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“The Foundation of a Successful Society is Built in Early Childhood

Source: Center on the Developing Child at Harvard University (2011).

“‘It is easier to build strong children than to repair broken men.”

Frederick Douglass (1817–1895)
How Do We Build Strong Children and Promote Lifelong Health?: It’s All About Relationships

New science tells us what we always suspected:
➢ the environment in which children develop - family, extended family, neighborhood, school, community and culture – impacts health, but also brain development and even genetics

Brain Architecture Supports Lifelong Learning, Behavior, and Health

- Brains are built over time, starting in the earliest years of life. Simple skills come first, then more complex skills follow
- Cognitive, emotional, and physical capabilities are intertwined throughout the life course.
- A strong foundation in the early years improves the odds for positive outcomes and a weak foundation increases the odds of later difficulties.

Brain Development Begins Early

- Includes:
  - Working Memory
  - Mental Flexibility
  - Self-control

- Impacts:
  - School readiness
  - Math and reading competence
  - Physical and mental health
  - Educational achievement
  - Positive relationships
  - Economic productivity
  - Good Health related behaviors
  - Overall quality of life

Our Goal: Strong Executive Functioning

© 2011, Center on the Developing Child at Harvard University

http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts

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Why Early Experiences Matter

One Million Neural Connections (Synapses) Each Second

The Biology of Health: Nature vs Nurture

Health Trajectory: Dance Between Nature and Nurture
The Foundations of Health
• Stable and responsive environment and relationships
• Safe & supportive physical environments
• Appropriate nutrition

Source: Lifelong Health, Center on the Developing Child at Harvard University Website.

Stable & Responsive Environments
• Provide consistent, nurturing and protective interactions with adults
• Positive relationships can serve as social emotional buffers

Source: Center on the Developing Child at Harvard University Website.

Safe & Supportive Physical Environments
• Safe places to learn
• Places free of toxins
• Places that nurture and support families

Source: Center on the Developing Child at Harvard University Website.

Disrupting Brain Development and Health
• Positive early influences = typically healthy and adaptive
• Adverse early influences = dysfunctional, maladaptive, poor health
How Do You Define Adversity or Stress?

• Stress is not necessarily a bad thing

• Based on the perception and reaction (objective physiologic responses):
  - Positive stress response
  - Tolerable stress response
  - Toxic stress response


Positive Stress Response

• Brief, infrequent, mild to moderate intensity

• Most normative childhood stress
  - 2 year-old stumbles while running
  - Beginning school or child care

• Social emotional buffers allow a return to baseline

• Builds motivation and resiliency

• Positive Stress is not the absence of stress


Tolerable Stress Response

• Exposure to non-normative experiences
  - Death in family
  - Natural disaster

• Social emotional buffers can provide protection and promote a return to baseline

• A single major negative event does not necessarily mean long-lasting problems


Toxic Stress Response

• Long lasting, unremitting stress, not a “single bad stressor”

• Adverse child experiences
  - Abuse
  - Household dysfunction

• Insufficient social-emotional buffering

• Potentially permanent changes and long-term effects

• Multiple organ systems including brain

• Epigenetics

Impact of Early Stress

- CHILDHOOD STRESS

- Hyper-responsive stress response; calm/coping
- Chronic “fight or flight;” cortisol / norepinephrine

Changes in Brain Architecture

Effects of Toxic Stress

- Persistent elevation of cortisol
- Disrupts the developing brain's architecture in the
  - Amygdala
  - Hippocampus
  - Prefrontal cortex (PFC)
- Impacts learning, memory, and behavioral and emotional adaptation
- Suppresses immune response
- Affects many organ systems

- Potential genetic impact
  - How a gene is expressed (epigenetics)
  - How a pathway develops


What is the Adverse Childhood Experiences (ACE) Study?

The largest study of its kind that looks at the health and social effects of adverse childhood experiences over a lifespan

About the CDC-Kaiser ACE Study: Centers for Disease Control and Prevention Website.

ACES Survey

- Standard survey consists of questions regarding:
  - Physical abuse
  - Sexual abuse
  - Emotional abuse
  - Physical neglect
  - Emotional neglect
  - Exposure to domestic violence
  - Household substance abuse
  - Household mental illness
  - Parental separation or divorce
  - Incarceration household member
ACES…

ACE Study Findings
- Adverse childhood experiences are common
  - 2/3 of participants had at least 1 ACE; 1/5 scored 3 or more
  - Some populations more vulnerable
- Most often unrecognized and concealed
- Transforms psychosocial experience into organic disease, social malfunction, and mental illness
- Linked to heart disease, obesity, COPD, diabetes, depression, anxiety, substance addiction

Dose-Response
- Children with 3 or more ACEs
  - 3X academic failure
  - 6X behavior problems
  - 5X attendance problems
- Adults with 4 or more ACEs
  - 7X alcoholism
  - 2X cancer
  - 4X emphysema
- 6 or more ACEs
  - 30X suicide

Adverse Childhood Experiences (ACE) Study

ACES complete picture...
Poverty and the Brain

- Children in poverty have reduced gray matter volumes
  - 150% of poverty with reductions of 3-4% below developmental norms
  - 100% of poverty 8-9% below norms

- Chronic stressors related to poverty impacts brain development
  - Raised levels of cortisol and other stress markers

  MRI-frontal, parietal, left superior gyrus, right anterior cingulate gyrus-executive function

Good News: Life Trajectories are NOT Set in Stone

- Interactive processes
  - The development of health over a lifetime is an interactive process combining:
    - Genes
    - Environment
    - Behaviors
- Children/families have varying abilities and strengths that can be developed to increase their protective factors
- Lifelong development/lifelong intervention
  - At all stages of life, even for those whose trajectories seem limited
  - Risk factors can be reduced
  - Protective factors enhanced to improve current and subsequent health and well-being

Building Resilience

- Resilience — the process by which a person moves through a traumatic event, utilizing various protective factors and supports to return to baseline

Desired Protective Factors

For Families

- Concrete support in times of need
- Social connections
- Knowledge of parenting and child development
- Personal resilience
- The ability to enhance social and emotional competence in children
- The ability to foster nurturing and attachment

Slide borrowed from Dr. Sarah Verbiest, UNC Center for Maternal and Infant Health

Desired Protective Factors
For Communities

- Safe neighborhoods
- Safe, high quality schools
- Stable and safe housing
- Access to nutritious food
- Access to job opportunities
- Access to medical care (including behavioral health and wellness care)
- Access to transportation
- Access to safe, high quality, affordable child care
- Inclusion and equity related to race, ethnicity, and disability


The Role of Caregiving

- Toxic stress and adverse experiences impact families and caregiving practices
- Two generation intervention approaches can mediate negative experiences


Two Generational Approach in Building Health and Resilience

The Biology of Adversity Suggests a New Model for Intergenerational Investment

If we really want to achieve breakthrough outcomes for children experiencing toxic stress, then we have to transform the lives of the adults who care for them.


Removing the Stigma of Mental Health

- Normalize mental health conversations and supports
- Find ways to make families feel comfortable talking about mental health
- Assess a family’s readiness to share and address mental health needs
- Follow a family’s lead in making recommendations about mental health
CME and CE Information

In support of improving patient care, this activity has been planned and implemented by the School-Based Health Alliance and Moses/Weitzman Health System, Inc. and its Weitzman Institute and is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

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