



Helping Healthcare Professionals Understand Trauma & Toxic Stress



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FSU Center for Prevention & Early Intervention Policy

Learner Objectives

- Describe the relationship between adverse childhood experiences & adult health
- Recognize how early adversity affects child development
- Employ the types of services children need in order to overcome adverse childhood experiences

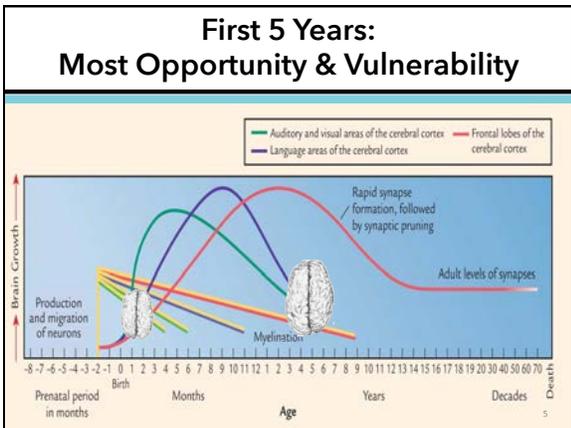


Outline

-  How does trauma & toxic stress impact young children?
-  What is the long term impact of early adversity?
-  How does trauma & toxic stress impact child development?
-  How could trauma-informed services change the trajectory for children & families?



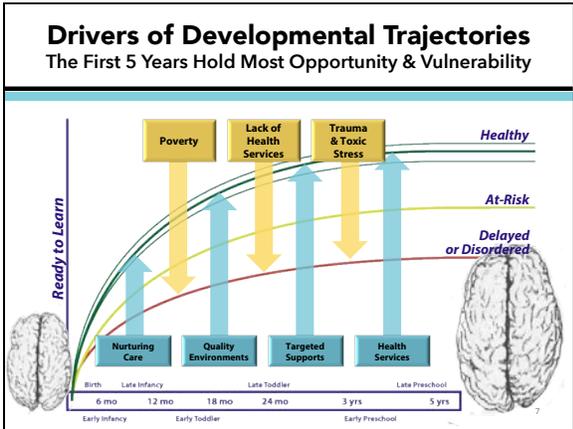
How Does Trauma & Toxic Stress Impact Young Children?



Video: Bruce Perry, MD



“You can intervene at age 10 and not get nearly the same result as intervening at age 2.”



Levels of Stress

Tolerable Stress
Short term stress. Supportive adults facilitate coping.

Toxic Stress
Stress is toxic in the prolonged activation and absence of a responsive caregiver.

It's not the traumatic event itself, but how the stress response system reacts that determines the impact.

An event that is unpredictable, produces a feeling of helplessness, & overwhelms a person's capacity to cope.

Trauma

Single Traumatic Event

Series of Traumatic Events

Multiple and Recurring Events

Complex Trauma!

"Trauma can be a single event, connected series of traumatic events, or chronic lasting stress."
Diagnostic Classification: 0-3R

- Illness or medical procedure
- Serious accident or hospitalization
- Traumatic grief or separation
- Fire, hurricane, flood, earthquake, or other disaster
- War, terrorism, political violence
- Physical, sexual, emotional or psychological maltreatment
- Witness to violence at home, school, or neighborhood
- Neglect
- Family disruption (moves, loss of job, illness, death, divorce, incarceration)

Symptoms of Trauma in Young Children

- Sleep troubles, nightmares, fear of falling asleep
- Loss of appetite, refusal to eat
- Headaches, stomach aches, aches and pains
- Increased aggressive behavior and angry feelings
- Hyperactivity (very high activity level)
- Hyper vigilance (constant worry about possible danger)
- Repetitive play about a violent event
- Loss of skills learned earlier (toilet training, language skills)

Different Aged Children React Differently to Trauma



Babies <ul style="list-style-type: none"> • From clingy to flat affect with no joy • Prolonged uncontrollable crying • Doesn't explore • No preferred caregiver • Failure to thrive 	Toddlers <ul style="list-style-type: none"> • Biting, kicking, tantrums, unprovoked aggression • Disinterested in toys • Indiscriminate preferences of caregivers. • No appetite 
Preschool <ul style="list-style-type: none"> • Repetitive play about violent event • Sleep troubles or nightmares • Hyper vigilance • Skill regression 	School Age <ul style="list-style-type: none"> • Grades drop • Preoccupied with the trauma • Poor self-esteem • Bedwetting or thumb sucking may reappear

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Infant/Toddler Reactions to Stress



- Aggression
- Clinging
- Crying
- Defiance
- Eating problems
- Fearfulness
- Inattention
- Irritability
- Nightmares
- Over-activity
- Physical complaints
- Rebellion
- Regression
- Sadness
- Sleep disturbance
- Temper tantrums
- Under-activity
- Vomiting

Infant Toddler Feelings Associated with Separation



- Abandonment
- Ambivalence
- Anger
- Anxiety
- Confusion
- Depression
- Fearfulness
- Frustration
- Grief
- Guilt
- Loss of control
- Loss of power
- Rejection
- Relief
- Sadness

Video: Jack Shonkoff, MD

Impact of Toxic Stress to the Developing Brain

Harvard University's Center on the Developing Child.

Available at <http://developingchild.harvard.edu>



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What Is the Long-Term Impact of Early Adversity?

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Study on Adverse Childhood Experiences (ACEs)

Largest Investigations Ever Conducted to Assess the Relationship of Early Adversity and Adult Health



Source: Adverse Childhood Experiences (ACE) Study. Information available at <http://www.cdc.gov/ace/index.htm>

ACE Study

The Relationship of Adverse Childhood Experiences & Adult Health




Of 17,000 respondents, two-thirds had at least one ACE.

ACE Questionnaire 19

Widespread Prevalence of Adverse Childhood Experiences

Of 17,000 respondents, 2/3s had at least 1 ACE.



Household dysfunction	
Substance abuse	27%
Parental separation/divorce	23%
Mental illness	17%
Battered mother	13%
Incarcerated family member	6%
Abuse	
Psychological	11%
Physical	28%
Sexual	21%
Neglect	
Emotional	15%
Physical	10%



Source: V. Felitti, 2005

Early Trauma Increases Risk of...


Substance Abuse


Mental Health


Delinquency


Domestic Violence


Child Welfare


Obesity


Smoking


Drinking


Poor Health


Court Involvement

ACE Scores Linked to Physical & Mental Health Problems

One in six people had 4 or more ACEs.
People with 4 or more ACEs were:



Twice as likely to be **smokers**.



Seven times as likely to be **alcoholics**.



Men with 6 or more ACEs were **46 times as likely to inject drugs**.

ACE Scores Linked to Physical & Mental Health Problems

People with 4+ ACEs were likely to:

- Be sexually active before age 15: 6x
- Have cancer or heart disease: 2x
- Attempt suicide: 12x

People with 7+ ACEs had:

- A 360% higher risk for heart disease, even if they did **not** smoke, drink, or carry extra weight



Adverse Childhood Experiences (ACE) Study. Information available at <http://www.ck12.org/AdverseChildhoodExperiences>

Early Adversity Is Linked to the 10 Leading Causes of Death & Disability

1. Heart disease
2. Cancer
3. Chronic lower respiratory diseases
4. Stroke
5. Unintentional injuries
6. Alzheimer's disease
7. Diabetes
8. Kidney disease
9. Influenza and pneumonia
10. Suicide



Source: Anda, R. (2008). The health and social impact of growing up with alcohol abuse and related Adverse Childhood Experiences: The human and economic costs of the status quo. 24

TED Talk Video: Nadine Burke Harris, MD



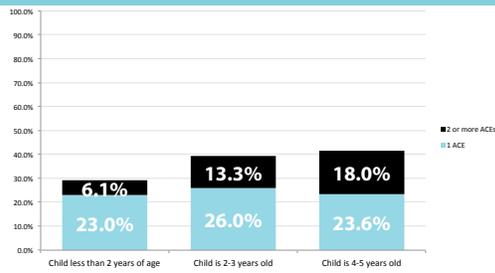
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ACEs Among Children 0-5

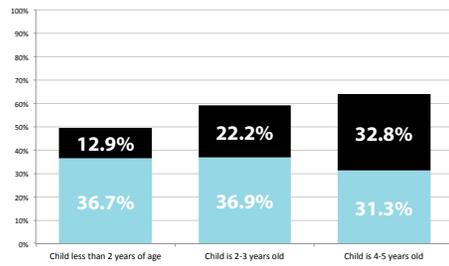
National Survey of Children's Health
Found High Prevalence of Adversity in Young Children



- National Survey of Children's Health, 2011-12

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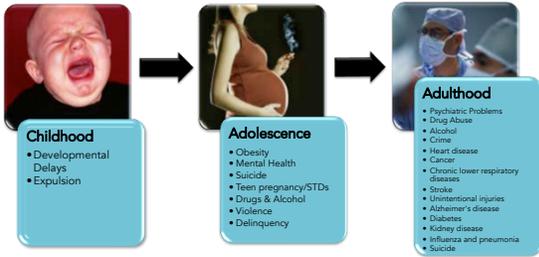
Adversity Rates Almost Double for Children 0-5 in Poverty



- National Survey of Children's Health, 2011-12

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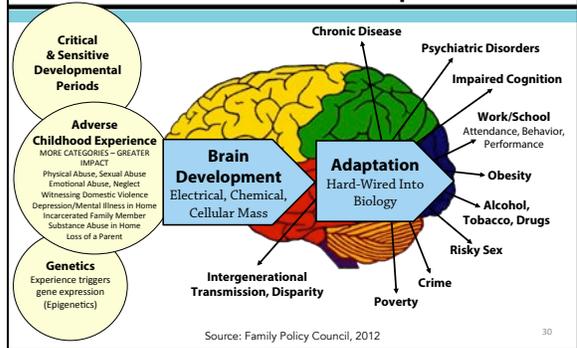
Untreated Adverse Early Childhood Events Exacerbate Over Time



Source: Adverse Childhood Experiences (ACE) Study. Information available at <http://www.cdc.gov/ace/index.htm>

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Lifespan Impacts of Adverse Childhood Experiences



Source: Family Policy Council, 2012

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How many families in our drug treatment centers, psychiatric units and homeless shelters are the result of unhealed early childhood traumas?



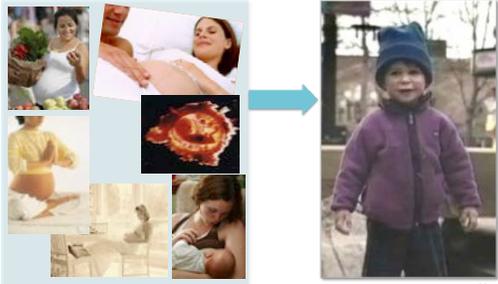
Typical Child **Neglected Child**

- Physical
- Motor
- Language
- Cognitive
- Social emotional

How Does Trauma & Toxic Stress Impact Child Development?

Mom's Prenatal Care

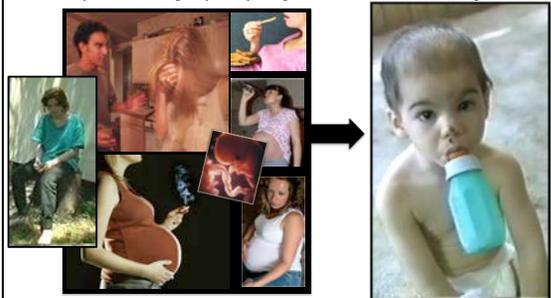
- Put Lucian on a trajectory of optimal physical and emotional health



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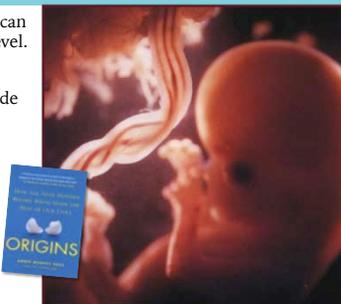
Mom's Poor Prenatal Care

Put Billy on a lifelong trajectory for poor health and emotional problems.



Stress Impacts Development In Utero

- Stress during pregnancy can elevate mom's cortisol level.
- Cortisol can cross the placenta to directly impede fetal development.
- Stress linked to LBW and prematurity.
- Permanently adjusts stress axis settings.
- Makes the child hypersensitive to stress.



Paul, Annie. Murphy. (2010). Origins: How the nine months before birth shape the rest of our lives. 35

Physical Development

- Malnourished & anemic
- Bottle mouth & rotten teeth
- Chronic untreated ear infections with possible hearing loss
- Compromised lung function from second-hand smoke
- Bleeding diaper rash



Billy **Lucian**

- On target for height & weight
- Regular checkups
- Immunizations up-to-date
- Good teeth
- Excellent health
- Breastfed, so good immunities

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Motor Development

- Skill regression: prefers crawling but can run

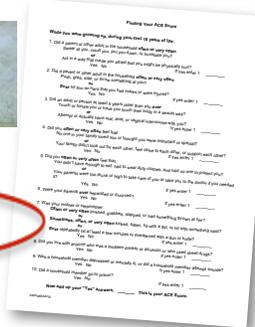


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What if ... ACEs were identified early?

ACEs Questionnaire

- Physical abuse
- Emotional abuse
- Sexual abuse
- An alcohol and/or drug abuser in the household
- Someone who is chronically depressed, mentally ill, institutionalized, or suicidal
- One or no parents
- Emotional or physical neglect



Ways Trauma is Misinterpreted

- Punishing “bad” behavior, instead of understanding underlying emotional needs.
- ADHD or other diagnosis that is medicated.
- Expulsion from “preschool to high school” for challenging behavior, instead of understanding the underlying emotional needs.



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What if ... Billy's health was understood in the context of mom's untreated trauma & depression?

- Malnourished & anemic
- Bottle mouth & rotten teeth
- Chronic untreated ear infections with possible hearing loss
- Compromised lung function from second-hand smoke
- Bleeding diaper rash



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Language Development

According to Hart & Risley,

Vocabulary at age 3
Poor children: 525 words

Vocabulary at age 3
Professional: 1,116 words



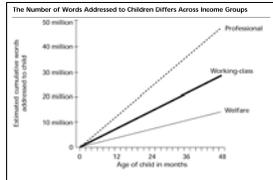
Billy

Lucian

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Language Development

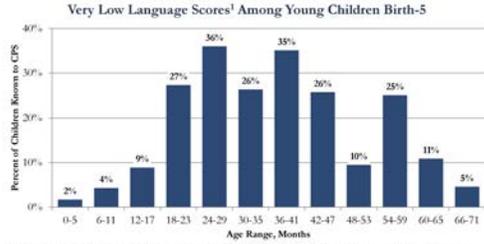
By age 4, the average child in a poor family might have been exposed to **30 million fewer words** than a child in a professional family.



Hart & Risley



Language Development Among Young Children Known to Child Welfare

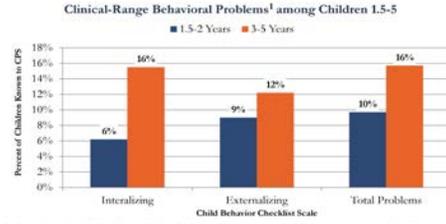


Data Source: National Survey of Child and Adolescent Well-Being II (NSCAW II), NSCAW II is a Congressionally required study sponsored by the Office of Planning, Research and Evaluation, Administration for Children and Families (OPRE), U.S. Department of Health and Human Services (DHHS).
¹ Two or more standard deviations below the mean on Preschool Language Scale-3 (Zemanak et al, 1992).

December 19, 2012
 Source: <http://www.qic-ec.org/documents/research-and-findings/other-resources/ACYF-Well-Being.pdf>

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Behavioral Problems Among Young Children Known to Child Welfare



Data Source: National Survey of Child and Adolescent Well-Being II (NSCAW II), NSCAW II is a Congressionally required study sponsored by the Office of Planning, Research and Evaluation, Administration for Children and Families (OPRE), U.S. Department of Health and Human Services (DHHS).
¹ Child Behavior Checklist (Schachar, 1991; Schachar & Rescorla, 2000). "Clinical range" was defined as a standardized score of 64 or more.

December 19, 2012
 Source: <http://www.qic-ec.org/documents/research-and-findings/other-resources/ACYF-Well-Being.pdf>

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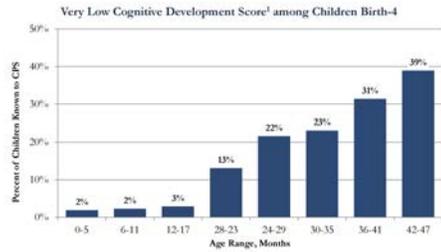
Cognitive/Academic Development



Billy Lucian

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Cognitive Development Among Young Children Known to Child Welfare

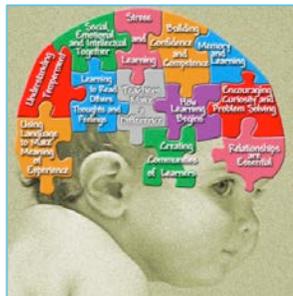


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¹ Two or more standard deviations below the mean on Bayley Development Inventory (Newborg, 2005).

December 19, 2012
 Source: <http://www.qic-ec.org/documents/research-and-findings/other-resources/ACYF-Well-Being.pdf>

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Video: Early Brain Development



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Neglect ...

- The most prevalent form of maltreatment.
- Neglect has more dire consequences for children's mental health over the lifetime than other maltreatment.
- Reversal of the consequences of neglect requires more than simply removing the child from neglectful caregiving.

Source: U.S. Dept. of Health and Human Services, ACYF. (2009). Child maltreatment 2009 and ChildStats.gov. (2011). America's children: Key national indicators of well-being, 2011.

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Trauma, Toxic Stress & Neglect Interfere With Brain Development

Prefrontal cortex
Controls executive functioning

Healthy Child vs **Neglected Child**

Amygdala

Courtesy of Dr. H.T. Chugani, Children's Hospital of Michigan, Wayne State University

What if ... a quality, trauma-informed early childhood program was available?

Significant Health and Education Benefits of Abecedarian Early Childhood Education

15 Months to 35 Years Old

- Intelligence (IQ)
- Reading and math skills
- Academic locus-of-control
- Social Competence
- Years in school
- College attendance
- Earned 4 yr college degree
- Full-time employment
- Cardiometabolic health
- Return on Investment
- Mothers' education
- Mothers' employment

- Grade Repetition
- Special Education placement
- Teen Pregnancies
- Smoking & drug use
- Teen depression
- Welfare use
- Overweight/BMI
- Lower blood pressure

Sources: Ramey, Sparling, & Ramey (2012); Science (2014)

What if ... Head Start Trauma Smart was available?

An evidence based program using trauma therapy in the classroom

Crittenton Children's Center in Kansas City, MO
Time: 5:03 minutes
Video available at <http://www.rwjf.org/en/grants/grantees/head-start-trauma-smart.html>

Adversity Leads to Academic Problems

Learning & Behavior Problems in School

Children with NO ACEs	3%
Children with 4+ ACEs	51%

Stress Compromises Learning & Executive Functioning

- The prefrontal cortex, an essential part of the brain for self regulation, is most affected by early stress.
- As a result, children in stressful environments find it harder to concentrate, sit still or follow directions.
- Uncontrollable impulses and negative feelings make it hard to learn.

Trauma Symptoms Often Treated as ADHD

- Failing to understand directions
- Overreacting to comments from teachers and peers
- Misreading context
- Failing to connect cause and effect
- Aggression
- Zoning out
- Lack of focus
- Don't stay on task
- Impulsive
- Can't sit still
- Lose control of emotions
- Easily distracted
- Easily frustrated
- Don't follow instructions
- Poor coping skills

Poor Executive Functioning

Associated with:

- Alcoholism
- Substance abuse
- Psychiatric issues
- Developmental disorders
- Depression
- Schizophrenia
- Attention-deficit or hyperactivity disorder
- Autism

Social Emotional Development

- Flat affect
- Stays near mother

- Range of emotions
- Happy, emotionally calm, balanced
- Comforts other kids when hurt
- Uses Dad as secure base from which to explore world

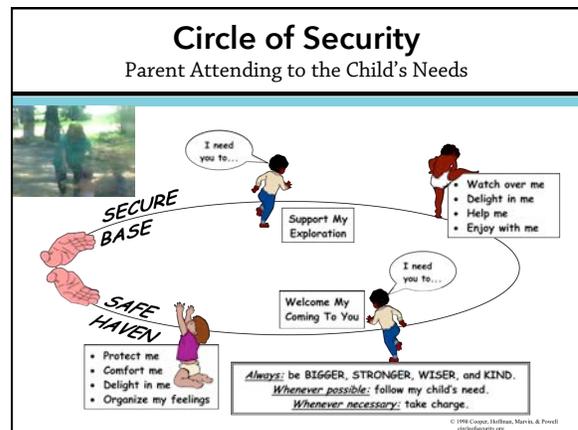
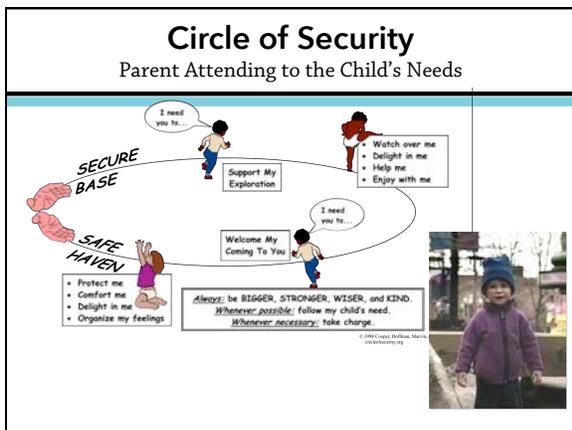
Billy Lucian

Infant Mental Health

- Includes social-emotional & behavioral development & well-being
- Is the capacity to experience, regulate, & express emotion
- Allows child to form close, secure relationships
- Determines how the child explores the environment & learns

Trust & Emotional Security

Capacity to form close, secure relationships
Security in “going out” to explore



Video: Impact of Maternal Disengagement on Baby



Source: YouTube.

Still Face Video:
Edward Tronick
Available at

<http://www.youtube.com/watch?v=apzXGEbZht0&feature=youtu.be>

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What if ... both mom & baby's mental health issues had been identified?



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Social Emotional Development

Signs of Trauma

- Skill regression
- Flat affect
- Hypervigilant
- Disengagement
- Lack of exploration- stays near mom



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Separation Phases of Emotional Deterioration



Source: Bowlby, J. (1979). The Making and Breaking of Affective Bonds. London: Tavistock.

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Video: John's Stay in the Nursery - Emotional Deterioration of Separation

Source: Robertson, James and Joyce (Producers).

Young Children in Brief Separation:
John, 17 months,
Nine Days in a Residential Nursery.
Child Development Media.

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Young Children's Reactions to Stress

- Abandonment
- Aggression
- Ambivalence
- Anxiety
- Confusion
- Clinging
- Crying
- Depression
- Eating problems
- Fearfulness
- Inattention
- Irritability
- Nightmares
- Over-activity
- Physical complaints
- Rebellion
- Regression
- Sadness
- Sleep disturbance

Changing the Family's Trajectory

Is a traditional approach sufficient?



- Focus on cleaning up the house
- Place children with relative until house is clean
- Reunite family until next call



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Life Course for Billy's Mom with Her Untreated Adverse Early Childhood



Childhood ACEs

- Witnesses Domestic Violence
- Experiences Child Abuse & Neglect



Adolescence ACEs

- Has Mental Health Issues
- Sexually Active & Becomes Pregnant as a Teen
- Smokes



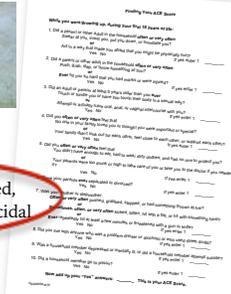
Adulthood ACEs

- Suffers Psychiatric Problems
- Is Depressed
- Battles Addictions

Study of Adverse Childhood Experiences

ACEs Questionnaire

- Physical abuse
- Emotional abuse
- Sexual abuse
- An alcohol and/or drug abuser in the household
- Someone who is chronically depressed, mentally, ill, institutionalized, or suicidal
- One or no parents
- Emotional or physical neglect



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Billy's Trajectory, If Left Untreated

Childhood <ul style="list-style-type: none"> • Developmental Delays —needs speech therapy • Medical issues—asthma from smoking in house • Behavior problems 	Adolescence <ul style="list-style-type: none"> • Smoking • Mental health issues • Early use of substances • Potential sexual diseases • Teen pregnancy or paternity • Serious emotional disorder 	Adulthood <ul style="list-style-type: none"> • Psychiatric problems • Depression • Battles addictions • Health problems • Immune system deficiencies
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How can we change the trajectory for Billy and all the other children with early adversity?



How Could a Trauma Lens Change the Trajectory for Children & Families?

What if ... prenatal care was trauma-informed?

- An OBGYN would understand that maladaptive coping (e.g., smoking, substance abuse, overeating, and high-risk sexual behavior) may be related to trauma history.
- A screen for depression would be routine.
- Treatment for trauma would be given before the baby was born.



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What if a trauma-informed pediatrician recognized Billy's ACEs & development in the context of his mom's mental health issues?

ACEs Questionnaire

- Physical abuse
- Emotional abuse
- Sexual abuse
- An alcohol and/or drug abuser in the household
- Someone who is chronically depressed, mentally ill, institutionalized, or suicidal
- One or no parents
- Emotional or physical neglect




Nadine Burke Harris, MD

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What if trauma informed home visiting was offered to Billy's family?



What if ... Billy & baby brother were in a Head Start/Trauma Smart early childhood program?




What if ... Billy had an infant mental health specialist that could have addressed trauma and the mom/baby relationship?



What if ... the family had in-home supports, such as dyadic therapy, rather than separation?



"Young children grieve when their attachment relationships are disrupted – regardless of whether we as adults would consider it a positive, less than adequate, or even abusive relationship."

Source: Shonkoff, Jack P. and Phillips, Deborah A. (Eds.). (2000) From Neurons to Neighborhoods: The Science of Early Childhood Development. Institute of Medicine. Washington, D.C.: National Academy Press.

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What if ... Billy had a speech therapist?

...who understood that his speech delay is due to his environment and the trauma he has experienced and treated him accordingly?



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What if ... other trauma-informed therapeutic services were provided to Billy?



Occupational Therapy

Physical Therapy



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Trauma Systems FloridaTrauma.org



FSU Project to Help Healthcare Professionals Understand Trauma & Toxic Stress in the Context of Their Work



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Collaborators

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Audiences

- Pediatricians
- Obstetricians
- Gynecologists
- Speech therapists
- Occupational therapists
- Physical therapists
- Behavioral health therapist
- Care Coordinators
- Home visitors



Check Out Our Website



Materials for Ob/GYN



Pediatrician Tip Sheets



Care Coordination Materials



New Materials Being Developed for Occupational, Physical, and Speech Therapists, Behavioral Therapists & Home Visitors



- About trauma and toxic stress.
- About infant mental health and how it can be incorporated into their disciplines.
- About evidence-based interventions should be in the provider network for children ages 0-3.

-Vincent Felitti, MD

“It’s the most important opportunity for the prevention of health and social problems and disease and disability that has ever been seen.”

<http://www.cdc.gov/ace/index.htm>

Thank you!

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