortality is defined as “the death of an infant before his or her first birthday.”<sup>39</sup> The infant mortality rate is calculated as the number of infant deaths for every 1,000 live births, and there were 4.1 million infant deaths globally with an average mortality rate of twenty-nine deaths for every 1,000 live births.<sup>40</sup> The highest average rate was in the Africa region, as categorized by the World Health Organization (“WHO”).<sup>41</sup>

Though infant death may seem to be a problem of the past for the global north, it continues to plague even the wealthiest nations. The infant mortality rate in the WHO Europe Region is eight deaths per 1,000 live births.<sup>42</sup> The overall infant mortality rate in the United States is 5.8 deaths for every 1,000 live births.<sup>43</sup> As with many other public health issues in the United States, infant death is not experienced equally throughout the country. New Hampshire has the lowest rate of infant death with only 3.9 deaths per 1,000 births.<sup>44</sup> Mississippi has the highest rate of infant death with 9.1 deaths per 1,000 births.<sup>45</sup> The disparity in infant deaths goes beyond geographic location. Race plays a significant role in infant mortality with the average rate for African American infants being 10.9 per 1,000 births, nearly twice that of the national average.<sup>46</sup> Similarly, Native American populations also experience considerably higher rates of infant death with the average in these populations being 8.4 per 1,000 births.<sup>47</sup>

This Note will focus on infant death rates in Indiana. Of the fifty United States, Indiana ranks forty-third for infant mortality, reporting 7.4 deaths per 1,000 live births in 2019.<sup>48</sup> Indiana’s infant death rate is more than twenty percent higher than the national average.<sup>49</sup> In 2017, 601 infants died before their first birthday, and of those deaths, twenty-five percent occurred in just three percent

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39. *Infant Mortality*, CTR. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm> [https://perma.cc/TJF2-589B] (last updated Sept. 10, 2020) [hereinafter CDC].

40. *Infant Mortality*, WORLD HEALTH ORG., [https://www.who.int/gho/child\\_health/mortality/neonatal\\_infant\\_text/en/](https://www.who.int/gho/child_health/mortality/neonatal_infant_text/en/) [https://perma.cc/2VC9-G5BV] (last visited Mar. 28, 2021).

41. *Id.* The WHO categorizes its member states into six regions: African Region, Region of the Americas, South-East Asian Region, European Region, Eastern Mediterranean Region, and Western Pacific Region.

42. *Id.*

43. CDC, *supra* note 39.

44. *Infant Mortality*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/ALL](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/ALL) [https://perma.cc/H5XK-FYU2] [hereinafter AM. HEALTH RANKINGS].

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. IND. U. SCH. MED., *supra* note 2.

of the State's zip codes.<sup>50</sup> Indiana also experiences extreme racial disparities in infant mortality. In 2017, the rate of infant death for African American babies in Indiana was 12.5 per 1,000.<sup>51</sup> In that same year, the rate for Hispanic babies was 7.8 per 1,000 births.<sup>52</sup> Comparatively, the rate of infant death for white infants in Indiana was only 6.1 per 1,000 births in 2017.<sup>53</sup>

There are several reasons why an infant may die before their first birthday. In 2017, the Centers for Disease Control and Prevention ("CDC") ranked birth defects as the leading reason for infant death.<sup>54</sup> The CDC did not provide an explanation as to what the most common birth defects were, or if the defects were genetic or due to prenatal risks taken by the mother. Rounding out the top five, the causes of death that were identified by the CDC were preterm birth or low birth weight, maternal and pregnancy complications, sudden infant death syndrome ("SIDS"), and injuries such as suffocation.<sup>55</sup>

Indiana categorizes its infant deaths into most the common causes. The largest number of infant deaths in Indiana (forty-eight percent) is attributed to perinatal risks.<sup>56</sup> Perinatal risks can include mental health conditions as well as physical health conditions such as obesity, hypertension, diabetes, or heart disease.<sup>57</sup> Other perinatal risks can include tobacco use, alcohol use, or illicit drug use.<sup>58</sup> The next highest percentage of infant deaths in Indiana can be attributed to congenital malformations.<sup>59</sup> The remainder of infant deaths in Indiana is due to

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50. *Id.*

51. AM. HEALTH RANKINGS, *supra* note 44.

52. *Id.*

53. *Infant Mortality*, IND. DEP'T HEALTH, <https://www.in.gov/isdh/27470.htm> [<https://perma.cc/5PRW-Y4GK>] (last visited July 20, 2020).

54. CDC, *supra* note 39.

55. *Id.* A preterm birth is one that occurs prior to the thirty-seventh week of gestation, or three weeks early. The earlier a baby is born, the more likely it is to experience complications. Mayo Clinic Staff, *Premature Birth*, MAYO CLINIC (Dec. 21, 2017), <https://www.mayoclinic.org/diseases-conditions/premature-birth/symptoms-causes/syc-20376730> [<https://perma.cc/XV6S-B4UK>]. Low birth weight is defined as a baby born weighing less than five pounds and eight ounces. *Low Birth Weight*, U. ROCHESTER MED. CTR., <https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=90&contentid=p02382> [<https://perma.cc/2QUW-9CUY>].

56. IND. U. SCH. MED., *supra* note 2.

57. *Pregnancy Complications*, CTR. FOR DISEASE CONTROL & PREVENTION (Oct. 23, 2018), [https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-complications.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Freproductivehealth%2Fmaternalinfanthealth%2Fpregcomplications.htm](https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-complications.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Freproductivehealth%2Fmaternalinfanthealth%2Fpregcomplications.htm) [<https://perma.cc/7NTX-EE3F>]; *Maternal, Infant, and Child Health*, OFF. DISEASE PREVENTION & HEALTH PROMOTION, <https://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health#top> [<https://perma.cc/LPB7-KA7M>] (last visited Mar. 28, 2021).

58. Mayo Clinic Staff, *Sudden Infant Death Syndrome (SIDS)*, MAYO CLINIC (May 20, 2020), <https://www.mayoclinic.org/diseases-conditions/sudden-infant-death-syndrome/symptoms-causes/syc-20352800> [<https://perma.cc/N3K6-ELAN>].

59. AM. HEALTH RANKINGS, *supra* note 44.

SIDS (14.4 percent), accidents or assaults (4.5 percent), and what is referred to as “other” (12.7 percent).<sup>60</sup> Though many of the leading causes of infant death, such as SIDS, may not necessarily be preventable, there are ways to reduce the risks. One of the best ways to reduce the risk of adverse infant health is to receive appropriate prenatal care.<sup>61</sup> Once the infant is born, infant health care and education for the mother on how to best care for the baby – particularly on subjects such as safe sleep practices and feeding – can help to reduce an infant’s risk of death in their first year of life.<sup>62</sup>

### C. Adverse Childhood Experiences and Toxic Stress

The term *adverse childhood experiences* (“ACEs”) encompasses a multitude of traumas and toxic stress experienced prior to a person’s eighteenth birthday.<sup>63</sup> These traumas can include physical abuse, witnessing the abuse of a parent, food or shelter insecurity, substance abuse by a parent, or parental incarceration.<sup>64</sup> Approximately sixty percent of adults in America have experienced one or more adverse experiences in childhood.<sup>65</sup> On average, 20.5 percent of American children aged zero to seventeen experienced two or more adverse events in 2019.<sup>66</sup> The seminal study on ACEs was conducted in 1997 by Kaiser Permanente Health and the CDC.<sup>67</sup> The study showed “a strong graded relationship between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults.”<sup>68</sup>

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60. IND. UNIV. SCH. MED., *supra* note 2. There is no definitive reason for SIDS, but there are some risk factors including preterm birth and low birth weight. *SIDS Fact Sheet*, ILL. DEP’T HEALTH, [http://www.idph.state.il.us/sids/sids\\_factsheet.htm](http://www.idph.state.il.us/sids/sids_factsheet.htm) [<https://perma.cc/4ZBJ-M83S>] (last visited Mar. 28, 2021).

61. *Are There Ways to Reduce the Risk of Infant Mortality?*, NAT’L INST. CHILD HEALTH & HUM. DEV., <https://www.nichd.nih.gov/health/topics/infant-mortality/topicinfo/reduce-risk> [<https://perma.cc/S7GW-JE75>] (last visited Mar. 28, 2021).

62. *Id.*

63. Tracy Flanagan et al., *Feasibility and Acceptability of Screening for Adverse Childhood Experiences in Prenatal Care*, 27 J. WOMEN’S HEALTH 903, 903 (2018).

64. Laura Starecheski, *Take The ACE Quiz – And Learn What It Does And Doesn't Mean*, NPR (Mar. 2, 2015), <https://www.npr.org/sections/health-shots/2015/03/02/387007941/take-the-ace-quiz-and-learn-what-it-does-and-doesnt-mean> [<https://perma.cc/8PBA-QVG9>].

65. Flanagan et al., *supra* note 63.

66. *Adverse Childhood Experiences*, AM. HEALTH RANKINGS (2019), <https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/ACEs/state/IN> [<https://perma.cc/ZZ25-2D2Q>].

67. *About the CDC-Kaiser ACE Study*, CTR. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/about.html> [<https://perma.cc/B32D-767X>] (last updated Apr. 13, 2020).

68. Vincent J. Felitti et al., *Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study*, 14 AM. J. PREV. MED. 245, 245 (1998).

Though the study was conducted in the late 1990s, the results did not gain significant attention until well into the 2000s when the current Surgeon General of California, Dr. Nadine Burke Harris, took notice in her practice of the effects of trauma on her pediatric patients.<sup>69</sup> Dr. Harris began research of her own and is now one of the leading experts on ACEs and ACE policy.<sup>70</sup> Since then, ACEs have become a centerpiece of early childhood research.<sup>71</sup> However, research on adult outcomes, and more specifically the effects of trauma on expecting mothers, is still limited.

One connection that has been fairly well-established in the literature is the connection between maternal depression and trauma experienced by the mother in childhood.<sup>72</sup> A number of studies have found a connection between the number of ACEs experienced by a mother and her risk of developing some form of perinatal depression.<sup>73</sup> A dose-response relationship was reported between the number of ACEs and the likelihood of developing either prenatal or postpartum depression; the higher a mother's ACE score, the more likely she was to develop depression at some point.<sup>74</sup>

Stress is a common part of life for all humans, but particular types of stress can be damaging to developing children. There are three generally recognized types of stress: positive stress, tolerable stress, and toxic stress.<sup>75</sup> Positive stress refers to the normal, healthy stress that all people experience during childhood and adolescence.<sup>76</sup> Examples of positive stress for a child could include the first time at school or daycare away from a parent, or routine doctor's visits and

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69. See generally NADINE BURKE HARRIS, *THE DEEPEST WELL: HEALING THE LONG-TERM EFFECTS OF CHILDHOOD ADVERSITY* 1 (2018).

70. *Id.*

71. See Sukhdip K. Purewal et al., *Screening for Adverse Childhood Experiences (ACEs) in an Integrated Pediatric Care Model*, 36 *ZERO TO THREE J.* 10, 10-17 (2016); Yael Cannon, *A Mental Health Checkup for Children at the Doctor's Office: Lessons from the Medical-Legal Partnership Movement to Fulfill Medicaid's Promise*, 17 *YALE J. HEALTH POL'Y. L. ETHICS* 253 (2017); Jack P. Shonkoff et al., *The Lifelong Effects of Early Childhood Adversity and Toxic Stress*, 129 *PEDIATRICS* e232 (2012).

72. See Esther K. Chung et al., *Depressive Symptoms in Disadvantaged Women Receiving Prenatal Care: The Influence of Adverse and Positive Childhood Experiences*, 8 *AMBULATORY PEDIATRICS* 109 (2008); Joshua P. Mersky & Colleen E. Janczewski, *Adverse Childhood Experiences and Postpartum Depression in Home Visiting Programs: Prevalence, Association, and Mediating Mechanisms*, 22 *MATERNAL & CHILD HEALTH J.* 1051 (2018).

73. See generally Chung et al., *supra* note 72; Mersky & Janczewski, *supra* note 72.

74. Chung et al., *supra* note 72. A dose-response, which involves a relationship between an exposure and the risk of an outcome, is a relationship where increasing levels of an exposure are associated with either an increasing or a decreasing risk of an outcome. Sydney Pettygrove, *Dose-Response Relationship*, BRITANNICA, <https://www.britannica.com/science/dose-response-relationship> [<https://perma.cc/W6L2-94UJ>] (last visited Mar. 29, 2021).

75. *Toxic Stress*, CTR. ON DEVELOPING CHILD HARV. U., <https://developingchild.harvard.edu/science/key-concepts/toxic-stress/> [<https://perma.cc/YXG7-G5TH>] (last visited Mar. 20, 2020).

76. *Id.*

immunizations.<sup>77</sup> The “middle level” of stress is referred to as tolerable stress. Tolerable stress “activates the body’s alert systems to a greater degree as a result of more severe, longer-lasting difficulties.”<sup>78</sup> Examples of tolerable stress would be the loss of a loved one or a serious injury or illness.<sup>79</sup> While both of these forms of stress can have serious implications, supportive adult relationships that enhance a child’s ability to cope will generally allow a child to recover from them.<sup>80</sup>

The strongest and most damaging form of stress is called toxic stress. Stress becomes toxic after prolonged exposure to extreme trauma experiences.<sup>81</sup> Living under this level of stress for long periods of time creates a buildup of cortisol – the hormone that is released during times of stress or anxiety.<sup>82</sup> Large amounts of cortisol in the body can result in a number of adverse effects including developmental delay and cognitive development.<sup>83</sup> Examples of toxic stress include prolonged physical, sexual, or emotional abuse, prolonged periods of poverty or food instability, exposure to substance abuse, or the death or imprisonment of a caregiver.<sup>84</sup> Once stress becomes toxic, the cumulative effect on a child can result in negative health impacts for the remainder of their life.<sup>85</sup>

A method for screening for ACEs has been developed and proved to be effective.<sup>86</sup> The screening consists of ten yes-or-no survey questions regarding three areas of childhood trauma: abuse, neglect, and household dysfunction.<sup>87</sup> The ACEs assessment has been shown to take less than ten minutes.<sup>88</sup> The screening has been tested in clinical settings and shown to be an accurate predictor of health outcomes.<sup>89</sup>

### III. LITERATURE REVIEW

#### *A. Connection Between Maternal Depression and Infant Health Outcomes*

Maternal depression, both during pregnancy and after, has shown to have

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77. *Id.*

78. *Id.*

79. *Id.*

80. *What Is Toxic Stress*, FLA. ST. U., <https://med.fsu.edu/childStress/whatis> [<https://perma.cc/Q3NH-BPXA>] (last visited Mar. 20, 2020).

81. *Id.*

82. Harris, *supra* note 69, at 21.

83. *See Toxic Stress*, *supra* note 75.

84. *Id.*

85. *Id.*

86. Felitti et al., *supra* note 68, at 246-49.

87. Meryl Schulman & Alexandra Maul, *Screening for Adverse Childhood Experiences and Trauma*, CTR. FOR HEALTH CARE STRATEGIES (Feb. 2019), [https://www.chcs.org/media/TA-Tool-Screening-for-ACEs-and-Trauma\\_020619.pdf](https://www.chcs.org/media/TA-Tool-Screening-for-ACEs-and-Trauma_020619.pdf) [<https://perma.cc/869F-94ME>].

88. *Id.*

89. *See id.*

significant health effects on the infant both in utero and after birth.<sup>90</sup> Depression creates a chemical change in the mother that directly affects hormone production and can have dangerous ramifications for the infant.<sup>91</sup> These changes in hormones can cause preterm birth, low birth weight, and cognitive and developmental delay in babies.<sup>92</sup> Preterm birth and low birth weight are also two of the biggest contributors to infant death.<sup>93</sup> A study conducted in Sweden between 2007 and 2012 examined more than 350,000 births.<sup>94</sup> Researchers tested both parents for depression, followed the pregnancy, and then recorded if the infant was born either very preterm (born between twenty-two and thirty-one weeks) or moderately preterm (born between thirty-one and thirty-six weeks).<sup>95</sup> The study showed that mothers who had new or recurrent depression had between a thirty percent and forty percent increased risk for moderately preterm birth.<sup>96</sup>

One of the most important aspects of infant development is called “serve and return.”<sup>97</sup> Serve and return refers to the “give and take” exchange between infants and adults where infants react to adult interaction and vice versa.<sup>98</sup> An example of a serve and return interaction would be an adult making a silly face at a baby, which in turn results in the baby responding by giggling.<sup>99</sup> Maternal depression has been shown to affect a mother’s ability to perform the serve and return pattern that is essential to an infant’s brain development.<sup>100</sup> Babies who do not receive this stimulation at a young age can experience developmental and cognitive delays.<sup>101</sup> Babies who are consistently deprived of the necessary serve and return exchange can suffer from toxic stress that can ultimately lead to adverse health outcomes and continue the cycle for future generations.<sup>102</sup>

### *B. Generational Effects of Maternal Depression and Toxic Stress*

Maternal mental health and maternal trauma are public health issues. Trauma and mental health disorders experienced by mothers can directly affect the health

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90. Wile, *supra* note 10.

91. *Id.*

92. *Id.*

93. IND. U. SCH. MED., *supra* note 2.

94. *Depression of Either Parent During Pregnancy Linked to Premature Birth*, SCIENCE DAILY (Jan. 20, 2016), [www.sciencedaily.com/releases/2016/01/160120091754.htm](http://www.sciencedaily.com/releases/2016/01/160120091754.htm) [<https://perma.cc/L9WA-HQF3>].

95. *Id.*

96. *Id.*

97. Wile, *supra* note 10.

98. *Id.*

99. *Id.*

100. *Maternal Depression in Rhode Island: Two Generations at Risk*, R.I. KIDS COUNT (Jan. 2018), <http://rikidscount.org/Portals/0/Uploads/Documents/Issue%20Briefs/3.18%20Maternal%20Depression%20Update.pdf> [<https://perma.cc/MR7P-WEEY>].

101. *Id.*

102. Wile, *supra* note 10.

of their infant and may even have a generational effect. Epigenetics is the idea that trauma can leave a “chemical mark” on a person’s genes and be passed down to future generations.<sup>103</sup> This leads to a seemingly endless cycle of trauma and associated mental health disorders.

Several studies have shown direct correlations between high rates of childhood trauma in mothers and poor health outcomes in infants.<sup>104</sup> In addition, studies have shown that mothers with multiple ACEs are more likely to develop depression.<sup>105</sup> Trauma changes the chemistry in the brain in a way that is inheritable.<sup>106</sup> Even if the child themselves never experience trauma, they may still experience poor health outcomes that are associated with trauma, simply because their mother had a high prevalence of ACEs.<sup>107</sup> This can also be true for maternal depression.

Recent studies have shown that there is now “converging evidence supporting the idea that offspring are affected by parental trauma exposures occurring before their birth, and possibly even prior to their conception.”<sup>108</sup> Trauma experienced by the mother can be passed genetically to her infant and the effects of such trauma can be felt for multiple generations. Studies done regarding epigenetics and health risk behaviors during pregnancy have shown that the behaviors of a mother will not only affect the child but can affect up to three additional generations.<sup>109</sup> Studies have shown that early traumatic experiences evoke a cascade of system-wide changes that persist into adulthood and then those genetic changes can be passed along to future generations.<sup>110</sup>

### *C. Adverse Childhood Experiences and Maternal and Fetal Health*

Exposure to trauma in childhood has been shown to affect mothers and babies both during pregnancy and birth, as well as after the birth of the child.<sup>111</sup> Though

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103. Benedict Carey, *Can We Really Inherit Trauma?*, N.Y. TIMES (Dec. 10, 2018), <https://www.nytimes.com/2018/12/10/health/mind-epigenetics-genes.html> [<https://perma.cc/5VWP-KXXZ>].

104. See Christina G. McDonnell & Kristin Valentino, *Intergenerational Effects of Childhood Trauma: Evaluating Pathways Among Maternal ACEs, Perinatal Depressive Symptoms, and Infant Outcomes*, 21 CHILD MALTREATMENT 317, 317-26 (2016); see also Nicole Racine et al., *Maternal Adverse Childhood Experiences and Infant Development*, 141 PEDIATRICS art. e20172495 (2018).

105. See Karen A. Ertel et al., *Maternal Depression in the United States: Nationally Representative Rates and Risks*, 20 J. WOMEN’S HEALTH 1609 (2011).

106. Rachel Yehuda & Amy Lehrner, *Intergenerational Transmission of Trauma Effects: Putative Role of Epigenetic Mechanisms*, 17 WORLD PSYCHIATRY 243, 243-57 (2018).

107. *Id.*

108. *Id.*

109. Carey, *supra* note 103.

110. Nicole R. Nugent et al., *Topical Review: The Emerging Field of Epigenetics: Informing Models of Pediatric Trauma and Physical Health*, 41 J. PEDIATRIC PSYCHOL. 55, 55-64 (2016).

111. See Megan V. Smith et al., *Early Childhood Adversity and Pregnancy Outcomes*, 20 MATERNAL CHILD HEALTH J. 790 (2016).

this is a relatively new field of research, several studies have found that “a dose-response relationship exists between the number of reported adverse childhood events and risk of having an operative delivery or infant’s admission to the neonatal intensive care unit.”<sup>112</sup> Adverse childhood experiences can also lead to difficulties in pregnancy including maternal depression and substance abuse.<sup>113</sup>

Screening for trauma can inform care during pregnancy and potentially reduce the adverse health outcomes that have been shown to be associated with higher rates of trauma in childhood. In Indiana, this is particularly of importance because Indiana’s maternal and infant mortality rate is higher than the national rate of such.<sup>114</sup> Children of mothers who have been exposed to ACEs are at increased risk of a multitude of poor health and developmental outcomes.<sup>115</sup> These outcomes can include delayed achievement of developmental milestones and increased likelihood of parent-child relationship difficulties in infancy.<sup>116</sup>

Numerous studies have shown that there is a significant connection between a high number of ACEs experienced by the mother and her development of maternal depression.<sup>117</sup> A study conducted with low-income pregnant women of all ages and races showed that the prevalence of ACEs, particularly in low-income women, was significantly higher than the original ACEs study estimated.<sup>118</sup> Furthermore, the study found that there was a very high association between ACEs and postpartum and antepartum depression.<sup>119</sup> Results showed that exposure to ACEs increases the risk of adverse adult experiences, which also increases the risk of poor mental health.<sup>120</sup>

#### IV. POLICY REVIEW

##### *A. Recommendations from U.S. Health Care Organizations*

Several U.S. health care organizations have published recommendations on screening mothers for perinatal depression.<sup>121</sup> The American College of

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112. *Id.* at 791.

113. Racine et al., *supra* note 104.

114. *Indiana Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/IN?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/IN?edition-year=2019) [<https://perma.cc/V8PX-94BK>].

115. Racine et al., *supra* note 104.

116. *Id.*

117. See Mersky & Janczewski, *supra* note 72, at 1058; Jasmine E. Kim et al., *The Association Between Maternal Adverse Childhood Experience and Maternal Depression: A Longitudinal Cohort Study*, 57 J. AM. ACAD. CHILD ADOLESCENT PSYCHIATRY S227 (2018); Racine et al., *supra* note 104.

118. Mersky & Janczewski, *supra* note 72.

119. *Id.*

120. *Id.*

121. See Comm. on Obstetric Practice, Am. Coll. of Obstetrics & Gynecologists, *Screening for Perinatal Depression*, 132 OBSTETRICS & GYNECOLOGY e208 (2018); *Screening Process*

Obstetricians and Gynecologists published a Committee Opinion in 2018 (the original opinion was published in 2015 but updated in 2018) recommending that all providers “complete a full assessment of mood and emotional well-being (including screening for postpartum depression and anxiety with a validated instrument) during the comprehensive postpartum visit for each patient.”<sup>122</sup> Similarly, the American Academy of Pediatrics (“AAP”) recommends screening the mother for depression during an infant’s well-child visit.<sup>123</sup> The AAP argues that untreated maternal depression can “lead to impaired parent-child interaction, discontinuation of breastfeeding, child abuse and neglect, and family dysfunction.”<sup>124</sup> Other pediatric and maternal health organizations are in agreement on the importance of screening and treating maternal depression. The Association of Women’s Health Obstetric and Neonatal Nurses (“AWHONN”) stated in a formal opinion that “all postpartum women should be screened for mood and anxiety disorders.”<sup>125</sup> The AWHONN also recommends “systematic screening in pregnancy and the postpartum period [to] help detect early symptoms of perinatal psychiatric distress.”<sup>126</sup>

### B. Current Indiana Policy

In the 2019 session of the Indiana General Assembly, House Bill 1007 was passed.<sup>127</sup> The law established a perinatal navigator program called the OB Navigator program.<sup>128</sup> The program, which was slated to begin in January 2020, is in a pilot stage, with only twenty-two of Indiana’s ninety-two counties participating at the outset.<sup>129</sup> “The OB Navigator program is a collaboration between the Indiana State Department of Health (ISDH), the Indiana Family and Social Services Administration (FSSA) and the Indiana Department of Child Services (DCS).”<sup>130</sup> This initiative will create a network of wraparound services

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*Resources*, AM. ACAD. PEDIATRICS, <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Screening/Pages/Screening-Recommendations.aspx> [https://perma.cc/66Y7-46HK] (last visited Feb. 2, 2021); Marian F. Earls et al., *Incorporating Recognition and Management of Perinatal Depression into Pediatric Practice*, 143 PEDIATRICS art. 20183259 (2019); Assoc. of Women’s Health, Obstetric & Neonatal Nurses, *Mood and Anxiety Disorders in Pregnant and Postpartum Women*, 44 J. OBSTETRIC, GYNECOLOGIC & NEONATAL NURSING 687, 689 (2015); Nat’l Assoc. of Pediatric Nurse Practitioners, *NAPNAP Position Statement on the PNP’s Role in Supporting Infant and Family Well-Being During the First Year of Life*, 25 J. PEDIATRIC HEALTH CARE 9A (2011).

122. See Comm. on Obstetric Practice, *supra* note 121.

123. See *Screening Process Resources*, *supra* note 126.

124. *Id.*

125. Assoc. of Women’s Health, Obstetric and Neonatal Nurses, *supra* note 121, at 687.

126. *Id.*

127. IND. CODE § 16-35-11-3 (2019).

128. *Id.*

129. *My Health Baby: Indiana’s OB Navigator Program*, *supra* note 3.

130. *Id.*

to support healthier outcomes for mothers and babies.<sup>131</sup> The program will require health care providers who provide maternal care in Indiana's most at-risk counties to administer a "validated and evidence-based verbal screening tool to assess substance abuse" in pregnant patients.<sup>132</sup> If, after using the screening tool, a health care provider identifies a pregnant woman who has a substance use disorder and is not currently receiving treatment, the health care provider must: (1) provide treatment to the patient; or (2) refer the patient to treatment.<sup>133</sup>

Although the Act only specifies that maternal health providers screen for and treat substance abuse, the intent is that the program will go far beyond just treating moms with substance use disorder. The OB Navigator program will include a sliding scale of care for women who are pregnant and on Medicaid.<sup>134</sup> The levels of care will include, from least intervention to most intervention, the following initiatives: Healthy Families Indiana, Community Health Partners, the Paramedic Program, and the Nurse-Family Partnership.<sup>135</sup>

DCS is already providing home visitation services via its Healthy Families Indiana program.<sup>136</sup> This program operates in every county in the State and offers home visitation services for children and families. It is a "voluntary evidence-based home visitation program that is designed to promote healthy families and healthy children through a variety of services including child development, access to health care, and parent education."<sup>137</sup> At this level, mothers who have had previous uncomplicated pregnancies will be provided education and support, but no other interventions.<sup>138</sup>

The second tier of care in the OB Navigator program will be the Community Health Partners.<sup>139</sup> This tier is for women who are not immediately flagged as high risk, but who perhaps have not had a pregnancy previously, or who need more support than other mothers.

The third level of care will be the Paramedic Program.<sup>140</sup> This level is designated for women who are at a higher risk of fetal or maternal health issues. Women who have had previous issues with pregnancies, or who are already engaging in health-risk behaviors may be assigned to this level. At this level, the women will have access to their assigned paramedic who will be available to assist them with any potential health issues that arise, as well as continually check in with the women for routine health screenings during their pregnancy.<sup>141</sup>

The final level, and the level with the greatest amount of intervention, will be

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131. *Id.*

132. H.B. 1007, 121st Gen. Assemb., 1st Reg. Sess. (Ind. 2019).

133. *Id.*

134. *My Health Baby: Indiana's OB Navigator Program*, *supra* note 3.

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.*

140. *Id.*

141. *Id.*

the Nurse-Family Partnership.<sup>142</sup> Women who are actively engaging in health-risk behaviors and are consequently at the highest risk will be assigned to this level. Women who are weening off of illicit substances, such as opioids, would be assigned to this level. Nurses are assigned to the mothers and are available for the women for the duration of their pregnancy to assist with health issues and monitor the mother during treatment.<sup>143</sup> Indiana's standards for prenatal care currently only address the requirements for hospitals, birthing centers, neonatal care, and physicians.<sup>144</sup> The standards do not address maternal mental health, or the requirement of any screenings during any point in the pregnancy or postpartum.<sup>145</sup>

### *C. Maternal Mental Health and Trauma Screening Policy in Other States*

In the United States, thirty-five states plus the District of Columbia have implemented policies that require or recommend maternal mental health screenings both during and after the pregnancy.<sup>146</sup> Some of the states have continuing education requirements for providers, and some have created an outline for how the providers will be reimbursed for the screening services.<sup>147</sup> This portion of the Note will review policies in states that are geographically or politically similar to Indiana, or states that are also ranked in the bottom ten nationally for infant mortality as well as discuss some of the infant and maternal health statistics for the states under review.

#### *1. Georgia*

Georgia is ranked as one of the worst states for infant mortality. They currently are ranked as forty-five out of fifty with 7.6 deaths per 1,000 live births.<sup>148</sup> As a response, Georgia added screening for maternal depression as a requirement during well-child visits.<sup>149</sup> Georgia's provider manual, detailing the State's Early and Periodic Screening, Diagnostic and Treatment services ("EPSDT"), requires that all Medicaid mothers be screened for depression during

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142. *Id.*

143. *Id.*

144. *See generally* 410 IND. ADMIN. CODE art. 39 (2020) (addressing Indiana maternal care standards).

145. *See generally id.*

146. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, NAT'L ACAD. FOR ST. HEALTH POL'Y (Mar. 1, 2018), <https://healthychild.nashp.org/wp-content/uploads/2018/04/NASHP-MDS-Table-4.24.18.pdf> [<https://perma.cc/W4AB-EM85>].

147. *Id.*

148. *Georgia Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/GA?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/GA?edition-year=2019) [<https://perma.cc/NU9P-7Q45>].

149. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

their child's one-, two-, four-, and six-month visits.<sup>150</sup> The reimbursement rate for screenings is \$3.95 per screening and is included as part of Georgia's EPSDT.<sup>151</sup> If a mother screens positive for depression she is referred to the Georgia Crisis and Access Line ("GCAL").<sup>152</sup> "GCAL, a statewide toll free crisis hotline, provides access to resources and services to individuals in need of crisis management for mental health, addictive disease, and crisis services."<sup>153</sup> This service is available to anyone who needs it twenty-four hours a day and seven days a week by phone or website.<sup>154</sup>

## 2. Mississippi

Mississippi has the highest infant mortality rate of all fifty states at 9.1 deaths per 1,000 live births.<sup>155</sup> The State implemented required screenings for maternal depression during the first six months of an infant's life.<sup>156</sup> Screenings are administered once during the infant's one-, two-, four-, and six-month visits.<sup>157</sup> The screening is reimbursable by fee for service at the rate of \$3.65 per screening.<sup>158</sup> Caregivers other than the child's mother are not eligible for screenings.<sup>159</sup>

## 3. Michigan

Michigan added maternal depression screenings as a required portion of EPSDT in 2017 and implemented the practice in 2018.<sup>160</sup> Mothers are to be

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150. DIV. OF MEDICAID, GA. DEP'T OF CMTY. HEALTH, PART III: POLICIES AND PROCEDURES FOR EARLY AND PERIODIC SCREENING, DIAGNOSTIC AND TREATMENT (EPSDT) SERVICES—HEALTH CHECK PROGRAM (COS 600) (2021), at IX-15, <https://www.mmis.georgia.gov/portal/portals/0/staticcontent/public/all/handbooks/epsdt%20services%20health%20check%20program%20annual%2020201216205300.pdf> [<https://perma.cc/7HKS-UQJY>].

151. *Id.* at X-9.

152. *Id.*

153. *Id.*

154. *Id.*

155. *Mississippi Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/MS?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/MS?edition-year=2019) [<https://perma.cc/H5GT-VV25>].

156. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

157. *EPSDT Periodic Examination Schedule*, MISS. DIVISION MEDICAID, <https://medicaid.ms.gov/wp-content/uploads/2016/07/EPsDT-Periodicity-Examination-Schedule.pdf> [<https://perma.cc/AC6M-22EN>] (last visited Mar. 29, 2021).

158. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

159. *Id.*

160. *See* MICH. DEP'T OF HEALTH & HUMAN SERVS., BULLETIN NO. MSA 17-34, UPDATES TO THE EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT CHAPTER OF THE MEDICAID

screened per the AAP's guidelines which recommend screening at the infant's one-, two-, four-, and six-month well-visits.<sup>161</sup>

Michigan has included maternal depression screenings as part of its Infant Mortality Reduction Plan.<sup>162</sup> The infant mortality rate in Michigan has been slowly declining from 2016, when it was at 7.0 deaths per 1,000 live births, to 2019, when it was 6.5 deaths per 1,000 live births.<sup>163</sup>

#### 4. Texas

Texas passed legislation that not only addresses the importance of maternal mental health screening but also lays out a plan for how providers will be reimbursed. The Texas statute states that “[t]he covered services under the child health plan must include a maternal depression screening for an enrollee's mother, regardless of whether the mother is also an enrollee, that is performed during a covered well-child or other office visit for the enrollee that occurs before the enrollee's first birthday.”<sup>164</sup> This progressive stance on maternal mental health screening allows for greater access to care, something that is particularly important in Texas where 25.6 percent of women in the State are uninsured.<sup>165</sup>

Since these changes have been made, infant deaths in Texas are trending down. The Texas infant mortality rate for 2019 was 5.7 deaths per 1,000 births.<sup>166</sup> This is lower than the national average and lower than the previous three years in Texas.<sup>167</sup> These numbers show that screening for maternal depression during well-child visits successfully reduces infant deaths.

#### 5. Illinois

Illinois has an infant mortality rate of 6.2 deaths per 1,000 births, which is higher than the national average.<sup>168</sup> Illinois has a maternal mortality rate of 21.4

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PROVIDER MANUAL AND 2017 AMERICAN ACADEMY OF PEDIATRICS PERIODICITY SCHEDULE 1 (2017), [https://www.michigan.gov/documents/mdhhs/MSA\\_17-34\\_607322\\_7.pdf](https://www.michigan.gov/documents/mdhhs/MSA_17-34_607322_7.pdf) [<https://perma.cc/VJ3G-VDMS>].

161. *See id.* at 2.

162. *See Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State, supra* note 146; MICH. DEP'T OF HEALTH & HUMAN SERVS., MOTHER INFANT HEALTH & EQUITY IMPROVEMENT PLAN 1 (2020), [https://www.michigan.gov/documents/infantmortality/FINAL\\_MIHEIP\\_665052\\_7.pdf](https://www.michigan.gov/documents/infantmortality/FINAL_MIHEIP_665052_7.pdf) [<https://perma.cc/NW49-W8CN>].

163. MICH. DEP'T OF HEALTH & HUMAN SERVS., *supra* note 160.

164. TEX. HEALTH & SAFETY CODE § 62.1511 (2019).

165. *Texas Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/TX?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/TX?edition-year=2019) [<https://perma.cc/V88Q-M7HM>].

166. *Id.*

167. *Id.*

168. *Illinois Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/IL?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/IL?edition-year=2019).

deaths per 100,000 live births.<sup>169</sup> The rate of postpartum depression is 9.3 percent.<sup>170</sup> In the 2019 session of the Illinois General Assembly, a bill recognizing the importance of maternal mental health was passed.<sup>171</sup> A further bill was passed to require educational materials to be distributed at all birthing hospitals statewide.<sup>172</sup> The statute states in part that

[t]he Department shall develop educational materials for health care professionals and patients about maternal mental health conditions. A birthing hospital shall, on or before January 1, 2021, distribute these materials to employees regularly assigned to work with pregnant or postpartum women and incorporate these materials in any employee training that is related to patient care of pregnant or postpartum women.<sup>173</sup>

The statute goes on to describe what the materials should include, such as materials for physicians and hospital staff on how to recognize maternal depression, as well as materials for new mothers and fathers on signs and symptoms of maternal depression.<sup>174</sup>

This is not the first time that Illinois sought to address maternal depression. In 2008, it was one of the first states to pass legislation regarding maternal mental health and screening practices.<sup>175</sup> The Perinatal Mental Health Disorders Prevention and Treatment Act compels health care professionals to meet certain requirements, including both prenatal care as well as postnatal care.<sup>176</sup> For prenatal care, providers must present educational material on maternal mental health disorders to all patients.<sup>177</sup> In addition,

[l]icensed health care professionals providing prenatal care at a prenatal visit shall invite each pregnant patient to complete a questionnaire and shall review the completed questionnaire . . . . Assessment for perinatal mental health disorders must be repeated when . . . a reasonable possibility exists that the woman suffers from perinatal mental health disorders.<sup>178</sup>

The statute also covers postnatal care, requiring that all birthing hospitals

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year=2019 [<https://perma.cc/9X8S-FPFP>].

169. *Id.*

170. *Id.*

171. 405 ILL. COMP. STAT. 120/5 (2020).

172. *Id.*

173. *Id.*

174. *Id.*

175. *Screening and Treatment for Perinatal Mental Health Disorders*, ILL. DEP'T HUM. SERV., <https://www.dhs.state.il.us/page.aspx?item=35251> [<https://perma.cc/3LZC-EJVM>] (last visited Mar. 29, 2021).

176. 405 ILL. COMP. STAT. ANN. 95/15 (2019).

177. *Id.*

178. *Id.*

distribute educational materials to the mothers (and if possible, fathers) prior to discharge and offer screening services to all mothers receiving postnatal care.<sup>179</sup> Finally, the statute covers screenings at well-baby visits.<sup>180</sup> The statute provides that “[l]icensed health care professionals providing pediatric care to an infant shall invite the infant's mother to complete a questionnaire at any well-baby check-up at which the mother is present prior to the infant's first birthday.”<sup>181</sup> Illinois reimburses providers on a fee-for-service basis. The reimbursement rate for a screening is \$14.60.<sup>182</sup> The State of Illinois does not allow for other caregivers besides the mother to be screened.<sup>183</sup> If a mother screens positive for maternal depression, providers can offer information on resources and referral services.<sup>184</sup>

#### 6. Ohio

Ohio recommends screenings during well-child visits as medically necessary.<sup>185</sup> Services are available for caregivers of children on Medicaid who are reimbursed at a rate of \$3.43 per screening.<sup>186</sup> If a mother screens positive for depression, they are offered enhanced care, including wraparound.<sup>187</sup> Ohio is one of the bottom ten states for infant mortality. With a death rate of 7.3 infant fatalities per 1,000 live births, Ohio is ranked at forty-first.<sup>188</sup> Since 2016, Ohio has put a heavy focus on improving its infant health outcomes. The Ohio Provision of Enhanced Maternal Care Services was created by their Medicaid office in June 2016 and called for improvement on support and care for all Ohio Medicaid mothers and babies.<sup>189</sup>

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179. *Id.*

180. *Id.*

181. *Id.*

182. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State, supra* note 146.

183. *Id.*

184. *Id.*

185. *Id.*

186. OHIO REV. CODE § 5167.17 (2021); *see generally* OHIO DEP'T OF MEDICAID, GUIDANCE FOR MANAGED CARE PLANS: PROVISION OF ENHANCED MATERNAL CARE SERVICES 2 (2016), <https://medicaid.ohio.gov/Portals/0/Providers/ProviderTypes/Managed%20Care/Provision-for-Enhanced-Maternal-Care.pdf> [<https://perma.cc/ZRJ3-9S6G>].

187. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State, supra* note 146; *see* § 5167.17.

188. *Ohio Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/OH?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/OH?edition-year=2019) [<https://perma.cc/MT6K-ZCEU>].

189. *See* OHIO DEP'T OF MEDICAID, *supra* note 186.

### 7. Tennessee

In the past three years, Tennessee has seen an increase in infant mortality rates.<sup>190</sup> In 2019, the infant mortality rate in Tennessee matched that of Indiana at 7.4 deaths per 1,000 live births.<sup>191</sup> A low estimate is that 15.4 percent of mothers in Tennessee are diagnosed with postpartum depression.<sup>192</sup> In response, Tennessee added mental health and maternal depression as a key strategy to their TennCare Quality Improvement Plan.<sup>193</sup> Tennessee recommends that all mothers be screened for maternal depression at well-child visits.<sup>194</sup> Other caregivers are allowed to be screened as well, as long as they are a TennCare member.<sup>195</sup> Reimbursement rates are not made clear for screenings.<sup>196</sup> Providers are able to offer referral follow-up and guidance to mothers who screen positive for depression.<sup>197</sup>

### 8. West Virginia

The infant mortality rate in West Virginia is slightly lower than in Indiana at 7.2 deaths per 1,000 live births.<sup>198</sup> Policy in West Virginia recommends that mothers are screened for depression at well-child visits.<sup>199</sup> In 2012, West Virginia added maternal depression screenings to its home visitation program.<sup>200</sup> The policy allows for mothers to be screened up to four times within the first 120 days

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190. *Tennessee Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/TN?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/TN?edition-year=2019) [https://perma.cc/Q3EJ-85AF].

191. *Id.*

192. *The Importance of Maternal Depression Screenings*, TENN. JUST. CTR., [https://www.tnjustice.org/importance-maternal-depression-screenings/](https://www.tnjustice.org/importance-maternal-depression-screenings/https://www.tnjustice.org/importance-maternal-depression-screenings/) [https://perma.cc/TNL2-YRWY] (last visited Mar. 28, 2021).

193. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146; see generally DIV. OF TENNCARE, 2019 UPDATE TO THE QUALITY ASSESSMENT AND PERFORMANCE IMPROVEMENT STRATEGY 8 (2019), <https://www.tn.gov/content/dam/tn/tenncare/documents2/2019UpdateOfQualityImprovementStrategy.pdf> [https://perma.cc/R4NF-8BTR].

194. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

195. *Id.*

196. *Id.*

197. *Id.*

198. *West Virginia Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/WV?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/WV?edition-year=2019) [https://perma.cc/6BVB-W8XT].

199. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

200. *Benchmarks*, W. VA. DEP'T HEALTH & HUM. RES. (Dec. 5, 2012), [https://www.wvdhhr.org/wvhomevisitation/pdf/WVHVP\\_Benchmarks\\_2013.pdf](https://www.wvdhhr.org/wvhomevisitation/pdf/WVHVP_Benchmarks_2013.pdf) [https://perma.cc/24XC-XAUU].

of their infant's life.<sup>201</sup> The reimbursement rate is \$2.78 per screening and providers are able to offer follow-up and referral services.<sup>202</sup>

### 9. Alabama

In 2017, Alabama Medicaid added maternal depression screenings as a reimbursable test during well-child visits.<sup>203</sup> The screenings are reimbursable through Medicaid code 96161, which allows for the “[a]dministration of caregiver-focused health risk assessment instrument.”<sup>204</sup> Alabama does not give specific guidelines on when or how many times the screenings can be provided during well-child visits.<sup>205</sup>

Postpartum depression in Alabama has been on the rise jumping from 16.3 percent in 2018 to 19.9 percent in 2019.<sup>206</sup> Infant mortality has remained steady in the state moving up only slightly from 8.5 deaths per 1,000 live births in 2018 to 8.7 deaths per 1,000 live births in 2019.<sup>207</sup> Though still higher than the national average of 20 percent, Alabama has seen a decrease in the percentage of children with two or more ACEs, dropping from 27.7 percent in 2018 to 26.3 percent in 2019.<sup>208</sup>

### 10. Kentucky

Kentucky recommends maternal depression screening “as is medically necessary.”<sup>209</sup> The reimbursement rate is \$3.38, and there are no limits on how many screenings may be performed.<sup>210</sup> Caregivers other than the mother are also eligible for screening at the same reimbursement rate.<sup>211</sup> In the case that a mother screens positive for depression managed care organizations “offer toolkits to

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201. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

202. *Id.*

203. *Id.*

204. AAP Div. of Health Care Fin., *Update on Use of, Payment for New Health Risk Assessment Codes*, AAP NEWS (May 24, 2017), <https://www.aapublications.org/news/2017/05/24/Coding052317> [<https://perma.cc/NSN9-9MRZ>].

205. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

206. *Alabama Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/AL?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/AL?edition-year=2019) [<https://perma.cc/Y22V-CHMK>].

207. *Id.*

208. *Id.*

209. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State*, *supra* note 146.

210. *Id.*

211. *Id.*

providers with guidance for referral and follow up services.”<sup>212</sup> Kentucky ranks as thirty-six out of fifty states for infant mortality with 6.7 deaths per 1,000 live births.<sup>213</sup> For ACEs, Kentucky ranks in the bottom ten states with 25.8 percent of children screening positive for two or more ACEs.<sup>214</sup>

### 11. Delaware

Delaware added a maternal mental health policy to its Public Health Code in 2016, recommending that mothers be screened for depression during well-child visits.<sup>215</sup> The legislation calls for the Delaware Division of Public Health to create educational materials regarding maternal depression.<sup>216</sup> The statute further states that health care providers shall provide educational materials to mothers who present depressive symptoms.<sup>217</sup> Finally, the policy asserts that “health care providers shall begin evaluations and take action when they recognize symptoms of maternal depression in a woman or family.”<sup>218</sup> Health care providers are reimbursed through Medicaid at a rate of \$3.95 per screening.<sup>219</sup> Since 2017, infant mortality has been on the rise in Delaware.<sup>220</sup> The rate rose from 6.6 deaths per 1,000 in 2017 to 8.5 deaths per 1,000 in 2019.<sup>221</sup> Maternal mortality in Delaware is lower than the national average at 16.9 deaths per 100,000 births.<sup>222</sup> Postpartum depression declined in the last year from 13.9 percent to 11.7 percent.<sup>223</sup>

### 12. District of Columbia

In 2018, the District of Columbia (“DC”) created a Maternal Mental Health Task Force.<sup>224</sup> The Task Force was charged with identifying vulnerable

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212. *Id.*

213. *Kentucky Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/KY?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/KY?edition-year=2019) [<https://perma.cc/A7A6-BXFS>].

214. *Id.*

215. DEL. CODE tit. 16, § 801D (2021); *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State, supra* note 146.

216. tit. 16, § 801D.

217. *Id.*

218. *Id.*

219. *Medicaid Policies for Maternal Depression Screening (MDS) During Well-Child Visits, By State, supra* note 146.

220. *Delaware Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/DE?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/DE?edition-year=2019) [<https://perma.cc/JY5M-VATL>].

221. *Id.*

222. *Id.*

223. *Id.*

224. D.C. CODE § 7-1233.02 (2021).

populations and risk factors, identifying barriers to screening and models for private and public funding for maternal mental health screening and treatment.<sup>225</sup> Infant mortality in DC is significantly higher than the national average at 8 deaths per 1,000 live births.<sup>226</sup> The maternal mortality rate in DC is also much higher than the national average at 35.6 deaths per 100,000 live births.<sup>227</sup> The Maternal Mental Health Task Force will be able to collect data on maternal mental health and use that to create legislation to make screening and services more accessible.

#### *D. Federal Policy*

The Bringing Postpartum Depression Out of The Shadows Act was passed in 2016 and was the first time that Congress recognized the importance of maternal mental health treatment.<sup>228</sup> The Act allows for the Department of Health and Human Services (“HHS”) to provide grant funding to states for the purpose of establishing maternal depression screening programs or educational programs.<sup>229</sup> The law provides that states that propose programs to enhance access to screening will be given priority.<sup>230</sup> The Act also allows for funding to be used for educating and training physicians on maternal mental health disorders.<sup>231</sup> Further, the Centers for Medicaid and Medicare Services authorized state agencies to provide maternal depression screenings as a service for children at well-child visits reimbursable under EPSDT, to which all children covered on Medicaid are entitled.<sup>232</sup>

In 2018, Minnesota was awarded a block grant through this Act, which allocated funds to provide screening and home-based services for perinatal mood and anxiety disorders.<sup>233</sup> The grant allows for services to extend up to the first year of the child’s life.<sup>234</sup> The grant money comes from HHS and can be used for “establishing new screening or treatment programs, or [to] expand or maintain existing screening or treatment programs.”<sup>235</sup> The commissioner is responsible for determining who is eligible for use of the money and is mandated by the statute

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225. *Id.*

226. *District of Columbia Summary 2019*, AM. HEALTH RANKINGS (2019), [https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR\\_MCH/state/DC?edition-year=2019](https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/IMR_MCH/state/DC?edition-year=2019) [<https://perma.cc/5KXC-ZHRY>].

227. *Id.*

228. Caroline Bologna, *Congress Passes Groundbreaking Postpartum Depression Legislation*, HUFFPOST (Dec. 7, 2016), [https://www.huffpost.com/entry/congress-passes-groundbreaking-postpartum-depression-legislation\\_n\\_584053a6e4b09e21702d2a43](https://www.huffpost.com/entry/congress-passes-groundbreaking-postpartum-depression-legislation_n_584053a6e4b09e21702d2a43) [<https://perma.cc/2945-847K>].

229. 42 U.S.C. § 247b-13a (2020).

230. *Id.*

231. *Id.*

232. *The Importance of Maternal Depression Screenings*, *supra* note 192.

233. *See* MINN. STAT. § 145.908 (2021).

234. *Id.*

235. *Id.*

to prioritize screening and assessment of maternal mental health.<sup>236</sup>

#### V. RECOMMENDATIONS FOR INDIANA POLICY

Though Indiana is taking steps towards combating the high infant mortality rate, very little is being done regarding maternal mental health. As a state, Indiana needs to recognize that maternal mental health and trauma play a significant role in the health of both mother and baby. Policy needs to be enacted that will address the significance of maternal depression in the fight against infant and maternal mortality and will provide services for screening and treatment of maternal mental health.

Indiana should model its code after surrounding states that have adopted mandatory or recommended screening protocol. All mothers enrolled in Medicaid or the Healthy Indiana Plan (also known as HIP, Indiana's Medicaid expansion) should be screened for postpartum depression. Policy should include a plan for reimbursement for the screening. Like the Texas statute, Indiana should allow for mothers who are not covered under Medicaid or HIP, but whose babies are, to still be covered for purposes of screening up to the infant's first birthday.

Once mothers have been screened, if diagnosed with maternal depression, services should be provided to treat the symptoms and offer support. Services offered by the OB Navigator program should be utilized as means of support for mothers struggling with depression. There are several services that already work in Indiana that could potentially be leveraged for wraparound services.<sup>237</sup> Many of these organizations are already working with the OB Navigator program and therefore would be easy to incorporate into mental health wraparound services.

#### VI. CONCLUSION

Current Indiana policy surrounding maternal health addresses many important aspects of physical health, but largely disregards the importance of mental health. Unlike many surrounding and similarly situated states, Indiana does not require, recommend, or even allow for reimbursement for maternal depression screenings during well-child visits. This ultimately is causing significant costs to the State both socially and financially.

There is a significant financial cost to ignoring maternal mental health. Maternal mental health affects more than just the mother. For each infant born preterm, with birth defects, or birth complications, an estimated \$93,800 is spent on health care for the child's first year of life with most of that cost being borne

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236. *Id.*

237. Some of these services include evidence practices that are endorsed by the Indiana State Department of Health such as Healthy Families Indiana and the Nurse-Family Partnership. Both organizations are home-visit based and serve Elkhart, Grant, Lake, LaPorte, St. Joseph, Scott, Delaware, Madison, and Marion through funding from the Maternal, Infant, & Early Childhood Home Visiting Program. See *Maternal, Infant, & Early Childhood Home Visiting (MIECHV) Program*, IND. DEP'T HEALTH, <https://www.in.gov/isdh/25565.htm> [<https://perma.cc/H4VB-8R8B>] (last visited Mar. 29, 2021).

by Medicaid.<sup>238</sup> Life-long adverse outcomes are possible for the infant. The ultimate cost of ignoring maternal mental health is too high. By shedding light on the reality of maternal depression and the effect of trauma on maternal health, Indiana can become a national leader in maternal and infant health, and ultimately lower the infant and maternal mortality rate. Nearby states, as well as states that (like Indiana) are ranked in the bottom ten for infant mortality rates, have all taken action to combat maternal depression. If Indiana is serious about lowering the infant mortality rate in this State it is time to follow the lead of other states, as well as the AAP's screening recommendations, which encourage screening Medicaid mothers for maternal depression.

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238. *How Much Does Infant Mortality Cost the Nation*, NAT'L HEALTHY START ASS'N (2015), [http://www.nationalhealthystart.org/healthy\\_start\\_initiative/how\\_much\\_does\\_infant\\_mortality\\_cost#:~:text=Those%20babies%20that%20survive%20the,smallest%20survivors%20will%20average%20%24273%2C900](http://www.nationalhealthystart.org/healthy_start_initiative/how_much_does_infant_mortality_cost#:~:text=Those%20babies%20that%20survive%20the,smallest%20survivors%20will%20average%20%24273%2C900) [<https://perma.cc/JN78-WUTX>].