

# The First 1,000 Days

**Michael D. Warren, MD MPH FAAP**  
**Director, Division of Family Health & Wellness**  
**Tennessee Department of Health**



# Disclosures





- I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this activity.
- I do not intend to discuss an unapproved or investigative use of a commercial product/device in my presentation.

# Objectives

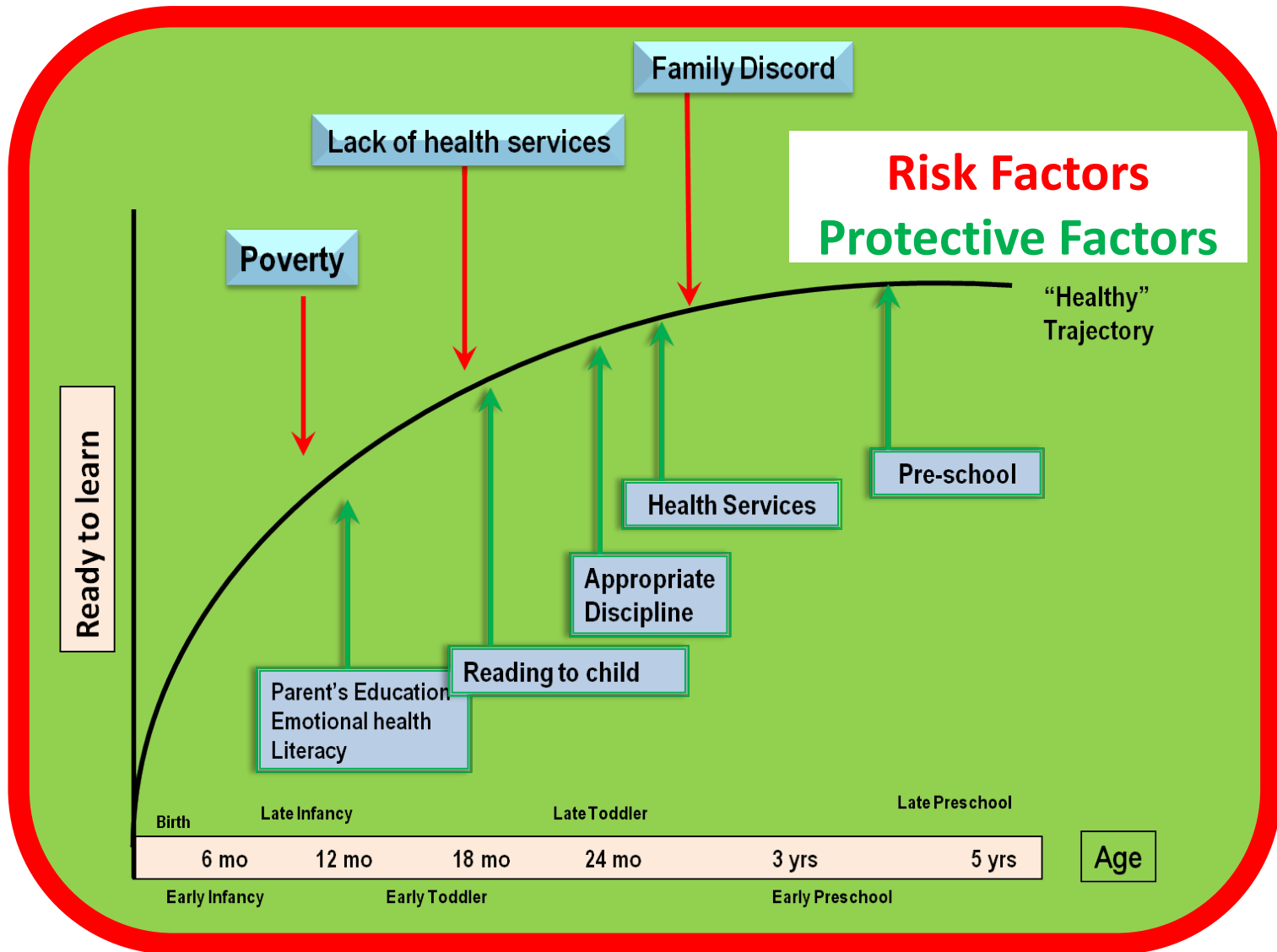
- Describe the importance of the preconception, prenatal, and early childhood periods for later health and prosperity
- Identify opportunities for enhancing the life course trajectory for Tennessee's children

# QUIZ

- Which of the following can be associated with later adverse outcomes?

-  a. Woman of childbearing age not taking folic acid
-  b. Not reading to an infant
-  c. Not breastfeeding an infant
-  d. Toddler witnessing domestic violence
- e. More than one of the above
- f. All of the above

# Life Course Perspective

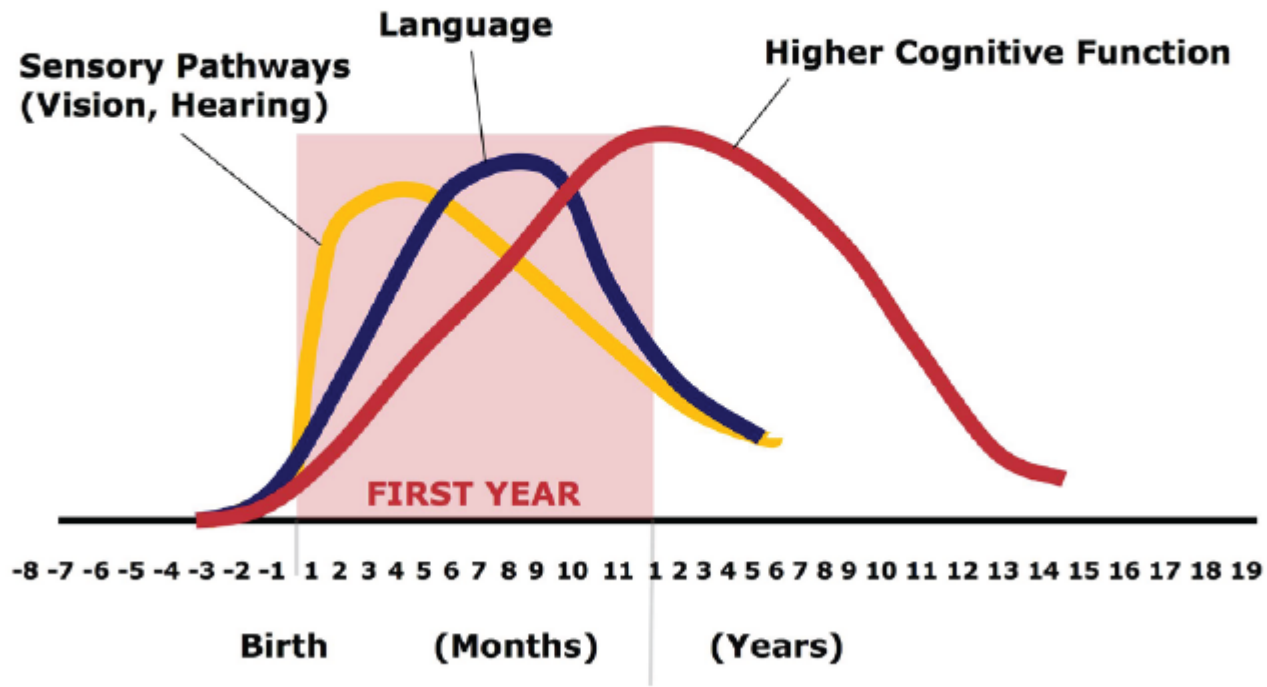


# Early Period Sets the Trajectory

- Preconception period=before woman ever becomes pregnant
- Woman's health status impacts pregnancy, delivery, and beyond
  - Folic acid intake→**neural tube development**
  - Smoking→**prematurity, birth weight, SIDS**
  - Obesity→**gestational diabetes, childhood obesity**
- In Tennessee, **50%** of all pregnancies are **un**intended

# Early Period Sets the Trajectory

## Human Brain Development Neural Connections for Different Functions Develop Sequentially



Source: C.A. Nelson (2000)

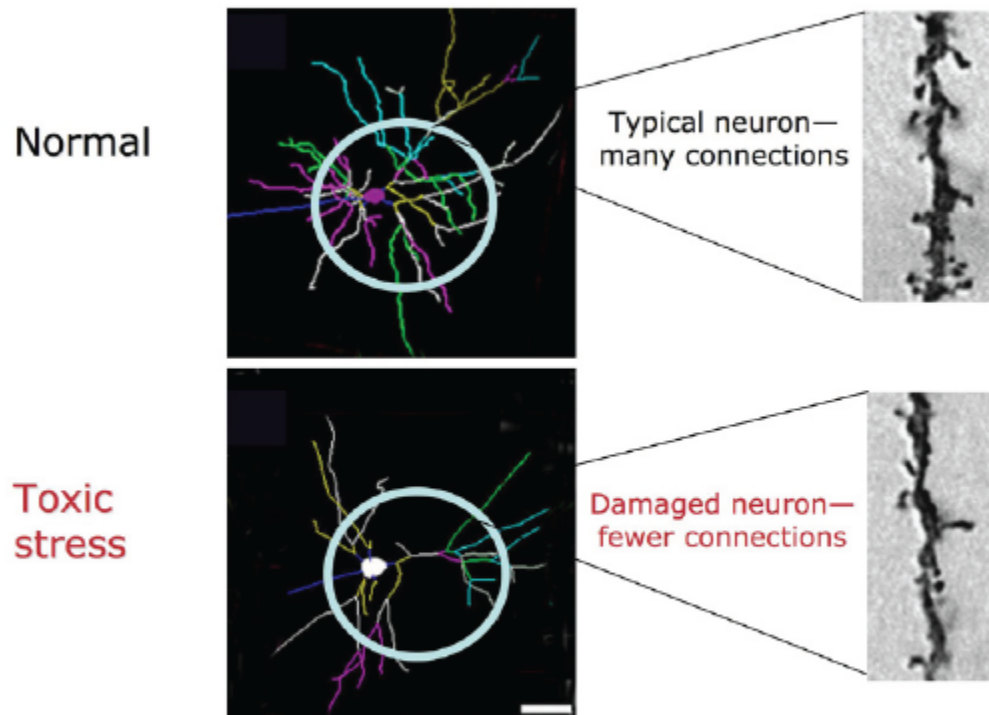
# Early Period Sets the Trajectory

- In the first few years of life, a child's brain builds **700 connections per second**—that's 2.5 million in an hour!
- Brain more “plastic” now than at other periods
- Experiences influence brain chemistry → influences which genes are turned on/off



# Early Period Sets the Trajectory

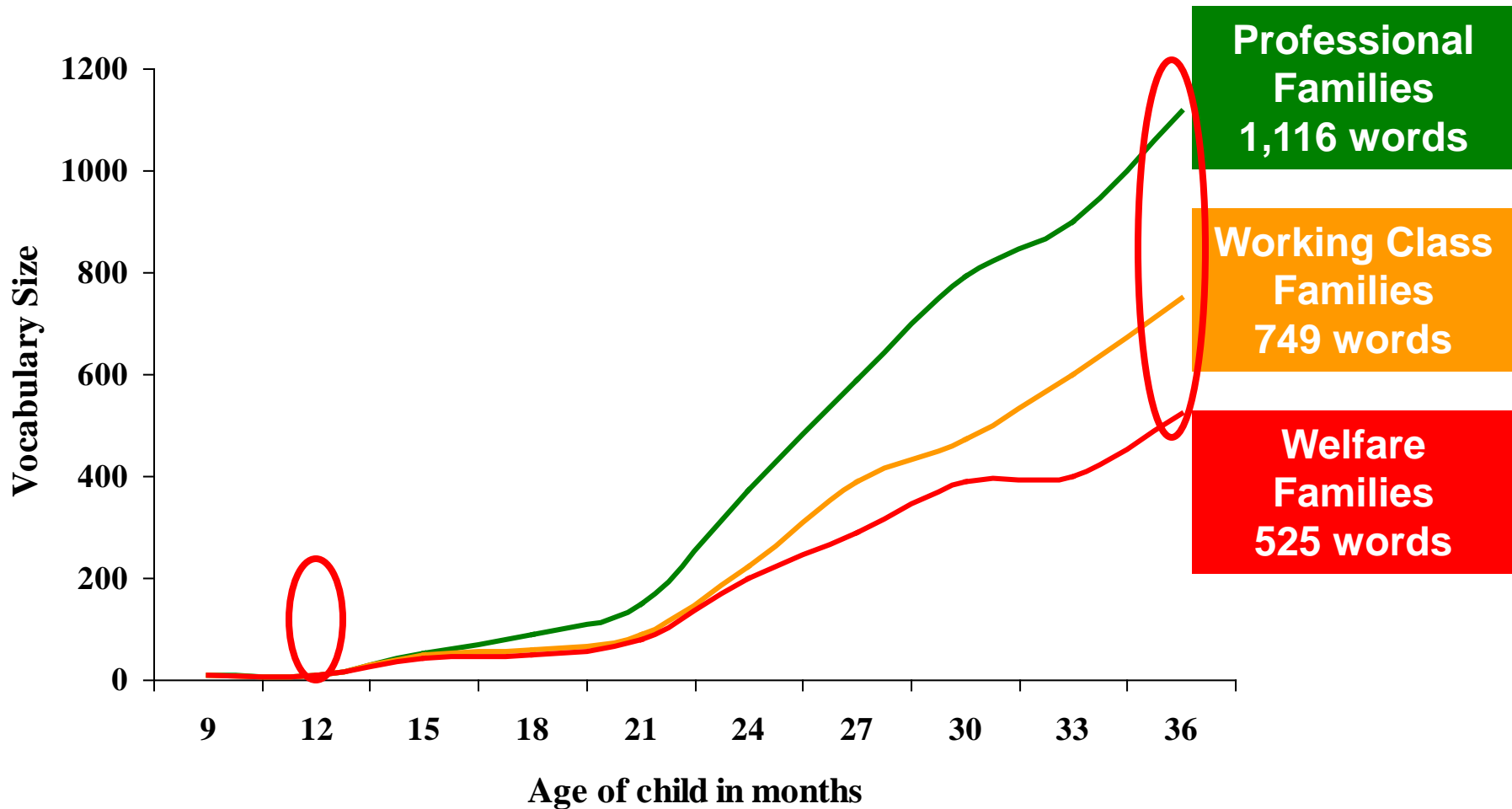
## Persistent Stress Changes Brain Architecture



Prefrontal Cortex and  
Hippocampus

Sources: Radley et al. (2004)  
Bock et al. (2005)

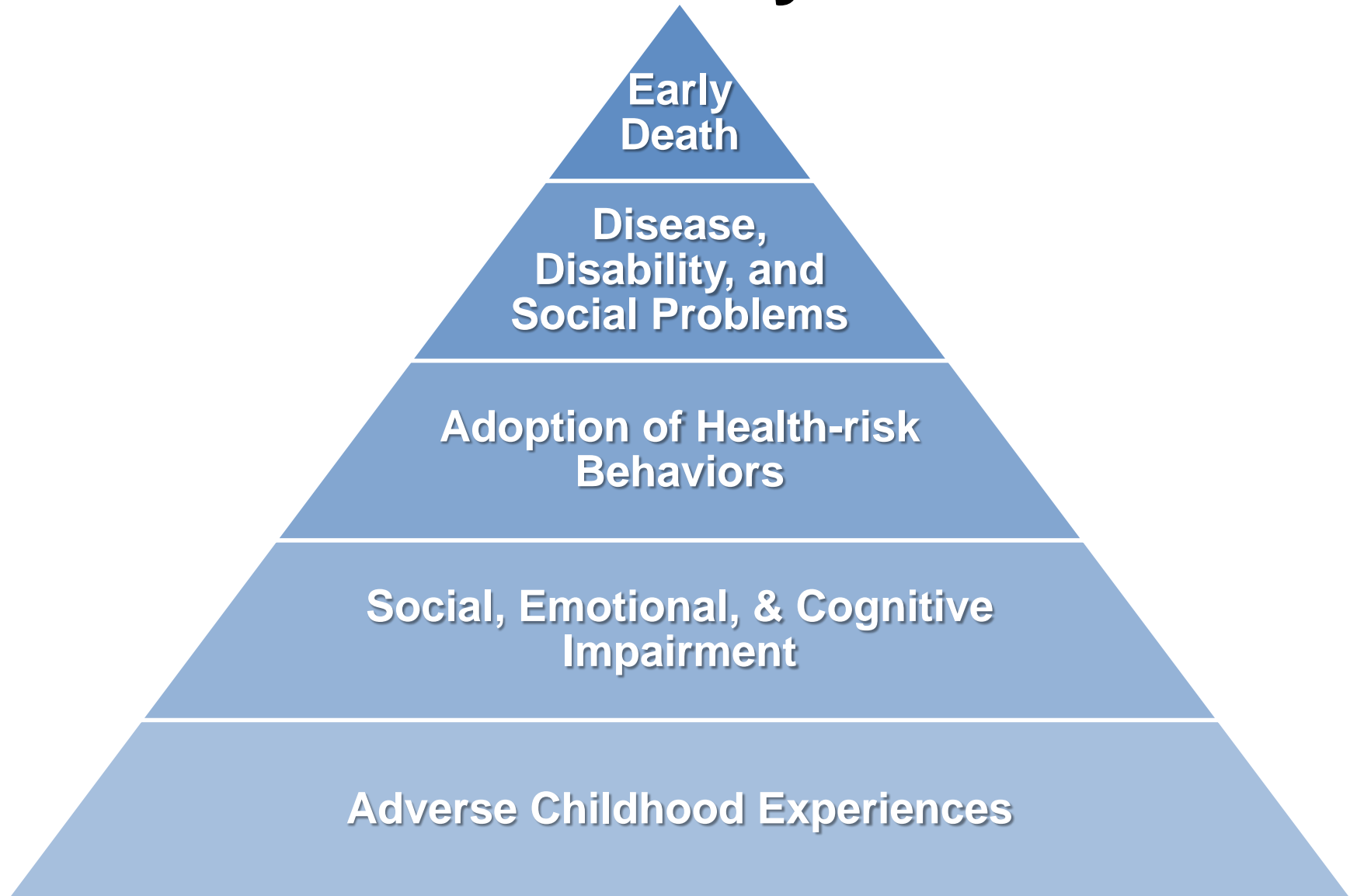
# Early Period Sets the Trajectory



# CDC “ACE Study”

- ACE=Adverse Childhood Experiences
- Study of 17,000 individuals in 1995-97
  - Nearly 2/3 had at least one ACE
  - Almost 20% reported 3 or more ACEs
- Risk for health problems increases with increasing # ACEs
  - Substance abuse, COPD, Depression, Fetal death, Heart disease, Liver disease, Risk for intimate partner violence, Multiple sexual partners, STDs, Smoking, Suicide attempts, Unintended pregnancies, early initiation of smoking, early initiation of sexual activity, adolescent pregnancy

# CDC “ACE Pyramid”

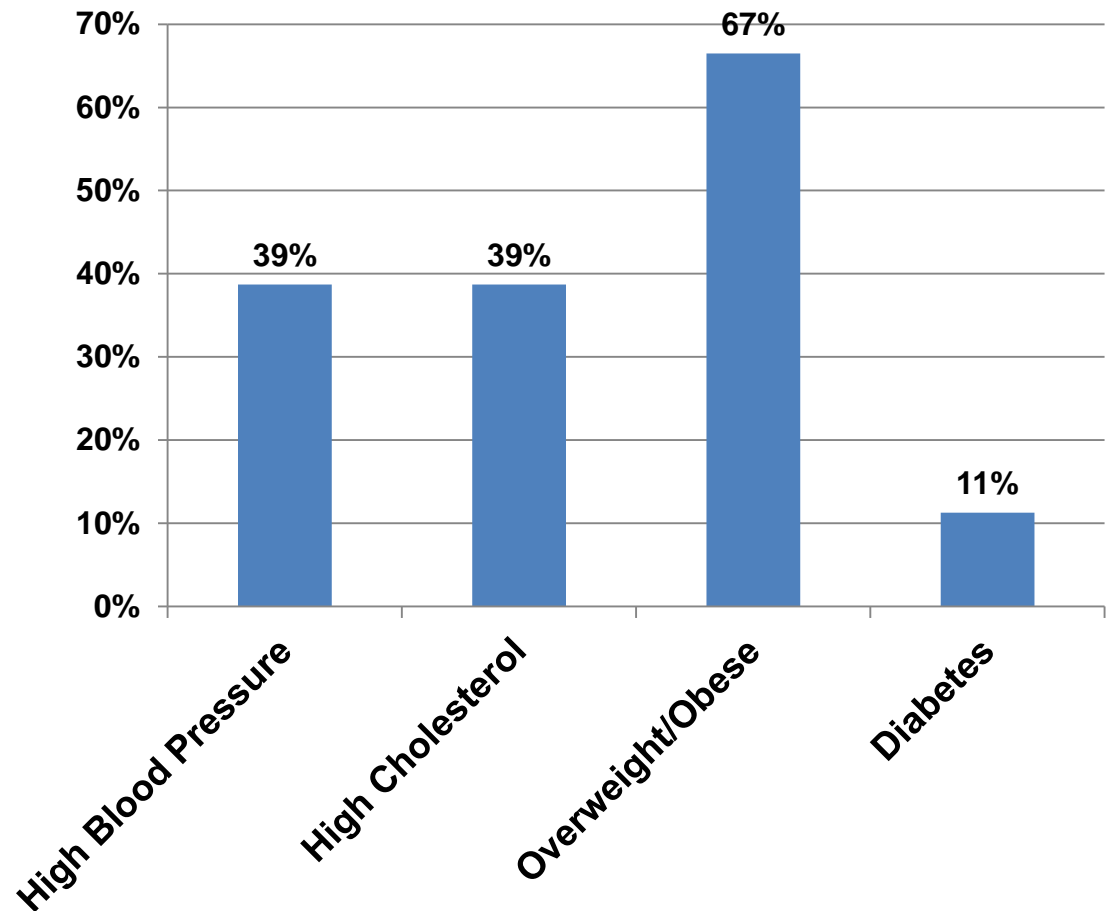


# How Are the Children? How Are the Adults?

## 2013 KidsCount Rankings

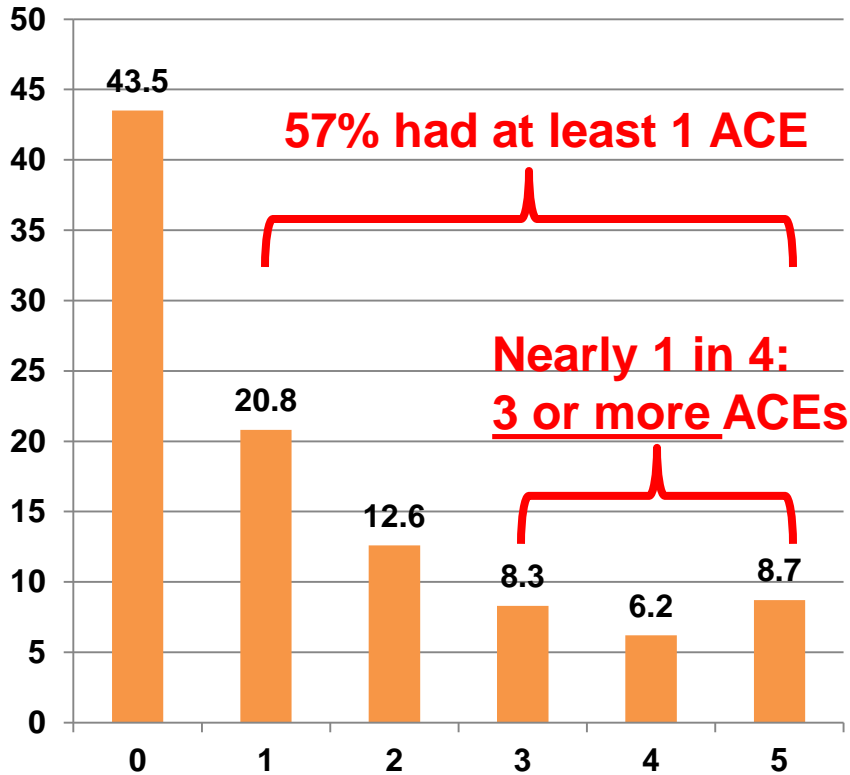
New York	29
Indiana	30
Michigan	31
Oregon	32
Alaska	33
Kentucky	34
North Carolina	35
Oklahoma	36
West Virginia	37
Florida	38
Tennessee	39
Arkansas	40
California	41
Texas	42

## Chronic Disease Among TN Adults

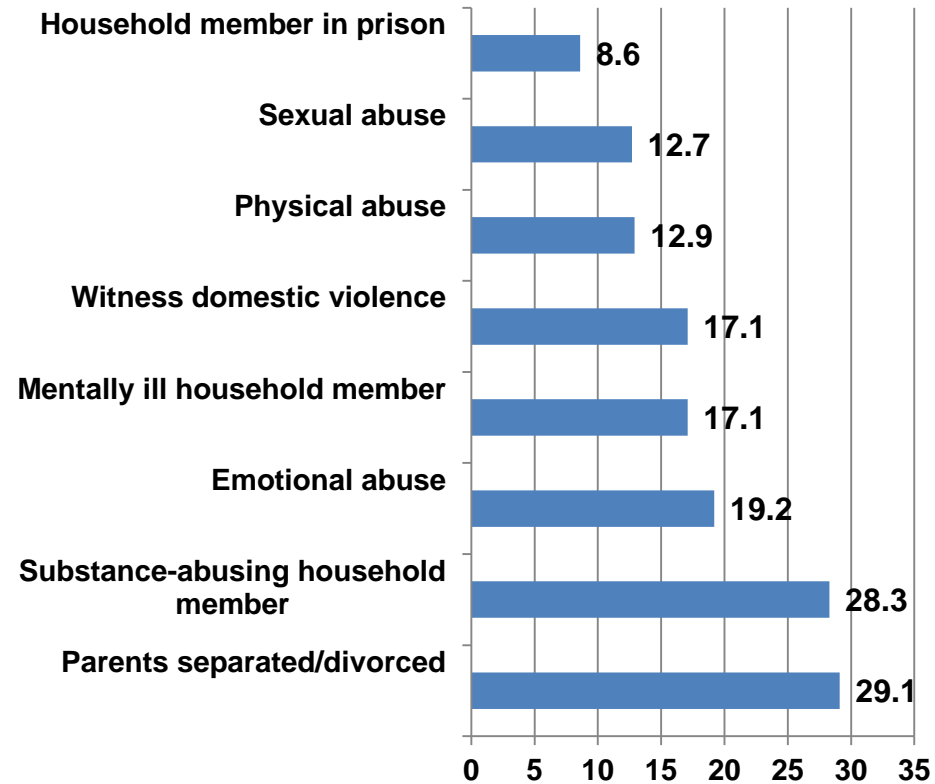


# ACE in TN (2009)

## # Adverse Childhood Experiences

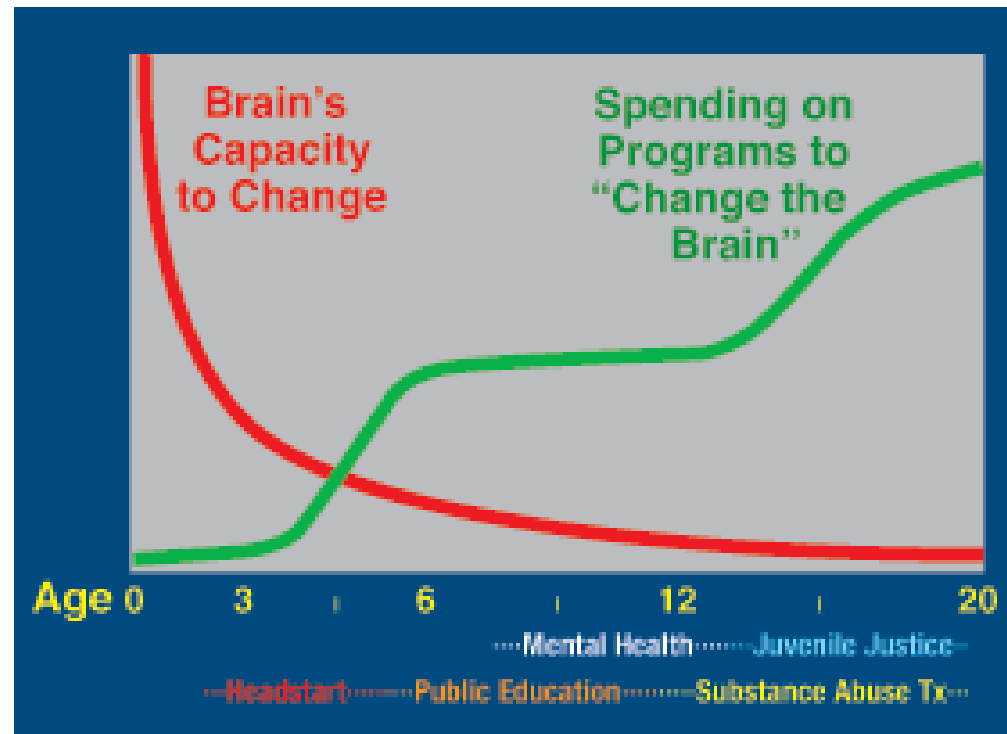


## Adverse Childhood Experiences by Type



# Moving the Needle

- Focus has to shift from remediation to prevention
- Not just “prevention,” but **primary prevention**
  - Primary prevention: Preventing a disease from ever occurring



# Tennessee Department of Health

- **Mission:**

*To protect, promote, and improve the health and prosperity of people in Tennessee.*

- **Vision:**

*To be a recognized and trusted leader, in the nation's top ten, partnering and engaging to improve health.*



**Commissioner  
John J. Dreyzehner,  
MD MPH FACOEM**



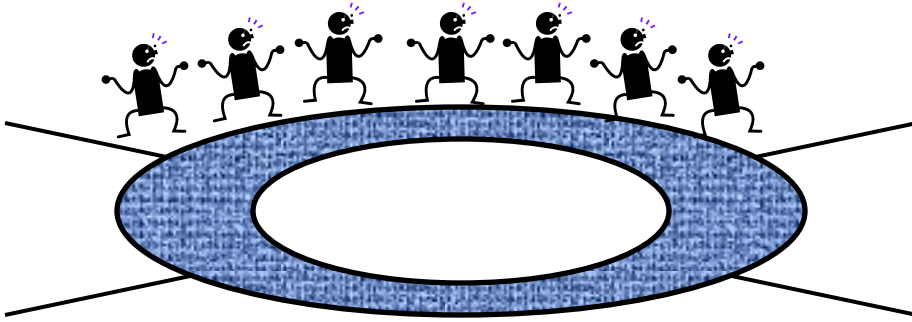
# Tennessee Department of Health

- “Historic” (and ongoing) Primary Prevention
  - Immunization
  - Water Fluoridation
  - Family Planning
  - Folic Acid Promotion
- “New” Primary Prevention
  - Early Childhood Home Visiting
  - Promotion of positive parenting skills
  - Universal outreach to all new families

# We Don't Do This Alone

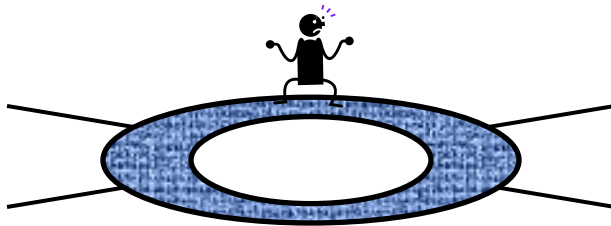
- Public Partners
  - Children's Services
  - Human Services
  - Medicaid
  - Education
  - Mental Health & Substance Abuse Services
  - Children's Cabinet
- Private Partners
  - Faith-based communities
  - Child care providers
  - Health care providers
  - Community resource agencies
  - And the list goes on.....

# Building the Safety Net



## Universal Primary Preventions

- Anticipatory Guidance
- Consistent messaging
- Social supports
- Engaging Communities
- High Quality Child Care



## Secondary Prevention

- Developmental/Risk Screening
- Home Visiting
- Head Start
- Parenting Education/Support
- Early Intervention

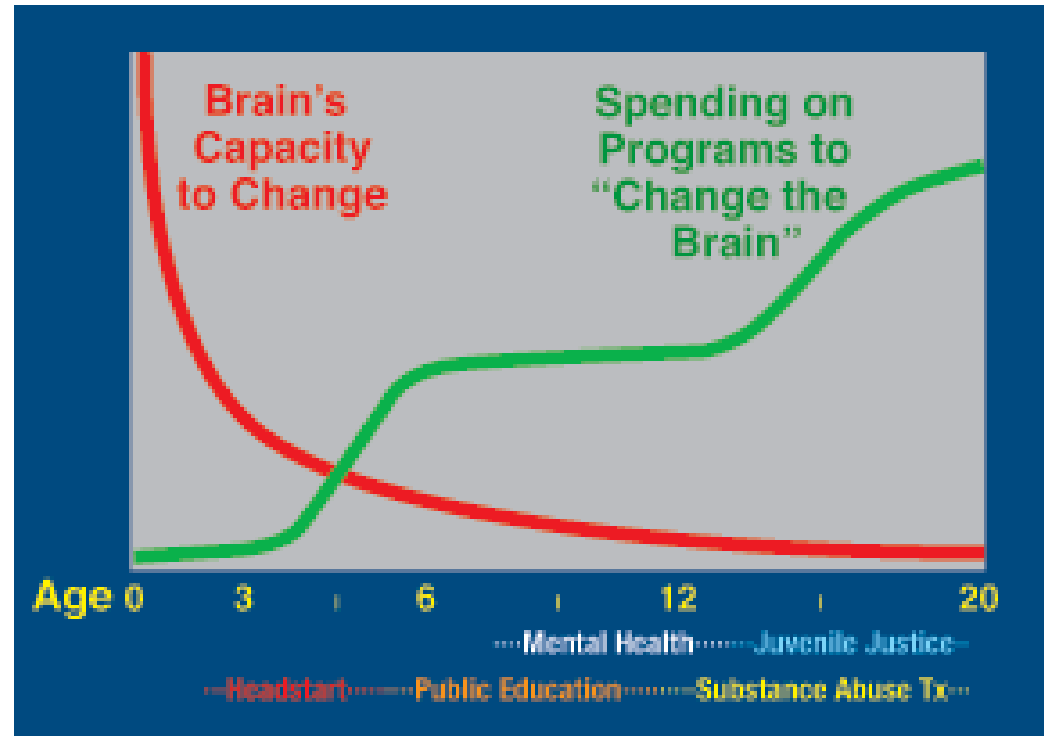
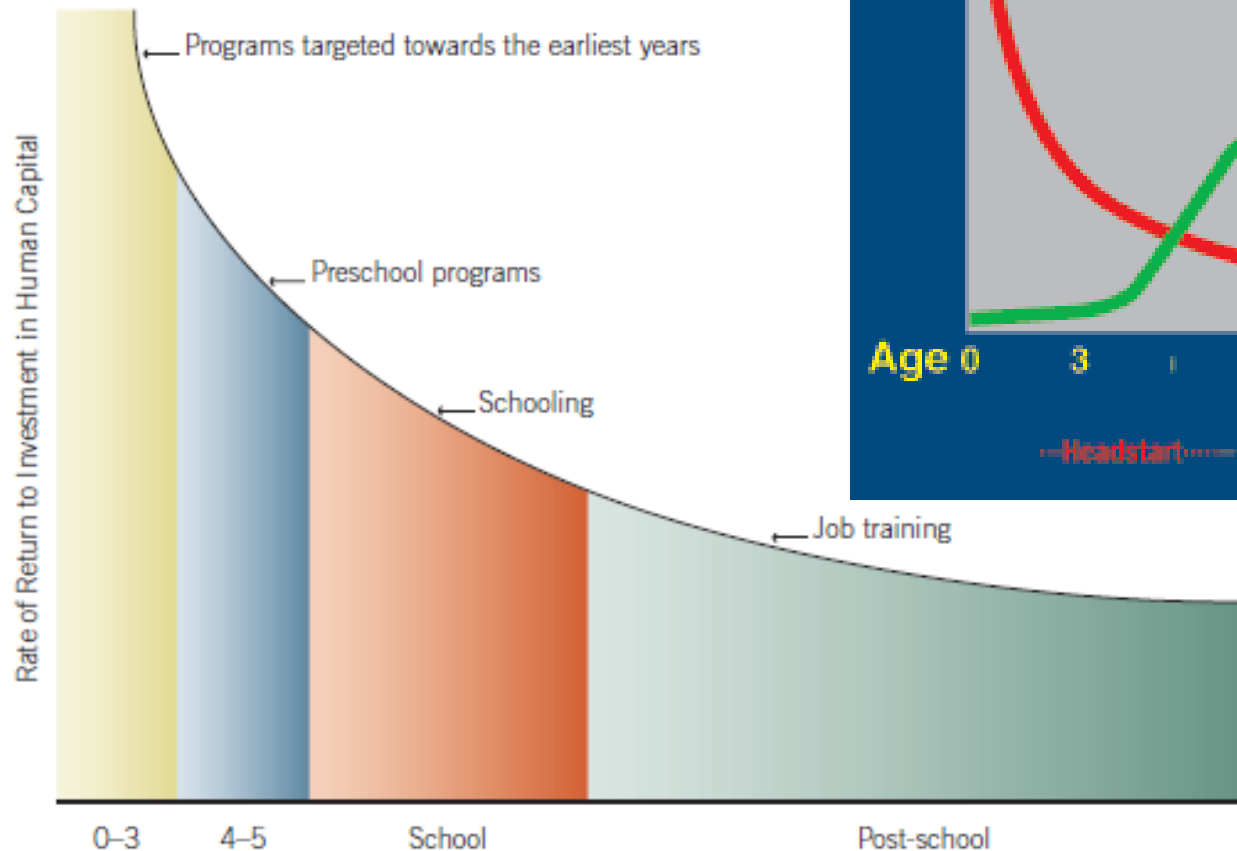


## Tertiary Prevention

- Home Visiting
- Care Coordination
- TB-CBT, etc

# Early Investment=Good Economics

Returns to a Unit Dollar Invested



# Are We Collaborating?

Exchanging information for mutual benefit	Exchanging information for mutual benefit	Exchanging information for mutual benefit	Exchanging information for mutual benefit
	Altering activities to achieve a common purpose	Altering activities to achieve a common purpose	Altering activities to achieve a common purpose
		Sharing resources to achieve a common purpose	Sharing resources to achieve a common purpose
			Enhancing other's capacity to achieve common purpose

**Networking**

**Cooperating**

**Coordinating**

**Collaborating**

# Collective Impact

Common Agenda

Shared Measurement

Mutually Reinforcing Activities

Continuous Communication

Backbone Organizations

# Collective Impact: Example

Common Agenda

Shared Measurement

Mutually Reinforcing  
Activities

Continuous Communication

Backbone Organizations



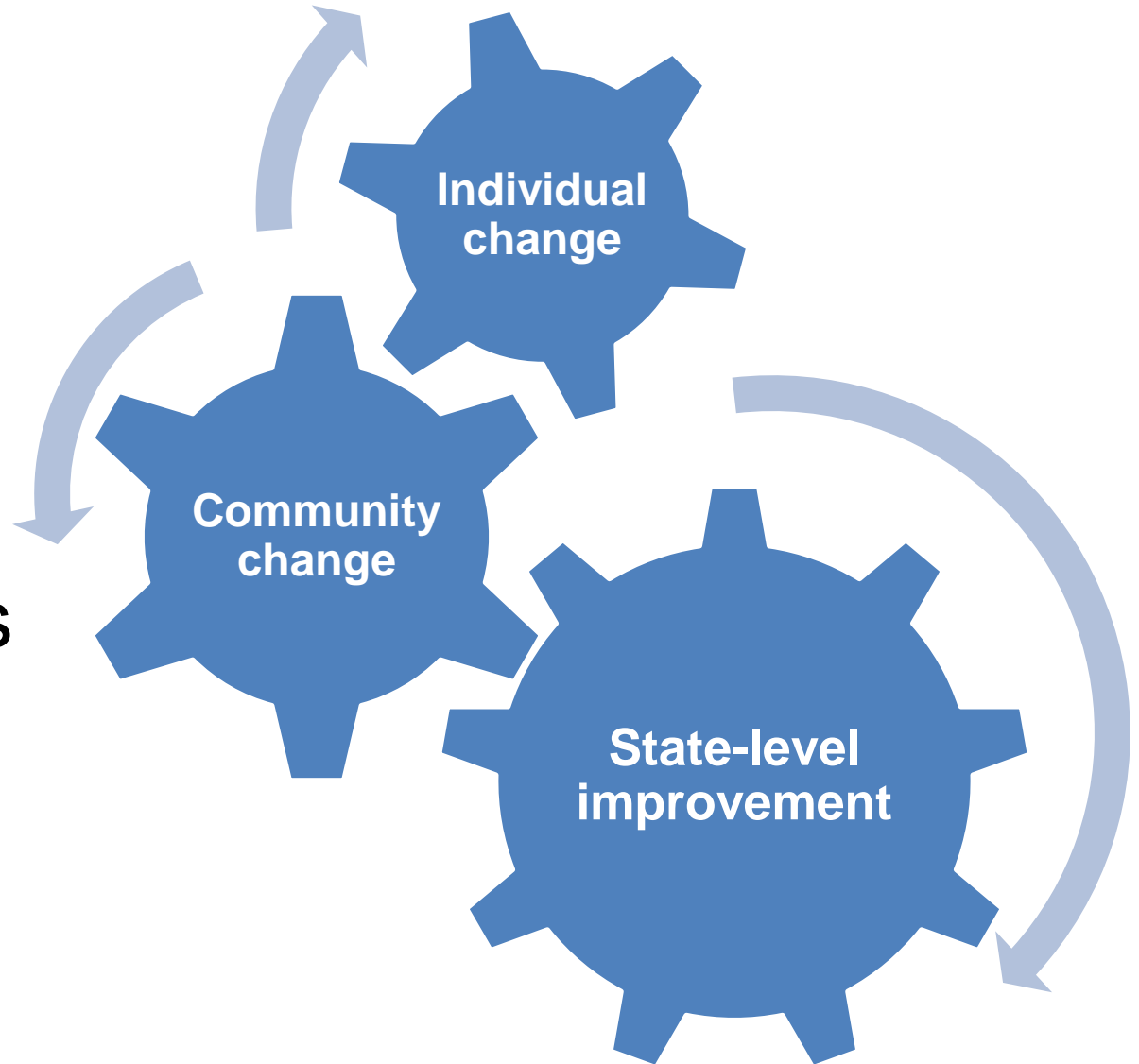
# Summary

- Early childhood experiences matter
  - Adverse experiences can have lifelong impacts
  - Positive experiences can compensate
- We all have opportunities to participate in improving the health and prosperity of Tennessee's children and future adults
  - Collaboration and collective impact are key



# You Play a Vital Role!

Your work is vital in our efforts to maximize the potential of Tennessee's children and families



# References

1. Life Course Toolkit. CityMaTCH. Available at: <http://www.citymatch.org>
2. Folic acid: <http://www.marchofdimes.com/pregnancy/folic-acid.aspx>
3. Obesity and Pregnancy: <http://www.marchofdimes.com/pregnancy/overweight-and-obesity-during-pregnancy.aspx>
4. Obesity in pregnancy. Committee Opinion No. 549. American College of Obstetricians and Gynecologists. Obstet Gynecol 2013;121;213–7.
5. Pregnancy Intent (TN): Data Source: Pregnancy Intention. TN PRAMS. Available at: <http://hit.state.tn.us/Reports/HealthResearch/PregancyRisk2009.pdf>
6. Harvard University Center on the Developing Child: [http://developingchild.harvard.edu/index.php/resources/briefs/inbrief\\_series/inbrief\\_the\\_science\\_of\\_eed/](http://developingchild.harvard.edu/index.php/resources/briefs/inbrief_series/inbrief_the_science_of_eed/)
7. Hart, B. and Risley, T. R. (2003). "The Early Catastrophe: The 30 Million Word Gap by Age 3." American Educator, v27 n1 p4-9 Spr 2003.
8. Centers for Disease Control and Prevention. ACE Study. Available at: <http://www.cdc.gov/ace/about.htm>
9. Centers for Disease Control and Prevention. ACE Pyramid. Available at: <http://www.cdc.gov/ace/pyramid.htm>
10. Annie E. Casey Foundation, KidsCount Data Center. Available at: <http://datacenter.kidscount.org/>
11. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). Available at: <http://www.cdc.gov/brfss>
12. Adverse Childhood Experiences Reported by Adults --- Five States, 2009. MMWR. December 17, 2010 / 59(49);1609-1613.
13. Bruce D. Perry MD PhD lecture: Maltreatment and the Developing Child. Available at: <http://www.lfcc.on.ca/mccain/perry8.html>
14. Willis DW and Kraft C. "Early Brain and Child Development: Translating Science Into Advocacy." Available at: <http://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/EBCD/Documents/AAPChapterAdvocacySummitPpt.pdf>
15. James J. Heckman. Return on Investments: Cost vs. Benefits. Available at: [http://www.childandfamilypolicy.duke.edu/pdfs/10yranniversary\\_Heckmanhandout.pdf](http://www.childandfamilypolicy.duke.edu/pdfs/10yranniversary_Heckmanhandout.pdf)
16. Himmelman AT. Collaboration for a Change. Available at: [http://depts.washington.edu/ccph/pdf\\_files/4achange.pdf](http://depts.washington.edu/ccph/pdf_files/4achange.pdf)
17. Stanford Social innovation Review. Available at: [http://www.ssireview.org/articles/entry/collective\\_impact](http://www.ssireview.org/articles/entry/collective_impact)