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Learning Objectives

 Understand the role of toxic stress in the intergenerational transfer of health disparities;



- Present an organizing, integrated, ecobiodevelopmental framework;
- Discuss ways **early childhood** professionals might advocate in
 translating science into healthier life
 courses



Critical Concept #1

Childhood Adversity has **Lifelong** Consequences.

Significant adversity in childhood is strongly associated with unhealthy lifestyles and poor health decades later.

ACE Study Findings





• Childhood experiences are **powerful** determinants of who we become as adults

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	Women	Men	Total	
Abuse	(n=9,367)	(n=7,970)	(17,337)
- Emotional	13.1%	7.6%	10.6%	
 Physical 	27.0%	29.9%	28.3%	1:4!
- Sexual	24.7%	16.0%	20.7%	+
Household Dysfunction				
 Mother Treated Violently 	13.7%	11.5%	12.7%	
- Household Substance Abuse	29.5%	23.8%	26.9%	1:4!
 Household Mental Illness 	23.3%	14.8%	19.4%	+
- Parental Separation or Divorce	24.5%	21.8%	23.3%	+
- Incarcerated Household Membe	r 5.2%	4.1%	4.7%	
Neglect*				
- Emotional	16.7%	12.4%	14.8%	
- Physical	9.2%	10.7%	9.9%	



The higher the ACE Score, the greater the likelihood of :

- Severe and persistent emotional problems
- Health risk behaviors
- Serious social problems
- Adult disease and disability
- High health, behavioral health, correctional and social service costs
- Poor life expectancy

For example:

Higher ACE Score = significant rise in chronic health conditions:

- Sexually Transmitted Disease
- Liver Disease
- COPD
- Ischemic Heart Disease
- Autoimmune Disease
- Lung Cancer



Adverse Childhood Exposures and Alcohol Dependence Among Seven Tribes, American Journal of Preventative Medicine, 2003

- Alcohol Dependence correlated to:
 - Physical Abuse and Boarding School in Men
 - Sexual Abuse and Boarding School in Women













Defining Adversity or Stress



- How do you define/measure adversity?
- Huge Individual variability
 - Perception of adversity or stress (subjective)
 - Reaction to adversity or stress (objective)





- Hypothalamic-Pituitary Axis Reactivity
 - Levels of Cortisol
 - Epinephrine/Norepinephrine
 - Inflammatory markers
- National Scientific Council on the Developing Child (Dr. Jack Shonkoff and colleagues)
 - Positive Stress

- Tolerable Stress

- Toxic Stress

Based on the REACTION bjective physiologic responses)

	-
633	ALL

Positive Stress

- Brief, infrequent, mild to moderate intensity

Defining Adversity or Str

- Most normative childhood stress
 - Inability of the 15 month old to express their desires
 - The 2 year old who stumbles while running
 - Beginning school or daycare
 - The big project in middle school
- Social-omotional buffers allow a return to beseting (responding to non-verbal clues, consolation, reassurance, assistance in planning)
- Builds motivation and resiliency
- Positive Stress is NOT the ABSENCE of stress

Defining Adversity or Stress



- Toxic Stress
 - Long lasting, frequent, or strong intensity
 - More extreme precipitants of childhood stress (ACEs)
 - Physical, sexual, emotional abuse
 - Physical, emotional neglect
 - Household dysfunction
 - Insufficient social-emotional buffering (Deficient levels of emotion coaching, re-processing, reassurance and support)
 - Potentially permanent changes and long-term effects
 - Epigenetics (there are life long / intergenerational changes in how the genetic program is turned ON or OFF)
 - Brain architecture (the mediators of stress impact upon the mechanisms of brain development / connectivity)

ACEs Impact Multiple Outcomes



Critical Concept #2

Epigenetics:

- · Which genes are turned on/off, when, and where
- Ecology (environment/experience) influences how the genetic blueprint is read and utilized
- Ecological effects at the molecular level
- · Stress-induced changes in epigenetic markers



Critical Concept #3 **Developmental Neuroscience:**

- · Synapse and circuit formation are experience and activity dependent
- Ecology (environment/experience) influences how brain architecture is formed and remodeled
- Early childhood adversity -> vicious cycle of stress
- Diminishing cellular plasticity limits remediation
- Potentially permanent alterations in brain architecture and functioning



- synaptic connections are
- By the second decade of life growth levels off and
- Increased experiences define the wiring of an

Two Types of Plasticity



• Synaptic Plasticity -

- Variation in the STRENGTH of individual connections
- Development of long term and working memory
- Dysfunction results in working memory deficits

• Cellular Plasticity -

- Variations in the NUMBER (or COUNT) of connections
- Billions of connections made, many redundant
- "Pruning" of connections after age 5-6

































Critical Concept #4

For young children,

Caregivers create the environment for brain development!

Caregivers can turn off physiologic stress response by addressing physiologic and safety needs

Turns off the physiologic stress response by promoting healthy relationships and attachment

Notes and encourages foundational coping skills as they emerge

Early Childhood professionals are ideally placed!

- Promote this sort of "Purposeful" Parenting
- Advocate for a public health approach to address toxic stress

Addressing Toxic Stress



Primary / Universal Prevention

 Proactive, universal interventions to make stress positive, instead of tolerable or toxic

 Acknowledges that preventing all childhood adversity is **Impossible** and even **undesirable**

 Actively building resiliency ("immunizing" through positive parenting, 7C's of resilience, promoting optimism, "One Minute" socialemotional learning)

- SE Buffers for caregivers allow the physiologic stress response to return to baseline

Promoting the Five R's of Early Childhood Education

- **READING** together daily
- RHYMING, playing and cuddling
- ROUTINES help children know what to expect of us - what is expected of them
- REWARDS for everyday successes PRAISE is a powerful reward
- RELATIONSHIPS, reciprocal and nurturing foundation of healthy child development

Addressing **Toxic** Stress



Secondary / Targeted Preventions

- Focused, targeted interventions for those deemed to be "at high risk"
- Home Visiting (Healthy Steps, Parents as Teachers, Nurse Family Partnership)
- Parenting Play/Support Programs
- More likely to be effective; minimize "damage"

Linking Early Childhood Professionals through Home Visiting

- Screening, Risk Stratification, Communication
 - Personnel dedicated to this position (health concierge)
 - Ability to connect more important than education
 - Can sign up families for text4baby and
 - healthychild.org "push" notifications, select blogs, Facebook groups
 - Can facilitate appointments or point-of-care referral

Home Visiting Partners for Higher Risk Families				
• Child Health Investment Partnership of the Roanoke Valley	 Home Visiting with a Health Focus Parents As Teachers Oral Health Asthma Management Pregnant Moms Behavioral Health 			





Routine Medical/Social Screening

- Screening, Risk Stratification, Communication
 - Personnel dedicated to this position (health concierge)
 - Communication with Child Care and Head Start
 - Becomes a "point of contact" for the practice
 - Can sign up families for text4baby and
 - healthychild.org "push" notifications, select blogs, Facebook groups
 - Can facilitate appointments or point-of-care referral

Safe Environment for Every Kid







Addressing **Toxic** Stress



Treatment of the consequences

- Evidence-based treatments
 - Trauma Focused Cognitive Behavioral Therapy
 Parent-Child Interactive Therapy
- Reactive some "damage" already done!
- Very COSTLY
- Efficacy linked to age and chronicity
 Declining brain plasticity?
- Insufficient number of / access to providers
- Persistent STIGMA
 - "Character Flaws" vs "Biological Mal-adaptations"





SUMMARY

- What can I do?
 - -Understand the ecobiodevelopmental framework (advocate for a collaborative, public health approach to address toxic stress)
 - -Help children figure out how to turn off their stress response (parent/child skills)
 - -Recognize the relationship as a vital sign

SUMMARY

What can I do?

- -Develop purposeful partnerships with Pediatric healthcare providers
- -Incorporate practice process to screen, refer, and follow all children
- -Intervene early for those children who appear unable to turn off their stress response (secondary and tertiary prevention)

SUMMARY

- What can I do?
 - Provide parents information on Adverse Childhood Experiences
 - -Understand and learn about parents' adverse childhood experiences
 - Refer parents for resources to help them address their own stress and health concerns.

A Public Health Parable:

- Man by the river hears someone drowning
- Being a good swimmer, he rescues the person
- Before catching his breath, he hears another in need, and another and another...
- · The man, exhausted, begins to walk away
- Asked where he's going, he responds...



A Public Health Parable:

"I'm going upstream to prevent others from falling in!!"







We're in the "building health and developmental assurance" business.....

Physical health Developmental health Relational health



CONCLUSION:

It is easier to **build strong children** than to **repair broken men**.

Frederick Douglass