

# Adverse Childhood Experiences Survey : What are the Implications for Adulthood?

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November 16, 2019  
American College of  
Physicians  
DC Chapter 2019 Scientific  
Meeting

# Disclosure

I have no potential or actual conflicts of interest  
related to this presentation

# Goals and Objectives

- *At the conclusion of this presentation, the audience will be able to:*
  - *Understand how early childhood experiences impact long term health and psychosocial outcomes*
  - *Review the literature related to adverse childhood experiences and impact on adult health*
  - *Discuss how exposure to childhood adversity may impact diagnosis and treatment of adult health conditions*

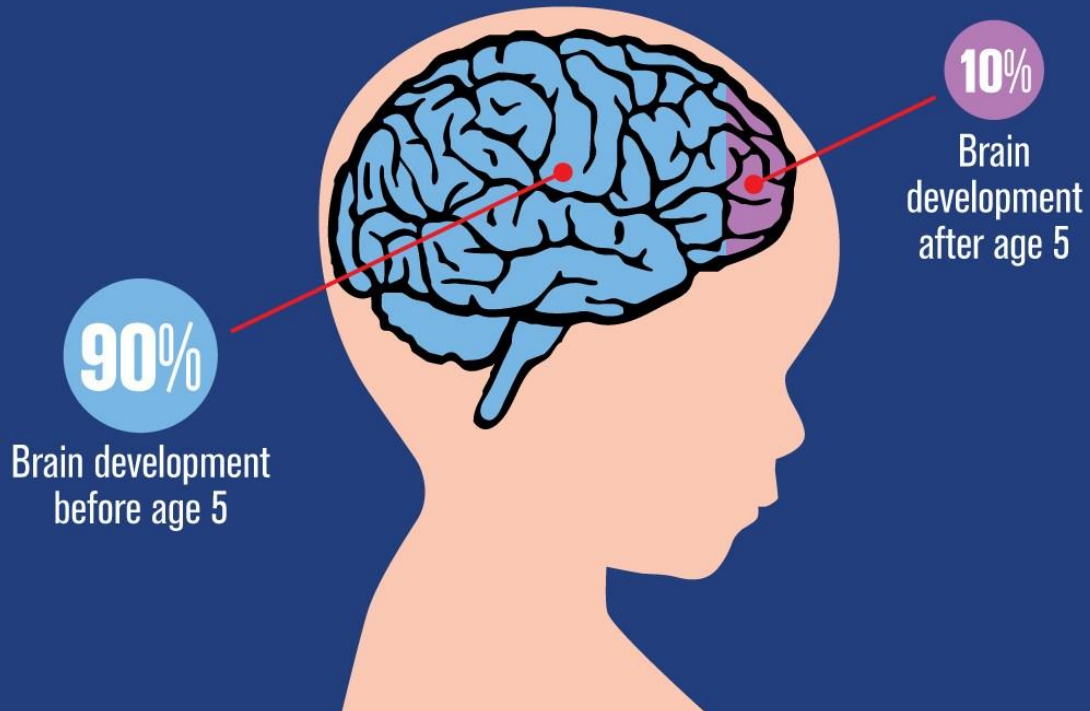
# Building a Strong Foundation

- Brain development begins *in the prenatal period* and lays the foundation for
  - Healthy development
  - Physical health
  - Social-emotional health
  - School achievement
  - Executive functioning



# Before age 5

90% of a child's brain development happens

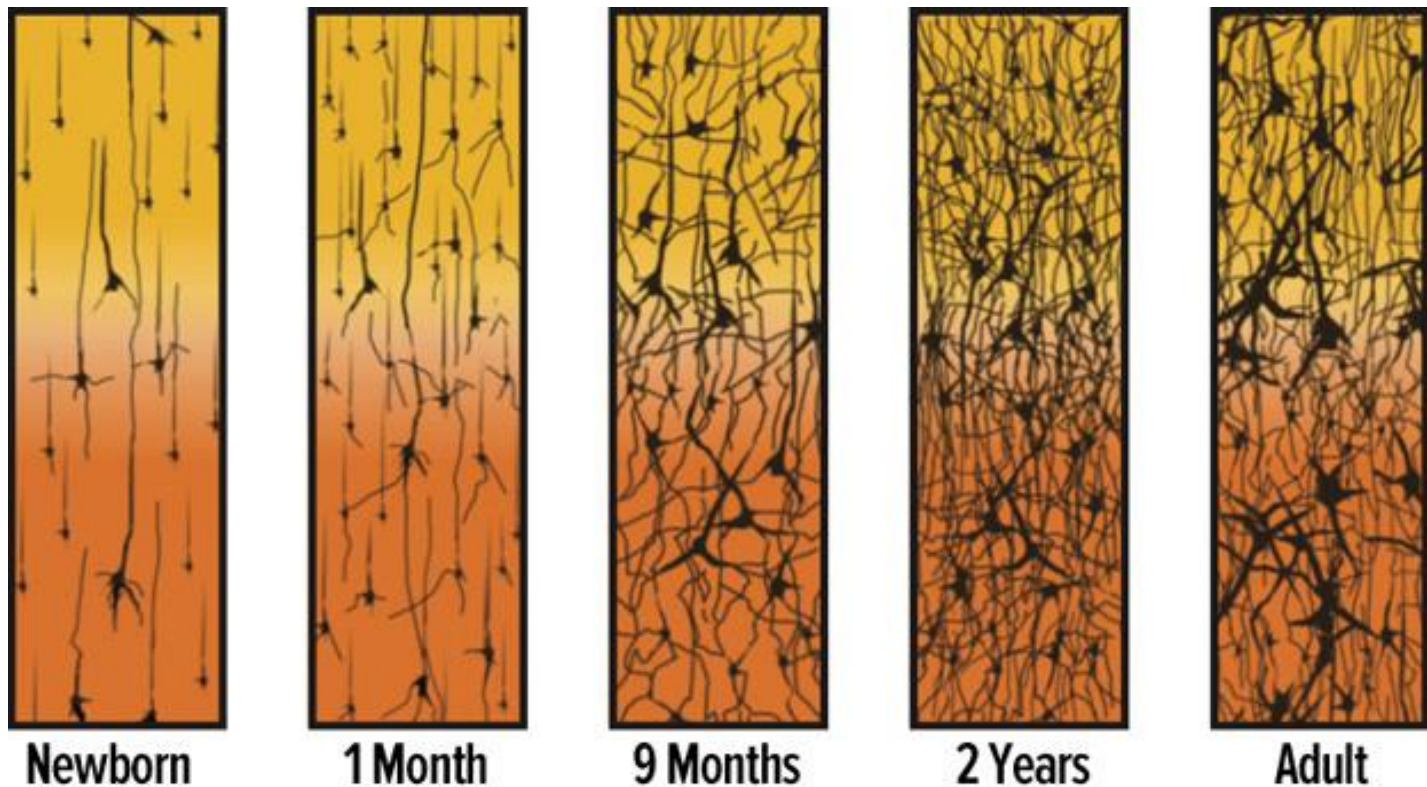


Source: Harvard Center for the Developing Child



**Building Bright Futures**  
Vermont's future starts with today's children

# Neurons and Synapses: Blooming and Pruning



<http://www.urbanchildinstitute.org/why-0-3/baby-and-brain>

*Source: Adapted from Corel, JL. The postnatal development of the human cerebral cortex. Cambridge, MA: Harvard University Press; 1975*



# Toxic Stress Changes Brain Architecture

Normal



Typical neuron with many connections



Toxic Stress

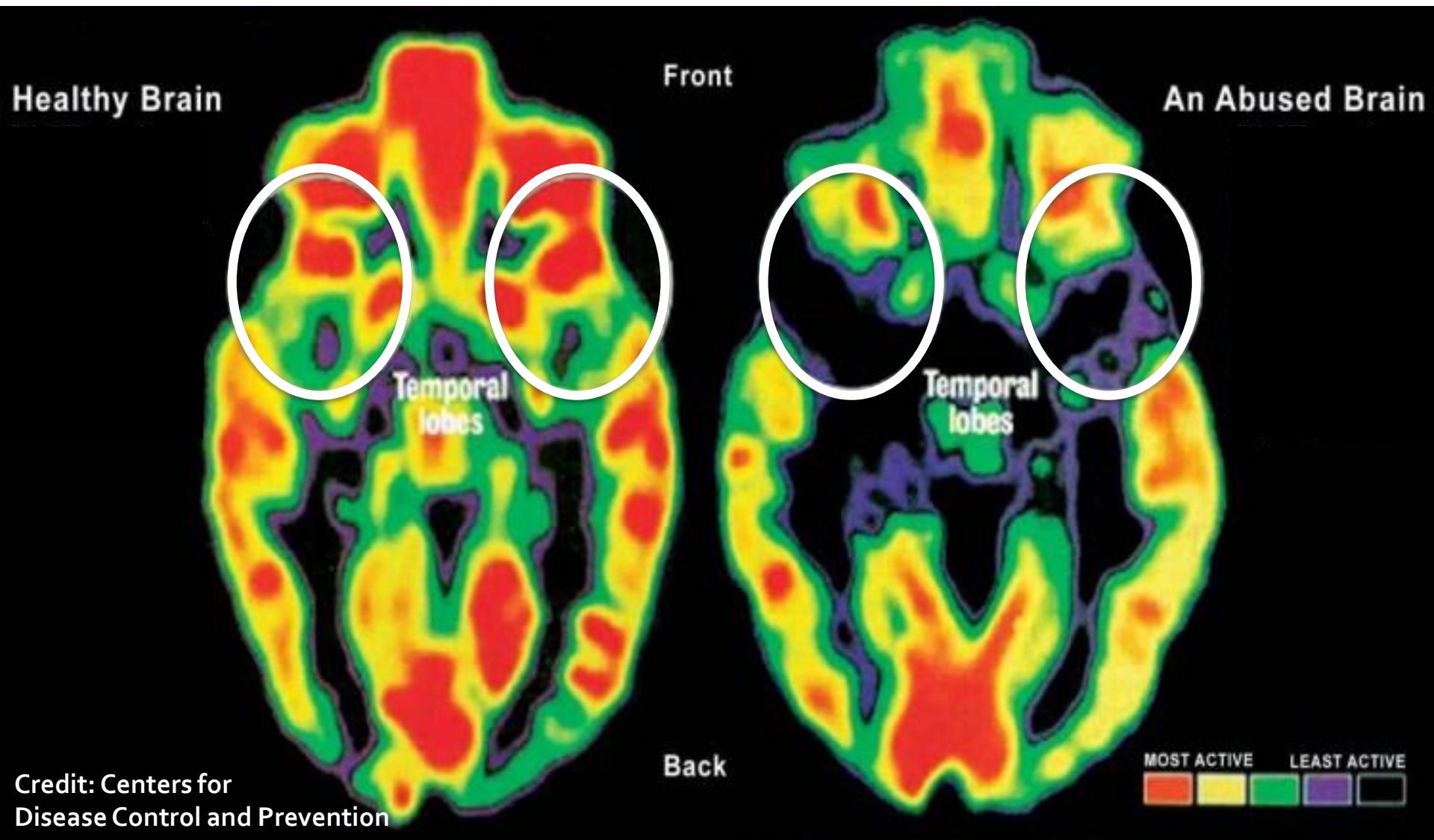


Neuron damaged by toxic stress -- fewer connections



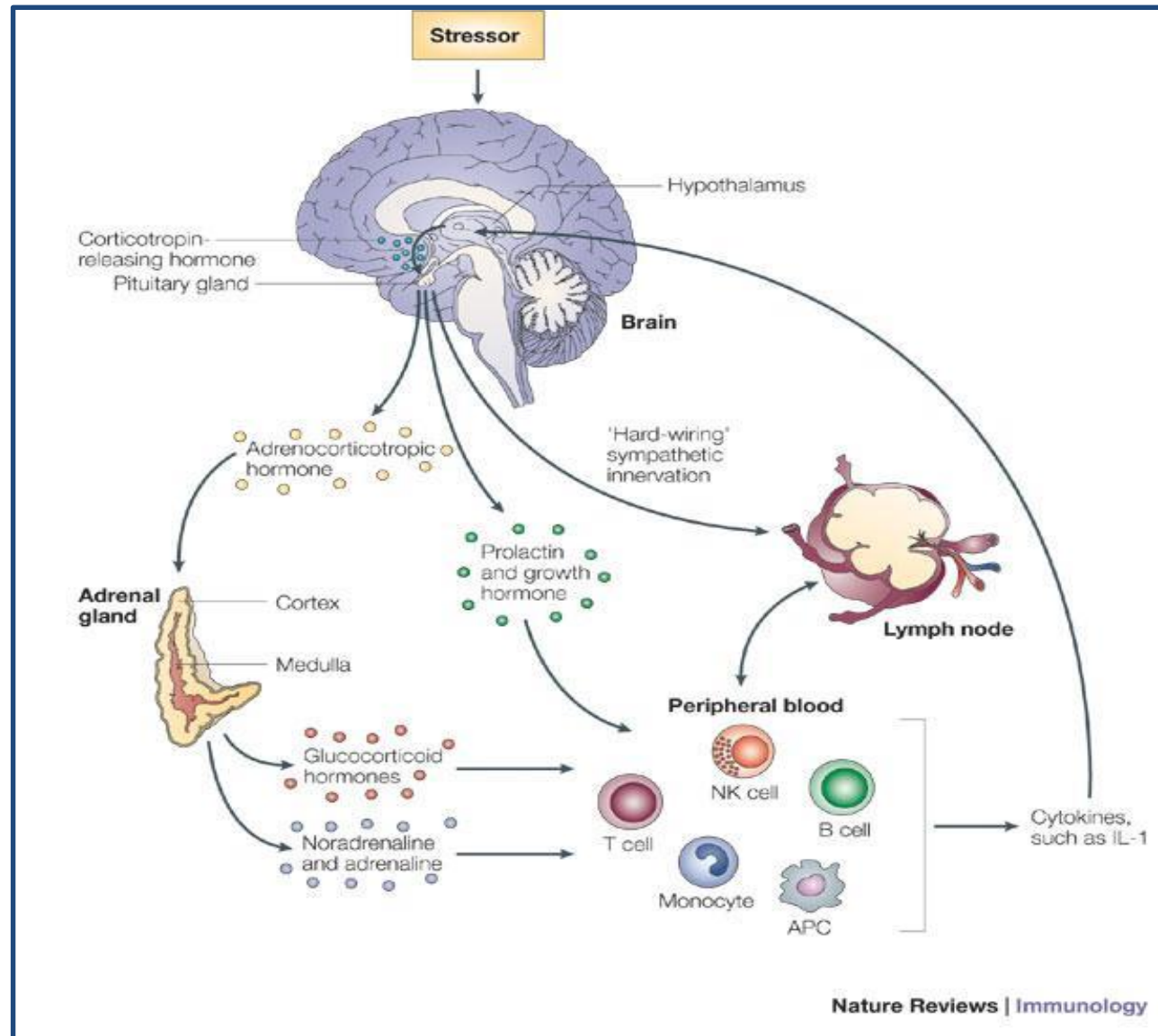
Prefrontal Cortex and Hippocampus

Center on the Developing Child, Harvard University

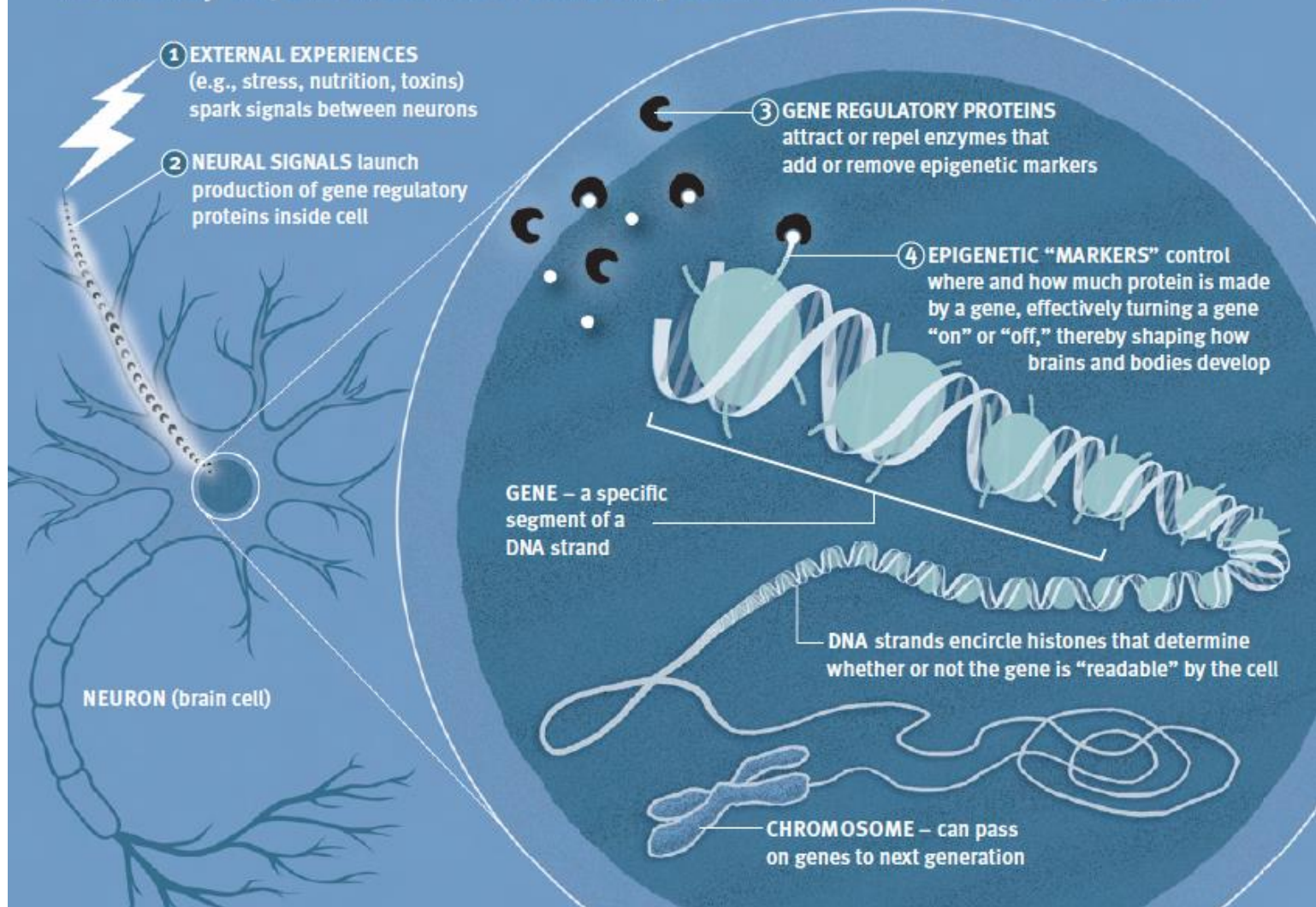




# Not Just in the Brain....



# How Early Experiences Alter Gene Expression and Shape Development

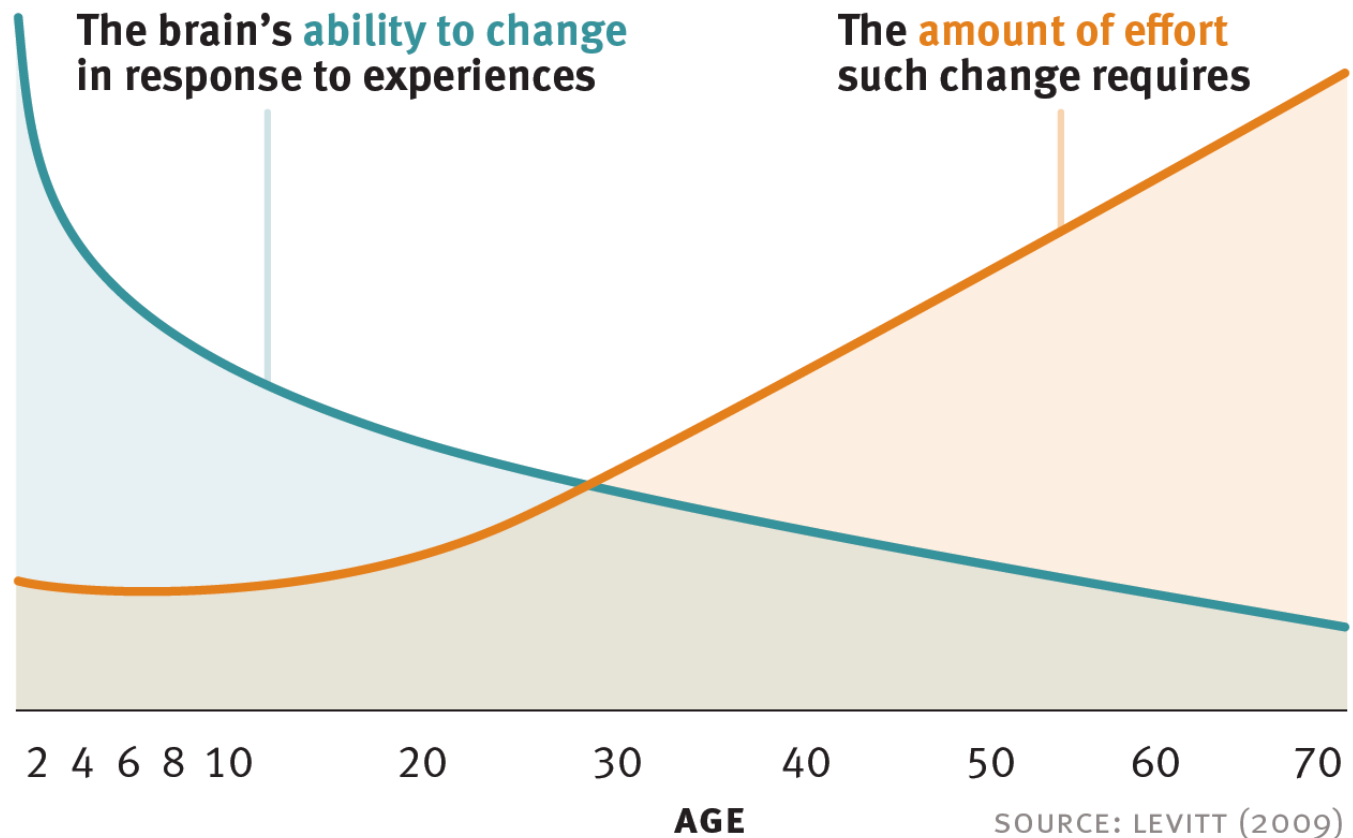


<https://developingchild.harvard.edu/science/deep-dives/gene-environment-interaction/>



Children's National™

# The Importance of Early Intervention



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[www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)

# Adverse Childhood Experiences: CDC-Kaiser Study (1995-1997)

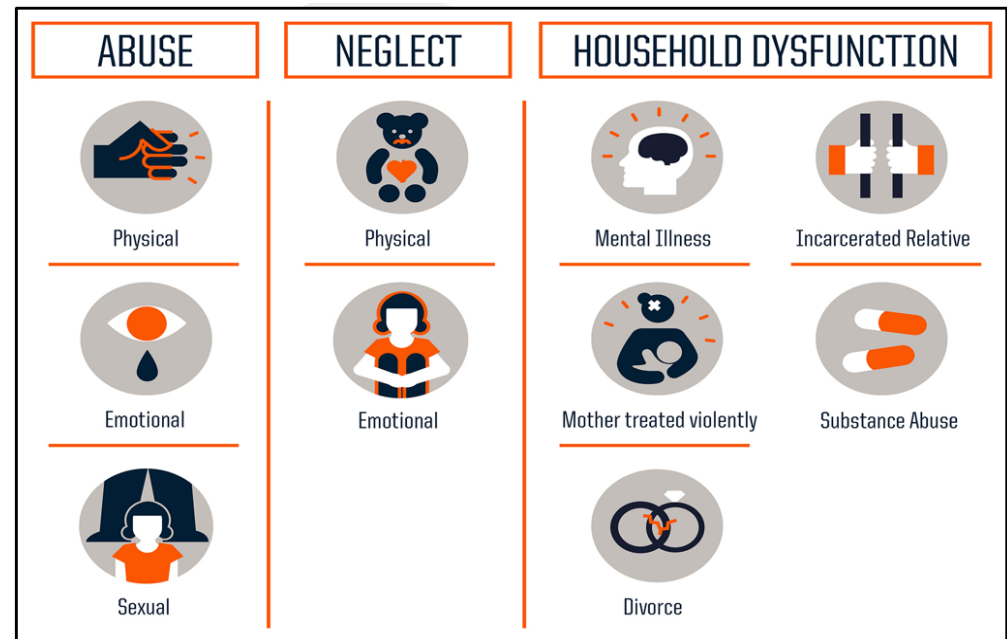
**Methods:** Written survey, n=9,508 (70% response rate)

**Participants:**

- Adult patients at Kaiser Permanente Medical Clinic in Southern California
- Mean age 56 yo, 52% women, 79% white, 43% college graduates

**Key Findings:**

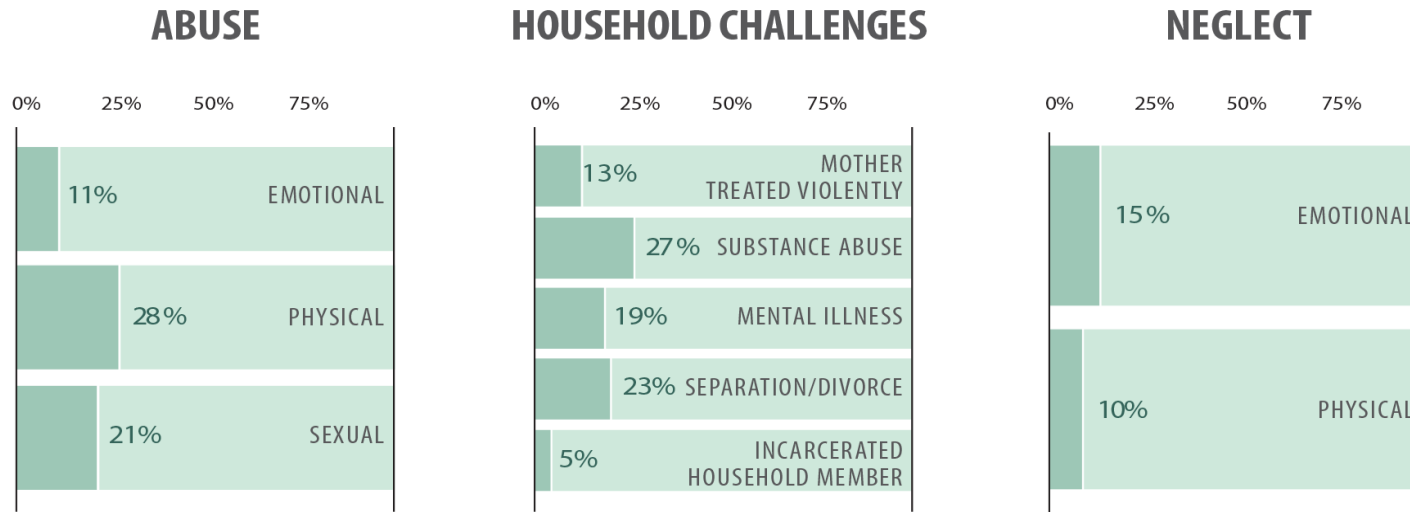
- 25% reported two or more adverse childhood exposures**
- Graded relationship between the number of ACEs and adult health risk behaviors and diseases
- Up to 4 to 12 times increased risk for patients with four or more ACEs



# Prevalence of ACEs by Category for CDC-Kaiser ACE Study Participants, Waves 1 and 2

## TYPES of ACES

The ACE study looked at three categories of adverse experience: **childhood abuse**, which included emotional, physical, and sexual abuse; **neglect**, including both physical and emotional neglect; and **household challenges** which included growing up in a household where there was substance abuse, mental illness, violent treatment of a mother or stepmother, parental separation/divorce or had a member of the household go to prison. Respondents were given an **ACE score** between 0 and 10 based on how many of these 10 types of adverse experience to which they reported being exposed.



Note: Research papers that use Wave 1 and/or Wave 2 data may contain slightly different prevalence estimates.

Source: Centers for Disease Control and Prevention, Kaiser Permanente. The ACE Study Survey Data [Unpublished Data]. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2016



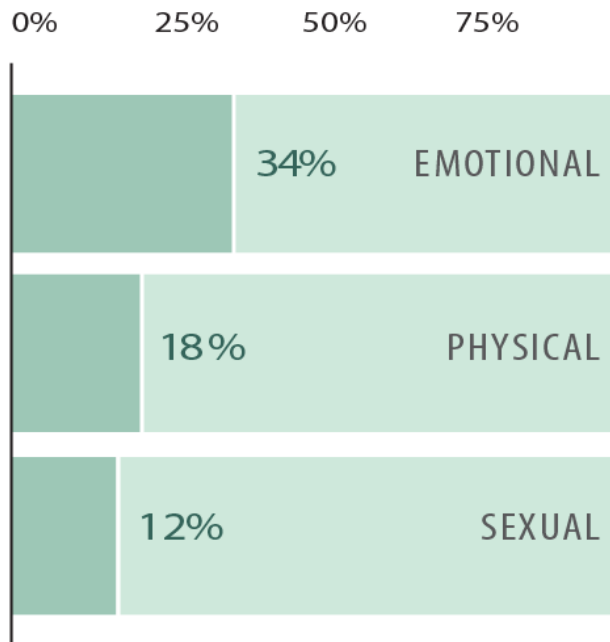
# 2010 Behavioral Risk Factor Surveillance Survey

- National cross-sectional random digit dial survey of adults
  - 10 states and DC included an optional ACE module (similar to original study but just 9 ACEs)
  - n=53,998
  - 44% reported 1-3 ACEs; 16% reported more than 4 ACEs
  - 80% white, 60% female, range of socio-economic status
  - Graded relationship between number of ACEs reported and health risk behavior or disease
  - Increased risk of MI, asthma, fair/poor health, frequent mental distress, disability, coronary heart disease, stroke and diabetes

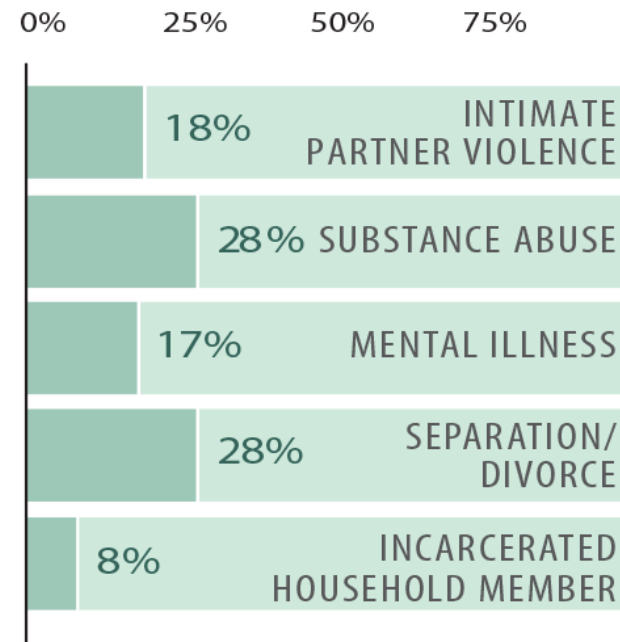
# Prevalence of ACEs by Category for Participants Completing the ACE Module on the 2010-2014 BRFSS

Prevalence of ACEs by Category for Participants  
Completing the ACE Module from the 2011-2014 BRFSS

## ABUSE



## HOUSEHOLD CHALLENGES



Source: Merrick, M.T., Ford, D.C., Ports, K. A., Guinn, A. S. (2018). Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. JAMA Pediatrics, 172(11), 1038-1044

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# ACES can have lasting effects on....



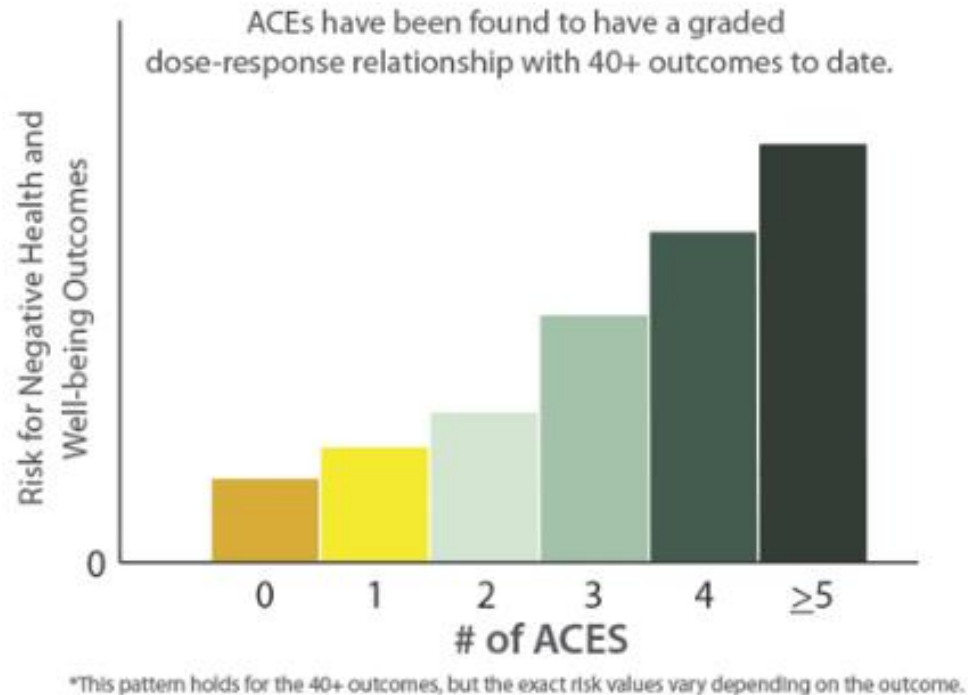
Health (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)



Behaviors (smoking, alcoholism, drug use)



Life Potential (graduation rates, academic achievement, lost time from work)



Centers for Disease Control and Prevention

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# Association between ACEs and Cancer in Adulthood

- Systemic review of literature
  - 12 studies included
  - Association between ACE summary scores and increased risk of cancer in adulthood
    - Physical abuse associated with risk of any cancer – 3 studies
    - Psychological abuse associated with risk of any cancer – 2 studies
    - Sexual abuse associated with risk of any cancer (1 study) and cervical cancer (1 study)
  - Limitations
    - Significant heterogeneity across studies
    - Mechanisms unclear, not able to look at different types of cancer in detail

Holman D et al. The Association Between Adverse Childhood Experiences and Risk of Cancer in Adulthood: A Systemic Review of the Literature, Pediatrics 138 (31), Nov 2016

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# Association between ACEs and adult out of pocket medical expense

- Survey of 4,784 households (6,775 adults)
  - 1/5 experienced three or more ACEs
  - ~50% female, 15% non-white, 6% Latino/Hispanic
  - Average age 48
  - <15% live in poverty
- Results
  - When 3 or more ACEs reported
    - 2X odds of annual medical costs >10% of household income/exceed the entirety of liquid assets
    - 2X odds of medical debt
  - When 1-2 ACEs reported
    - 1.5x odds of OOP healthcare costs greater than savings

Schickedanz A et al. Adverse Childhood Experiences and Out-of Pocket Healthcare Costs; American Journal of Preventative Medicine, 56 (5); May 2019

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# Factors which predispose children to positive outcomes in the face of adversity

- A sense of self-efficacy and perceived control
- Opportunities to strengthen adaptive skills and self-regulatory capacities
- Ability to mobilize sources of faith, hope, and cultural traditions
- ***The single most common factor for children who develop resilience is at least one stable and committed relationship with a supportive parent, caregiver, or other adult***

# Implications for adult medical care

- Assessment of risk
  - Screen for trauma history
  - Encourage engagement in care plan
  - Patient education
- Address social influences of health
  - Refer to community resources
  - Assistance with mobilizing social supports
- Mental health and substance abuse treatment
  - Trauma-focused therapies
  - Integrated behavioral health care

# System-based approaches to care

- Trauma-informed practices – “What we identify as maladaptive behaviors are really misapplied survival skills” ([www.thesanctuaryinstitute.org](http://www.thesanctuaryinstitute.org))
  - Realize the wide-spread impact of trauma
  - Recognize the signs and symptoms of trauma in patients
  - Respond through policies, procedures and practices
  - Resist re-traumatization through our own systems
- Secondary prevention
  - Perinatal mood and anxiety disorder screening
  - Parent support resources

# Staff Wellness



- Personal histories of trauma
  - May impact how staff manage day to day stresses or relate to patients and other staff
- Vicarious trauma
  - Sometimes called compassion fatigue
  - Persistent anxiety or thinking about trauma experienced by patients
  - Manifested in many ways, from “numbness” to anger

# Resources

- [www.cdc.gov/violenceprevention/childabuseandneglect/acestudy](http://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy)
- Center on the Developing Child at Harvard University <https://developingchild.harvard.edu>
- Substance Abuse and Mental Health Services Administration. *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*. HHS Publication No. (SMA) 14-4884. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.



# Questions?

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