The First 1,000 Days

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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
Early Period Sets the Trajectory

- Preconception period = before woman ever becomes pregnant
- Woman’s health status impacts pregnancy, delivery, and beyond
  - Folic acid intake $\rightarrow$ neural tube development
  - Smoking $\rightarrow$ prematurity, birth weight, SIDS
  - Obesity $\rightarrow$ 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

Sensory Pathways (Vision, Hearing)  Language  Higher Cognitive Function


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

Normal

Typical neuron—many connections

Toxic stress

Damaged neuron—fewer connections

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

Source: Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/ace/about.htm
Adverse Childhood Experiences

Social, Emotional, & Cognitive Impairment

Adoption of Health-risk Behaviors

Disease, Disability, and Social Problems

Early Death

CDC “ACE Pyramid”

Adapted from Centers for Disease Control and Prevention. [http://www.cdc.gov/ace/pyramid.htm](http://www.cdc.gov/ace/pyramid.htm)
How Are the Children? How Are the Adults?

2013 KidsCount Rankings

<table>
<thead>
<tr>
<th>State</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>29</td>
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<tr>
<td>Indiana</td>
<td>30</td>
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<tr>
<td>Michigan</td>
<td>31</td>
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<tr>
<td>Texas</td>
<td>42</td>
</tr>
</tbody>
</table>

Chronic Disease Among TN Adults

- High Blood Pressure: 39%
- High Cholesterol: 39%
- Overweight/Obese: 67%
- Diabetes: 11%
ACE in TN (2009)

57% had at least 1 ACE

Nearly 1 in 4: 3 or more ACEs

Source: CDC. Adverse Childhood Experiences Reported by Adults --- Five States, 2009. MMWR. December 17, 2010 / 59(49);1609-1613.
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

Source: Bruce D. Perry MD PhD lecture: Maltreatment and the Developing Child. Available at: [http://www.lfcc.on.ca/mccain/perry8.html](http://www.lfcc.on.ca/mccain/perry8.html)
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

Source: Adapted from Willis DW and Kraft C. “Early Brain and Child Development: Translating Science Into Advocacy”
Early Investment=Good Economics

Are We Collaborating?

<table>
<thead>
<tr>
<th>Exchanging information for mutual benefit</th>
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<tbody>
<tr>
<td>Altering activities to achieve a common purpose</td>
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<td><strong>Networking</strong></td>
<td><strong>Cooperating</strong></td>
<td><strong>Coordinating</strong></td>
<td><strong>Collaborating</strong></td>
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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
8. Centers for Disease Control and Prevention. ACE Study. Available at: http://www.cdc.gov/ace/about.htm
10. Annie E. Casey Foundation, KidsCount Data Center. Available at: http://datacenter.kidscount.org/
12. Adverse Childhood Experiences Reported by Adults --- Five States, 2009. MMWR. December 17, 2010 / 59(49);1609-1613.