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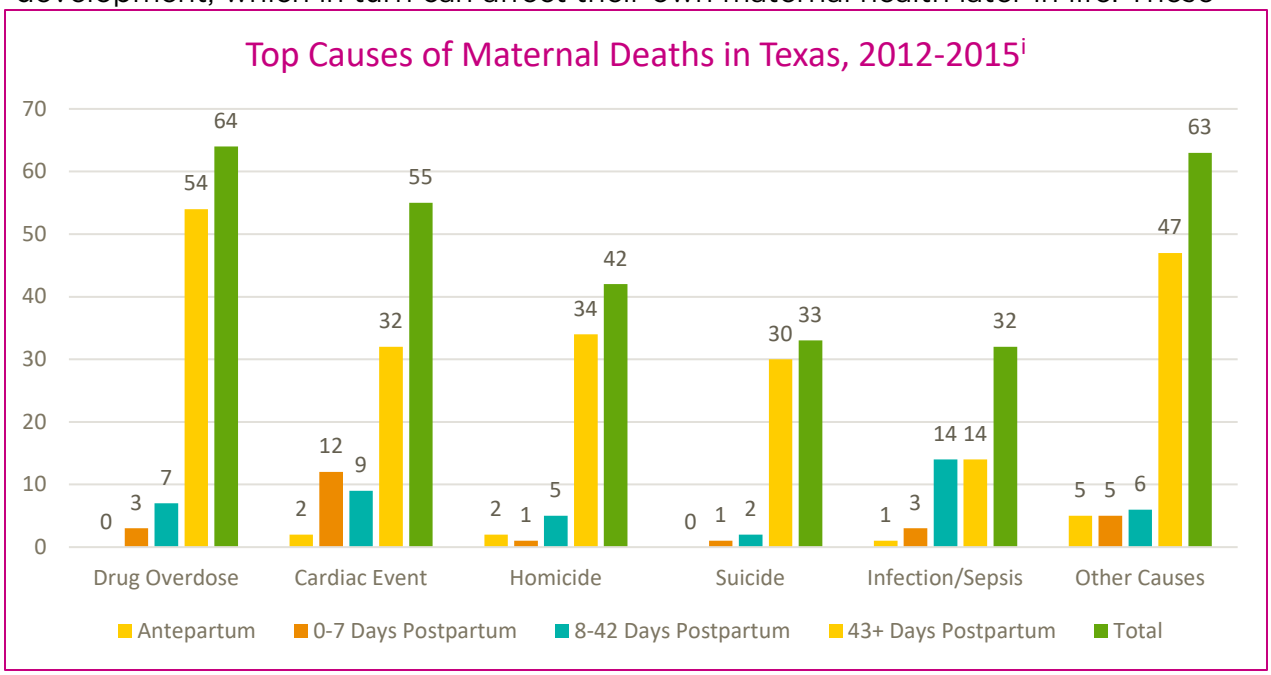
Texas Maternal Health and Child Outcomes:
The Importance of Prevention and Treatment of Adverse Experiences and Environments

Introduction

A mother's and child's health and wellbeing are inextricably linked. The wellbeing of the mother, prior to her own birth, can determine the health of her pregnancy and the health of her child. To ensure the health of future generations of Texans, the state needs to implement efforts targeted at preventing and intervening in intergenerational health risks linked to maternal morbidity and mortality.

According to a 2018 report by the Texas Maternal Mortality and Morbidity Task Force, maternal mortality increased sharply between 2010 and 2012, peaking in 2012 with 148 maternal deaths. These deaths occurred while the mother was pregnant or within 42 days after labor and delivery of the child. Most pregnancy-related deaths in Texas in 2012 could have been prevented.[i] The reasons for these increases are complex, and still being explored. However, a lack of health coverage and services are some of the contributing factors for maternal mortality, as are the negative environments in which a mother may live, such as those characterized by poverty, violence, and inequities.

Certain risk factors for maternal mortality and morbidity can also be linked to negative events the mother experienced early in life. Emerging research shows that the mother's childhood adversity not only can increase the likelihood of developing multiple risk factors but can have negative intergenerational effects that transfer from the mother to the child. The death of a mother and/or severe negative maternal health outcomes from labor and delivery can have lasting effects on a child's development, which in turn can affect their own maternal health later in life. These



findings compound the already severe importance of increasing resources and health care opportunities to mothers. Texas has the opportunity to advance effective programs to ensure not only mothers' health, but the health of their children.

The Pair of ACEs

Adverse Childhood Experiences (ACEs) are stressful or traumatic events, including abuse and neglect.[ii] They may also include household dysfunction such as witnessing domestic violence or growing up with family members who have substance use disorders. ACEs are strongly related to the development and prevalence of a wide range of health problems throughout a person's lifespan, including those associated with substance misuse. Current research suggests that childhood adversity experienced by mothers has a long-lasting impact on their reproductive health and the health of their child. A study conducted through Kaiser Permanente in 1998 identified 10 early childhood life experiences that could increase the risk for negative health outcomes later in life, some of which have been linked to a higher risk for maternal mortality and morbidity.[iii] Specifically, the 10 ACEs include:

- physical, sexual, and emotional abuse;
- emotional and physical neglect;
- witnessing violent treatment toward the mother;
- household substance use and mental illness;
- parental separation or divorce;
- and an incarcerated household member.[iv]

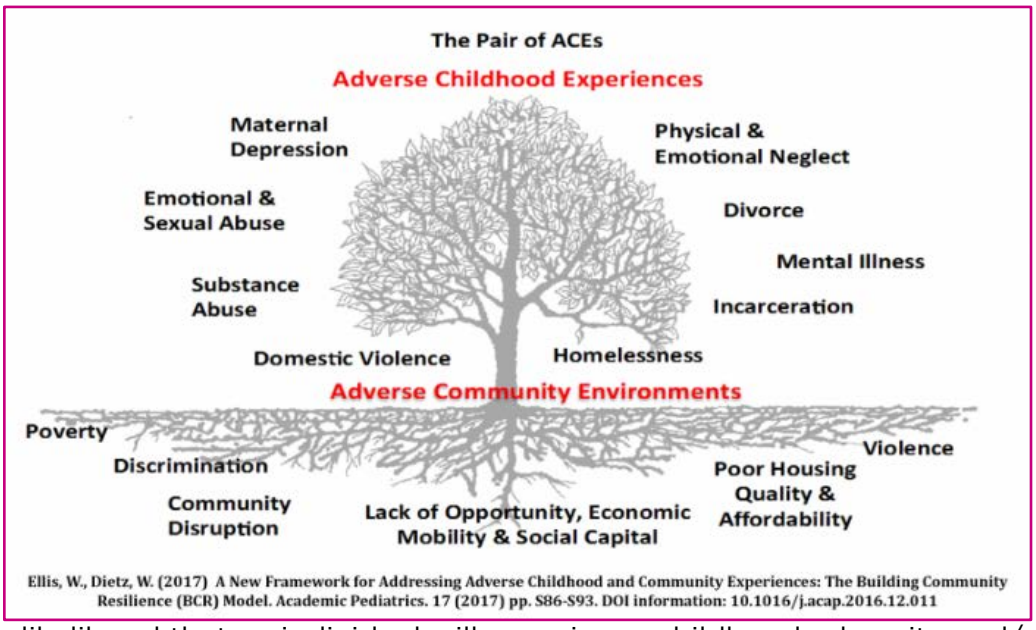
Negative Health Outcomes Linked to ACEs and Maternal Morbidity and Mortality

Research has found that the experience of one or more ACEs is linked with the following negative health outcomes:

- More likely to engage in risky behaviors during adolescence and/or pregnancy[viii]
- Mental health disorders: Depressive disorders, anxiety, social phobias, bipolar disorder, and eating disorders
- Behavioral health concerns in those with 6 or more ACEs: 2.7x more likely to attempt suicide, 3.7x more likely to report drug use, and 2.8x more likely to report moderate to heavy drinking[ix]
- Increased odds for physical disease in those with four or more ACES: diabetes, myocardial infarction, coronary heart disease, stroke, and disability caused by health concerns[vii]

The number of women with ACEs has increased and pregnant mothers with behavioral risk factors such as substance use dependencies, and other ACE-related health outcomes such as hypertension, diabetes, and obesity, are at higher risk of severe maternal morbidity or mortality.[v, vi, vii, viii] For example, women who have experienced one or more ACEs were likely to engage in risky behaviors during pregnancy such as substance use,[ix] and those with six or more aces are 3.7 times more likely to use substances.[x] The Texas Maternal Mortality and Morbidity Task Force found that between 2010 and 2016, a total of 382 mothers died of varying causes, with 16 percent of deaths due to drug overdose.[xi] Individuals who have experienced one or more ACE are at higher risk of developing mental health disorders such as depression, which can lead to thoughts of suicide or completion of suicide.[xii] Those with six or more ACEs were also 2.7 times more likely to attempt suicide.[xiii] From 2012 to 2015, 33 Texas mothers committed postpartum suicide.[xiv]

Maternal ACEs have intergenerational effects that can be passed down to the child prenatally. The more adversity a mother experienced in childhood, the more likely they will experience health risks in pregnancy and have children with more health risks during infancy.[xv] Maternal ACEs have been linked to perinatal depression and socioemotional problems for infants less than six months old.[xvi, xvii] Mothers who experienced the ACEs of parental incarceration, substance use, or household mental illness are more likely to have a child with at least one developmental risk factor, compared with mothers with no adverse experiences.[xviii] Mothers who use substances, smoke cigarettes, and/or have psychological disorders as a result of ACEs have reported reduced birth weights and shortened gestational periods for their infants.[xix]



Ellis, W., Dietz, W. (2017) A New Framework for Addressing Adverse Childhood and Community Experiences: The Building Community Resilience (BCR) Model. Academic Pediatrics. 17 (2017) pp. S86-S93. DOI information: 10.1016/j.acap.2016.12.011

The likelihood that an individual will experience childhood adversity and/or adulthood stressors that lead to poor maternal health is related to the health of the community environments in which the person lives. Similarly, the health of a child can be determined by the mother's prenatal and postnatal environment. Adverse community environments that support and contribute to social dysfunctions and inequities include:

- poor housing quality or homelessness;
- inadequate access to healthcare and health insurance;
- low socioeconomic status and lack of economic mobility;
- community violence; and
- fear of discrimination.

Each of these social factors impact the ability of children and mothers to prevent and mitigate ACEs.[xx]

Maternal death is higher among certain ethic groups. Black women have the greatest risk for maternal death and severe maternal morbidity when compared to other ethnic groups.[xxi] The risk for maternal death is also higher for women with a low socioeconomic status. Research shows women who live in more disadvantaged neighborhoods have greater stress levels, report less emotional support, and are more likely to smoke, drink alcohol, use hard drugs, have later or no prenatal care and have inadequate weight gain, all of

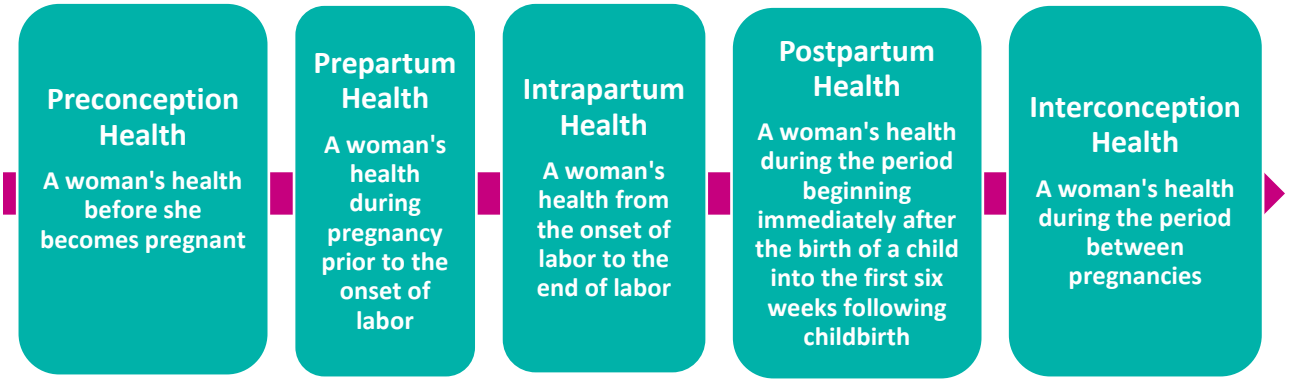
which are risk factors for maternal morbidity and mortality.[xxii] Conversely, those who live in stable, resourced neighborhoods may see an increase in strong relationships with other residents, lower stress levels, and more positive maternal and child health outcomes.[xxiii,xxiv]

To prevent maternal ACEs and maternal morbidity and mortality, it is necessary to address both the causes of childhood adversity and adult stressors in the home and in the community. Texas can break the cycle by ensuring positive child health outcomes through providing prevention and intervention programs and better access to services for mothers as they move through the different phases of pregnancy.

Building Maternal-Child Resiliency Through Evidence-Based Prevention and Intervention

Prevention of maternal mortality and severe maternal morbidity can happen at different phases in a mother's life. Multiple research studies assert the necessity of providing mothers with evidence-based home visiting prevention and intervention programs that provide access to community resources and other services. With these programs, mothers are empowered and resourced with effective strategies to help build resiliency against their childhood adversity and the related negative health outcomes. These prevention and intervention efforts, when provided during and after pregnancy, offer more opportunities to prevent negative health outcomes for mothers and infants.[xxv, xxvi] Similarly, the Maternal Mortality and Morbidity Task Force recommends increasing maternal health programming and improving postpartum care management and discharge education.[xxvii]

Research shows that cross-sector collaborations and community health education programs are cost-effective strategies for addressing public health concerns.[xxviii, xxix] Healthier women and their children contribute to well-educated, economically secure, healthy and productive communities.[xxx] Prevention efforts attenuate negative and costly long-term outcomes related to maternal mortality and morbidity (e.g., life expectancy, disability-adjusted life expectancy, and lifetime costs). Evidence-based programming also helps mothers and children recover, heal, and grow after facing the stress of ACEs, adverse community environments, and childbirth. This section discusses several prevention and intervention programs that provide aid and access to community resources to mothers at the prepartum, intrapartum, and postpartum phases of pregnancy.



Programs Addressing All Stages of Pregnancy Health

Healthy Families America[xxxi, xxxii, xxxiii, xxxiv]

Healthy Families America (HFA) is an evidence-based home visiting program that serves families at risk for child maltreatment and other ACEs, who have children up to age 5, beginning prenatally.

HFA's program goals are to:

- Build and sustain community partnerships to engage overburdened families
- Strengthen parent-child relationship
- Promote child health and development
- Enhance overall family functioning by reducing risk and increasing protective factors

To participate in the program, the family are recruited prenatally or within three months of birth. The family receive weekly home visits from a program caseworker until the child is at least 6 months old. After that benchmark, home visits occur less frequently until child is age 3 to 5.

Benefits of Healthy Families America

Research has found that:

- Participating fathers who were non-violent and living with the child's mother showed increased parenting involvement.
- Children showed more favorable behavioral and developmental outcomes.
- Mothers had higher self-efficacy and provided a better learning environment for their children.
- Mothers were more likely to use parenting services.
- Participating mothers were significantly less likely to have babies categorized as low birth weight.

Caseworkers screen for the presence of risk factors for child maltreatment and other ACEs. A Family Goal Plan is created to support and encourage caregiver participation in provided activities and resources. Caseworkers link families to medical providers and monitor child development with standardized screenings and provide appropriate referrals to care, if needed. HFA is currently implemented in Concho, Runnels, Tom Green, Dallas, and Travis counties.

Nurse-Family Partnership[xxxv, xxxvi, xxxvii]

The Nurse-Family Partnership (NFP) is an evidence-based home visiting program where nurses work with mothers and families. NFP targets low-income, first-time mothers, typically from the first trimester to the child's second birthday. The NFP program promotes:

- Pregnancy outcomes
- Competent caregiving
- Positive health behaviors, such as immunizations and breastfeeding
- Child health and development
- Economic self-sufficiency of the family
- Father involvement

NFP also seeks to prevent:

- Domestic violence
- Preterm birth
- Birth spacing

Benefits of Nurse-Family Partnership

DFPS reported that, in Texas:

- 87.5% of all NFP clients showed a decrease in marijuana or alcohol use from the time of intake to the end of pregnancy.
- 100% of babies born to NFP clients were up to date with their vaccinations at age 1.

Research shows consistent, long-term results up to 18 years after a child's birth:

- 89% increase in maternal employment
- 68% increase in father involvement
- 48% decrease in child maltreatment

Nurses use a variety of developmental screening and diagnostic tools to tailor the program to fit the unique needs of each family. The program calls for approximately 64 visits for 60 to 75 minutes on a stepped model: at first visits happen every week, then every other week, and finally, every month. NFP is a state-funded program

which was introduced to Texas in 2006. Since then, it has grown to serve 22 counties. In Fiscal Year 2017, The Texas Department of Family and Protective Services (DFPS) reported that NFP served 3,039 families.

Programs Addressing Both Intrapartum and Postpartum Health

Alliance for Innovation on Maternal Health[xxxviii, xxxix]

The Alliance for Innovation on Maternal Health (AIM) is a national data-driven initiative seeking to increase maternal safety in all three stages of pregnancy. AIM works with state health systems to provide a collaborative framework to improve maternal outcomes in the hospital setting. States that join AIM have access to a collection of 10 to 13 best practice methods for improving safety in maternity care. These bundles can be tailored for the specific needs of a community and are implemented incrementally. To date, the Texas Department of State Health Services has implemented the TexasAIM program, which addresses maternal hemorrhage and severe hypertension.

AIM Included Bundles:

- Obstetric Hemorrhage
- Obstetric Care for Women with Opioid Use Disorder
- Safe Reduction of Primary Cesarean Birth
- Severe Hypertension in Pregnancy
- Maternal Mental Health: Depression and Anxiety
- Postpartum Care Basics for Maternal Safety
- Severe Maternal Morbidity Review
- Support After a Severe Maternal Event

Programs Focusing on Postpartum Health

Family Connects[xl]

Family Connects is an evidenced-based, nurse-led home visiting postpartum program serving parents of newborns.

Family Connects promotes:

- Positive parenting behaviors
- The age-appropriateness and safety of the home environment (e.g. having age-appropriate toys and outlet covers)
- Parental mental health and well-being
- The use of high-quality early care and education programs
- Families' connections to community-based resources

And seeks to reduce:

- Child maltreatment
- Use of costly emergency medical care

Benefits of Family Connects

Research shows that participating children and families had:

- 34% fewer emergency room medical care visits from infancy through age 2
- Higher-quality home environment
- 14% more connections to existing community services and resources

Participating caregivers:

- Demonstrated more positive parenting behaviors
- Were more likely to choose higher-quality child care
- Reported 28% less clinical anxiety in mothers

It is designed to support all families and does not require a family to have an identified risk factor, unlike other home visiting programs. It is less intensive than other home visiting programs, involving only one to three visits, beginning within weeks after delivery. Nurses serve as home visitors and screen for maternal and infant health and other risks. Home visitors provide referrals and connections to community resources and more intensive home visiting programs as needed. Implementation is underway in Texas in the following counties: Travis, Bastrop, Bexar, and Victoria.

Period of PURPLE Crying[xli, xlii, xliii, xliv, xlv]

The Period of Purple Crying program targets families with newborn infants prior to hospital discharge.

The program promotes:

- Caregiver knowledge of Shaken Baby Syndrome (SBS) and Abusive Head Trauma (AHT)
- Caregiver knowledge on the typical increased infant crying phase

The program seeks to reduce:

- Child abuse, especially incidents of AHT
- Caregiver frustration due to excessive crying

Benefits of Period of Purple Crying

Research shows that participating mothers:

- Had higher knowledge about crying and shaking the baby
- More positive reported behavioral responses to crying
- Higher instances of walking away during periods of unsoothable crying
- More likelihood of sharing information with other caregivers about walking away and the dangers of shaking the baby
- Longer minutes of contact with the baby during crying

Parents are given a 10-minute educational video by a trained educator or medical provider and about 5 minutes of follow-up conversation with medical personnel. The video and brochure are then provided to caregivers to take home and share with others. As of 2015, the program was implemented in approximately 40 hospitals statewide. Period of PURPLE Crying is funded through the DFPS Prevention and Early Intervention (PEI) program Healthy Outcomes through Prevention and Early Support (HOPES).

Post-Partum Pregnant Intervention Program[xlvi, xlvii, xlviii]

The Post-Partum Pregnant Intervention Program (PPI) serves pregnant and post-partum Texas women of all ages who have a risk factor of substance use. Women who are referred to the program through the Department of Family and Protective Services Family Based Safety Services program who have children under age 6 are also eligible.

PPI promotes improved or increased:

- Birth outcomes
- Parenting skills
- Home environment of the mother
- Access to community resources
- Mother-child bonding and engagement

The program seeks to reduce:

- The risk of parental substance use
- Fetal and infant exposure to alcohol and substance use

Most Recent PPI Update

DFPS reports that in the first quarter of FY 2018, PPI:

- Increased its targeted outreach to over 1,000 high-risk mothers
- Screened more than 1,000 at-risk or high-risk mothers
- Provided education services to more than 500 mothers on overdose protection, tobacco cessation, and the effects of substance use on the family

Services include substance use assessment, case management, counseling, referrals, home visits, individual and group crisis counseling, and education in reproductive health, child development, family violence prevention, and parenting. PPI programs are funded by Texas DSHS and as of 2018, was implemented in 15 cities across the state.

Recommendations

- Address maternal mortality and morbidity and its impact on children through improvements in: (1) access to care, (2) behavioral health prevention and treatment, (3) quality improvement initiatives, and (4) public health programming.
- Strengthen coordination of and investment in state and community efforts to prevent intergenerational health risks related to maternal mortality and morbidity through access to community-based services and supporting parity in community environments. Incorporate community strategic plans to prevent maternal mortality and morbidity that also address the causes and symptoms of adverse childhood experiences and adverse community environments.
- Employ Medicaid Managed Care value added service and other strategies to advance implementation of TexasAIM, and other maternal health programming, postpartum care management and discharge education through community and evidence-based prevention and early intervention programs, such as Nurse-Family Partnership and Family Connects, in geographic areas and communities with the greatest need. Utilize data from the first-time mother designation on the Medicaid application to refer clients to effective prevention programs in the community.

For more information:

Pamela McPeters
Vice President of Public Affairs
pamela@texprotects.org
(512) 913-4408

Beth Cortez-Neavel
beth@texprotects.org

TexProtects
Champions for Safe Children

512 E. 11th Street
Suite 201
Austin, TX 78701
O: (737) 209-8118

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