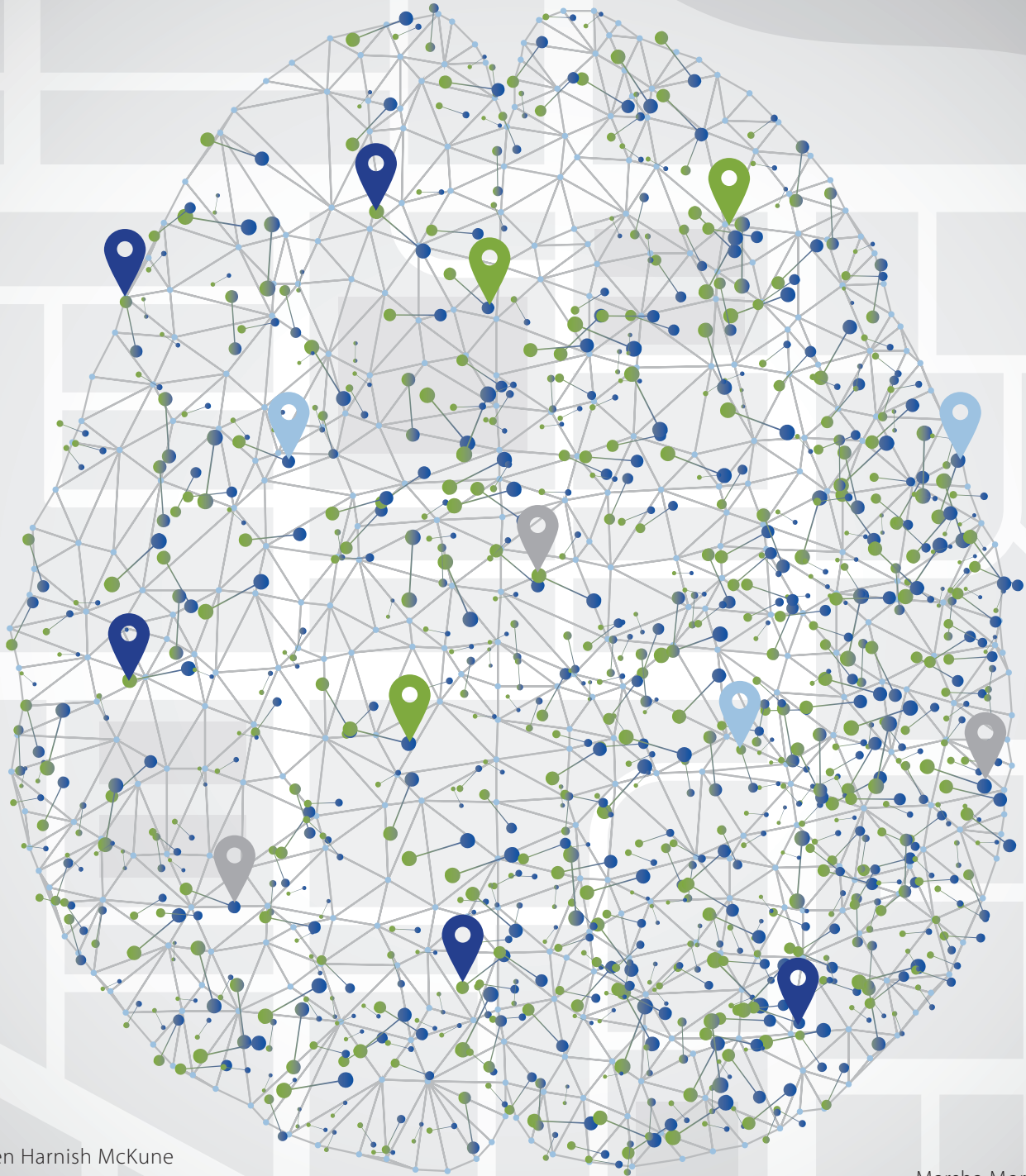


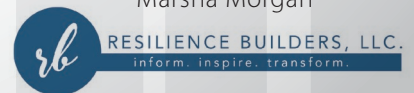
Moving the Neuroscience of Trauma Into Action™



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Moving the Neuroscience of Trauma Into Action™ To Solve Long-Standing Community Problems

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and

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August 2018

Informed by the work of a Kansas City metro-wide focus group on Trauma Informed Care gathered on August 22, 2018. A complete list of participants is included at the end of this paper.

Our Call To Action For All Readers

We wrote this paper to create a collaborative space for learning and sharing how the neuroscience of trauma is changing the way we work with families and their caregivers to address long-standing challenges faced by our communities. Our hope is policymakers and practitioners from across systems that touch our families and children will find this information both beneficial and eye-opening. Their insights, innovation, and leadership could result in new practices and policies that incorporate the neuroscience of trauma and resilience into the work they currently do.

If you would like to contribute to this work of knowledge and practice, please email one or both co-authors with your additions. We plan to publish bi-annual updates with new information we receive in hopes of continuing to grow the knowledge and application of the neuroscience of trauma.

With our sincerest appreciation,

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Executive Summary

When communities and organizations pay attention to the impact of trauma (toxic stress), they are able to affect positively some of the toughest challenges facing both policymakers and providers (all those who interact with our most vulnerable populations). Communities that have been intentional about addressing Adverse Childhood Experiences (ACEs) by becoming trauma-informed report the following outcomes:

- Lower suicide rates
- Reduced numbers of children entering the juvenile justice system
- Decreased dropout rates
- Fewer suspensions and expulsions from schools
- Fewer behavioral issues with children
- Drops in emergency room visits
- Reduction in substance abuse

This paper was written to connect the current neuroscience of trauma and ways that such knowledge must change the way we work with children and their families. Informed by brain research and successful reforms that our communities have produced, we can overcome at the root cause long-standing community problems that we are facing. With your help and input, we will publish semi-annual updates with new and emerging practices both in and outside of the Kansas City metropolitan area.

This report has five primary sections which are summarized here and referenced for your further readership.

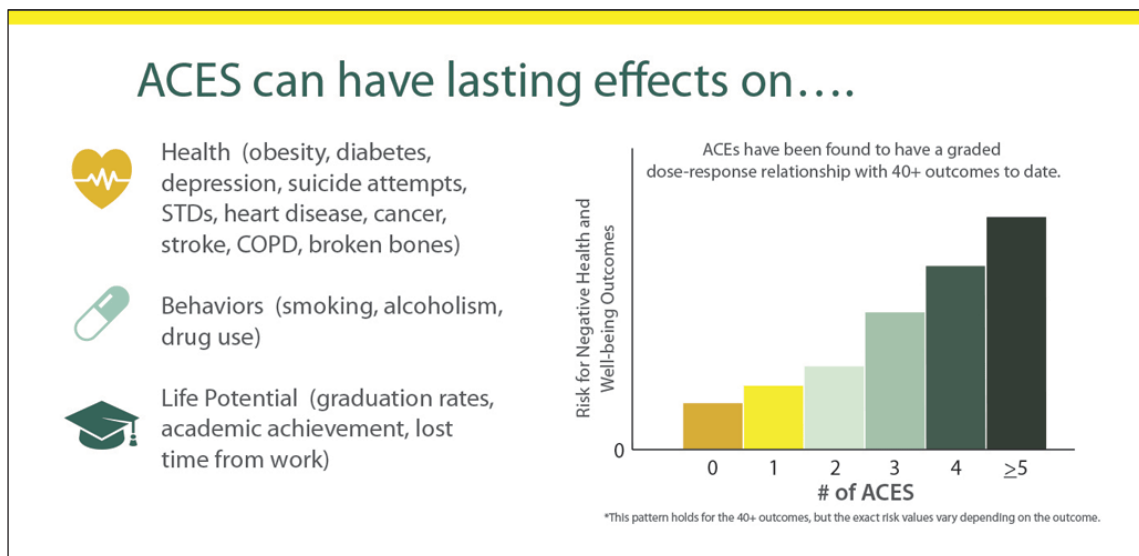
Neuroscience, Brain Development and Trauma – What We KNOW

The 1998 article by Dr. Vincent Felitti, Dr. Robert Anda and colleagues in the *American Journal of Preventative Medicine* "Relationships of Childhood Abuse and Household Dysfunction to many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study,"⁽¹⁾ is one of the key pieces of work that sparked a national conversation about the importance of understanding the long-term impact of trauma on brain development.

Felitti and Anda correlated the ACE scores with health-risk behaviors and health outcomes. Their work has been validated over and over – **There is a link between early life adversity and well-known chronic diseases, mental health, risky behaviors and life potential.**

As the number of ACEs increases, so does the risk for these outcomes. The wide-ranging health and social consequences of ACEs underscore the importance of preventing them before they happen.

This section includes data and results not only from the Felitti and Anda study but also ACE statistics from the state of Kansas and the Kansas City metropolitan region. The graph that follows summarizes what we know about the long-term impact of Adverse Childhood Experiences on the physical and mental health of our citizens.



To understand the ways Adverse Childhood Experiences (ACEs) impact long-term physical and mental health, behaviors and development, we need to look at the human brain, its development, and the stress-response system specifically.

The power of trauma/toxic stress: An explanation of how the brain's control centers are organized and their relative systemic affect is key to understanding the lifelong effects of stress. When the stress response (fight, flight, freeze) is chronically activated, sometimes to the extreme, the neural connection patterns of the stress response become stronger. The **emotional center** becomes overactive and overpowers the ability of the executive center to think rationally or use reason in making decisions. The brain is stuck in a reactive mode. The stress-response system becomes dysregulated. This is especially true for children, whose brains are developing so rapidly (and therefore most vulnerable) from birth to age 10. This is when Adverse Childhood Experiences can have their most devastating and long-lasting impact. **This is known as Chronic Dysregulation.**

Chronic Dysregulation harms the body by producing too much cortisol. Here is what excessive cortisol does to the body and brain:

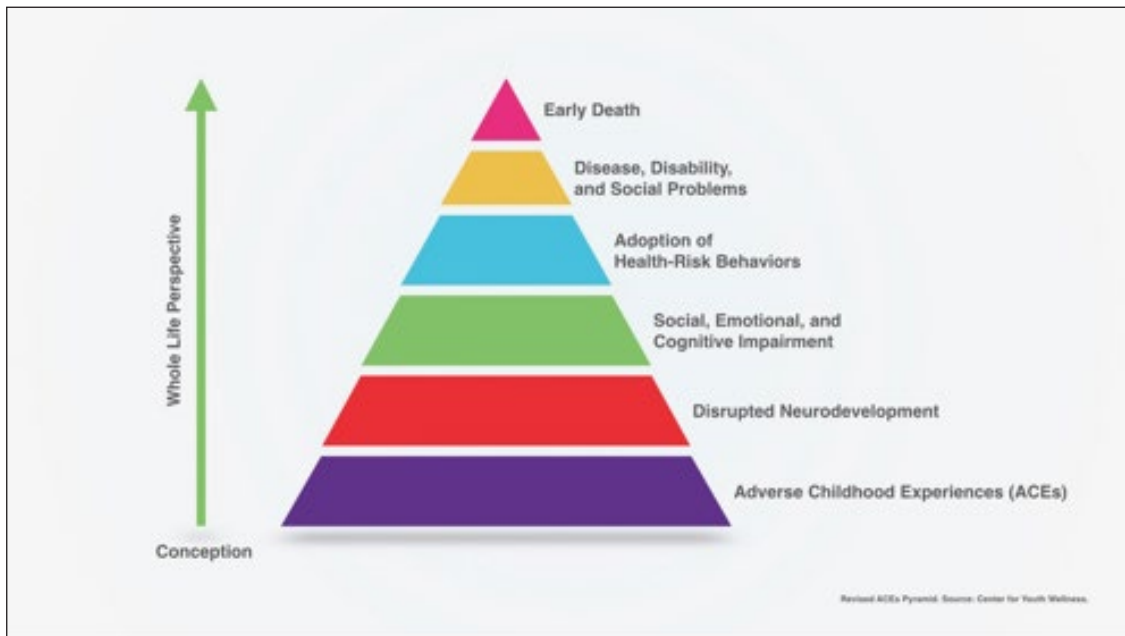
- it raises blood pressure and blood sugar,
- inhibits clear thinking,
- destabilizes mood,
- disrupts sleep,
- stimulates fat accumulation, and
- triggers the body to crave high-sugar and high-fat foods.

It becomes apparent why those with high a ACEs score may end up with more chronic healthcare problems. High cortisol levels over long periods of time take a toll on the body's systems.

A disrupted stress response also affects the immune system, the hormonal system and the cardiovascular system. It follows then that there is a link between early life adversity and well-known chronic diseases, mental health challenges, risky behaviors and life potential.

Chronic dysregulation can be either easy to see (the person who constantly over-reacts which neuroscientists call Hyper-Sensitivity) or harder to see (the person who has dissociated or checked out, known as Hypo-Sensitive.) Individuals who are Hypo-Sensitive or dissociated are often the ones who are not a problem until one day when they just explode. Think of the proverbial "last straw."

When we realize that adversity in childhood harms the development and regulation of the stress-response system throughout someone's life, we begin to understand just how powerful the ACE science can be to combat some of the leading causes of disease and death. **In addition, studies have found that toxic stress and trauma physically changes the brain and how it functions and can even change the way DNA is read. This may explain the frequency of inter-generational sustained trauma and toxic stress.**



Source: Center for Youth Wellness

Neuroscience, Brain Development and Trauma – Moving Into Action

Decades of neuroscience research confirmed and reconfirmed that toxic stress and trauma changes the brain as well as the immune system and hormonal system. In an ideal world, all childhood toxic stress and trauma would be gone. Realistically, childhood toxic stress and trauma are not going away. The gift of neuroscience is that it not only points us to the root cause impact of toxic stress and trauma but it also begins to help us understand how the brain can be repaired or at least partially repaired to help mitigate the impact of toxic stress and trauma. Here is how.

Assuring physical, psychological and emotional safety is the fundamental principle for reducing stress. First, neuroscience has confirmed that the number one protective factor is that children always have a caring and nurturing adult throughout their life. Second, strengthening core life skills is essential for success in school, work and community. These skills include self-regulation and executive functioning. Third, reducing sources of stress achieves multi-generational and community benefits.

Neuroscience continues to produce new discoveries all the time. No doubt, this will inform not only what we know but also inform the actions that can help stop the trauma (or at least mitigate the effects of trauma/toxic stress). New research will also help us all build healthier, stronger brains and thus, stronger communities. Neuroscience points the way with five key actions we can take now:

Moving Into Action #1: Teach emotional regulation. The ability to self-calm and self-regulate is important for helping move from the emotional center (fight, flight, freeze) to the executive center (where you can think through alternative solutions and actions).

Moving Into Action #2: Test cortisol levels and intervene with one-on-one coaching and parenting skills and pay for this. Catching high cortisol levels in caregivers and providing emotional regulation skills as well as teaching important attachment parenting skills can help us as a community mitigate the inter-generational nature of adverse childhood experiences. Pilot sites in Kansas are now trying this ABC (Attachment Bio-Behavioral Check-up) intervention with success. Many states now have a Medicaid code to pay for this. Kansas does not.

Moving Into Action #3: Provide safe relational experiences for everyone in our communities. All organizations having contact with children and parents must implement trauma-informed practices. A starting point: Treat the child and parent like a team; go beyond the referral to a community agency or a set of services by treating the child and parent together in a holistic approach.

Moving Into Action #4: Build resilience in individuals. Resilience is a trait everyone possesses that can be further developed. Research on resilience indicates that there are multiple intersecting factors including having access to basic necessities such as food, housing, education, employment and transportation; a supportive community; feeling valued; having a sense of belonging and being able to engage with others.

Moving Into Action #5: Create awareness of the neuroscience of trauma. Supporting healthy and resilient people requires trauma-informed and resilient practices in our families, communities and organizations. Based on the trauma-informed principles of safety, trustworthiness, choice, collaboration and empowerment while embracing equity, cultural changes will result. Examples of communities, states and counties that are making progress are shared in the next section.

A Path Forward – Learning From Others

Profiles of the trauma-informed work and the profound results from three areas around the country:

Cowlitz County, Washington

This community engaged parents and community members to raise awareness about the impact of trauma on brain development, helping the community see how that impact reverberated throughout its citizens. The community used what's called the Self-Healing Communities model to shift from a culture of illness, conflict and despair to a culture of self-healing. Key results for Cowlitz County are cited below and it is noteworthy that other participating counties saw similar results:

- Births to teen mothers decreased by 62% from 1997 to 2006
- Infant mortality decreased by 43% from 1998 to 2006
- Youth suicide and suicide attempts decreased by 98% from 1998 to 2006
- Youth arrests for violent crimes decreased by 53% from 1997 to 2006
- High school drop-out rates decreased by 47% from 1998 to 2006

State of Wisconsin

Wisconsin's governor and legislators resolved in 2016 to make Wisconsin the first trauma-informed state in the U.S. Early results are encouraging. After one year, participating organizations reported the following results:

- 50% plus drop in births to teen mothers
- 98% drop in youth suicide and suicide attempts
- 90% drop in school suspensions, and the elimination of school expulsions
- Zero violent incidents in a juvenile detention facility
- Safe Babies Courts report that 99% of participating families/children no longer suffer abuse
- A 30% drop in emergency department visits

City of Philadelphia, PA

The Philadelphia Department of Behavioral Health and Intellectual Disability Services partnered with the City of Philadelphia to create the Mural Arts Program, which joined with local artists, mental health clients, service providers, local funders, and academic associates to create the Porch Light program. Goals include:

- Increase access to resources
- Reduce personal stigma
- Develop skills to enhance resilience and recovery
- Improve the neighborhood physical environment
- Promote community and social inclusion
- Increase attention to determinants of health
- Use art as a catalyst for individual and social change

System Responses to Moving the Neuroscience of Trauma Into Action

The insights of 29 individuals we assembled for the August 22, 2018 focus group are shared – these insights capture best practices and implementation of trauma-informed care in the Kansas City Metro area. Five recommendations were made for all systems to consider:

- 1) Bring trauma-informed practices and policies into all systems. Teach communities, organizations, policymakers, leaders and community members a common language for talking about trauma and resilience.
- 2) Consider the impact of trauma in all discussions and change the conversation for those struggling from “What is wrong with you?” to “What has happened to you?”
- 3) Actively work to reduce stigma and avoid re-traumatization.
- 4) Utilize appropriate screening tools such as the ACEs to screen and assess for trauma as youth and families are entering a system.
- 5) Assess for secondary trauma in all staff working in systems and have tools in place to address secondary trauma and resilience with those working with traumatized individuals.

Specific recommendations were made for the following systems: Early Childhood Development, School, Integrated Healthcare, Child Welfare, Juvenile Justice, Adult Correctional, Public Health, Law Enforcement and Organizations.

A Note to Policymakers

Seven recommendations are listed in hopes of continuing the dialogue about how policy should be shaped by what neuroscience continues to uncover.

- Learn about the impact of toxic stress, adverse childhood experiences, trauma-informed practices and resilience in your communities and State.
- Learn what your communities and organizations are doing to create healthy and resilient citizens. Know and connect with the resources and experts in your local area.
- Learn what is needed to effect change and ask what you can do to help with funding, policy, regulation and/or legislation.
- Promote collaboration and collective action within communities.
- Host a convening, briefing, or conference for your colleagues, the press/media, lawmakers, and your community to find out about neuroscience and the impact of toxic stress and trauma.
- Recognize early trauma/toxic stress as the public health crisis that it is given its negative impact on long-term physical and mental health as well as risky behaviors and life potential. Understand the brain healing recommendations that neuroscience has uncovered so far.
- Stay engaged and informed as the scientists continue to learn about the brain and the impact of trauma, as well as discover new ways to prevent, intervene and treat trauma exposed children and families.



Neuroscience, Brain Development and Trauma – What We KNOW

The good news: The path to solving long-standing problems in our communities is clear and getting clearer; neuroscience is forging the way.

The starting point: The 1998 article by Dr. Vincent Felitti, Dr. Robert Anda and colleagues in the *American Journal of Preventative Medicine* “Relationships of Childhood Abuse and Household Dysfunction to many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study,”⁽¹⁾ is one of the key pieces of work that sparked the conversation about the importance of understanding the long-term impact of trauma on brain development.

- Known as the landmark ACE Study
- Participation from 17,337 Kaiser health-plan members; a population that was 70% Caucasian and 39% college educated with health care insurance
- Determined what each patient’s level of exposure to Adverse Childhood Experiences (ACEs) by asking if he or she had experienced any of the ten ACE categories before the age of 18

The ACEs study asked about ten categories of childhood experiences:

Ten Adverse Childhood Experiences (ACEs) Categories:

- | | |
|--|---|
| 1. Emotional abuse (recurrent) | 7. Mental illness in the household (e.g. living with someone who suffered from depression or mental illness or who had attempted suicide) |
| 2. Physical abuse (recurrent) | 8. Mother treated violently |
| 3. Sexual abuse (contact) | 9. Divorce or parental separation |
| 4. Physical neglect | 10. Criminal behavior in household (i.e. a household member going to prison) |
| 5. Emotional neglect | |
| 6. Substance abuse in the household (e.g. living with an alcoholic or a person with a substance-abuse problem) | |

Every ACE = 1 point Max ACE = 10 points

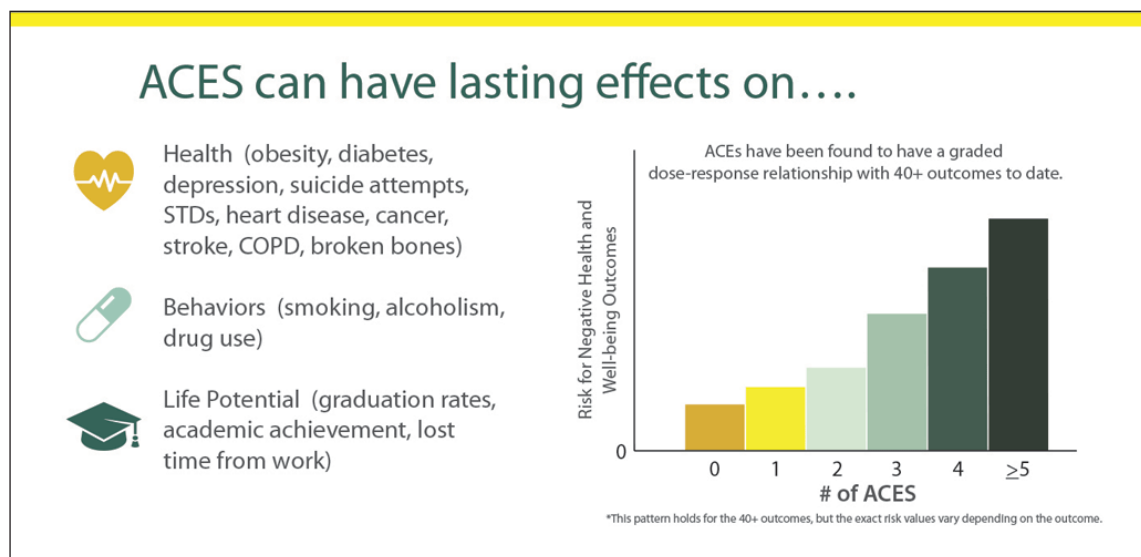
Felitti and Anda correlated the ACE scores with health-risk behaviors and health outcomes. Their work has been validated over and over – **There is a link between early life adversity and well-known chronic diseases as well as risky behaviors and life potential.**

Adverse Childhood Experiences have been linked to

- Risky health behaviors (smoking, alcoholism, drug use)
- Chronic health conditions (obesity, diabetes, heart disease, cancer, stroke)
- Mental health problems (depression, suicide attempts)
- Long-term problems with relationships
- Low life potential
- Parenting dysfunction, and
- Early death

As the number of ACEs increases, so does the risk for these outcomes. The wide-ranging health and social consequences of ACEs underscore the importance of preventing them before they happen.

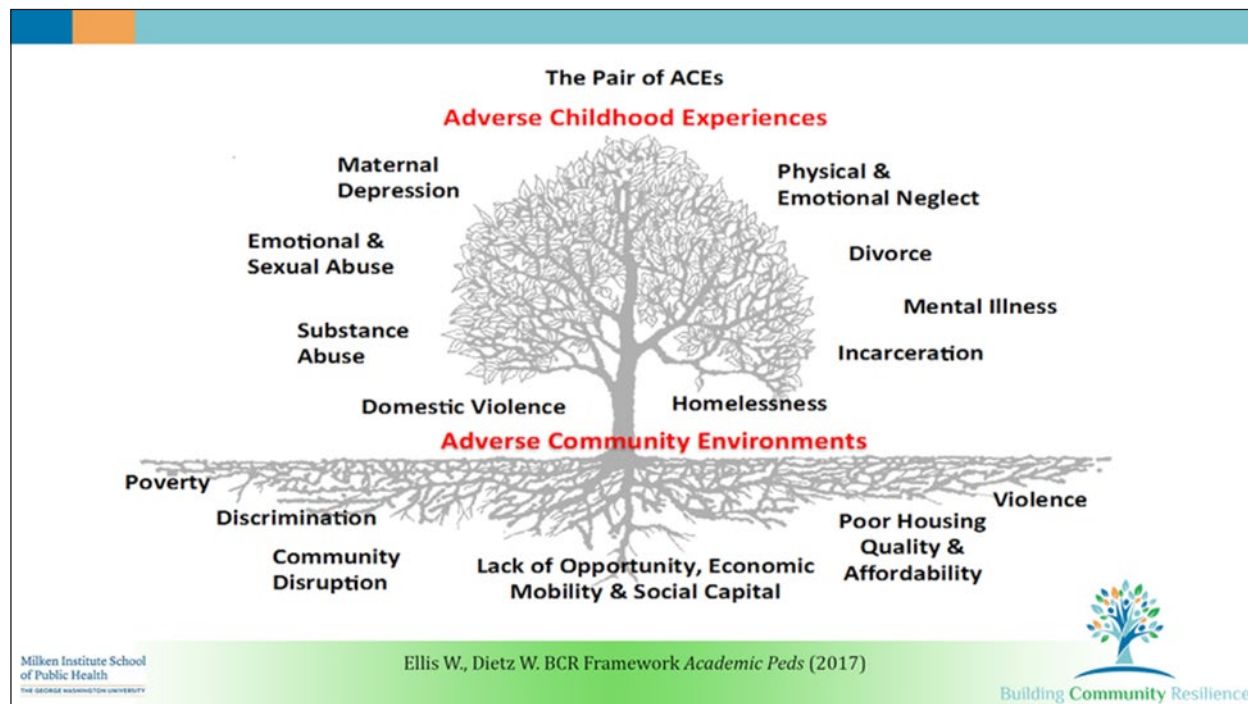
⁽²⁾ Graph from the cdc.gov website



When we realize that adversity in childhood harms the development and regulation of the immune system throughout someone’s life, we begin to understand just how powerful the ACE science can be to combat some of the leading causes of disease, risky behaviors, depression, suicide attempts, low life potential and even death.

What are the causes of toxic stress and trauma?

In order to help us all better understand the “big picture” causes of toxic stress and trauma, the city of Philadelphia created an expanded ACEs (Adverse Childhood Experiences) study that included community experiences/environment that affect a child’s life. This work has resulted in what is now recognized as the **Pair of ACEs**.



⁽³⁾ The Pair of ACEs

In every state across the country, more than 30 million American children are exposed to a range of adverse childhood experiences – including abuse, neglect, substance abuse, domestic violence or parental depression. Adverse community environments, such as lack of opportunity, limited economic mobility, community violence and the associated effects of poverty and joblessness, contribute to – and compound – the adversities experienced within households by children and families. Together, adverse childhood experiences and adverse community environments are the “Pair of ACEs.”

The findings from Philadelphia’s “expanded ACE survey” (2013) indicate that an urban center experiences significantly more ACEs when the additional factors of witnessed violence, felt discrimination, unsafe neighborhoods, experienced bullying, and lived in foster care are considered. The following is a comparison of the original Kaiser study and the expanded ACE Philadelphia study.⁽⁴⁾

Standard ACE Indicators	PHL Sample N=1,784	Kaiser Sample N=17,337
Emotional Abuse	33.2%	10.6%
Physical Abuse	35.0%	28.3%
Sexual Abuse	16.2%	20.7%
Physical Neglect	19.1%	14.8%
Emotional Neglect	7.7%	9.9%
Substance Using Household Member	34.8%	26.9%
Mentally Ill Household Member	24.1%	19.4%
Witnessed Domestic Violence	17.9%	12.7%
Incarcerated Household Member	12.9%	4.7%
Urban ACE Indicators		
Witnessed Violence	40.5%	
Felt Discrimination	34.5%	
Unsafe Neighborhood	27.3%	
Experienced Bullying	7.9%	
Lived in Foster Care	2.5%	

Adverse Childhood Experiences Among Kansas Adults

The Behavioral Risk Factor Surveillance System (BRFSS) introduced an optional module in 2008 to assess the relationship between ACE and health status at the population-level. The ACE optional module was included for the first time in the Kansas BRFSS in 2014.

Key Findings:

- ACE are prevalent: slightly more than half of Kansas adults have experienced at least one adverse childhood experience.
- In Kansas, high ACE scores (3+) are more common among younger adults, those with lower levels of educational attainment, those with lower annual household incomes, non-Hispanic other and multiracial adults, Hispanics and women.

- The prevalence of current smoking, binge drinking, obesity, poor/fair general health, 14 or more days of poor physical health, 14 or more days of poor mental health, arthritis, current asthma, chronic obstructive pulmonary disease (COPD) and depression were higher among adults with high (3+) ACE scores compared with those with no ACE.
- Significant positive associations were observed between ACE score category and all selected health risk factors, perceived poor health indicators and chronic conditions, after controlling for demographic characteristics.

Kansas data mirror findings in other states and highlight the need to increase awareness of ACE as a public health issue. Preventing ACE may have beneficial effects on the long-term health of Kansans. ⁽⁵⁾

ACE Statistics in A Local Regional Sample (Metro Kansas City)

Resilient KC conducted an “expanded ACEs” study of nine counties comprising the metro Kansas City area in cooperation with UMKC in 2017. (Missouri – Platte, Clay, Ray, Jackson, and Cass Counties; Kansas – Leavenworth, Wyandotte, Johnson, and Miami Counties). In the nine-county, bi-state Kansas City region, adverse childhood experiences are common. The Resilient KC ACEs findings show that many Kansas City regional individuals experienced stressors related to the community where they grew up.

County	4+ Aces
Jackson	41.9% (n=749)
Johnson	27.9% (n=498)
Clay	11.8% (n=210)
Wyandotte	6.4% (n=114)
Platte	5.79% (n=101)
Cass	3.4% (n=60)
Leavenworth	1.2% (n=21)
Miami	1.0% (n=17)
Ray	0.9% (n=16)
TOTAL	100% (n=1,786)
"ACE Statistics in Metro KS, Resilient KC, 2017"	

Child Abuse and Neglect

- Three in ten (30.2%, n=1,058) adults experienced sexual abuse with an adult at least 5 years older than them during their childhood.
- Over half of adults (55.6%, n=1,945) experienced emotional abuse while growing up.
- Four out of ten, 39.9%, (n=1,384) adults experienced emotional neglect.

Household Dysfunction

- Kansas City regional adults witnessed a parent or adults in their home being physically or emotionally battered four times the rate of the Kaiser study individuals (49.5% compared to 12.7%).
- Approximately four in ten (40.8%) adults living or working in the Kansas City region grew up in a household where someone abused substances.

Overall Distribution of ACEs in Kansas City

Expanded – 14 indicators

13.0% have a score of 0
33.5% have a score of 1-3
53.5% have a score of 4 or more

The Neuroscience Behind Adverse Childhood Experiences and the Health Impacts

In this section we cover four primary impacts of trauma/toxic stress on the brain and uncover the long-term impact each has on physical, behavioral and mental health.

- The Impact of Trauma/Toxic Stress: Chronic Dysregulation
- The Impact of Trauma/Toxic Stress: Behavioral Observations
- The Impact of Trauma/Toxic Stress: Changes in the Brain
- The Impact of Trauma/Toxic Stress: Changes How Your DNA is Read

To understand why Adverse Childhood Experiences (ACEs) impacts long-term physical and mental health, behaviors and development requires a look at our brain and brain development, specifically the stress-response system. The next section, The Three Brain Center, is a contribution of Carolyn Cottrell, PhD, Brain-Wiser, LLC.

The Three Brain Centers

To understand the power of trauma/toxic stress, it is important to understand why the Stress Response (Fight-Flight-Freeze) is built into our brain's architecture in the first place. Simply stated, the main purpose of the brain is SURVIVAL.

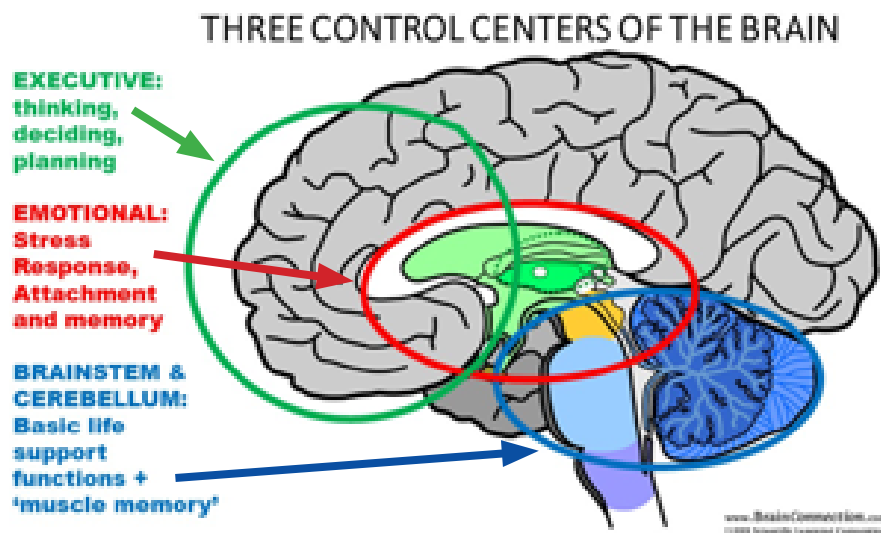
For us to survive, our brain's 100 billion neurons are organized into a number of systems and control centers. These are three control centers of the brain:

1. **The brain stem:** At birth, the brain stem is the most developed of the three control centers. It regulates basic body functions necessary to life, for example, breathing, circulation, oxygen levels in the blood, heart rate, digestion, excretion, sleeping and waking. In many ways, this control center is the most important, because the brain can't use either of the other centers if the brain stem is incapacitated.

2. **The emotional center:** It is located deep in the brain's center, right above the brain stem. This control center is the second most powerful center, critical to survival, learning and memory. Here is where the Stress Response as well as the 'triage center' for incoming sensory data (vision, hearing, touch, taste and smell) are located. If a threat to survival is perceived, the amygdala, signals "Danger! Danger!" – for example, if we see a bear, hear a loud noise, touch a hot stove, taste something putrid, or smell smoke. (A message is also sent to the executive center to evaluate "Was that a gun shot or just fireworks?")

The Stress Response prepares the body to run, fight, or shut down (Fight, Flight, Freeze), by triggering the *sympathetic nervous system* to release a cascade of about 30 hormones which in turn, cause some systems to 'ramp up,' – our heart rate and breathing to increase, blood to flow to the large muscles, our pupils dilate, etc. – while other systems are suppressed – all so we can survive. Once the danger has passed, the body is designed to return to *homeostasis*, or 'normal.'

3. **The executive center,** aka the "learning center," or the "thinking center" is the third control center of the brain. It is the largest center, taking up about 85% of the brain's neurons, and it is the LAST to develop fully. This is our "gray matter," the center where we learn, plan, assess risk, write poetry, design buildings, store long term memories or think about the future.



All parts of the brain are in constant communication with each other, and the way they are working or not working so well affects the other centers. At birth, the baby's brain is the least developed of all its organs, and the immune system is very weak. As the brain develops, its increase in size and weight are caused by increased neural connections, the branching of dendrites, and by myelination (laying down that fatty substance on neurons so signals can be sent more quickly and efficiently). The pattern of brain development is more or less from back to front, that is, from the brain stem to the emotional center, and finally to the thinking center, which is the last control center to develop fully, at somewhere between age 25 and 30.

The Impact of Trauma/Toxic Stress: Chronic Dysregulation

The power of trauma/toxic stress: An explanation of how the brain's control centers are organized and their relative systemic effect is key to understanding the lifelong effects of stress. When the stress response is chronically activated, sometimes to the extreme, the neural connection patterns of the stress response become stronger. The **emotional center** becomes overactive and overpowers the ability of the **executive center** to think rationally or use reason in making decisions. The brain is stuck in a reactive mode. The stress-response system becomes dysregulated. This is especially true for children, whose brains are developing so rapidly (and therefore most vulnerable) from birth to age 10. This is when Adverse Childhood Experiences can have their most devastating and long-lasting impact. **This is known as Chronic Dysregulation.**

Chronic Dysregulation harms the body by producing too much cortisol. Here is what excessive cortisol does to the body and brain:

- It raises blood pressure and blood sugar,
- Inhibits clear thinking,
- Destabilizes mood,
- Disrupts sleep,
- Stimulates fat accumulation, and
- Triggers the body to crave high-sugar and high-fat foods.

It begins to be apparent why those with a high ACEs score may end up with more chronic healthcare problems. High cortisol levels over long periods of time take a toll on the body's systems.

A disrupted stress response also affects the immune system, the hormonal system and the cardiovascular system. It follows then that there is a link between early life adversity and well-known chronic diseases, mental health challenges, risky behaviors and life potential.

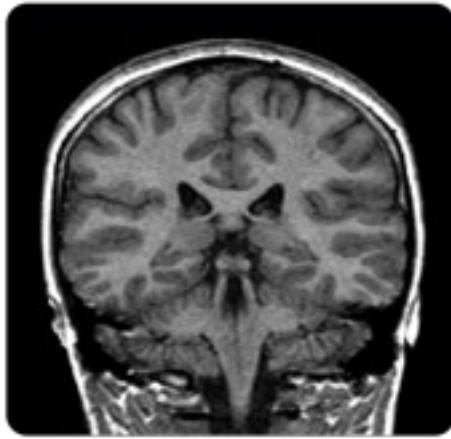
Most challenging is that chronic dysregulation can be either easy to see (the person who constantly over-reacts which neuroscientists call Hyper-Sensitivity) or harder to see (the person who has dissociated or checked out, known as Hypo-Sensitive.) Individuals who are Hypo-Sensitive or dissociated are often those whom with no one has a problem until one day when they just explode. Think of the proverbial "last straw."

The Impact of Trauma/Toxic Stress: Behavioral Observations

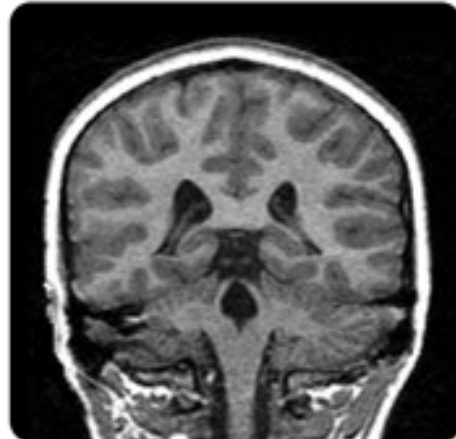
This chart begins to help us see what exposure to toxic stress can look like and what neuroscience says about the root cause:

Behaviors We Might Observe	What Neuroscience Says
Impulsivity	The Emotional Center is in control.
Risk-taking	Incomplete maturation of the executive functioning area of the brain; which we know does not fully develop until ages 25 - 30
Low self-control or Over-reactive	Stress-Response system is in overdrive; fight or flight is the choice
Missed developmental milestones	Stress-Response system in overdrive, chemical changes in adrenaline and cortisol, increased heart rate
Inability to bond with caregiver	Stress-Response system is in flight due to loss of trust in caregivers
Sleep problems	Stress-Response system in overdrive, increased heart rate, cortisol levels are abnormal
Eating problems	Digestive system is in flight – fight mode
Learning problems, inability to concentrate, impaired attention	Stress-Response system is in overdrive, chemical changes in adrenaline and cortisol levels
Somatic complaints	Biological systems are dysregulated due to toxic stress
Extreme emotional responses, increased irritability, aggression and anger	Amygdala is overly sensitive to environment and is responding in fight mode
Difficulty with authority, redirection, instruction or criticism	Stress-response is in overdrive and is in fight or flight mode
Not able to interpret or respond appropriately to social cues	Stress-Response in overdrive; frontal lobe is not engaging
Self-destructive and/or accident-prone behaviors	Stress-Response in overdrive, Increased heart rate
Experimentation with substances	Stress-Response in overdrive
Extreme isolation	Flight and Freeze response in overdrive

The Impact of Trauma/Toxic Stress: Changes in the Brain



Non-Traumatized Brain



Traumatized Brain

This slide demonstrates the physical impact of trauma on the brain. This work comes from an important study by Dr. Michael DeBellis and his colleagues that was published in *Biological Psychiatry* in 1999. Dr. DeBellis studied the brains of children who were diagnosed with PTSD (post-traumatic stress disorder) and compared them to the brains of children who were not traumatized. Dr. DeBellis found that the brains of children who had PTSD were different. Here is how.

If you look on the left side, the child's brain not exposed to trauma, you see a thin external layer covering the brain (white area arching over brain image, called the dura mater). If you look at the image on the right, you see a thicker white band. This shows atrophy or shrinkage of the cerebral cortex (thereby causing the dura mater to expand to fill the space). The cerebral cortex is generally associated with the higher-level functions of the brain including language, creativity, motor processes, memory, abstraction, attention, and judgement.

Besides the cortex, other structures of the brain such as the hippocampus and the amygdala also decrease in size. But the lateral ventricles, on the other hand, increase in size in people who are traumatized. See the black triangle shapes on left image and how much larger they are in the MRI image of the child with trauma on the right? **Trauma physically affects the brain and how it functions.** ⁽⁶⁾

The Impact of Trauma/Toxic Stress: Changes How Your DNA is Read

The impact of toxic stress on DNA continues to evolve. What we know now is that toxic stress or sustained trauma actually changes how your DNA is read.

- Your DNA is biology or genetic code.
- How your DNA gets read is passed down from parent to child but can be rewritten by your environment. Researchers have discovered that this happens through the shortening of telomeres. Telomeres are sort of the bumper guards at the ends of DNA strands. Lots of things can damage the telomeres but chronic stress is a big factor, as is poor nutrition.
- Chronic dysregulation causes the stress-response system to produce too much cortisol. Cortisol damages the telomeres, when the telomeres are gone the cell dies – this is also known as aging.
- If you happen to inherit shorter telomeres from your parents than your sibling did, then the impact of the same chronic stress on you could lead to worse health outcomes than for your sibling.

So, when a child experiences chronic stress and trauma, some genes that regulate how the brain and the immune and hormonal systems respond to stress get turned on, and others get turned off. Unless there is some intervention, those genes will stay that way, changing the way the person's body works and, in some cases, leading to disease and early death – and then these changes are passed on to the next generation.

Let's turn our attention now to what neuroscience tells about what can be done.

Changing the Question to Reveal Root Cause; Thus Changing Our Approach

Questions have the power to uncover insights and deepen understanding. In the trauma-informed care context, the question is changing from "What's wrong with you?" to "What has happened to you?" This is an effort to get to root cause. Why? Root cause reveals a path to solving the problem rather than just addressing symptoms. Anyone who has ever tried to get rid of the dandelions in the yard knows you must get the root if you want the dandelion not to return.



Neuroscience, Brain Development and Trauma – Moving Into Action

What Neuroscience Tells Us About Protective Factors

Twenty years of neuroscience research confirmed and reconfirmed that toxic stress and trauma changes the brain as well as the immune system and hormonal system. In an ideal world, all childhood toxic stress and trauma would be gone. Realistically, childhood toxic stress and adversity are not going away. The gift of neuroscience is that it not only points us to the root cause impact of toxic stress and trauma but it also begins to help us understand how the brain can be repaired or at least partially repaired to help mitigate the impact of toxic stress and trauma.

The Center for the Developing Child, Harvard University, outlines 3 Principles to Improve Outcomes for Children and Families. These principles are “support responsive relationships for children and adults, strengthen core life skills and reduce sources of stress in the lives of children and families.”⁽⁷⁾ Each of these principles have policy implications which will be discussed later.

Neuroscience has confirmed that the number one protective factor is that children always have a caring and nurturing adult throughout their life, which is the first principle to improve outcomes for children and families. It is critical to recognize that this protective factor requires a two- or three-generation approach. Parents, extended family members, teachers, and other adults who are influential in children’s lives may also have experienced toxic stress and trauma and will need to develop knowledge and skills to be caring and nurturing in the way that promotes children’s abilities to cope with adversity. Simple ways for adults to support and love children include loving touch, supportive and positive feedback, keeping promises, consistent discipline with learning moments, and regular routines. Adults will be better equipped to provide care and love when they recognize their triggers and cultivate ways to calm their emotional responses – self-regulation. The old advice of counting to 10 when angry with a child’s behavior was a simplistic approach to this principle.

The second principle, Strengthening Core Life Skills, is essential for success in school, work and community. These skills include self-regulation and executive functioning and are developmental. For example, a baby through age 3 learns to focus attention, respond to others and follow simple rules. Babies learn language by having regular verbal interactions with others and being read to. If the baby doesn't have these interactive experiences, these milestones are missed and must be acquired before the toddler can acquire new skills. The Appendix includes an outline of a number of protective factors based on a child's developmental stages – age 0 to adolescence.

The third principle, Reducing Sources of Stress, achieves multi-generational and community benefits. This benefit happens because children and adults develop healthy stress response systems, improved health and ability to learn, work and play. Assuring physical, psychological and emotional safety is the fundamental principle for reducing stress.

These protective factors are best understood in the context of three environments: the social-cultural environment, the physical/built environment and the economic environment.

- The social-cultural environment strategies include: rebuilding social relationships, particularly intergenerational relations, changing the narrative about the community and the people in it; organizing and promoting positive community activities; providing a voice and element of power for community folks around shifting and changing environmental factors as well as the structural factors; and promoting and restoring a connection to and sense of cultural identity.
- The strategies for the physical/built environment focus on reducing deterioration and creating space for positive interactions, reclaiming public space to be appealing to residents, reflective of community culture and a source of pride that can contribute to a sense of worth and healing. This is done by creating safe parks, improving housing quality, promoting arts and cultural expression and providing accessible transportation.
- The economic environment includes strategies to improve education and work opportunities for youth and adults, improving community health and wellness and to resist the pressures of dislocation and adverse effects of gentrification.⁽⁸⁾

While toxic stress and trauma may never be eliminated, the good news is that protective factors provide the possibility and hope that each person can move through the adversity and continue to thrive. Included in this document are examples of communities that have responded in resilient ways to the adversities that exist.

Emerging Practice: Benevolent Childhood Experiences

Our hope was to not only capture what is known and being practiced now but to keep sharing emerging practices both in this first publication and subsequent bi-annual updates. Dr. Erin Hambrick shared with us this insight from the Child Abuse & Neglect 78 (2018) p. 19 – 30. Narayan, Rivera, Bernstein, Harris & Liberman. <http://dx.doi.org/10.1016/j.chiabu.2017.09.022>

“Research has also focused on understanding how positive early life experiences may confer resilience in the context of adversity. Resilience investigators have identified several key favorable early experiences...The present study introduces the Benevolent Childhood Experiences (BCEs) scale (Narayan, Ghosh Ippen, Rivera & Liberman, 2015), a new instrument that assesses favorable experiences between birth to age 18 characterized by internal and external perceived safety, security and support; and positive and predictable qualities of life.

Benevolent Childhood Experiences

When you were growing up, during your first 18 years of life...

- 1) Did you have at least one caregiver with whom you felt safe?
- 2) Did you have at least one good friend?
- 3) Did you have beliefs that gave you comfort?
- 4) Did you like school?
- 5) Did you have at least one teacher who cared about you?
- 6) Did you have good neighbors?
- 7) Was there an adult (not a parent/caregiver or the person from #1) who could provide you with support or advice?
- 8) Did you have opportunities to have a good time?
- 9) Did you like yourself or feel comfortable with yourself?
- 10) Did you have a predictable home routine, like regular meals and a regular bedtime?

Five Specific Ways to Move The Neuroscience of Trauma Into Action

The good news: Neuroscience continues to learn and evolve almost daily. No doubt, this will inform not only what we KNOW but also inform the ACTIONS that can help stop the trauma or at least mitigate the effects of trauma and also help us all build healthier, stronger brains and thus, stronger communities.

The challenge: Aligning our systems, policies and practices to incorporate what we now KNOW into our ACTIONS.

Building on the Protective Factors discussed, following are five specific ways to move this neuroscience into action to help the brain recover (at least partially) from sustained trauma or toxic stress. The neuroscience knowledge will continue to broaden and deepen, which will expand our options for what we can do as individuals, as parents, as community members, as providers, as teachers, as policymakers to help mitigate what neuroscience has uncovered as an important root cause problem of long-standing challenges faced by our communities; toxic stress or sustained trauma.

Moving Into Action #1: Teach Emotional Regulation

What We Know: Dysregulated stress-response systems are toxic to the brain and the body.

Moving Into Action: Teach emotional regulation. The optimal time to teach emotional regulation is ages 0 – 30 months⁽⁹⁾. However, at any age learning to self-calm and self-regulate is important for helping move from the emotional center (fight, flight, freeze) to the executive center (where you can think better – though remember this is still developing in people until age 25 - 30). Telling someone to calm down doesn't work. Teaching someone a set of emotional regulating skills they can call upon when they feel themselves over-reacting does work.

What Does This Look Like and Sound Like? There are lots of options to choose from – creative and natural ways to enhance what we already do naturally to self-calm, such as repetitive motions or sighing, all based on the **rhythmic and repetitive** patterns that resonate with neural patterns. Think of the birth mother's heartbeat and breathing that the developing fetus experiences.

- Breathe slowly and deeply – notice your breath
- Repeat in your mind positive affirmations or mantras
- Think of something funny
- Stop and notice things around you such as colors, sounds, textures
- Visualize calm places and favorite things
- Think of someone that you care about
- Put on lotion/hand massage
- Touch each finger to your thumb on each hand repeatedly
- Have something small in your pocket that you touch – a touchstone
- Stretch
- Dance
- Drum
- Walk
- Skateboard
- Most musical activities – singing, humming, listening to music
- For infants, the power of play is critical with play being purposeful, voluntary, pleasurable in a non-threatening, low-stress context. Swaying and rocking are other rhythmic and repetitive regulating activities as are talking and reading to your infant.

Moving Into Action #2: Test cortisol levels and intervene with one-on-one coaching and parenting skills (and pay for this)

What We Know: Early trauma and toxic stress increase cortisol levels. Cortisol in excess damages your long-term health.

Moving Into Action: Test cortisol levels in children and their caregivers and intervene with one-on-one coaching and parenting skills. Catching high cortisol levels in caregivers (most likely many of whom experienced childhood trauma) and providing emotional regulation skills as well as teaching important attachment parenting skills can help us as a community mitigate the inter-generational nature of adverse childhood experiences. Many states now have a Medicaid code to pay for this. Kansas does not.

What Does This Look Like and Sound Like? ABC or Attachment Bio-Behavioral Check-up. Pilot sites in Kansas now trying the ABC intervention and seeing reduced cortisol levels in both caregivers and parents. Let's follow these, let's learn from these, let's implement policy and billing codes that support this early intervention treatment.

- Health/Homes
- Tele-counseling
- Pre-natal/parents stress management
- Peer mentorship stress reduction, etc.
- WIC, pre-school enrollment stress reduction/ coping/ resilience/ attachment/strengths

Moving Into Action #3: Provide safe relational experiences for everyone in our communities

What We Know: One strong meaningful relationship with a supportive parent, coach, teacher, caregiver or other adult can make a difference in a child's neural development even in the face of toxic stress and sustained trauma.

Moving Into Action: Provide safe relational experiences for everyone in our communities. All organizations that have contact with children and parents must implement trauma-informed practices. A starting point: Treat the child and parent like a team; go beyond the referral to a community agency or a set of services and treat the child and parent together in a holistic approach.

What Does This Look Like and Sound Like? Oftentimes the youth who most need safe, relational experiences don't have them at home and also, find themselves isolated in "normal" social situations. This is a lose, lose, lose situation (loss for the child, the family and our community.) As a community, let's create multiple pathways to safe relational experiences for our most vulnerable citizens. Our brains and long-term health depend on it.

- Provide connections to youth organizations that promote resilience, leadership and align with the trauma-informed principles of safety, trustworthiness, choice, collaboration and empowerment while embracing equity
- Encourage interaction with older school peers who know about and are skilled in resilient practices
- Youth sports teams that promote positive play, competition and sportsmanship
- Community centers that offer activities that promote resilience

Moving Into Action #4: Build resilience in individuals

What We Know: Building resilience in individuals can help mitigate the impacts of toxic stress and sustained trauma. Resilience, a trait that everyone possesses, can be taught and developed. Research on resilience indicates that there are multiple intersecting factors, such as having a supportive community, feeling valued, having a sense of belonging and being able to engage with others, and having access to basic necessities such as food, housing, education, employment and transportation.

Moving Into Action:

For Individuals:

- Promote healing practices such as mindfulness, yoga, exercise, nutritious foods, and healthy sleep routines
- Use historical, cultural rituals that promote well being
- Implement restorative practices in all child-serving organizations
- Promote and incorporate self-improvement opportunities into curriculum
- Create safe space in organizations for individuals to go to when they are dysregulated

For Organizations:

- Resilient organizations create person-centered, employee and client friendly policies and practices
- Focus on employee strengths, provide training and support for employees on resilience
- Recognize and provide support for employees and their families when they experience significant adverse events
- Think about client experiences through the lens of reducing their trauma and toxic stress

For Community:

- Build awareness about the neuroscience of trauma and where to seek help as needed
- Provide opportunities for crucial conversations and collective action that address poverty, discrimination, racism and historical trauma
- Provide safe spaces for play and to gather
- Provide economic opportunities for all citizens that promote quality of life

Moving Into Action #5: Create awareness of the neuroscience of trauma

What We Know: Supporting healthy and resilient people requires trauma informed and resilient practices throughout families, communities and organizations. Cultural changes occur based on the trauma informed principles of safety, trustworthiness, choice, collaboration and empowerment while embracing equity. Research and effective community and organizational practices are well established. Knowledge and skills that promote healing are practiced in a variety of communities.

Examples include the extraordinary and groundbreaking work in Wall Walla, WA; Peace4Tarpon, Tarpon Springs, FL; Alive and Well Communities, Kansas City and St. Louis; the states of Wisconsin and Tennessee. (Both of these states are preparing to become “Trauma-Informed States.”) Implementation of best practices has not yet reached a critical mass to tip the national culture to one of equity, healing and resilience.

Moving Into Action: Build awareness in your family, teams, organizations and communities about the neuroscience of trauma. We hope this begins with the sharing of this paper which includes a robust set of references and resources directed at specific systems in the next section and a general set of references at the end. In addition, electronic searches will yield additional resources that have been developed.

What Does This Look Like and Sound Like? Explore, implement and adapt available resources and add to the wealth of knowledge through publications, seminars, extensive and certified training and learning collaboratives. The efforts of Alive & Well Communities in Kansas and Missouri are a good place to start. A cadre of Community Ambassadors and the launching of Learning Collaboratives is happening now. For more information, visit <https://www.traumamatterskc.org/>



A Path Forward – Learning From Others

Cowlitz County, the state of Wisconsin and the city of Philadelphia have all realized that the solutions to some of our long-standing community problems center around:

- 1) First, understanding what neuroscience teaches us about brain development and the impact of sustained and, particularly, early life childhood trauma or toxic stress on the brain.
- 2) Second, knowing what neuroscience teaches about the role the 3 R's of Regulation, Relationships and Resilience play in buffering toxic stress and trauma.
- 3) Finally, implementing ways to:
 - a. Teach individuals and caregivers the 3 R's of Regulation, Relationships, and Resilience, thus helping to reduce the negative impacts of trauma on brain development; that is how to help oneself and help the individual struggling to manage the stress caused by the trauma. Be the role model – be the change.
 - b. Create protective factors that individuals, organizations and policymakers can put in place to help mitigate the impact that household toxic stress has on brain development.

The science is not new; data/research goes back to a groundbreaking study in 1998 that made known the prevalence of trauma. Furthermore, the Harvard Center for the Developing Child and others have identified important resilience factors. What is new is the understanding of the role of plasticity in repairing some of the brain damage caused by trauma and toxic stress as well as an understanding of how to do that. We now know how to put into place protective factors that help mitigate the trauma that, though we want to eliminate it, realistically we know will always exist to some extent.

The good news: The path to solving long-standing problems in our communities is clear and getting clearer; neuroscience is forging the way.

The challenge: Aligning our systems, policies and practices to incorporate what we now KNOW into our ACTIONS.

Cowlitz County, Washington

This community engaged parents and community members to raise awareness about the impact of trauma on brain development, helping the community see how that impact reverberated throughout its citizens. The community used what's called the Self-Healing Communities model to shift from a culture of illness, conflict and despair to a culture of self-healing. This model increased knowledge – and skills – so that key leaders could ensure trauma-informed care positively influenced a host of challenges, from juvenile justice and teen pregnancy to high school drop-out rates and infant mortality. Today, the community is a learning organization characterized by a rhythm of engagement that invites flourishing – continuous, steady growing into well-being.

Key results for Cowlitz County are cited below and it is noteworthy that other participating counties saw similar results.

- Births to teen mothers decreased by 62% from 1997 to 2006
- Infant mortality decreased by 43% from 1998 to 2006
- Youth suicide and suicide attempts decreased by 98% from 1998 to 2006
- Youth arrests for violent crimes decreased by 53% from 1997 to 2006
- High school drop-out rates decreased by 47% from 1998 to 2006

The return on investment produced stunning results for a small investment. “The budget for the Community Network partnership was on average \$3.4 million per year between 1994 and 2011. Per year avoided caseload cost in child welfare, juvenile justice and public medical costs associated with births to teen mothers were calculated to be \$27.9 million, based on prevented cases between 2001 and 2006. Because of the progressive nature of adversity and associated costs for public services throughout the life course, plus lost tax revenue from productivity loss, the taxpayer savings from the Community Network improved rates from 2002 to 2006 were conservatively estimated at an average of \$120 million per year.” (Schuler et al, 2009) This results in a cost/benefit ratio from 2002 to 2006 of 1:35. ⁽¹⁰⁾

State of Wisconsin

Thanks to the leadership, passion, and focus of First Lady Tonette Walker, Wisconsin has become a leader in addressing trauma and toxic stress. Wisconsin's governor and legislators resolved to make Wisconsin the first trauma-informed state in the U.S. Early results are encouraging. After one year, participating organizations reported the following results:

- 50% plus drop in births to teen mothers
- 98% drop in youth suicide and suicide attempts
- 90% drop in school suspensions, and the elimination of school expulsions
- Zero violent incidents in a juvenile detention facility
- Safe Babies Courts report that 99% of participating families/children no longer suffer abuse
- A 30% drop in emergency department visits

Further noted, at an organization that implemented trauma-informed practices throughout its workforce, a 5% drop in health insurance rates was achieved. The Wisconsin Economic Development Corporation reported a decrease in voluntary attrition from 21% in the previous year to 3% following the introduction of trauma informed employment practices. ⁽¹¹⁾

Oregon's Roadmap to Trauma Informed Care

Oregon has committed as a state to “promote prevention and to bring policies and practices into better alignment with the principles of trauma informed care.” To carry out that commitment, Trauma Informed Oregon (TIO) was created in 2014 to serve as a centralized source of information, resources and training about trauma, resilience, brain science and related topics for child- and family-serving systems, healthcare, and adult-serving behavioral health systems.

<https://traumainformedoregon.org/roadmap-trauma-informed-care/>

Philadelphia, Pennsylvania

The Philadelphia Department of Behavioral Health and Intellectual Disability Services partnered with the City of Philadelphia to create the Mural Arts Program, which partnered with local artists, mental health clients, service providers, local funders, and academic partners to create the Porch Light program. The program is designed to provide citizens a way to heal and to reduce the stigma that accompanies many of these struggles. The communities design and paint a mural that represents their collective story about overcoming conflict, stereotypes, discovering commonalities, accepting differences and healing. There are over 20 murals throughout Philadelphia that focus on issues related to wellness, faith and spirituality, homelessness, trauma, immigration, war and community tensions. Goals include:

- Increase access to resources
- Reduce personal stigma
- Develop skills to enhance resilience and recovery
- Improve the neighborhood physical environment
- Promote community and social inclusion
- Increase attention to determinants of health
- Use art as a catalyst for individual and social change ⁽¹²⁾



System Responses to Moving the Neuroscience of Trauma Into Action

For those in positions to touch the lives of children and those that provide care and nurturing to children, following is a list of current best practices as captured by the 29 individuals we assembled for the August 22, 2018 focus group. We are certain this list is not comprehensive but certain it is a good starting point for considering as you begin to rethink your actions in light of what we now know about the neuroscience of trauma and brain development

Again, we hope to add to this section through our semi-annual updates to this document and welcome your input and insights. The systems covered include:

All Systems	page 33
Early Childhood Development Systems	pages 33 – 34
School Systems	pages 35 – 36
Integrated Healthcare Systems	pages 37 – 38
Child Welfare Systems	pages 38– 39
Juvenile Justice Systems	pages 40 – 41
Adult Correctional Systems	pages 41 – 43
Public Health Systems	page 43
Law Enforcement Systems	pages 44 – 45
Organizational Systems	pages 46

All Systems

- 1) Bring trauma-informed practices and policies into all systems. Teach communities, organizations, policymakers, leaders and community members a common language for talking about trauma and resilience.
- 2) Consider the impact of trauma in all discussions and change the conversation for those struggling from “What is wrong with you?” to “What has happened to you?”
- 3) Actively work to reduce stigma and avoid re-traumatization.
- 4) Utilize appropriate screening tools such as the ACEs to screen and assess for trauma as youth and families are entering into a system.
- 5) Assess for secondary trauma in all staff working in systems and have tools in place to address secondary trauma and resilience with those working with traumatized individuals.

Early Childhood Development Systems

Four Top Ways to incorporate the neuroscience of trauma into this system

- 1) Teach emotional regulation to staff, students, and caregivers and incorporate this into classroom and school management.
- 2) Encourage parent/caregiver involvement – train, support, teach – include them at every point, Include home visits when possible.
- 3) Have resources available for families to address the Pair of ACES. Develop collaborative relationships with community agencies such as churches, neighborhood coalitions, child care centers, food pantries, etc. Provide home visitation for education and child abuse prevention to all families and at different levels of need. There are also a spectrum of home visitation/education/prevention services already in place.
- 4) Utilize best practices to teach early educators’ skills to actively reframe children’s behaviors as attempts to feel safe and in control. Skills building should include appropriate interventions for behaviors that avoid “if-then” consequences, but rather build needed skills needed by the child.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Teach self-regulation for babies/parents/older siblings.
- 2) Connect with supporting day care, churches, neighborhood coalitions, home day care, licensing organizations, babysitters.

- 3) Educate pediatricians and clinic staff.
- 4) Teach the Perry Neuro-sequential model, when appropriate.
- 5) Implement full-day kindergarten.
- 6) Provide home visitation for education and child abuse prevention to all families and at different levels of need. There are a variety of home visitation/ education/ prevention services already in place.
- 7) Build early educators' skill to actively reframe children's behaviors as attempts to feel safe and in control prior to formulating a response.
- 8) Support teachers' early self-identification of their own stress being triggered in the education setting by promoting their own time outs as health promoting.
- 9) Restore and sustain staff wellbeing with sabbaticals, continuing ed, mindfulness, etc.
- 10) Be a role model > story telling > go first.
- 11) Look for ways to expand healing centered options – collective wellbeing.
- 12) Find ways to grow creativity, dreaming and reflection.

“What’s going on in the metro?” others need to know about

- Turning Point, a community resource of the University of Kansas Health System
- Lemons to Lemonade

In Wyandotte County:

- The Family Conservancy just received a grant for up to \$1 million/year for 3 years (with a required local match) to expand quality, full-year, full day daycare
- Funding is being provided for Pre-K throughout school district

References for Early Childhood Development

Greene, Ross. “Kids Do Well If They Can.” Phi Delta Kappan, November 2008, pages 160 – 167

“School Aged Development Milestones,” Children’s Therapy and Family Resource Center.

Sporleder, Jim and Heather Forbes. The Trauma-Informed School, 2016

“Understanding Social and Emotional Development in Preschoolers”, Kristin Stanberry.

School Systems

Four Top Ways to incorporate the neuroscience of trauma into this system

- 1) Create a safe community for learning. Teachers need to be provided time to build relationships with students to assure them they are cared for.
- 2) Utilize creative alternatives to traditional discipline. Teach emotional regulation to help kids learn to manage their behaviors. Shift mindsets from “Kid do well if they want to” to “Kids do well if they can.”
- 3) Allow youth to have control over choices when possible. Traumatized youth have little control over their lives and even offering small choices helps to rebuild that sense of control.
- 4) Encourage teachers and all school staff to look for times when kids are doing well. Highlight and celebrate successes.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) At the elementary level, have teachers, administrators and para-professionals spend the first few days with students interacting and developing relationships. Educators should learn about each of the students and help them learn about each other. All school personnel should create a safe community for learning.
- 2) Shift from “if, then consequences” to “building missing skills – and do this before they need it if possible.” For example, teach emotional regulation and incorporate it in classroom management.
- 3) Bring awareness to staff; shared language; informed policies and practice; cultivate learning and grace; pair first-year teachers with mentors.
- 4) Implement self-study, self-care, self-regulation, and self-reflection.
- 5) Implement universal skill building outside of incident; destigmatizing behavior with targeted skill building as needed. (ALSUP)
- 6) Utilize trauma-informed supervision/debrief sessions to provide learning opportunity for staff/students.
- 7) Engage community stakeholders and resources as trauma-informed programs are developed.
- 8) Look for opportunities for ethical, moral, and emotional aspects of healing.

“What’s going on in the metro?” others need to know about

- 1) USD 500: Kansas City Kansas Public School District is working with KVC Health Systems to become a trauma-informed school district over the next three years. The District has received a \$175,000 grant for the first year of work and is working to raise another \$125,000. The funder committing \$175,000 intends to fund an additional two years.
- 2) The Northland Coalition has created a Handle with Care initiative, a partnership among law enforcement agencies and schools in Clay, Platte and Ray Counties. School district staff are trained on the impact of trauma and follow simple protocols when they are informed by law enforcement that a child was present when law enforcement arrived at a particular address. (For more details, see the section on Law Enforcement Systems)

References for School Systems

Fostering Resilient Learners, Kristin Souers and Peter A. Hall, ASCD, 2016

Greene, Ross. “Kids Do Well If They Can.” Phi Delta Kappan, November 2008, p. 160 – 167

Growth Mindset, www.mindsetworks.com/science

“Help for Billy: A Beyond Consequences Approach to Helping Challenging Children in the Classroom”, Heather T. Forbes, LCSW, Beyond Consequences Institute, LLC, 2012

No-drama Discipline, Daniel J. Siegel and Tina Payne Bryson, 2014

Northland Trauma-sensitive school SOP: <https://northlandcoalition.com/handle-with-care-resources>

“Paper Tigers” movie. Trailer: https://www.youtube.com/watch?v=KdDr_nZOIXc

Play: How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul, Stuart Brown and Christopher Vaughan, 2009

Reaching and Teaching Children Exposed to Trauma, by Barbara Sorrels, Gryphon House, June 2017.

Sporleder, Jim and Heather Forbes. The Trauma-Informed School, 2016

“The Whole-Brain Child: 12 Revolutionary Strategies to Nurture Your Child’s Developing Mind”, Daniel J. Siegel and Tina Payne Bryan, 2012

Trauma Sensitive Schools for the Adolescent Years, Susan E. Craig, Teachers College Press, 2017. www.traumasensitiveschools.org

Trauma Stewardship, Laura van Dernoot Lipsky and Connie Burk, 2007

www.Mindfulschools.org – restorative justice

Integrated Healthcare Systems

Four Top Ways to incorporate the neuroscience of trauma into this system

- 1) From the American Academy of Pediatrics: the scientific knowledge base that links toxic stress with future impairments in learning, behavior, and both mental and physical health, should be incorporated into the training and education of all physicians.
- 2) From the American Academy of Pediatrics: pediatricians should adopt a leadership role in educating parents, teachers, child care providers, policymakers, civic leaders and the general public on the long-term effect of toxic stress and trauma.
- 3) From the American Academy of Pediatrics: pediatricians should be vocal advocates for evidenced based interventions for reduction of the sources of toxic stress and to mitigate their adverse effects on children. The Academy issued a policy statement in 2011 (see link below in references) with five specific recommendations for actions by pediatricians.
- 4) Universally screen for the Pair of ACEs and suicide risk and collaborate with community agencies to assure identified issues are addressed.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Advocate for reimbursement (private insurance, Medicaid, Medicare, other state and federal funding) for implementing this work.
- 2) Advocate for reimbursement by Medicaid for behavior health Evidence-based practices for trauma
- 3) Screening: Develop, adopt and utilize one or two universal questions
- 4) Develop physician champions like
 - i. Nancy Hardt, MD NHardt@gmail.com
 - ii. Heidi Miller, MD – Adults (St. Louis, MO)
 - iii. Heather Forkey, MD, Pediatrics (national)
- 5) Build healthcare providers' skills to listen and actively reflect patients' concerns through a lens of safety and control
- 6) Build providers' capacity to identify their own stress and responses to their clients and environments. Build capacity to self-regulate to assure best healthcare practices

“What’s going on in the metro?” others need to know about

- 1) Five pilots in Kansas of the Attachment Bio Behavioral Check-up (ABC) from the University of Delaware. This is an evidence-based practice that checks the cortisol levels in children (0 – 1 year and 1 – 4 years) and their parents. Those with high cortisol levels receive in-home training on how to interact with their child in positive ways through play and every day activities. (Note: Remember a key protective factor to mitigating the effects of trauma, even inter-generational trauma, is one strong positive caregiver relationship.)
 - a. Five pilot programs in Kansas are currently in year 2 of a 3-year pilot
 - b. Other states have developed a Medicaid code for this testing and treatment.
- 2) Wyandotte County “Safety Net Clinics” had a grant opportunity (awards to be determined late Sept.) to complete an organizational assessment of policies & procedures to determine if they’re trauma sensitive & to develop a plan of work to achieve the goal of providing trauma-informed care in all facets of their work.

References for Healthcare Systems

<http://www.kscourts.org> – Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science into Lifelong Health

Trauma-Informed Assessments for Agencies; Wisconsin: TIC for Residential Treatment Providers

Child Welfare Systems

Four Top Ways to incorporate the neuroscience of trauma into this system

- 1) The child welfare system needs to shift the goals of safety and permanency to include healing from the trauma experienced. This should include improved caseworker and foster caregiver training.
- 2) Collaborate with community organizations with which youth are already involved with to assure whole person healing is occurring and to assure all systems are aware of the youth’s experiences.
- 3) Generational trauma must be addressed. The whole family needs to be involved in the healing process if they are involved in the child welfare system.
- 4) Early interventions are key to recovery. Utilize opportunities to help families heal at the earliest stages of their introduction to the child welfare system.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Require neuroscience-based training for caseworkers and foster caregivers
- 2) Reduce dysregulating transitions in children's daily life. (schools, placements, sibling separations, caregiver visits, caseworker turnover)
- 3) Prevent re-traumatization; really vet foster caregivers, highly supervise caregiver visits
- 4) Implement trauma-informed language and framing in all case conferencing
- 5) Build case managers skills to actively reframe youth's current behaviors and choices as attempts to be in control and feel safe when planning for future
- 6) Review rules and practices in the light of neuroscience – how might an adult or child's brain react to this rule? How might it act as a barrier to reaching agreed upon goals? And consider eliminating unnecessary restrictions.

“What's going on in the metro?” others need to know about

- 1) “Conscious Discipline” (Bailey, Becky A.) in adoption – KVC, hospital, school, etc.

References for Child Welfare Systems

Child Welfare Information Gateway. (2015). Developing a trauma-informed child welfare system. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau

Neuro-sequential Model in Caregiving (Child Trauma Academy) - good for caregiver training. Dr. Erin Hambrick, UMKC, is happy to do trainings and offer train-the-trainer.

Juvenile Justice Systems

Four Top Ways to incorporate the neuroscience of trauma into this system

- 1) There are many evidence-based, trauma-informed practices for the Juvenile Justice system. It should be an expectation of all juvenile justice systems to utilize one of these practices for how the agency does business on a day-to-day basis.
- 2) Begin evidence-based trauma-focused treatment for youth in juvenile justice. Data tells us these children have experienced trauma.
- 3) Collaboration with school districts and child welfare agencies to focus on keeping youth in schools and their homes rather than suspension and out-of-home placement as primary options unless child safety is the primary concern.
- 4) Assure juvenile/correctional staff are well trained in de-escalation techniques and self-regulation to avoid re-traumatizing juveniles.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Encourage judges to use the "NCTSN BENCH CARD, found in the "kscourts" footnote under citations in this section. This paper by the National Child Trauma Stress Network, "NCTSN BENCH CARD for the trauma-informed judge" contains guidelines to help judges make decisions based on scientific findings in the traumatic stress field.
- 2) Implement treatment programs in the juvenile justice environment focusing on safety and gaining control over intense reactions, impulsive behavior and self-destructive thoughts. The National Child Traumatic Stress Network (2008) found that over 75% of youth in the juvenile justice system have experienced traumatic victimization and that over 50% developed trauma symptoms. When thinking about the four sentencing goals often associated with the justice system (retribution, incapacitation, deterrence and rehabilitation), the goal of rehabilitation fits well with what neuroscience is teaching us.
- 3) Implement mental health screenings and assessments of all youth in the juvenile justice system, including measures of traumatic events and trauma-related symptoms.
- 4) Begin evidence-based, trauma-focused treatment when a youth in juvenile justice demonstrates a trauma-related symptom.
- 5) Consider the impact for trauma before diagnosing a youth with a mental illness.
- 6) Implement trauma-informed treatment including the TARGET program that teaches a sequence of practical self-regulatory skills. Youth and staff are responsible for learning how to self-regulate.
- 7) Implement trauma-informed care training of juvenile justice staff.

- 8) Implement partnerships for coordination of care among family members, the juvenile offender, the courts, health care and social services providers.
- 9) Provide self-care, self-regulation skills for all staff and offenders.

“What’s going on in the metro?” others need to know about

- 1) SB 367 eliminated detainment for non-felonies and dramatically reduced out of home placements
- 2) Implementing Positive Behavior Support (PBS) in Johnson County Juvenile Detention Center. The plan is to implement in Field Services
- 3) County-wide (Johnson County) PBS being implemented

References for Juvenile Justice Systems

http://www.kscourts.org/court-administration/Legal_Institute_on_Adverse_Childhood_Exp/default.asp

The site has links to numerous papers and reports offering specific actions steps from organizations such as American Academy of Pediatrics, American Bar Assoc., Kansas Power of the Positive, National Child Traumatic Stress Network, and many more.

Bailey, Becky A. “Conscious Discipline”

Burrell, S. (August 2013). Trauma and the Environment of Care in Juvenile Institutions. Los Angeles, CA & Durham, NC: National Center for Child Traumatic Stress.

Griffin, Gene, Edward Germain and Raymond Wilkerson (2012). Using a Trauma-Informed Approach in Juvenile Justice Institutions. *Journal of Child & Adolescent Trauma*; 5:3, p. 271-283.

Ten Things Every Juvenile Court Judge Should Know about Trauma and Delinquency

Adult Correctional Systems

Three Top Ways to incorporate the neuroscience of trauma into this system

- 1) **Implement staff awareness training.** Increase awareness of the high incidence of staff and inmate trauma. If trauma-informed principles are introduced, all staff can play a role in minimizing triggers, reducing critical incidents, de-escalating situations, and avoiding restraints, or other measures that may repeat aspects of past abuse. In addition to general trauma-informed principles, clinical staff can provide trauma-specific therapies and curricula that are designed to promote trauma recovery.

- 2) **Prevent episodes of re-traumatization.** Develop a “do no harm” approach; treat with respect; Staff may inadvertently re-enact the traumatic dynamics of someone’s past, triggering a negative behavioral response. Correctional staff also have much higher incidences of traumatic stress. Learning the trauma-informed principles will also help staff become aware of their own vicarious trauma that is sometimes associated with institutional trauma.
- 3) **Treat the trauma.** Treatment and rehabilitation are more successful in reducing recidivism than surveillance and enforcement. Institutions are sometimes unwilling to respond using trauma-informed interventions because there is the perception that it is “pandering” to the inmates we serve. In reality, the use of trauma-informed principles can provide a foundation that strengthens the prison setting to provide effective help in increasing pro-social coping skills, creating a calm and safe prison environment, reducing adverse events, and aiding staff morale, all of which can lead to better offender rehabilitation outcomes.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Provide trauma-informed care training for all staff in Johnson County Department of Corrections
- 2) Establish a Young Adult Court as a specialty court to address adults between 17/18 and 22-25 who have brains that are not fully developed.
 - a. The courts should address offenses through diversion and use of treatment resulting in elimination of charges and thereby long-term stigma/consequences of a criminal record (employment/housing/etc.)
 - b. The nearest court with this in place is Omaha, NE
 - c. This could be improved by recognizing the trauma in these young people

“What’s going on in the metro?” others need to know about

Positive Behavior Supports is being utilized in the Johnson County Department of Corrections (adult and juvenile); Mental Health Centers; Developmental Supports; Juvenile Services Center; and Adolescent Center for Treatment (ACT)

References for Correctional Systems

Epperson, M. Wolff, N., Morgan, R., Fisher, W., Frueh, B.C., Huening, J. (September 2011) The Next Generation of Behavioral Health and Criminal Justice Interventions: Improving Outcomes by Improving Interventions. New Brunswick, NJ. Rutgers, Center for Behavioral Health Services & Criminal Justice Research

Miller, N.A. and Najavits, L.M. (March 2012) Creating Trauma-Informed Correctional Care: A Balance of Goals and Environment. New Hampshire Department of Corrections, Concord, NH, USA; VA Boston Healthcare System, Boston University School of Medicine, Boston, MA, USA, Coaction Publishing.

<https://www.bja.gov/Publications/NRCJIW-UsingTraumaInformedPractices.pdf>

Public Health Systems

Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Integrate ACEs assessment and trauma-informed care into home visitation programs
- 2) Integrate the inquiry regarding trauma exposure into clinical services
- 3) Provide training on trauma and how to support clients/staff
- 4) Implement customer service approach "How may I help you? What has happened and how can I help?" to give clients back a sense of safety and control
- 5) As with children, most adults are just doing the best they can to navigate the world and get their needs met; Remember and offer grace
- 6) Provide a safe place for staff who are struggling with difficult clients or stress to express their feelings and feel supported
- 7) Recognize the neuroscience of trauma as the public health crisis it is

"What's going on in the metro?" others need to know about

- 1) AIM4Peace (Kansas City Missouri Health Department). Aim4Peace is a public health approach to reduce shootings and homicides. Aim4Peace uses highly-trained violence interrupters and outreach staff, public education campaigns, Neighborhood Action Teams and community mobilization to reverse the violence epidemic in Kansas City, MO. Aim4Peace focuses on the neighborhood factors that most often contribute to violence, helping those who are considered at highest risk of committing offenses due to their living or employment situation." (read more at kcmo.gov/health/aim4peace)
- 2) Wyandotte County Health Department had 100% of their staff trained on trauma and its impact during 2017
- 3) Public health departments are continuing to strengthen their work on improving social determinants of health. They will need to continue this work and incorporate neuroscience discoveries as they do.
- 4) Encouraging trauma-informed care training in all health care systems

References for Public Health Systems

<http://www.kansaspowerofthepositive.org/> (Kansas Department of Health and Environment)

Law Enforcement Systems

Four Top Ways to incorporate the neuroscience of trauma into this system

- 1) Law enforcement systems should be educated on the environmental factors that impact the effects of trauma such as generational trauma, poverty and race inequity.
- 2) Understand, collaborate and link with community resources to minimize the proliferation of on-going trauma and to provide appropriate supports to the community.
- 3) Have extensive supports in place for law enforcement to deal with their own trauma and secondary trauma. Address the stigmas surrounding this to create safe environments for law enforcement personnel to address their own trauma.
- 4) Crisis Intervention Team (CIT) training provided in all law enforcement agencies to improve understanding of mental illness and trauma and to reduce stigma.

Additional Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) In addition to trauma awareness training, officers should receive neuroscience of trauma and physiological responses from individual and community trauma.
- 2) In addition to trauma awareness training, officers should receive training on the neuroscience of trauma and secondary trauma.
- 3) Law enforcement agencies should understand and link with community resources to minimize the proliferation of on-going trauma and to fully understand the long-term effects of the dynamics in the community.

“What’s going on in the metro?” others need to know about

- 1) The Northland Handle with Care initiative, built upon the success of other initiatives across the country, improves communication between law enforcement and schools in Clay, Platte, and Ray counties. Law enforcement officers are trained to note when children are present at the location of a call. They simply submit only the child’s address in the Handle with Care alert system. This alert initiates a “Handle with Care” notification to a designated person at the appropriate school district. School districts are trained on the impact of trauma and follow a simple protocol of notifying appropriate staff, providing additional observation and extra support. No direct action is taken with the child unless warranted.
- 2) Emotional Survival for law enforcement
- 3) Building Resilience: Survivors Secondary Trauma Training for all staff: Corrections, Law Enforcement, Probations

- 4) Crisis Intervention Training
- 5) Co-Responding to calls involving children witnessing/experiencing Trauma
 - a. Officers and social workers partner to respond to or follow up on kids exposed to trauma
 - b. Based on 22-year program in Mecklenburg, North Carolina
 - c. Possible pilot program in Kansas City Police Department in the works
- 6) Kansas City has a full-time social worker assigned as a police department employee to each station to handle any issue identified that could be improved through social services

References for Law Enforcement Systems

IACP Toolkit: Enhancing Police Responses to Children Exposed to Violence

IACP 2-Day Training on Response to Children Exposed to Violence

Both resources at: www.theiacp.org/Children-Exposed-to-Violence<<http://www.theiacp.org/Children-Exposed-to-Violence>>

Mecklenburg, NC Project on Child Development-Community Policing trauma response teams: <https://www.mecknc.gov/HealthDepartment/CommunityHealthServices/TJP/Pages/CD-CP.aspx>

Model Practice for LE Response: First Do No Harm at http://strategiesforyouth.org/sfysite/wp-content/uploads/2012/09/First_Do_No_Harm_Report.pdf

Service System Brief: Trauma-Informed Law Enforcement: <https://www.nctsn.org/resources/service-systems-brief-creating-trauma-informed-law-enforcement-system>

West Virginia Handle with Care Initiative: <http://www.handlewithcarewv.org/handle-with-care.php>

Yale Child Study Center, Childhood Violent Trauma Center: <https://medicine.yale.edu/childstudy/communitypartnerships/cvtc/>

Organizational Systems (for Staff)

Focus Group Insights on incorporating the neuroscience of trauma into this system

- 1) Incorporate Neuroscience:
 - a. All leaders need to be trained in neuroscience and toxic stress and understand how and why they need this.
 - b. Train staff so that they are trauma aware.
 - c. Teach ongoing skills for regulation/mindfulness etc. Attend to staff wellness.
- 2) Examine how communication and staff change practices may affect safety/control of employees and supervisors and modify if needed.
- 3) Engage intentional “recognition as human beings” opportunities among staff to build connections between staff unrelated to work to act as a bridge in stressful/tense times.

“What’s going on in the metro?” others need to know about

- 1) Many wellness initiatives here have been implemented in the metro through the KC Chamber and partners – Healthy KC effort
- 2) Organizations are starting to ask for help with trauma and trauma-informed training
- 3) Alive and Well Communities was formed January 1, 2018 when Trauma Matters KC came together with Alive & Well STL. This new non-profit organization’s mission is to “Activate Communities to Heal.”
- 4) Metro area businesses provide incentives to staff for Healthy Choices

References for Organizational Systems

www.wearehealthykc.com

<https://www.traumamatterskc.org/>

www.aliveandwellstl.com



A Call to Action for Policymakers

What can those in local and state governmental roles do? Following are suggestions that we have come across as we have listened and worked with those implementing trauma-informed practices.

- Learn about the impact of toxic stress, adverse childhood experiences, trauma-informed practices and resilience on your communities and state.
- Learn what your communities and organizations are doing to create healthy and resilient citizens. Know and connect with the resources and experts in your local area.
- Learn what is needed to effect change and ask what you can do to help with funding, policy, regulation and/or legislation.
- Promote collaboration and collective action within communities.
- Host a convening, briefing, or conference for your colleagues, the press/media, lawmakers, and your community to find out about neuroscience and the impact of toxic stress and trauma.
- Recognize early trauma/toxic stress as the public health crisis that it is given its negative impact on long-term physical and mental health as well as risky behaviors and life potential. Understand the brain healing recommendations that neuroscience has uncovered so far.
- Stay engaged and informed as the scientists continue to learn about the brain and the impact of trauma, as well as discover new ways to prevent, intervene and treat trauma exposed children and families.

Our Call To Action For All Readers

If you would like to contribute to this work of knowledge and practice, please email one or both co-authors with your additions. We plan to publish bi-annual updates with new information we receive in hopes of continuing to grow the knowledge and application of the neuroscience of trauma.

With regards,

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Queen Hill	Great Circle
Judy Hughey	Kansas State University
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Darren Ivey	Kansas City Police Department
Lougene Marsh	Johnson County Health & Environment
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Mike Russell	Wyandotte County Judge
Beth Sarver	Breathing Room Kansas City
Ave Stokes	Alive & Well Communities
John Stump	Licensed Practitioner, Retired
Terry Trafton	Comm Care
Jamie VanCompernelle	Healthy Families
Kara White	Tri-County Mental Health Services
Janie Yannacito	Johnson County Mental Health Center

Footnotes

- (1) Felitti VJ, Anda RF, Nordenberg D, et al. 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(4): 245–258, 1998.
- (2) https://www.cdc.gov/violenceprevention/cestudy/about_ace.html
- (3) “The Pair of ACEs, developed by Wendy Ellis, Building Community Resilience, George Washington University, 2017.”
- (4) “Philadelphia Urban ACE Study,” The Research and Education Group of the Public Health Management Corporation, Philadelphia, Pa., September 18, 2013.
- (5) “Adverse Childhood Experiences Among Kansas Adults, 2014 Kansas Behavioral Risk Factor Surveillance System” Kansas Department of Health and Environment, March 2016
- (6) De Bellis, Michael, Matcheri Keshavan, et al. Developmental Traumatology Part II: Brain Development. *Biological Psychiatry*. 1999, 45: 1271-1284.
- (7) 3 Principles to Improve Outcomes for Children and Families,” lead author, Steven D. Cohen, The Center on the Developing Child at Harvard Center, October 2017.
- (8) “Adverse Community Experience and Resilience,” Principal Authors, Howard Pinderhughes, Rachel A. Davis, Myesha Williams. Kaiser Permanente.
- (9) David Sousa, How the Brain Learns.
- (10) “Self-Healing Communities”, by Laura Porter, Kimberly Martin, Robert Anda, June 2016, Commissioned by Robert Wood Johnson Foundation.
- (11) “Wisconsin State Agencies End Year One of Trauma Informed Learning Communities: Goal is to be First Trauma Informed State,” posted on ACEs Connection by Jane Stevens, 9/11/17.
- (12) “Painting a Healthy City: The Porch Light Program Replication Manual,” City of Philadelphia. 2013”



Appendix

What Neuroscience Tells Us About Protective Factors

20 years of Neuroscience confirmed and reconfirmed that toxic stress and adversity changes the brain as well as the immune system and hormonal system. In an ideal world, all childhood toxic stress and adversity would be gone. Realistically, childhood toxic stress and adversity are not going away. The gift of neuroscience is that it not only points us to the root cause impact of toxic stress and adversity but it also begins to help us understand how the brain can be repaired or at least partially repaired to help mitigate the impact of toxic stress and trauma.

In the Appendix is an outline of a number of protective factors based on children's developmental stages. What we do know is that over and over again, **neuroscience has confirmed that the number one protective factor is that children always have a caring and nurturing adult throughout their life.**

Child's Age: 0 – 3 years

Social Emotional Development Stage

- Basic needs of food, clothing, shelter met
- Serve and Return communication patterns established
- Having quality experiences that promote learning
- Becoming attached to parents, family

Opportunities to support emotional regulation

- Spending time with parents, extended loving family members
- Having someone talk to them, showing expressions for being happy, sad, angry, naming those feelings
- Being read to, experiencing music, movement, dance, play
- Being hugged, gently touched, rocked

Creating Emotional Intelligence

- Respond to the baby's cues
- Stay calm to teach self-soothing
- Establish routines for bedtime, meals, etc.
- Encourage and support independence (around 2 years)
- Offer ways for the toddler to express emotions by doing-throwing a ball, running in place, ripping paper
- Promote sharing and taking turns
- Encourage the toddler to make friends
- Put words to thoughts and feelings-this promotes learning empathy
- Show empathy by offering comfort, explaining feelings

Child's Age: 3 – 4 years

Social Emotional Development Stage

- Knows their name, age and gender
- Takes care of personal needs-washing hands, getting dressed
- Enjoys helping with household tasks
- Adjust to new situations without an adult being present
- Starts to notice other people's feelings and moods
- Recognizing personal limits and asks for help
- Takes turns, shares, and cooperates

Opportunities to support emotional regulation

- Explore opportunities for the child to interact with others
- Respond when the child is acting on their feelings and provide coaching/teaching ways to respond to feelings with words
- Help the child learn to calm and soothe when upset

Creating Emotional Intelligence

- Provide structure and daily routines at home
- Encourage and promote mastery of basic skills: getting dressed, grooming, helping around the house
- Make sure the child has opportunity to talk with adults
- Make sure the child plays with other children
- Play games that require the child to take turns, cooperate with others, wait and learn to win and lose.

Child's Age: Elementary School Age

Social Emotional Development Stage

- Spends time talking with peers
- Likes playing with others
- Develops lasting friendships
- Begins to learn to handle peer pressure
- Demonstrates growing independence
- Uses problem solving, negotiating and compromising skills with peers
- Develops interest in long range projects
- Develops sportsmanship and learning about winning and losing gracefully
- Becomes sensitive to what other think of them and to adult approval
- Joins clubs and groups
- Begins to evaluate own performance
- Will work hard to develop a skill
- Develops competitiveness
- Can express subtle emotions and experience moments of anger and frustration
- Can change emotions quickly

Opportunities to support emotional regulation

- Be affectionate and honest with the child
- Provide opportunities for learning about self and the world
- Help the child understand and respond to peer pressure
- Help the child develop their sense of right and wrong
- Provide consistent routines and explain changes in advance where possible

Creating Emotional Intelligence

- Encourage joining clubs and sports teams
- Meet the families of the child's friends
- Talk about normal changes in physical and emotional changes as the child ages
- Provide opportunities to learn from dramatic activities
- Provide toys like Legos, puzzles, building materials
- Promote art and music
- Provide restorative circles
- Provide outdoor play and experiences with nature

Child's Age: Adolescence

Social Emotional Development Stage

- Executive functioning begins to mature
- Increases in risk taking, novel experiences
- Peers become more important than family
- Increased need for independence
- Changes in the limbic system exert more influence on the brain sometimes leading to “over the top” emotional responses
- Increased ability for planning and goal directed behavior
- Increased ability to manage time, sequence, and determine necessary steps to achieve goals
- Increased ability to be empathic towards others

Opportunities to support emotional regulation

- Model ways to show interest in others
- Engage students in STEM subjects, literature, art, music, and physical education
- Be available to listen to concerns
- Demonstrate respect

Creating Emotional Intelligence

- Implement restorative practices into schools and other youth serving organizations
- Explore behavior with curiosity rather than judgment
- Publicly acknowledge the adolescent when they help, complete goals, demonstrate excellence
- Promote lifelong wellness habits
- Promote self-reflection
- Provide opportunities for adolescents to explore areas of interest
- Help adolescents explore other cultures and opportunities to reflect on their experiences

Additional References and Resources

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- *Trauma-Informed Assessments for Agencies; Wisconsin: TIC for Residential Treatment Providers*
- Van Der Kolk MD, Bessel, "The Body Keeps the Score."
- <https://besselvanderkolk.net/index.html>

Key Links

- http://www.kscourts.org/court-administration/Legal_Institute_on_Adverse_Childhood_Exp/default.asp

The site has links to numerous papers and reports offering specific actions steps from organizations such as American Academy of Pediatrics, American Bar Assoc., Kansas Power of the Positive, National Child Traumatic Stress Network, “NCTSN BENCH CARD for the trauma-informed judge” Ten Things Every Juvenile Court Judge Should Know about Trauma and Delinquency

- <https://www.bja.gov/Publications/NRCJIW-UsingTraumaInformedPractices.pdf>
- For a number of resources on brain development, attachment, and trauma – see Dr. Dan Siegel at <http://www.drdansiegel.com/home/>
- IACP Toolkit: Enhancing Police Responses to Children Exposed to Violence
- IACP 2-Day Training on Response to Children Exposed to Violence
- Both resources at: www.theiacp.org/Children-Exposed-to-Violence<<http://www.theiacp.org/Children-Exposed-to-Violence>>
- Mecklenburg, NC Project on Child Development-Community Policing trauma response teams: <https://www.mecknc.gov/HealthDepartment/CommunityHealthServices/TJP/Pages/CD-CP.aspx>
- <https://medium.com/@ginwright/the-future-of-healing-shifting-from-trauma-informed-care-to-healing-centered-engagement-634f557ce69c>
- Model Practice for LE Response: First Do No Harm at http://strategiesforyouth.org/sfysite/wp-content/uploads/2012/09/First_Do_No_Harm_Report.pdf
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- Service System Brief: Trauma-Informed Law Enforcement
- <https://www.nctsn.org/resources/service-systems-brief-creating-trauma-informed-law-enforcement-system>
- West Virginia Handle with Care Initiative: <http://www.handlewithcarewv.org/handle-with-care.php>
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- Yale Child Study Center, Childhood Violent Trauma Center:
- <https://medicine.yale.edu/childstudy/communitypartnerships/cvtc/>
- Resilience documentary
- Trauma Stewardship
- Paper Tigers documentary