

Revitalize the American Dream
By Investing in **Prenatal to Three**



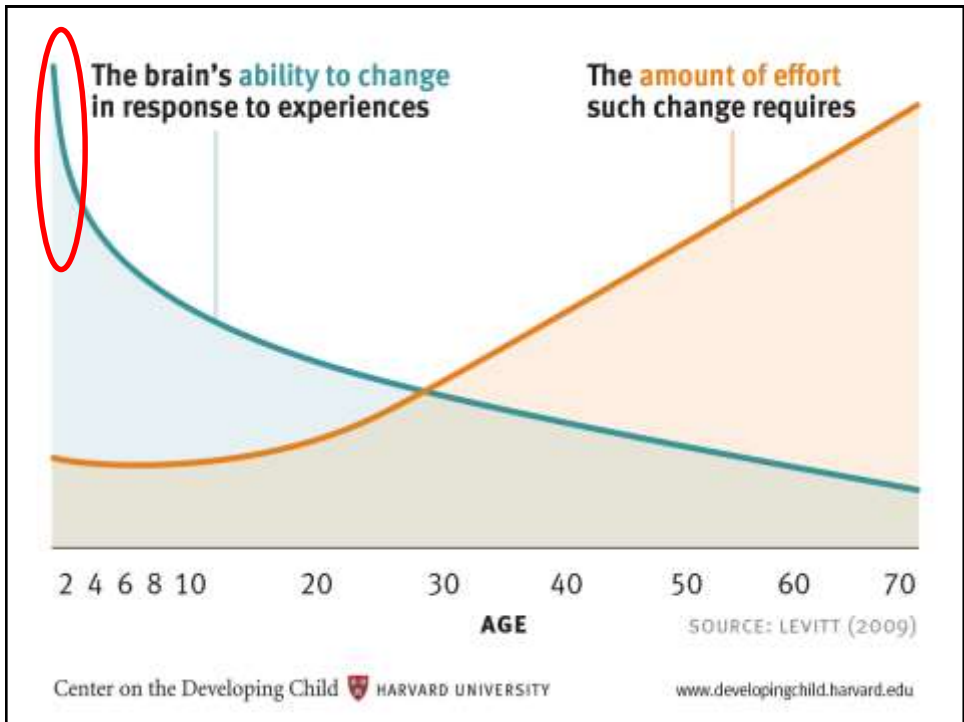
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Milken Institute School of Public Health
George Washington University

NCSL Health & Human Services Chairs Meeting
Denver, CO
June 15, 2018

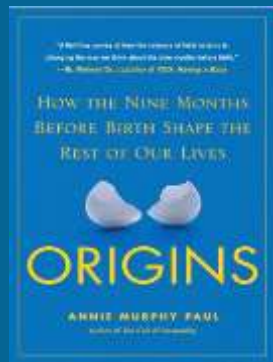
Milken Institute School
of Public Health
THE GEORGE WASHINGTON UNIVERSITY

If we are going to revitalize the American Dream,
we start by investing in **prenatal to three**.



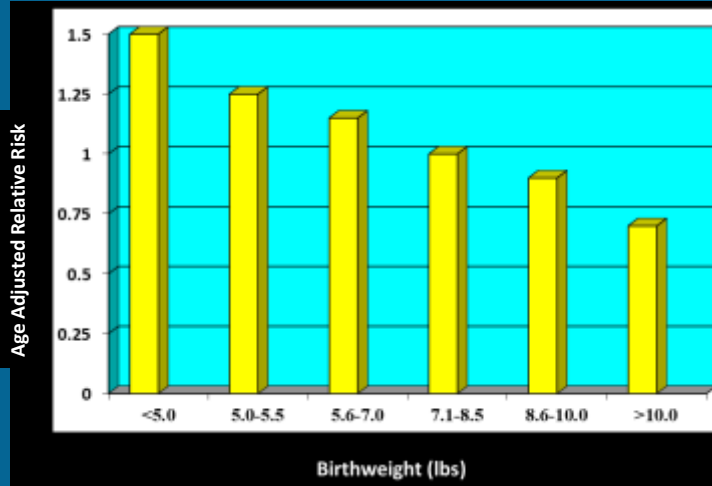
The Science behind **Prenatal** to Three.

Fetal Programming



Barker Hypothesis

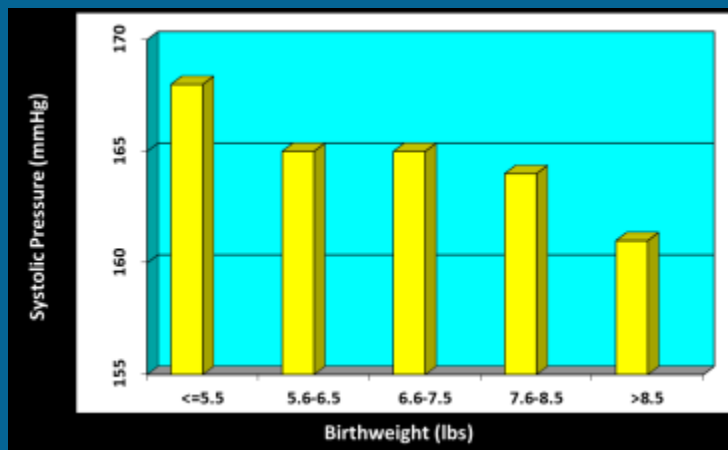
Birth Weight and Coronary Heart Disease



Rich-Edwards JW, Stampfer MJ, Manson JE, Rosner B, Hankinson SE, Colditz GA et al. Birth weight and risk of cardiovascular disease in a cohort of women followed up since 1976. *Br Med J* 1997;315:396-400.

Barker Hypothesis

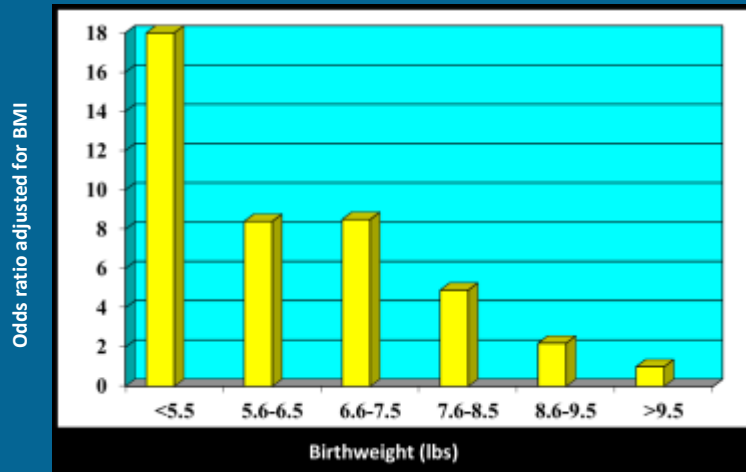
Birth Weight and Hypertension



Law CM, de Swiet M, Osmond C, Fayers PM, Barker DJP, Cruddas AM, et al. Initiation of hypertension in utero and its amplification throughout life. *Br Med J* 1993;306:24-27.

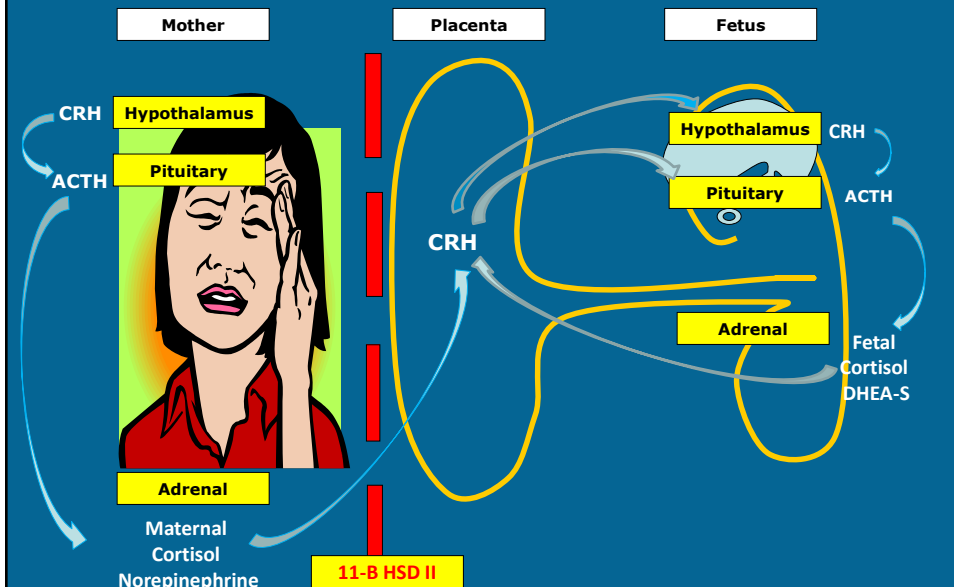
Barker Hypothesis

Birth Weight and Insulin Resistance Syndrome

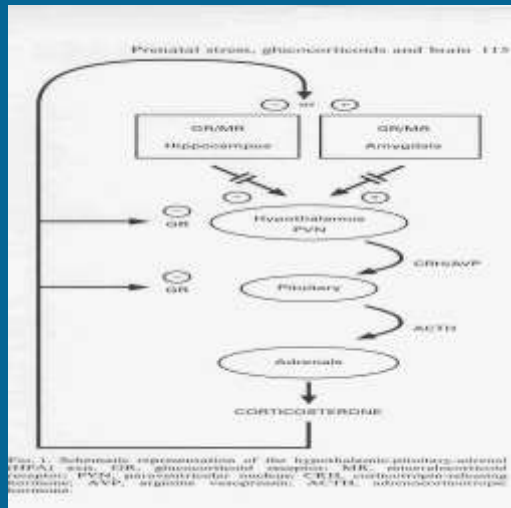


Barker DJP, Hales CN, Fall CHD, Osmond C, Phipps K, Clark PMS. Type 2 (non-insulin-dependent) diabetes mellitus, hypertension and hyperlipidaemia (Syndrome X): Relation to reduced fetal growth. Diabetologia 1993;36:62-67.

Maternal Stress & Fetal Programming

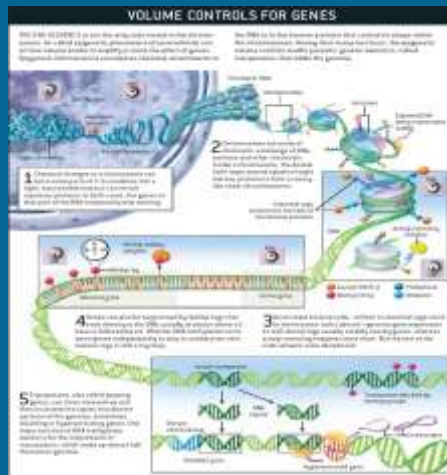


Prenatal Programming of the Hypothalamic-Pituitary-Adrenal Axis



Welberg LAM, Seckl JR. Prenatal stress, glucocorticoids and the programming of the brain. *J Neuroendocrinol* 2001;13:113-28.

Epigenetics



Gibbs WW. The Unseen Genome: Beyond DNA. *Scientific American* 2003

Epigenetics

Same Genome, Different Epigenome



R.A. Waterland, R.A. Jirtle, "Transposable elements: targets for early nutritional effects on epigenetic gene regulation," *Mol Cell Biol*, 23:5293-300, 2003.

The Science behind Prenatal to **Three**.

Toxic Stress



HOW STRESS CHANGES A CHILD'S BRAIN

3-YEAR-OLD CHILDREN

Normal



- Prolonged exposure to trauma triggers physiological changes in the brain.
- Neural circuits are disrupted, causing changes in the hippocampus, the brain's memory and emotional centre.

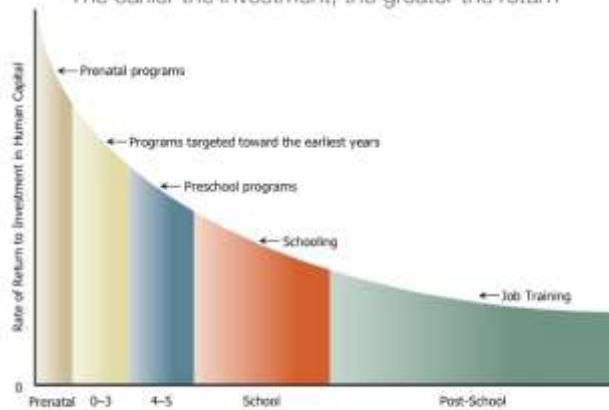
Extreme neglect



- This can cause brain shrinkage, problems with memory, learning and behaviour.
- A child does not learn to regulate emotions when living in state of constant stress.
- Associated with greater risk of chronic disease and mental health problems in adulthood.

EARLY CHILDHOOD DEVELOPMENT IS A SMART INVESTMENT

The earlier the investment, the greater the return

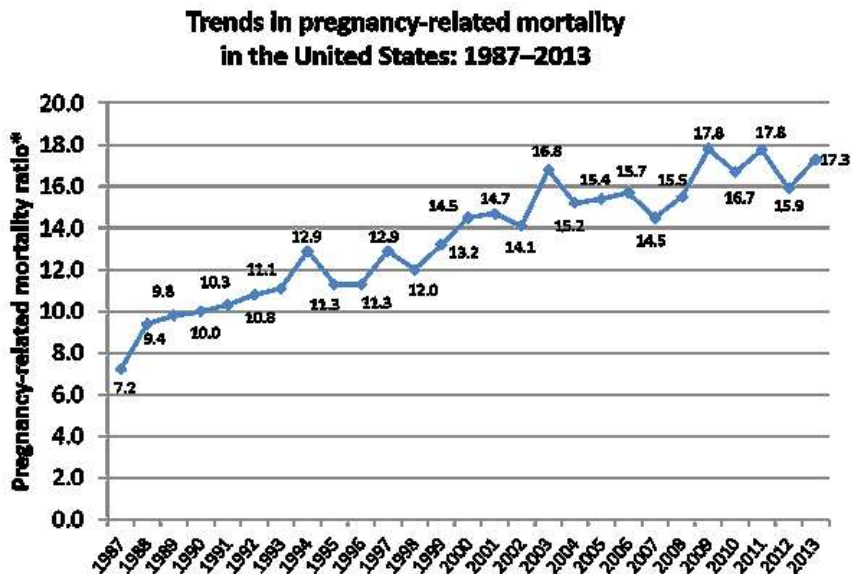


Source: James Heckman, Nobel Laureate in Economics



WHAT CAN YOU DO FOR PRENATAL TO THREE?

1. Improve maternal health



*Note: Number of pregnancy-related deaths per 100,000 live births per year.

Source: Centers for Disease Control and Prevention.
<https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>

Preconception Care



<http://www.astho.org/Maternal-and-Child-Health/Preconception-Fact-Sheet/>

<https://www.marchofdimes.org/coverage-and-payment-of-quality-preconception-interconception-care-for-women-child-bearing-age.pdf>

WHAT CAN YOU DO FOR PRENATAL TO THREE?

2. Invest in early childhood education

Early Childhood Education



Home Visiting

Child Care



Pre-Kindergarten



James Heckman, from *Lifecycle Benefits*

High quality birth-to-five programs for disadvantaged children can deliver a

13%
Return on Investment

Starting earlier provides greater returns. Learn more.

www.heckmanequation.org

Maternal, Infant, Early Childhood Home Visiting (MIECHV)

Long-term Effects of Prenatal and Infancy Nurse Home Visitation on the Life Course of Youths

19-Year Follow-up of a Randomized Trial

John Eckenrode, PhD; Mary Campa, PhD; Dennis W. Luckey, PhD; Charles R. Henderson Jr, MA; Robert Cole, PhD; Harriet Kitzman, RN, PhD; Elizabeth Anson, MS; Kimberly Sidora-Arcoletto, MPH, PhD; Jane Powers, PhD; David Olds, PhD

Objective: To examine the effect of prenatal and infancy nurse home visitation on the life course development of 19-year-old youths whose mothers participated in the program.

Design: Randomized trial.

Setting: Semirural community in New York.

Participants: Three hundred ten youths from the 400 families enrolled in the Elmira Nurse-Family Partnership program.

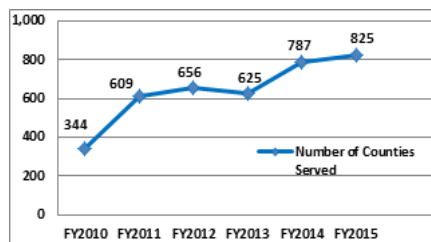
Intervention: Families received a mean of 9 home visits (range, 0-16) during pregnancy and 23 (range, 0-59) from birth through the child's second birthday.

nancy and infancy nurse-visited group were less likely to have been arrested (10% vs 30%; relative risk [RR], 0.33; 95% confidence interval [CI], 0.13-0.82) and convicted (4% vs 20%; 0.20; 0.05-0.85) and had fewer lifetime arrests (mean: 0.10 vs 0.54; incidence RR [IRR], 0.18; 95% CI, 0.06-0.54) and convictions (0.04 vs 0.37; 0.11; 0.02-0.51). Nurse-visited girls born to unmarried and low-income mothers had fewer children (11% vs 30%; RR, 0.35; 95% CI, 0.12-1.02) and less Medicaid use (18% vs 45%; 0.40; 0.18-0.87) than their comparison group counterparts.

Conclusions: Prenatal and infancy home visitation reduced the proportion of girls entering the criminal justice system. For girls born to high-risk mothers, there were additional positive program effects consistent with results from earlier phases of this trial. There were few pro-

Eckenrode J, Campa M, Luckey DW, et al. Long-term Effects of Prenatal and Infancy Nurse Home Visitation on the Life Course of Youths: 19-Year Follow-up of a Randomized Trial. Arch Pediatr Adolesc Med. 2010;164(1):9-15. doi:10.1001/archpediatrics.2009.240

Maternal, Infant, Early Childhood Home Visiting (MIECHV)



Source: Health Resources and Services Administration. <https://mchb.hrsa.gov/sites/default/files/mchb/MaternalChildHealthInitiatives/HomeVisiting/pdf/programbrief.pdf>

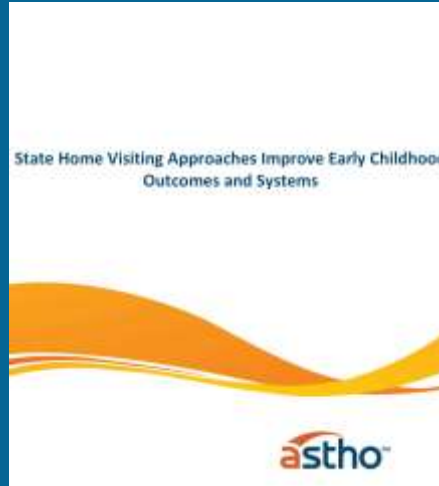
Invest in Early Childhood Education


NATIONAL CONFERENCE OF STATE LEGISLATURES
 The Voice for Democracy

Home Visiting Enacted Legislation in States (2008-2016)*

STATE	LEG. #	SESSION	DESCRIPTION	
Alabama	HR 612	House 10	2012	Establish the Family and Community Support Center for the Department of Children and Early Development. Requires the department to implement programming that is evidence-based, research-based, and consistent with current best practices for high-quality early childhood education, home visiting programs, and community-based care services for children.
California	SB 632	San 10	2013	Requires the implementation of evidence-based home visiting services to promote prenatal and infant health. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs.
Colorado	SB 133	House 10	2013	Requires the implementation of evidence-based home visiting services to promote prenatal and infant health. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs.
Florida	HB 1337	House 10	2013	Requires the implementation of evidence-based home visiting services to promote prenatal and infant health. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs.
Florida	SB 71	House 10	2014	Requires the implementation of evidence-based home visiting services to promote prenatal and infant health. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs.
Florida	SB 221	House 10	2015	Requires the implementation of evidence-based home visiting services to promote prenatal and infant health. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs.
Florida	SB 800	House 10	2015	Requires the implementation of evidence-based home visiting services to promote prenatal and infant health. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs. Requires the state Board of Child Welfare Services to develop a model for funding that shall be available to counties to fund evidence-based home visiting programs.

http://www.ncsl.org/documents/cyf/HV_Enacted_08_16.pdf



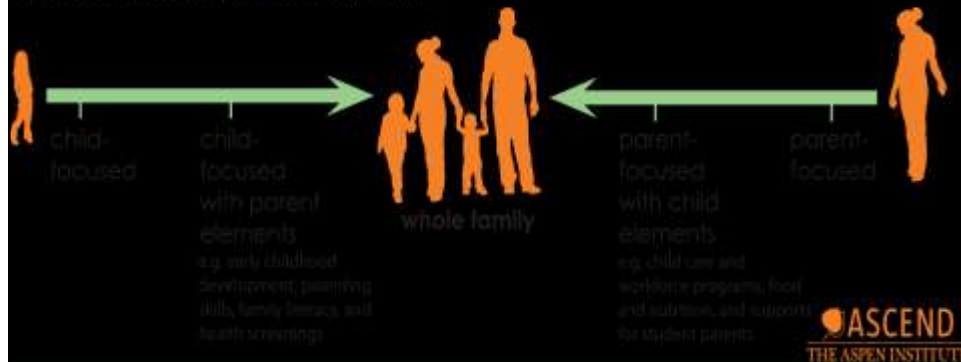
<http://www.astho.org/Maternal-and-Child-Health/State-Home-Visiting-Approaches-Improve-Early-Childhood-Outcomes-and-Systems/>

WHAT CAN YOU DO FOR PRENATAL TO THREE?

3. Support fathers & families

Support Fathers & Families

The Two-Generation Continuum



Source: The Aspen Institute. <http://ascend.aspeninstitute.org/two-generation/what-is-2gen/>

Support Fathers & Families

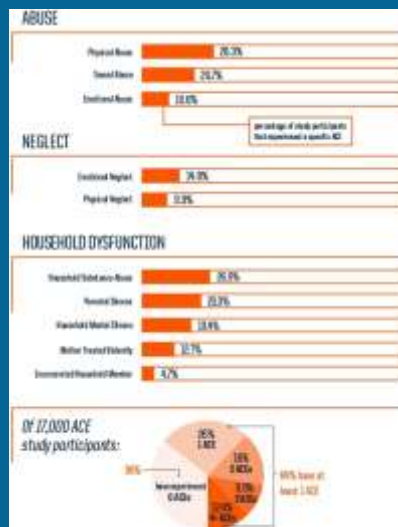


Source: Joint Center for Political and Economic Studies. <http://jointcenter.org/sites/default/files/CPIPO%20Report%20051910%20Final.pdf>

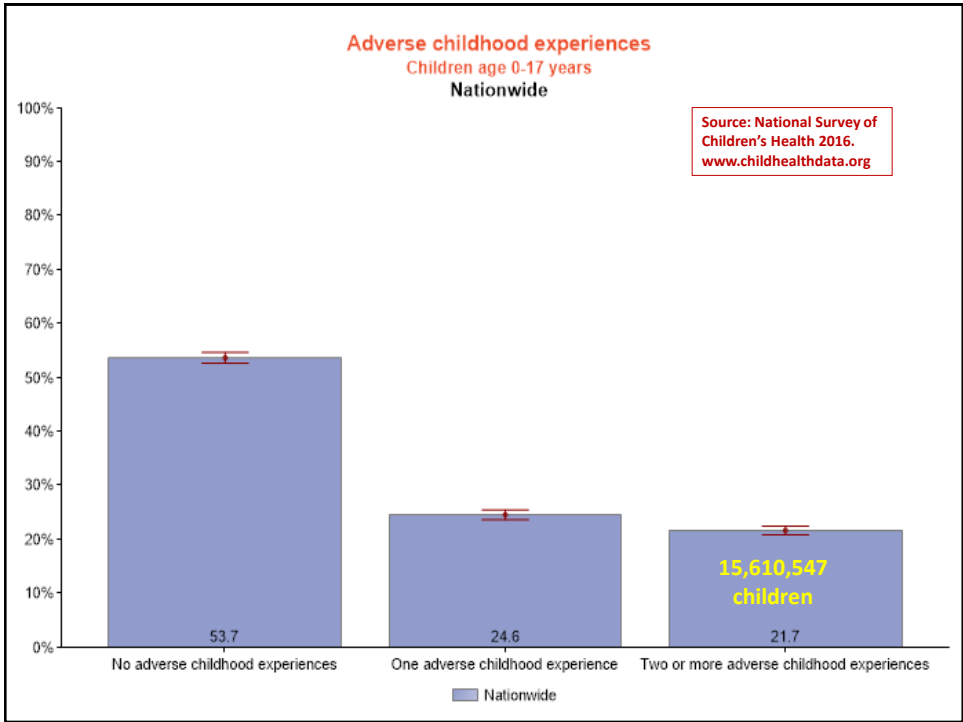
WHAT CAN YOU DO FOR PRENATAL TO THREE?

4. Prevent adverse childhood experiences (ACEs)

Adverse Childhood Experiences



Source: Robert Wood Johnson Foundation <http://www.rwjf.org/en/library/infographics/the-truth-about-aces.html>



Adverse Childhood Experiences

Significant Adversity Impairs Development in the First Three Years

ACE Score and Teen Sexual Behaviors

ACE Score and HIV Risks

The ACE Score and the Prevalence of Severe Obesity (BMI >35)

ACEs, Smoking, and Lung Disease

The ACE Score and the Prevalence Ischemic Heart Disease

Sources: Center on the Developing Child, Harvard University
<http://developingchild.harvard.edu/resources/toxic-stress-derails-healthy-development/>
 Anda R. Overview of Adverse Childhood Experiences. <http://robertandamd.com/>

Adverse Childhood Experiences

POPULATION ATTRIBUTABLE RISK

A large portion of many health, safety and prosperity conditions is attributable to Adverse Childhood Experience.

ACE reduction reliably predicts a decrease in all of these conditions simultaneously.

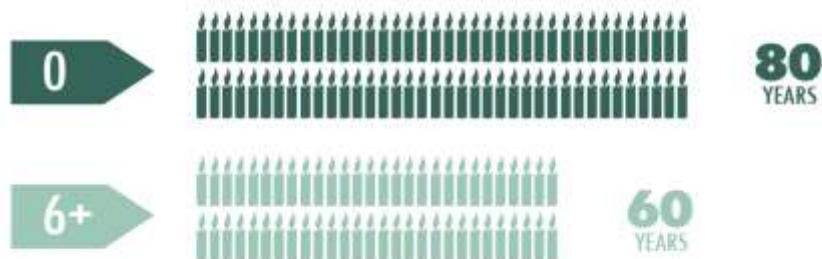


Source: Family Policy Council, 2012

Adverse Childhood Experiences

LIFE EXPECTANCY

People with six or more ACEs died nearly **20 years earlier on average** than those without ACEs.



Source: Centers for Disease Control and Prevention
http://vetoviolence.cdc.gov/apps/phl/resource_center_infographic.html

Adverse Childhood Experiences

ECONOMIC TOLL

The Centers for Disease Control and Prevention (CDC) estimates that the lifetime costs associated with child maltreatment are **\$124 billion**.



Source: Centers for Disease Control and Prevention
http://vetoviolence.cdc.gov/apps/phl/resource_center_infographic.html

Prevent ACEs



http://www.ncsl.org/Portals/1/Documents/Health/StatePolicies_ChildAbuse.pdf



<http://www.astho.org/StatePublicHealth/Adverse-childhood-Experiences-Legislation/5-11-17/>

WHAT CAN YOU DO FOR PRENATAL TO THREE?

5. Improve social conditions for all families

Improve Social Conditions



