

Early Prevention: Beginning Chronic Disease Prevention in Childhood

Carey Anne Wheelhouse, MSPAS, PA-C

Director of Clinical Assessment, Assistant Professor | University of Nebraska Medical Center

984300 Nebraska Medical Center | Omaha, NE 68198-4300

402.559.7923 | carey.wheelhouse@unmc.edu

I. Definition of ACE

- a. ACE stands for Adverse Childhood Experience(s)
- b. Specific definitions vary based on source
 - i. CDC – Kaiser Permanente Study
 - ii. Behavioral Risk Factor Surveillance System
 - iii. National Survey of Children’s Health
- c. While exact definitions may vary, researchers agree that the following are ACEs:
 - i. Abuse: Physical, Sexual, and Emotional
 - ii. Neglect: Physical and Emotional
 - iii. Household Dysfunction: Mental Illness, Family Violence, Divorce or Separation, Parental Incarceration, and Substance Use

II. Epidemiology of ACEs

- a. CDC – Kaiser Permanente 1995-1997
 - i. 1 in 4 US children have experienced at least one ACE
 - ii. 1 in 8 US children have experienced four or more ACEs
- b. National Survey of Children’s Health
 - i. 23.3% of US children have experienced at least one ACE
 - ii. 18.6% of US children have experienced four or more ACEs
- c. ACEs by Type
 - i. Household Dysfunction > Abuse > Neglect
- d. Cumulative Impact
 - i. As the number of ACEs experienced increases, so does the risk of negative health outcomes

III. Pathophysiology of ACEs in Chronic Disease Development

- a. Toxic Stress Release
- b. ACE Pyramid
 - i. ACE à Social, Emotional, & Cognitive Impairment à Neurodevelopmental Disruption à Adoption of Risky Health Behaviors à Early Death
- c. Direct and Indirect Impacts of ACEs
 - i. Neurochemistry Feedback
 - ii. Epigenetic Changes
 - iii. Intergenerational Epigenetic Effects

IV. Screening Recommendations

- a. Universal Screening Recommendations
 - i. Maternal Post-Partum Depression Screening
 1. WCCs 1-6 months of age
 - ii. Child Psychosocial & Behavioral Assessment
 1. Parent-Child Relationships
 2. Social Determinants of Health
 - iii. Adolescent Substance Use
 1. Ages 11+
 - iv. Adolescent Depression Screening
 1. Ages 12+

- v. Annual Physical Exam
 - 1. Physical Signs of Adversity
- b. ACE Screening
 - i. Pros
 - 1. Early identification & early intervention
 - 2. Reduce burden of chronic disease & health care costs
 - ii. Cons
 - 1. Lack of clear definitions and treatment guidelines
 - 2. Difference between retrospective and prospective reporting
 - 3. Accessibility of intervention resources
 - 4. Financial burden
 - iii. ACE Screening Tools Available
 - 1. ACEs Family Health History and Health Appraisal Questionnaire
 - a. CDC – Kaiser Permanente
 - 2. ACEs Screening Tool for Children and Adolescents
 - a. Dr. Nadine Burke Harris
 - 3. Pediatric Intake Form
 - a. Bright Futures

V. Prevention Strategies

- a. Physician Assistants Can Help!
 - i. PAs provide care for over 400 million patients per year
 - ii. PAs work in all health care settings
 - 1. 31.6% primary, emergency, and pediatric care facilities
 - 2. 56.2% in surgical and other subspecialties including psychiatry, orthopedics, women's health, and more
- b. PAs Can
 - i. Identify ACEs
 - 1. Maintain eco-bio-developmental mindset
 - 2. Observe & Inquire about:
 - a. Parent-child relationships
 - b. Family relationships
 - c. Social Determinants of Health
 - d. Comorbid Disorders
 - ii. Provide Family-Centered & Coordinated Care
 - 1. Medical Home Model
 - a. Accessible, Family-Centered, Effectively-Coordinated, and Multidisciplinary Care between:
 - i. Child & Family
 - ii. Primary Care Provider
 - iii. Specialty & Behavioral Health Providers
 - iv. Schools & Community Organizations
 - iii. Partner with Community and Public Health
 - 1. Local
 - a. School Board
 - b. Mentoring Programs
 - c. Leadership Roles in Health Care Organizations
 - 2. State
 - a. Department of Health
 - b. Constituent Organizations
 - 3. National
 - a. CDC
 - i. Maternal & Infant Health
 - ii. Violence Prevention

VI. References

1. American Academy of Pediatrics. The Resilience Project. <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/resilience/Pages/Clinical-Assessment-Tools.aspx>. 2020. Accessed 4.10.2020.
2. American Academy of Pediatrics. Medical Home. <https://www.aap.org/en-us/professional-resources/practice-transformation/medicalhome/Pages/home.aspx>. 2020. Accessed 3.10.2020.
3. American Academy of Physician Assistants. What is a PA? <https://www.aapa.org/what-is-a-pa/>. January 2020. Accessed 4.10.2020.
4. Baldwin, Jessie R, et al., "Agreement between Prospective and Retrospective Measures of Childhood Maltreatment: A Systematic Review and Meta-analysis". *JAMA Psychiatry*, 2019: pp E1-E10.
5. Brown, Nicole M. et al., "Associations between Adverse Childhood Experiences and ADHD Diagnosis and Severity". *Academic Pediatrics*, vol. 17, no. 4, 2017, pp. 349-355.
6. Centers for Disease Control and Prevention. *Adverse Childhood Experiences*. <https://www.cdc.gov/violenceprevention/acesstudy/index.html>. April 3,2020. Accessed 4.10.20.
7. *Data Resource Center for Child & Adolescent Health. Overview of Adverse Child and Family Experiences among US Children*. http://www.childhealthdata.org/docs/drc/aces-data-brief_version-1-0.pdf?Status=Master 5.10.13. Accessed 4.10.2020
8. DuBois, David L. and Keller, Thomas E. "Investigation of the Integration of Supports for Youth Thriving Into A Community Based Mentoring Program". *Child Development*, vol. 88, no. 5, 2017, pp. 1480-1491.
9. Finkelhor, David. Screening for Adverse Childhood Experiences (ACEs): Cautions and Suggestions. *Child Abuse & Neglect*, vol. 85, 2018, pp. 174-179.
10. Galler, Janina and Galler Rabinowitz, Danielle. The Intergenerational Effects of Early Adversity. *Progress in Molecular Biology and Translational Science*, 2014; 128: 177-198.
11. Hagan, Joseph F; Shaw, Judith S; Duncan, Paula M. *Bright Futures, 4th Edition: Guidelines for Health Supervision of Infants, Children, and Adolescents*. 4th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2017.
12. Kuo, Alice A, et al. IAAP COUNCIL ON COMMUNITY PEDIATRICS, AAP SECTION ON EPIDEMIOLOGY, PUBLIC HEALTH, AND EVIDENCE. Pediatricians and Public Health: Optimizing the Health and Well-Being of the Nation's Children. *Pediatrics*. Vol. 14, no. 2, 2018.
13. McEwen, Craig A, et al., "A Critical Assessment of the Adverse Childhood Experiences Study at 20 Years". *American Journal of Preventative Medicine*, 2018, pp. 1-5.
14. Merrick, Melissa T, et al., "Unpacking the impact of adverse childhood experiences on adult mental health". *Child Abuse & Neglect*, 2017; 69:10-19.
15. Miller, Elizabeth and McCaw, Brigid. "Intimate Partner Violence". *The New England Journal of Medicine*, 2019; vol. 380, no 9, pp 850-857.
16. Robert Wood Johnson Foundation. *Adverse Childhood Experiences*. <https://www.rwjf.org/en/library/infographics/the-truth-about-aces.html#/download%E2%80%8B>. May 23, 2013. Accessed 4.10.20.
17. Rudentstine, Sasha, et al., "Adverse Childhood Events, Adult Distress, and the Role of Emotion Regulation". *Traumatology*, 2018; 1-9.
18. Shonkoff, Jack P. and Garner, Andrew S. THE COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, COMMITTEE ON EARLY CHILDHOOD ADOPTION, AND DEPENDENT CARE, AND SECTION ON DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS. The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics*. Vol. 129, no. 1, 2012.
19. Skinner, Michael K. "Environmental Stress and Epigenetic Transgenerational Inheritance". *BioMedCentral*, 2014, 12:153.
20. Steinberg, Laurence. "The Plastic Brain". *Age of Opportunity: Lessons From the New Science of Adolescence*. Houghton Mifflin Harcourt Publishing Company, 2014. pp. 33-35.
21. United Health Foundation. *2018 Health of Women and Children Report*. United Health Foundation. 2018. <https://www.americashealthrankings.org/learn/reports/2018-health-of-women-and-children-report>. Accessed 4.1.19