Special Report

WESTERN YOUTH SERVICES

Healthy and Hopeful: Healing Trauma

How the WYS Collaborative Model of Mental Health Services Builds Resilience and Alters the Impact of Adverse Childhood Experiences (ACEs)

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Executive Summary

Western Youth Services (WYS) provides a comprehensive, collaborative approach to mental health treatment and prevention. With the rising awareness of Adverse Childhood Experiences (ACEs) and toxic stress, mental health services have the ability to change the trajectory of a child's life, especially those who have experienced multiple ACEs.

Measurement Resources Company (MRC) in partnership with Western Youth Services conducted a literature review on ACEs and their relationship with collaborative youth mental health services. The goal of this process is to develop evidence, best-practices, and case for support for understanding ACEs as part of mental health prevention and treatment. This review will help WYS lead the charge of reducing the prevalence of children with mental health diagnoses from one in five to one in ten in this generation.

The results of this study show:

- ACEs can impact health and well-being of a person across a lifetime.
- ACEs pose a threat to proper brain development.
- More than half of the adults in California have at least one ACE.
- Individuals with four or more ACEs are seven times more likely to have mental health problems and eleven times more likely to attempt suicide than individuals with zero ACEs.
- Without intervention, the estimated weighted *annual* community cost per child is $18,856.
- Western Youth Services is addressing ACEs with nearly every research-recommended strategy.

How ACEs influence the health and well-being:

- ✓ They disrupt brain development which adversely affects the social, emotional and cognitive abilities.
- ✓ Because brains develop from the bottom up, when the lower part of the brain does not develop properly, the upper part of the brain will also be underdeveloped.
- ✓ When children are unable to regulate their emotions and cognition, they are unable to make good decisions and are susceptible to adopting risky behaviors, chronic health issues and early death.

Introduction

Adverse Childhood Experiences (ACEs) are prevalent and pose significant threat to development and long-term health. ACEs include abuse, violence, parental divorce and other such events that cause stress on a child's developing brain. As those stressors persist, children are more at-risk of negative physical, mental and developmental health outcomes. The symptoms of childhood stress are well documented and the recent efforts to screen for ACEs should make the prevention and early identification of ACEs more routine. However, child-serving agencies across the spectrum are just starting to understand the impact of ACEs.

In 1998, Dr. Felitti and associates published their groundbreaking research on the presence and effects of ACEs showing a direct correlation between traumatic experiences during childhood and poor health outcomes later in life. Dr. Nadine Burke Harris is the leader of the ACEs movement to fight against ACEs and toxic stress to address the impact of trauma and the role of resiliency. Her work highlights the negative impact adverse childhood experiences have on health and mortality. In the early years, the symptoms of toxic stress are displayed in attention and behavior problems due to underdeveloped brains. In the later years, the symptoms are seen in chronic conditions like heart disease and cancer. Her message is that the impact of toxic stress cannot only be reversed, it can also be prevented through trauma-informed responses that can retrain the brain to respond appropriately to stress, foster resiliency and help families live healthier lives.

According to the Robert Wood Johnson Foundation, a growing network of leaders in research, policy and practice are developing approaches to prevent adverse childhood experiences and mitigate their impact through building resilience. They suggest that cross-sector collaboration will be crucial to tackling the health and educational challenges that face students.

In 2016, the documentary *Paper Tigers* (Pritzker, Redford, Scully, and Schwark, 2016) was released chronicling the efforts of an alternative school in Washington implementing an understanding of ACEs and responding with a trauma-informed school. The teachers understood that traumatized children operate in the lower regions of the brain (survival mode) where regulation and rationale are so disjointed the student is unable to differentiate between a real threat and a non-threatening event. The result of the work in this Washington school reinforced the original ACE Study and highlighted the importance of a trauma-informed response and providing caring adults (in this case, teachers) who can promote resiliency in troubled youth.

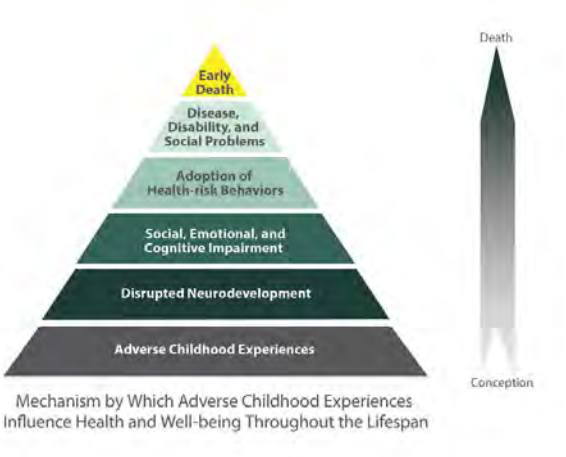
At present, traditional mental health professionals come into contact with children when they have already displayed significant social, emotional and cognitive impairment due to ACEs. WYS is working collaboratively across sectors on prevention and early intervention to reduce the prevalence of mental health conditions in youth from one in five to one in ten in this generation.

Measurement Resources Company (MRC) in partnership with Western Youth Services conducted a comprehensive literature review on ACEs and developed a case for support for understanding ACEs. This understanding will be used to inform mental health prevention and intervention practices. This paper briefly explains ACEs, reviews the neuroscience behind ACEs, the trajectory of a child's life if the child does not receive early intervention and presents recommended interventions to address ACEs.

Adverse Childhood Experiences

Adverse Childhood Experiences are negative events that take place during the formative years of childhood and adolescents.

Adverse Childhood Experiences are negative experiences in a child's life. ACEs include: physical, emotion or sexual abuse, exposure to violence, neglect, parental divorce and/or incarceration. Science has shown that childhood experiences, good and bad, impact the development of the brain. Development is now said to be driven by biology and one's social and physical environment (Sameroff, 2010). If a child's development is driven by adverse experiences and unstable environments, there is a lasting, adverse impact on genetic predispositions that affect brain development and long-term health (Shankoff et al. 2012; Rogosch, Dackis, Cicchetti, 2011; Pritzker, Redford, Scully, and Schwark, 2016; Harris, N.W.).



Mechanism by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

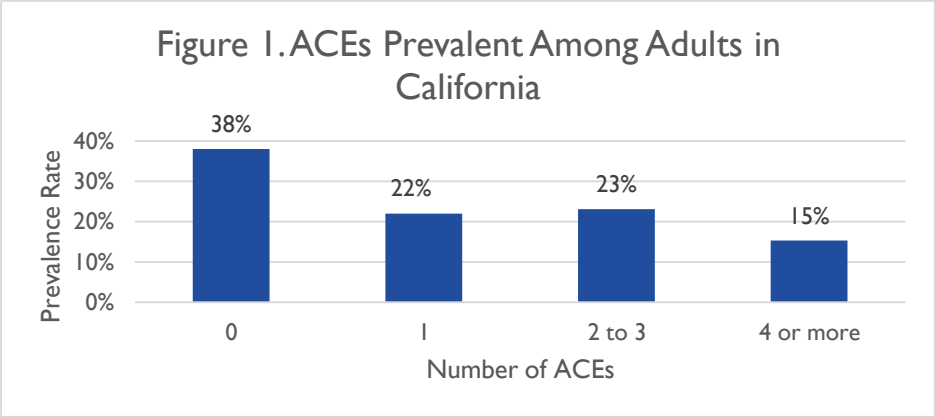
ACEs are shown to impact health and well-being through the lifespan.

Based on the original Center for Disease Control (CDC) -Kaiser Permanente ACEs study (Felitti et al. 1998) and the work of Dr. Nadine Burke Harris, ACEs pose significant threat to neurodevelopment, mental health, healthy behaviors, morbidity and mortality. The pyramid to the left[1] shows how ACEs influence the health and well-being of an individual from childhood to early death. First, they disrupt brain development which adversely affects the social, emotional and cognitive abilities. When children are unable to regulate their emotions and cognition, they are unable to make good decisions and are susceptible to adopting risky behaviors. Risky behaviors also increase risk of chronic health issues and chronic health problems often lead to early death. Though many studies have linked ACEs to morbidity and mortality, research on the impact of ACEs of neurodevelopment and mental health is just gaining momentum.

The Prevalence of ACEs

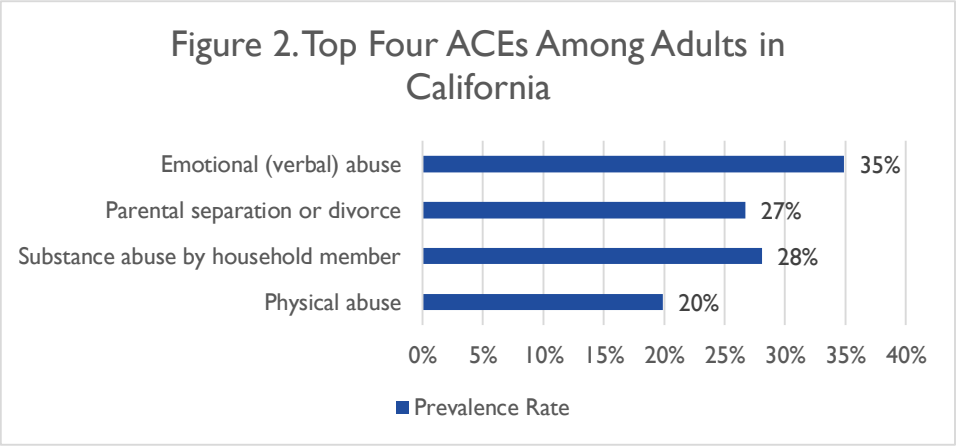
Sixty-two percent of adults in California have at least one ACE and emotional abuse is the most common.

Based on the most recent data report published by the Center for Youth Wellness, 62 percent of adults in California have at least one ACE. Specifically, 22 percent have one ACE, 23 percent have two or three, and 15 percent of adults have four or more ACEs (Figure1). The most common ACE is emotional or verbal abuse followed by parental divorce, parental



[1] Retrieved on 9/16/2016 from http://www.cdc.gov/violenceprevention/acestudy/about.html

substance abuse and experiencing physical abuse (Figure 2).



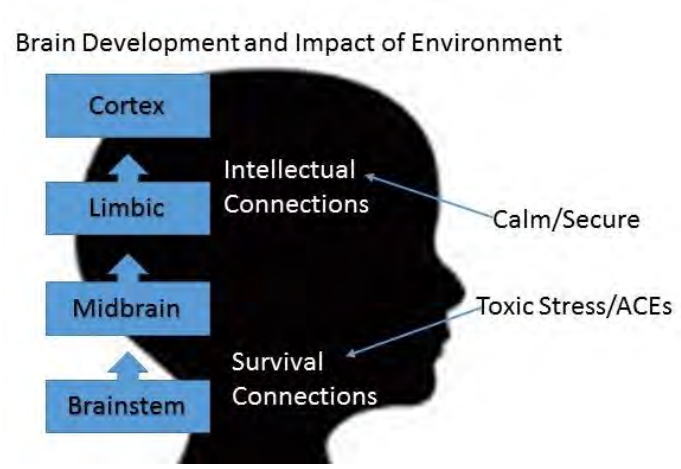
ACEs interventions can be targeted to address the populations most at risk of experiencing multiples ACEs.

As the number of ACEs increase, so does the likelihood of adverse outcomes. Therefore, it is important to target services among those populations more at-risk of ACEs. In a recent study by Campbell, Walker, Edege (2016) multiple ACEs were higher among women, minorities, people with lower levels of education and in lower income brackets. Likewise, children living in areas of high community violence, crime, overcrowding and in households with strained relationships are at higher risk of repeated trauma and toxic stress (Rogosch, Dackis, and Cicchetti, 2011).

The Neuroscience of ACEs

ACEs force the brain to focus on survival connections, resulting in less developed brains.

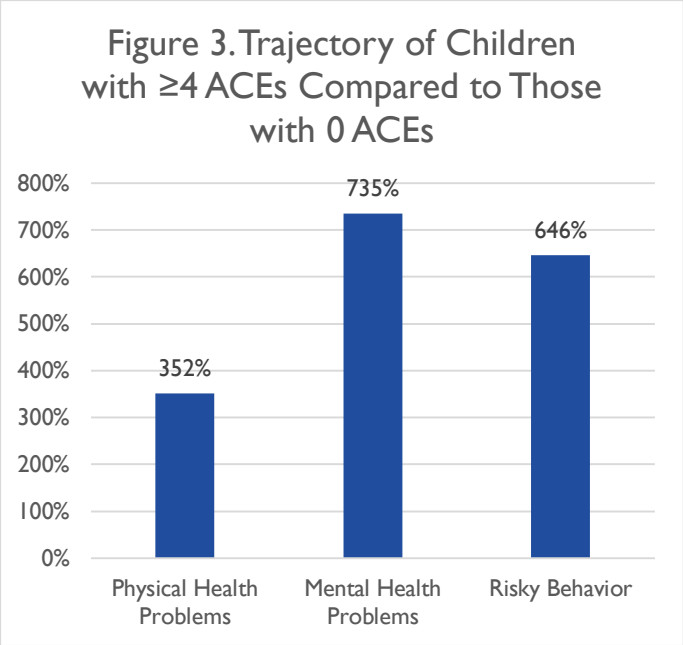
The brain is made up of building blocks (neurons) and develops from the bottom up (Perry, Pollard, Blaicley, Baker, Vigilante, 1995). The first layers, the brainstem and the midbrain, are the first to develop and they control the body's ability to survive (temperature control, blood pressure etc.). The next layer is the limbic system which is responsible for basic human emotion. Finally, the top and last to develop is the cortex, which handles complex decision making, problem solving and controlling emotions.



As the brain develops, the neurons make connections (synaptic connections) in response to experiences. If the basic systems (synaptic connections at the brainstems and midbrain levels) are not appropriately developed, the higher parts of the brain will be underdeveloped (Perry et al., 1995).

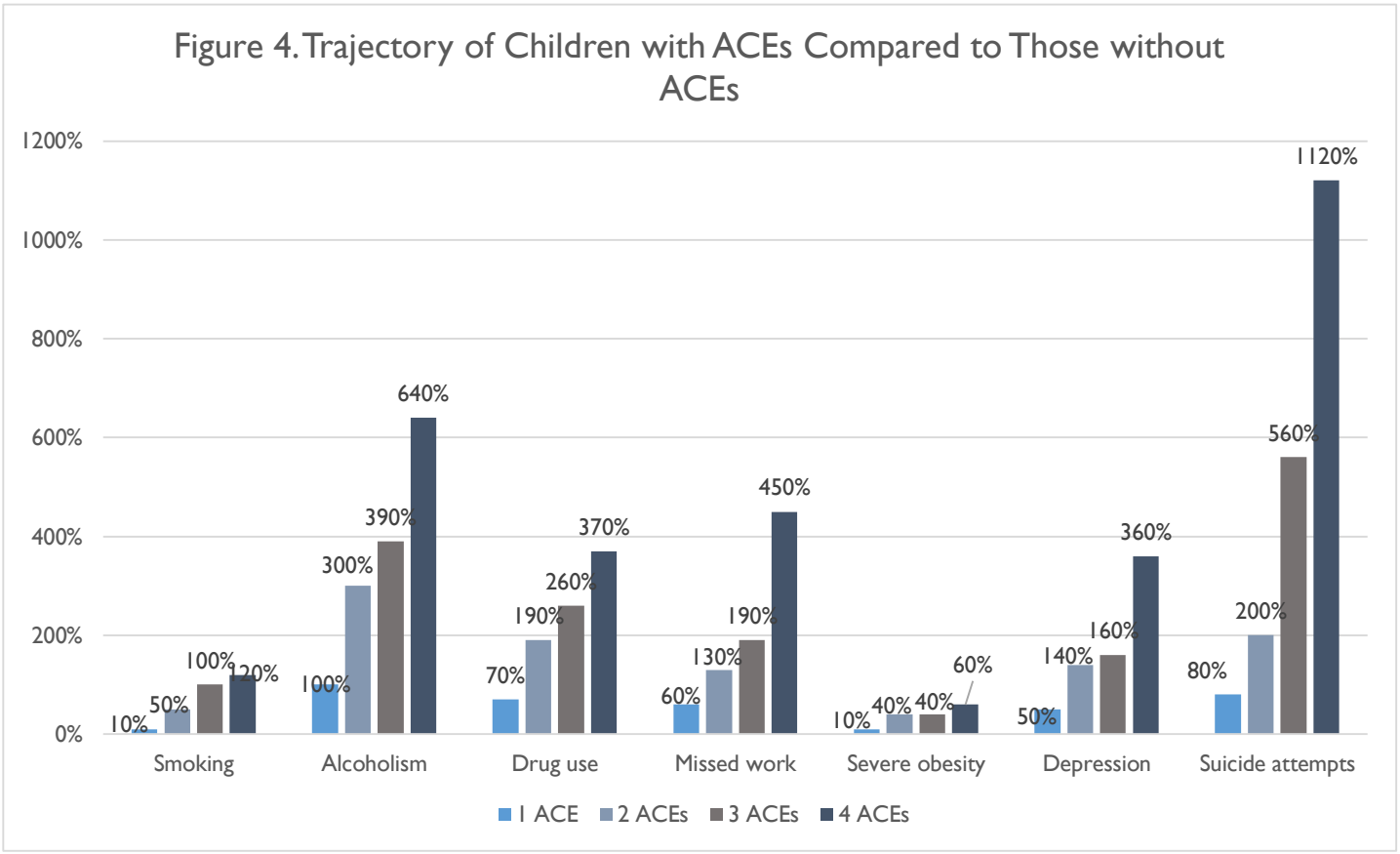
Experiences that are repeated reinforce the connection and establish the system in which the brain responds to an environmental cue. The stress of trauma causes kids to spend their time in the lower part of the brain (survival mode) which reinforces those basic synaptic connections and not in the upper part of the brain where the more complex learning and emotional regulation takes place. When children are in survival mode, they are often not capable of making sound decisions, regulating their behavior or emotions and, as highlighted in *Paper Tigers,* are not able to tell the difference between a real threat or a non-threat (paper tiger).

The Trajectory with no Intervention



Children with 4 or more ACEs are significantly more likely to have health and behavior problems.

Studies show that children who experience ACEs are more likely to have poorer health, behavioral and learning outcomes. Without intervention, ACEs create significant adversity for the child over their lifetime and a burden for the community. Compared to individuals with zero ACEs, individuals with ACEs scores of one are at greater odds of risky behaviors and morbidity, and those with four or more ACEs are at even greater risk (Campbell, Walker, Edege, 2016). Figures 3 and 4 show the likelihood of children having health and behavior problems if ACEs are not prevented. For example, a child with four or more ACEs is seven times (735 percent) more likely to have mental health problems than a child with zero ACEs (Figure 3). If a child has four or more ACEs, he or she is eleven times (1,125 percent) more likely to attempt suicide than a child who has zero ACEs.



As the number of ACEs increase in a child's life, he or she is more likely to experience morbidity and mortality.

Studies show that adults who endured ACEs from their childhood are two to five times more likely than adults with zero ACEs to have chronic diseases such as Chronic Obstructive Pulmonary Disease (Brown et al., 2010), sexually transmitted infections (Hillis, Anda, Felitti, Nordenberg, Marchbanks, 2000), disability, depression, and risky behavior (i.e. smoking, binge drinking, unprotected sex) (Campbell, Walker, Egede, 2016). Adults with ACEs are twelve times more likely to have suicidal ideation (Felitti et al., 1998) and if an adult has five or more ACEs, he or she is 56 to 67 times more likely to be involved in illicit drug use (Dube et al., 2003) at some point over their lifespan. Finally, research has shown that adults with ACEs are at risk of early death though research is still needed to explore the relationship between ACEs and early death. (Brown et al., 2009).

Children who experience four or more ACEs find themselves at significantly higher risk of involvement in criminal justice system and poor economic outcomes. Compared to those who have experienced zero ACEs, children with four or more ACEs are 2.7 times less likely to graduate and 3.1 times more likely to get arrested as a juvenile. Later in life, those with four or more ACEs are 2.8 times more likely to be charged with a felony and 2.0 times less likely to hold a skilled job (Giovanelli, Reynolds, Mondi, Ou 2015).

The presence of ACEs is associated with learning and behavior issues that can be overlooked as a symptom of a larger problem.

In addition to the smoking, drinking and engaging in risky sexual behaviors, a child who is stressed and operating in the lower hemisphere often displays behaviors such as:

- Difficulty focusing or paying attention
- Anxious or unable to settle down
- Bullying or aggressive behavior

These symptoms of toxic stress such as attention deficits, aggression, emotional numbing (Harris, 2016), etc. in a young person's body create academic barriers as well as social and emotional barriers. In a study of children in an urban, lower-income area, the prevalence of learning/behavioral problems was highest (52%) among children with four or more ACEs (Burke, Hellman, Scott, Weems, Carrion, 2011). As discussed previously, when children are experiencing stress, their brains are in survival mode and unable to engage higher parts of the brain.

In home and school settings, the learning and behavior problems are often addressed with punitive measures. This response misses the opportunity to address the root cause of the behavior.

Evidence of ACEs and the risk of ACEs are predictable and therefore preventable (Harris, 2016). Prevention efforts can be targeted in those areas with high levels of crime, poverty, and among ethnic minorities, single mother households and families involved in child services. Identifying the presence of ACEs and providing early intervention is also possible if one knows the signs to

Impact of ACEs if not Treated or Prevented

Adolescent outcomes:

- ✓ Smoking
- ✓ Substance Abuse
- ✓ Unsafe Sex
- ✓ Suicide Attempts
- ✓ Under Developed Brains
- ✓ Not Graduating High School
- ✓ Juvenile Arrests
- ✓ Felony Charges

Adult Outcomes:

- ✓ Chronic Disease
- ✓ Substance Abuse
- ✓ Smoking
- ✓ Suicide Attempts
- ✓ Depression
- ✓ Unintended Pregnancies
- ✓ Not having a skilled job

ACEs and these outcomes can be prevented

Cost if Untreated

$18,856 per child per year to the community

look for or has the right relationship with a child to identify trauma. For example, asking the right questions and providing a caring adult to children who experience known adverse events such as parental death or community violence can disrupt the progression towards toxic stress and save the child from a lifetime of adversity. Another way to prevent or intervene early in the progression towards toxic stress is to recognize when children are exhibiting anti-social or "bad" behavior and take appropriate steps to get to the cause of the behavior.

Effective ACEs Interventions

Mental health professionals know that behavioral "problems" are often a symptom of underlying issues, such as trauma, and are skilled in asking the right questions to understand the cause of the behavior.

Western Youth Services is a leader in a cross-sector, collaborative, three-tiered (prevention, early-intervention and individual/intensive services) approach to mental health services. The mental health professionals at Western Youth Services (WYS) are trained to assess the whole child including the home, work, school, and family context when determining the sources of behavior problems and recommending treatment plans based on the precise needs of the child. In addition, WYS is a leader in community collaboration and through this approach, staff are able to do "anything it takes" to meet the range of needs of children and their families. This integrated mental health approach to children's mental health services has been documented in the work of WYS in local public schools and is a leading value of the agency.

Multi-system collaboration will address the multi-dimensional needs of those with or at-risk of ACEs.

Because events leading to long-term mental and physical health often occur in the early years of life, mental health and primary care professionals can work in tandem to prevent, screen and intervene early in behavioral and mental health problems (Renschler, Lieberman, Dimmler, and Harris, 2013). Research in the pediatric primary care literature urges practitioners to engage in coordinated care and family-centered approaches through medical homes. The American Public Health Association (2015) released a policy statement about the need for collaboration and more comprehensive approaches to mental health services to address the array of service needs. They cite specifically the work of the original ACE Study and the need to focus on prevention of behavioral health disorders by promoting resilience. In a unique school-based mental health services model, principals, teachers, school administrators and other youth serving organizations are teaming up with Western Youth Services in local school districts to create safe schools and healthy students that promote academic success through on site school support from mental health paraprofessionals and professionals. The WYS multi-system collaboration, among other things, resulted in teachers feeling more equipped to handle behavior problems in the classroom and they reported spending at least 4 hours less on discipline per week.

Trauma informed interventions help traumatized children identify the problem and be empowered to work towards recovery.

Trauma informed interventions are those that target individuals who have a history of trauma to help them recognize the symptoms, understand the role trauma has played in their lives and lower the risks of re-traumatization (Substance Abuse and Mental Health Services Administration, 2015). The prevalence of trauma (ACEs and other events such as terrorism or natural disasters) has made it necessary for trauma-informed services to be integrated into all service sectors (Ko et al., 2008). The Substance Abuse and Mental Health Services Administration (SAMHSA) promotes trauma-informed services that include building on available knowledge of the situation, engagement of the individuals and family, empowerment and collaboration and offers links to evidence-based trauma-informed interventions. WYS is a certified trainer of many Evidence-Based Trauma-Informed Practices, such as Integrative Treatment of Complex Trauma (ITCT), Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), and other Trauma Informed Approaches. Trauma Informed treatment is provided by WYS when indicated.

Table 1. Western Youth Service's Approach to Addressing ACEs.	
SAMHSA Recommended Strategies for Addressing ACEs	Western Youth Service's Strategies
*Collaboration with community partners	✓ Out-patient clinics ✓ School-Based Mental Health Program ✓ Outreach and Engagement ✓ Family Resource Centers ✓ Anything it takes approach
*Trauma informed	✓ Out-patient clinics ✓ School-Based Mental Health Program ✓ Outreach and Engagement ✓ Family Resource Centers ✓ Anything it takes approach ✓ Advise and train community partners on how to be more trauma informed
*Provide a caring adult	✓ Out-patient clinics ✓ Family Resource Centers ✓ Outreach and Engagement ✓ School-Based Mental Health Program
Home visiting	✓ Outreach and Engagement ✓ School-Based Mental Health Program ✓ In-home Therapy ✓ Behavioral Health Coaches
Parenting training programs	✓ Out-patient clinics ✓ School-Based Mental Health Program ✓ Outreach and Engagement ✓ Family Resource Centers
Intimate partner violence prevention	✓ Outreach and Engagement ✓ Family Resource Centers
Social support for parents	✓ Out-patient clinics ✓ School-Based Mental Health Program ✓ Outreach and Engagement ✓ Family Resource Centers
Support for teen parents, teen pregnancy prevention	✓ Outreach and Engagement
Mental health and substance abuse treatment	✓ Out-patient clinics (co-occurring disorders) ✓ Referral
High quality childcare and income support programs	✓ Referral and Coordination
Sufficient income support for lower income families	✓ Family Resource Centers ✓ Referral and Coordination
*From literature above Source: CDC's Violence Preventions, ACEs Study Website: https://www.cdc.gov/violenceprevention/acestudy/about_ace.html	

Providing a caring adult helps traumatized children receive the safety and support needed for proper brain development.

When a child experiences stress, he or she naturally looks to a parent figure for comfort and stability. A child with relational security experiences a parent or caregiver being responsive to the child's needs for comfort. A child with insecure attachments does not have a person who is able to consistently give comfort and therefore relies on alternative coping mechanisms (Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, and Roisman, 2010) for

dealing with stress. Given the undeveloped brain, children with unstable relationships are at greater risk for developing unhealthy coping mechanisms. As seen in the documentary, *Paper Tigers*, having caring adults in one's life can not only prevent negative effects of ACEs or the impact of toxic stress, but can also reverse the impact of toxic stress on one's health. WYS behavioral health aides, coaches and clinicians approach these issues with expertise and compassion.

Through clinical and community-based programs, WYS is addressing ACEs with nearly every research-recommended strategy.

In addition to strategies being collaborative, trauma informed and providing a caring adult, the Center for Disease Control endorses eight strategies for preventing ACEs. Western Youth Services has been implementing six of these eight directly while also leading the charge for collaboration and trauma-informed care.

Without the intervention, it is estimated to cost the local WYS community $18,856 per child per year for children experiencing one or more ACEs.

When ACEs are not addressed with effective interventions, the toll of those experiences is also felt by the community in the form of economic costs. These economic costs are broken down into nine categories: Medi-Cal, Medicare, Juvenile Detention, Prison, Drug Treatment, Lost Potential Income, Foster Care, Homelessness, and Special Education. Based on MRC's community cost calculation (see Appendix A), the local community will spend up to $18,856 each year for each child with one or more ACEs, if left untreated.

Conclusion

Every child deserves a chance to be healthy and hopeful and ACEs are threatening this chance. The prevalence of Adverse Childhood Experiences is a public health crisis in communities across America. These experiences interfere with neurodevelopment resulting in long-term mental health disorders, decreases in healthy behaviors, and increases in morbidity and premature mortality. Preventing and decreasing the prevalence of ACEs will yield significant future social improvements. Because of agencies like WYS, the impact of ACEs can be prevented through trauma-informed services by caring adults. The proven WYS collaborative and integrated mental health services model is turning the curve for children with ACEs. Their research-driven strategies for addressing adverse childhood experiences and toxic stress are improving the health, behavioral and learning outcomes of children today. WYS is a model for other mental health organizations who desire to provide services that prevent the long-term impact on health and functioning in the future.

References

Burke, N.J., Hellman, J.L., Scott, B.G., Weems, C.F., Carrion, V.G. (2011). The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse and Neglect 35*, 408-413.

Brown, D.W., Anda, R.F., Felitti, V.J., Edwards, V.J., Malarcher, A.M., Croft, J.B., and Giles, W.H. (2010). Adverse childhood experiences are associated with the risk of lung cancer: a prospective cohort study. *BMC Public Health 10*(20).

Brown, D.W., Anda, R.F., Tiermeier, H., Felitti, V.J., Edwards, V.J., Croft, J.B., Giles, W.H. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine 37*(5), 389-396.

Campbell, J.A, Walker, R.J., Edege, L.E. (2016). Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. *American Journal of Preventive Medicine 50*(3), 344-352.

Center for Youth Wellness, (2010). *Data Report: Hidden Crisis. Findings on Adverse Childhood Experiences in California.* Retrieved from Center for Youth Wellness website http://www.centerforyouthwellness.org/resources/

Dube, S. R., Felitti, V.J., Dong, M., Chapman, D.P., Giles, W.H., Anda, R.F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The adverse childhood experiences study. *PEDIATRICS, 111*(3), 564-572.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, *14*, 245–258.

Fearon, R.P., Bakermans-Kranenburg, M.J., van IJzendoorn, M.H., Lapsley, A.M., and Roisman, G.I. (2010). The significance of insecure attachments and disorganization in the development of children's externalizing behavior: A meta-analytic study. *Child Development 81*(2), 435-456.

Giovanelli, A., Reynolds, A.J., Mondi, C.F., Ou, S.R. (2015). Adverse Childhood Experiences and Adult Well-Being in a Low-income, Urban Cohort. *Pediatrics* Mar 2016 DOI: 10.1542/peds.2015-4016

Hillis, S.D., Anda, R.F., Felitti, V.J., Nordenberg, D., Marchbanks, P.A. (2000). Adverse childhood experiences and sexually transmitted diseases in men and women: A retrospective study. *Pediatrics, 106*(1).

Ko, S.J., Ford, J.D., Kassam-Adams, N., Berkowitz, S.J., Wilson, C., Wong, M. (2008). Creating trauma-informed systems: Child welfare, education, first responders, health care, juvenile justice. *Professional Psychology: Research and Practice, 39*(4), 396-404. B

Perry, B.D., Pollard, R.A., Blaicley, T.L., Baker, W.L., Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits." *Infant Mental Health Journal* 16(4) 271-291.

Pritzker, K., Redford, J., Scully, R., Schwork, D. (Producers) & Redford, J., (Director). (2016). *Paper Tigers* [Documentary]. USA. More information can be found at: http://kpjrfilms.co/paper-tigers/

Public Health Association (2015), *Policy Brief: Support for Social Determinants of Behavioral Health and Pathways for Integrated and Better Public Health*. Retrieved from Public Health Association online website: http://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2015/01/28/14/58/support-for-social-determinants-of-behavioral-health.

Renschler, Lieberman, Dimmler, and Harris, (2013). Trauma-focused child-parent psychotherapy in a community pediatric clinic: A cross-disciplinary collaboration. IN Bettmann, J.E., and Friedman, D.D. (Editors), (2013). Attachment-based clinical work with children and adolescents. *Springer.* New York. P115-140. DIO 10.1007/978-1-4614-4848-8.

Robert Wood Johnson Foundation, (2015). *Culture of Health: Collaborating Across Sectors to Grow Healthy Kids.* Retrieved from Robert Wood Johnson Foundation online website at: http://www.rwjf.org/en/culture-of-health/2015/09/collaborating_across.html

Rogosch, F.A., Dackis, M.N., and Cicchetti, D. (2011). Child maltreatment and allostatic load: Consequences for and mental health in children from low-income families. *Development and Psychopathology 23*, 1107-1124.

Sameroff, A. (2010). A unified theory of development: A Dialectic Integration of Nature and Nurture. *Child Development 81*(1) 6-22.

Shonkoff, J.P., and Garner, A.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, Siegel, B.S., Dobbins, M.I., Earls, M.F., McGuinn, L., Pascoe, J., Wood, D.L. (2012). The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics 129*(1) e232-e246.

Substance Abuse and Mental Health Services Administration. (2015) *Trauma-Informed Approaches and Trauma-Specific Interventions.* Retrieved from Substance Abuse and Mental Health Services Administration online website: http://www.samhsa.gov/nctic/trauma-interventions

Appendix A: Social Return on Investment Calculation

ACEs Community Costs

Adverse Childhood Experiences represent a significant social and emotional burden to individuals who have faced those particular hardships during their youth. However, the toll of those experiences is also felt by the community in the form of economic costs. These economic costs are broken down into nine categories: Medi-Cal, Medicare, Juvenile Detention, Prison, Drug Treatment, Lost Potential Income, Foster Care, Homelessness, and Special Education. The calculations for the costs faced by the community in each of these categories follow a congruent methodology. After acquiring or synthesizing the annual per-person cost of the particular category, that cost is weighted by the likelihood of an individual with ACEs requiring those services or finding themselves in that situation. Given the similarity of this calculation with a community cost calculation for general mental illness in California, the assumption made here is that having three or more ACEs during an individual's youth results in some form of mental illness. The specifics of each calculation are outlined in the following nine sections.

Medi-Cal

Commonly referred to as Medi-Cal, California's Medicaid expenditures in Mental Health Services are the highest annual per person cost contributors in the overall calculation. The weight on Medi-Cal is 100 percent based on two premises: 1) Residents in impoverished areas requiring treatment for certain mental illnesses are automatically eligible for Medi-Cal and 2) the reduced income that results from working with a mental illness places some residents in the appropriate income brackets to qualify for Medi-Cal benefits. In 2009, Medi-Cal spending on Mental Health Services came to $3.8 billion ($4.25 billion in 2016 dollars) serving 565,000 recipients of those services. We are assuming that those 565,000 beneficiaries have at least one ACE likely associated with a mental illness based on California ACEs prevalence estimates.[2] Since the weight is 100 percent, the annual per-person cost of Medi-Cal for individuals with mental illness comes to $7,532.74.

Medicare

Even though the occurrence of ACEs and eligibility for Medicare happen at opposite sides of the age spectrum, the effects of ACEs can result in chronic mental illness lasting decades beyond the initial exposure. Similar to Medi-Cal, the weight placed on Medicare in California is 100 percent once individuals reach the age of 65 based on the lower administrative and premium cost of Medicare compared to private insurance. This assumes persons over the age of 65 are rational in choosing a lower-cost insurance option. In 2014, Medicare costs per capita were $10,376 across 2.7 million beneficiaries.[3] Given data on the conditions these beneficiaries were treated for, it was ascertained that 27 percent of patients had conditions related to mental health and long-term outcomes of ACEs. Given that proportion of patients and the 100 percent weight, the annual per-person cost of Medicare for individuals with mental illness resulting from ACEs comes to $2,875.55.

Juvenile Detention

In California, the annual cost of holding a juvenile in a detention facility can be as high as $212,504 and nearly 97.2 percent of individuals in the juvenile justice system have at least one ACE. Despite these overwhelming figures, the likelihood of a youth with at least one ACE ending up in a juvenile detention facility are close to

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[2] California Healthcare Foundation (May 2013). Medi-Cal Facts and Figures: A Program Transforms. *California Health Care Almanac.* Received from, http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20M/PDF%20MediCalFactsAndFigures2013.pdf

[3] California- Medicare Spending & Usage (2014). *HealthGrove by Graphiq*. Received from, http://medicare-usage.healthgrove.com/l/192/California

0.012 percent. This figure is based on the percentage of youth in juvenile detention facilities with at least one ACE as a proportion of the percentage of youth in California with at least one ACE. However, the National Institute of Justice found that being abused or neglected as a child increased the likelihood of arrest as a juvenile by 59 percent, resulting in a likelihood of 0.02 percent.[4] Given the 0.02 percent weight, the annual per-person cost of Juvenile Detention for individuals with mental illness resulting from ACEs comes to $38.87.

Prison

Separated from Juvenile Detention because of the variable costs, the likelihood of an individual with four or more ACEs ending up in prison is roughly 0.45 percent. This figure was obtained by finding the proportion between the number of people in California prisons with at least one ACE and the number of California residents with at least one ACE.[5] The assumption is that all persons in California prisons with mental illness have at least one ACE which is in line with existing literature on long-term outcomes of ACEs. Currently in California prisons, the cost to house nearly 130,000 inmates comes to $64,000 per person annually which is inclusive of costs for mental illness treatment and intervention.[6] [7] Utilizing the 0.45 percent weight, the annual per-person cost of Prison for individuals with mental illness is approximately $289.97.

Drug Treatment

Utilizing the data obtained from the foundational study done by Kaiser Permanente in San Diego, a 2003 review of the life outcomes of the original subjects found that, on average, having one or more ACEs results in an attributable risk factor of 61 percent for ever having a drug problem or ever being addicted to illicit drugs.[8] The associated cost of treatment in California under the state's Substance Abuse and Crime Prevention Act came to approximately $4,500 per person annually ($5,895 in 2016 dollars). Under the 61 percent likelihood of drug addiction for individuals with one or more ACEs and assuming offenders/addicts enter this state-run program, the probability weighted annual cost comes to $3,595.95 per person.

Lost Potential Income

Those suffering from ACEs face additional challenges in the work place, that others may not, which significantly reduces their earnings potential or ability to earn at all. Unfortunately, this is a reality for nearly all individuals with ACEs and mental illness patients which is why the corresponding weight associated with lost potential income is 100 percent. Based on long-term productivity growth and reduced annual incomes, the lifetime value of productivity losses for individuals who suffered ACEs would be $2,160[9] ($158,796 in 2016 dollars). For individuals who suffered up to five ACEs or six or more ACEs, the average lifespan is 73.5 years old and 60.6

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[4] Samuels, J.E. (February 2001). An Update on the 'Cycle of Violence'. *National Institute of Justice: Research in Brief.* Received from, https://www.ncjrs.gov/pdffiles1/nij/184894.pdf

[5] James, D. & Glaze, L. (September 6, 2006). Mental Health Problems of Prison and Jail Inmates. *Bureau of Justice Statistics.* Received from, http://www.bjs.gov/index.cfm?ty=pbdetail&iid=789

[6] Kernan S, Pogue K, & Beyer B. (May 2016). Spring 2016 Population Projections. *California Department of Corrections and Rehabilitation: Office of Research.* Received from, http://www.cdcr.ca.gov/Reports_Research/Offender_Information_Services_Branch/Projections/S16Pub.pdf

[7] Respaut, R. (January 6, 2016). California Prison Reforms Have Reduced Inmate Numbers, not Costs. *Reuters News Agency.* Received from, http://www.reuters.com/article/us-california-prison-budget-insight-idUSKBN0UK0J520160106

[8] Dube, S., Felitti, V., Dong, M., Chapman, D., Giles, W., & Anda, R. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The Adverse Childhood Experiences Study. *Pediatrics, 111(3),* 564-572.

[9] Fang X, Brown DS, Florence CS, Mercy JA. (2012). The Economic Burden of Child Maltreatment in the United States and Implications for Prevention. *Child Abuse & Neglect*. 36(2):156–65.

years old respectively.[10] Given the 100 percent weight and an average lifespan of those with up to five ACEs of 73.5 years, the annual per-person cost comes to $2,160.49 in lost potential income.

Foster Care

California's current foster system houses close to 63,000 youth, of which an estimated 50 percent of them possess four or more ACEs based on a national longitudinal survey of the foster system.[11] If that is taken as a proportion of the 16.7 percent of California adults who experienced four or more ACEs, it can be concluded that just 0.65 percent of children with four or more ACEs in California end up in foster care.[12] In Fiscal Year 2008-2009, foster care cost the state of California $1.35 billion resulting in a per-child cost of $24,000. Taking the 0.65 percent ACEs likelihood factor into account, the annual probability adjusted cost of foster care becomes $158.43 per person.

Homelessness

Approximately 115,000 individuals in California were identified as homeless by the Department of Housing and Urban Development.[13] While the ACEs statistics are currently unavailable for the homeless population in California, it is known that 20-25 percent of the homeless population suffer from a severe form of mental illness. If the mental illness statistics for the homeless are taken as a proportion of the mental illness population in California, it can be stated that 2.35 percent of people with mental illness may end up homeless at some point in their lives.[14] It is estimated that supportive housing for the homeless population costs nearly $35,000 per person annually therefore, adjusting for the 2.35 percent likelihood, the community cost of homelessness becomes approximately $818.67 per person annually.

Special Education

In California, there are 686,352 students in the public education system with a disability who are receiving special education. This is 9.9 percent of the total K-12 school enrollment in the state. If the figure that 61.7 percent of individuals in California have at least one ACE holds for this population, then multiplying this figure with the percent enrollment in special education gives a likelihood estimate of 6.11 percent. The associated cost of educating a student with a disability in California is approximately $22,969 as of 2013; more than double the cost of a mainstream student.[15] Assuming the 6.11 percent likelihood of students requiring special education holds true, the weighted per-person cost of special education comes to $1,403.02 annually.

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[10] Storrs, C. (October 7, 2009). Is Life Expectancy Reduced by a Traumatic Childhood? *Scientific American: Health.* Received from, http://www.scientificamerican.com/article/childhood-adverse-event-life-expectancy-abuse-mortality/

[11] Adverse Childhood Experiences Study (2008). *Advo Kids*. Received from, http://www.advokids.org/adverse-childhood-experience-study-aces/

[12] A Hidden Crisis: Findings on Adverse Childhood Experiences in California (2014). *Center for Youth Wellness.* Received from, https://acestoohigh.files.wordpress.com/2014/11/hiddencrisis_report_1014.pdf

[13] Henry, M., Shivji, A., de Sousa,T., & Cohen, R. The 2015 Annual Homeless Assessment Report (AHAR) to Congress (2015). *The U.S. Department of Housing and Urban Development*. Received from, https://www.hudexchange.info/resources/documents/2015-AHAR-Part-1.pdf

[14] Holt, W. & Adams, N. (July 2013). Mental Health Care in California: Painting a Picture. *California Health Care Almanac.* Received from, http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20M/PDF%20MentalHealthPaintingPicture.pdf

[15] Ehlers R. (January 3, 2013). Overview of Special Education in California. *Legislative Analyst's Office.* Received from, http://www.lao.ca.gov/reports/2013/edu/special-ed-primer/special-ed-primer-010313.aspx

Probability of situation occurring * annual community costs = Probability weighted community cost

Table 2: Future ACEs Community Costs			
Cost Type	**Probability of Situation Occurring to Individual with ACEs**	**Annual Community Cost per Person with ACEs**	**Probability Weighted Annual Community Cost per Child**
Medicaid (Medi-Cal)	100.00%	$ 7,532.74	$ 7,532.74
Medicare	100.00%	$ 2,857.55	$ 2,857.55
Juvenile Detention	0.02%	$ 212,504.76	$ 38.87
Prison	0.45%	$ 64,000.00	$ 289.97
Drug Treatment	61.00%	$ 5,895.00	$ 3,595.95
Lost Potential Income	100.00%	$ 2,160.49	$ 2,160.49
Foster Care	0.65%	$ 24,349.00	$ 158.43
Homelessness	2.35%	$ 34,764.00	$ 818.67
Special Education	6.11%	$ 22,969.00	$ 1,403.02
		TOTAL	**$ 18,855.69**

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