Prevention, Intervention, and Policy Strategies to Reduce the Individual and Societal Costs Associated with Adverse Childhood Experiences (ACEs) for Children in Baltimore City

By Elizabeth Thompson, PhD, and Joan Kaufman, PhD

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ABELL FOUNDATION

Dedication

This report is dedicated to Professor Edward Zigler—the "Father of Head Start"—who passed away on February 7, 2019 after working as an advisor on children's issues for every president from Lyndon B. Johnson to Barack Obama. This report was inspired by his career, and we hope it will be used to contribute to his legacy and his lifelong mission of improving the lives of vulnerable children and their families.

—The Authors

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Executive Summary

Traditionally defined, Adverse Childhood Experiences, or ACEs, include experiences of child maltreatment and other family problems such as domestic violence and parental incarceration. These ACEs are common, frequently co-occur, and are associated with a whole host of negative social outcomes, health risk behaviors, psychiatric and substance use disorders, and medical health problems. This report reviews the state of the science on programs designed to prevent ACEs and mitigate their negative effects, and surveys the Baltimore City landscape in terms of prevalence of ACEs and the availability of interventions to address ACEs.

In recent years, there has been a burgeoning of research on the role of Adverse Community Environments (e.g., poverty, violence, discrimination)—the other ACEs—which increase exposure to the traditional ACEs, exacerbate the negative impact of the traditional ACEs, and also independently contribute to health disparities. Novel interventions designed to impact poverty, violence, and discrimination are also highlighted in this report.

The survey of the Baltimore City landscape identified a wide array of services designed to prevent and mitigate the negative effects of both the traditional and community-level ACEs in Baltimore. The work in the city incorporates a public health perspective. In addition to specific trauma-focused treatments subsequent to ACE exposure(s), the city offers a broad spectrum of prevention, early intervention, and resilience-promoting programs. There has been widespread dissemination of multiple evidence-based treatments, promotion of whole family and intergenerational intervention approaches, exciting grassroots change efforts, multiple sector/discipline partnerships, and care integration efforts mobilized to impact ACEs. Baltimore is a strong community, with residents who are committed to supporting their neighbors and finding innovative solutions to the problems that plague the city.

Despite the many innovative efforts underway, however, rates of trauma exposure and poly-victimization of children in the city remain exceedingly high. This report concludes that some new strategies and approaches are warranted to move the needle toward more positive change.

The recommendations derived from this report are organized into seven sections: 1) prevention, 2) intervention, 3) service systems, 4) communitywide initiatives, 5) structural, 6) policy, and 7) performance evaluation. The need to abandon the myth of inoculation effects in the conceptualization of prevention, and the need to move beyond the goal of resilience-building as an approach to addressing ACEs, are central tenets underlying these recommendations. The rates of exposure to ACEs in Baltimore City and elsewhere in this country are not acceptable. The end goal has to be a drastic reduction in children's exposure to ACEs, not just for them to bounce back after being a bystander shot in a drive-by shooting.

The legislative recommendations outlined in the closing section of this report to prevent and/or reduce the impact of ACEs, proposed by the Maryland Essentials for Childhood and the State Council on Child Abuse and Neglect should be supported. Several other action-oriented recommendations to advance these efforts are offered. For efforts to be truly impactful, solutions must address the structural racism and other unique factors endemic to Baltimore that have perpetuated a state of toxic stress for its residents.

I. WHAT ARE ACES?

Adverse Childhood Experiences, or ACEs, were first defined in a now classic paper published in 1998 by Anda, Felitti, and colleagues.[1] Table 1 includes a list of the child maltreatment experiences and other family problems that they used to define ACEs. Key findings include:

- ACEs are common;
- ACEs frequently co-occur; and
- ACEs are potent risk factors for a whole host of negative social, emotional, behavioral, and health outcomes across the life cycle.

How Prevalent are ACEs?

In the initial study by Anda, Felitti, and colleagues, which was conducted in an upper middle class predominantly white sample, just over 50% of the adults reported at least one ACE when they were young, and 13.1% reported experiencing three or more ACEs. Rates of all categories of ACEs, except emotional and physical neglect, are greater in low-income samples.[2]

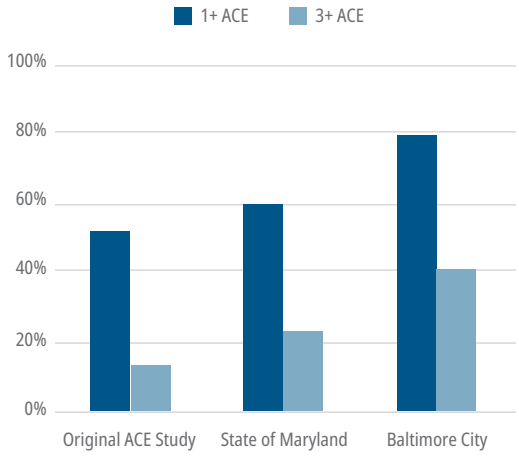
Rates of ACEs in Maryland and Baltimore City

As depicted in the graph below, a survey of ACEs collected in 2015 from adults in Maryland suggests rates of ACEs are slightly higher in the state than were reported in the original ACEs sample studied nearly two decades ago,[1] and notably higher among adults in Baltimore City.[3] While in the original ACEs study just over 50% of the adults reported at least one ACE, and 13.1% reported experiencing three or more ACEs, across Maryland, approximately 60% of adults reported experiencing one or more ACEs during childhood and just over 20% reported experiencing three or more ACEs.[3] In Baltimore City, 80% of adults reported experiencing one or more ACEs and 40% reported experiencing three or more ACEs. The individual categories of ACEs that were greater in Baltimore City than in any other county surveyed in the state were: sexual abuse (state: 11%; Baltimore: 19%); domestic violence (state: 17%; Baltimore: 29%); incarcerated household member (state: 8%; Baltimore: 18%); and substance-abusing household member (state: 25%; Baltimore: 43%).

Table 1: Adverse Childhood Experiences (ACEs)

Child Maltreatment Experiences	Family Problems
Physical Abuse	Domestic Violence
Sexual Abuse	Divorce or Separation
Emotional Abuse	Mentally Ill Household Member
Emotional Neglect	Incarcerated Household Member
Physical Neglect	Substance-Abusing Household Member

Figure 1: Rates of ACEs: Original Study, Maryland, and Baltimore City



Even higher rates of ACEs were reported by the Baltimore Mental Health Outreach for Mothers Survey (BMOMS), a multi-agency study of 285 high-risk, primarily African American pregnant women and mothers of 0 to 4-year-olds from 17 target Baltimore neighborhoods, 82% of whom were low income and receiving food stamps.[4] The women were asked about seven of the 10 traditional ACEs, with experiences of physical abuse, sexual abuse, and separation from parents during childhood not surveyed. Of the seven categories surveyed, rates of the individual ACEs ranged from 30% for having a mentally ill household member to 77% for having a household member who was incarcerated during their childhood. The researchers also asked about childhood exposure to community violence, which was reported by 80% of the women. In this study, 93% of the women reported experiencing one or more of the eight ACEs surveyed (including childhood exposure to community violence); 68% reported experiencing three or more ACEs; and 20% of the cohort reported experiencing all eight adversities.

What Negative Outcomes Have Been Associated with ACEs?

The cost of ACEs to the individual—and to society—is enormous. As depicted in Table 2, ACEs are associated with increased risk for a broad range of negative social outcomes,[1,5-9] psychiatric and substance use disorders,[10-12] health risk behaviors,[1,5,6] and medical health problems.[1,13,14,15,16] Even after controlling for socioeconomic factors and health risk behaviors, the effect of ACEs on numerous medical health outcomes is significant.[1, 13-17]

As depicted in Figure 2 on page 4, ACEs have been found to have a graded dose-response relationship to over 40 outcomes to date. While the exact number of ACEs that predict the different problems varies by outcome, the pattern of increased risk for individuals with more ACEs is near universal.[18]

Table 2: Negative Outcomes Associated with ACEs

Adverse Social Outcomes	Psychiatric and Substance Use Disorders	Health Risk Behaviors	Medical Health Problems
Educational failure	PTSD	Smoking	Obesity
Absenteeism from school	Depression	Overeating	Diabetes
Unemployment	Anxiety disorders	Physical inactivity	Heart disease
Absenteeism from work	Psychosis	Alcohol and drug use	Liver disease
Teen pregnancy	Substance use disorders	Sexual intercourse with multiple partners	Respiratory problems
Incarceration	Suicide attempts		Cancer

Figure 2: Effects of ACEs and the Dosage Response

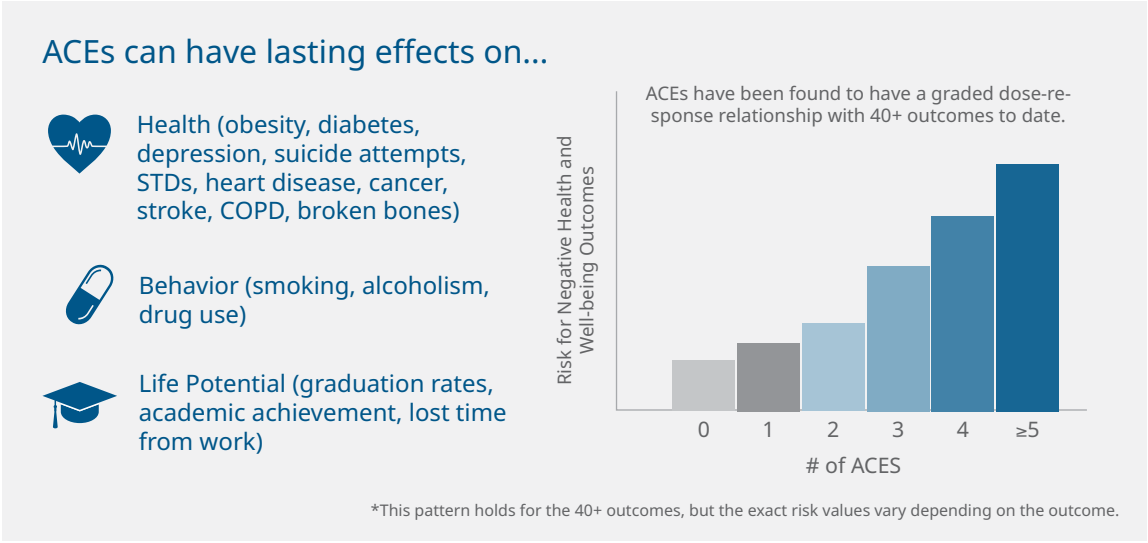


Figure adapted from the Centers for Disease Control[18]

How Do ACEs "Get Under the Skin" to Confer Risk for this Broad Range of Negative Outcomes?

The exact mechanisms by which ACEs confer risk for this broad range of negative outcomes are not fully understood, but ACEs have been found to impact multiple biological processes that are key candidates. These include the effects of ACEs on: 1) the stress system; 2) brain development; 3) gene regulation; and 4) immunological function.

ACEs and the stress system. The stress system, or the innate "fight or flight response," is essential for survival and mobilizing resources at times of crisis. Abnormalities in the stress system due to severe or chronic adversity are believed to contribute to the multiple negative mental and physical health outcomes associated with ACEs.[19] Key molecules released during the "fight or flight response" include cortisol and catecholamines like adrenaline and noradrenaline. When an individual experiences a stressful event under normal circumstances, there is a rush of these hormones, and after the event is over, the hormones return to normal levels. When ACEs either never abate or occur at high frequency, the body struggles to regain its hormonal equilibrium.

ACEs and brain development. While a lot of brain development is hard-wired and under genetic control, much of brain development is "experience dependent." Experiences shape the connections that are made between different parts of the brain, and extreme stress can promote a cascade of biological reactions that can negatively impact the growth and development of key brain structures. ACEs have been associated with alterations in numerous brain regions implicated in the development of the broad range of negative outcomes associated with ACEs.[20]

ACEs and gene regulation. Scientists used to think of gene effects as fixed or deterministic. Over the past two decades it has been definitively demonstrated that experience can affect gene function through what is referred to as epigenetic mechanisms. Epigenetics refers to chemical modifications to the

DNA that affect the likelihood of a given gene product being made. ACEs have been associated with epigenetic modifications to genes involved in stress reactivity and brain development and genes implicated in risk for psychiatric disorders, substance use disorders, and the different medical health problems associated with ACEs.[21,22]

ACEs and immunological function. The body is equipped with an immune surveillance system that is designed to fight infection. There is a growing consensus that suggests extreme psychological stress can also trigger the immune response, or more precisely, an inflammatory response. Child maltreatment and other ACEs have been associated with marked elevations in several inflammation biomarkers, which are known to influence brain function and risk for obesity, cardiovascular disease, and diabetes.[23,24]

Understanding the mechanisms by which Adverse Childhood Experiences confer risk for such a broad array of negative sequelae is an active area of research for countless research teams around the country. It is the hope that this work will lead to novel intervention approaches to improve the developmental and health trajectory of victims of child maltreatment and other ACEs.

Table 3: Child Maltreatment Prevention Programs

Program Name	Brief Description
Triple P: Positive Parenting Program[25]	A multi-tier, developmentally tailored intervention designed to teach positive parenting strategies.
SEEK: Safe Environments for Every Kid[26]	Pediatricians screen for indicators and link families to social workers to access appropriate community services.
Early Head Start[27]	Early child care and education program for low-income families with infants and toddlers. Provides two-generational support for parents and children through home-based and center-based programs.
Healthy Families America[28,29]	Trained paraprofessionals provide home visits biweekly during pregnancy, once a week after the mother gives birth, and then visits with lower frequency until the child is 5 years old or enrolls in kindergarten or Head Start.
Nurse-Family Partnership[30]	Nurse home-visitation program from pregnancy through the second year of life, focusing on improving the child's health and development and the parental life course.
Strong Communities for Children[31]	Outreach staff recruited 5,000 volunteers and engaged more than 500 community organizations and primary institutions in collaborative efforts to develop and implement localized action plans to "keep children safe."

II. RESEARCH ON PREVENTION, INTERVENTION, AND MITIGATION OF ACES

Research on Programs to Prevent ACEs

Research on prevention efforts addressing the traditional ACEs has largely focused on prevention programs targeting child maltreatment, not the family problems included in the ACEs inventory: domestic violence, divorce/separation, mentally ill household member, incarcerated household member, and substance-abusing household member. Prevention efforts targeting child maltreatment have been: 1) short-term models of intervention designed to enhance knowledge of effective parenting strategies or assessment and referral-focused interventions designed to link high-risk families with community services; 2) long-term models of intervention involving home visitation with multiple targets of treatment; and 3) communitywide interventions. Most interventions have focused on families with children in the birth to age three range. Table 3 on the previous page contains brief descriptions of some of the most widely disseminated and/or most researched child maltreatment prevention programs.

While each of the programs listed on the previous page has reported some positive findings in terms of the program effects on rates of child maltreatment, family risk indices, and child outcomes,[25-30] a recent systematic review of child maltreatment prevention programs conducted by the U.S. Preventive Services Task Force published in the Journal of the American Medical Association (JAMA) in November 2018 concluded:

> *There is limited and inconsistent evidence on the benefits of interventions, including home visitation programs, to prevent child maltreatment or prevent the negative sequelae associated with child maltreatment.*[32,33]

Many of the interventions cited in Table 3 did not meet the rigorous inclusion study design criteria required for evaluation in the review. Meta-analyses were used to synthesize the data across studies to determine if the programs to prevent child maltreatment reduced exposure to abuse or neglect; improved behavioral, emotional, physical, or mental well-being of children; or reduced mortality among children and adolescents without obvious signs or symptoms of abuse or neglect at study entry. Across the different outcomes examined, children in the intervention group fared better in some studies; the comparison children fared better in others; and in some studies, no differences between the two groups were reported. Averaging the results across the studies, children in the comparison groups fared approximately as well as children in the prevention intervention groups, with no defining features identified to explain why some studies had positive results and other studies did not.

Take-home messages from the U.S. Preventive Services Task Force study published in JAMA:

- Research on the majority of interventions touted to prevent child maltreatment did not meet the rigorous scientific standards for inclusion in the review.
- While home-visitation programs are beneficial for some participants, they are insufficient to prevent child maltreatment and other negative outcomes for many other participants.
- It is unclear how to predict who will benefit from home-visitation programs.
- It is also unclear what else is necessary (i.e., level of intervention, family vs. systemic) to prevent child maltreatment and the other ACEs that frequently co-occur with child maltreatment.

Table 4: Trauma Therapy Interventions with the Strongest Evidence Base

Intervention	Brief Description	Key Findings
Attachment and Biobehavioral Catch-up (ABC)[34-36]	10-session home-based intervention for infants and toddlers and their caregivers designed to change parent behaviors to enhance attachment: originally developed for parents referred to child protective services and later adapted for foster parents.	ABC improves the quality of children's attachment to their caregivers, with long-term benefits on behavior and multiple biological systems documented (see text on page 8).
Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)[37-39]	12-16 individual and/or conjoint caregiver clinic-based sessions for youth 3-17 years old targeting PTSD symptoms that include psychoeducation, parent management training, relaxation training, affect modulation and cognitive coping skills, processing of the trauma, and safety planning.	TF-CBT improves PTSD and depressive symptoms; clinical gains are maintained over time and associated with changes in neuroimaging in relevant emotion processing brain regions (see text on page 8).
Parent Child Interaction Therapy (PCIT)[40]	12-session clinic-based treatment developed for preschool children with behavioral disorders that have been used with parents who have physically abused their children. It is a dyadic treatment that promotes improved parent-child interaction through direct coaching of the parent via observation through a one-way mirror and a bug-in-the-ear device to coach the parent.	PCIT is effective at working with parents that have a documented history of physically abusing their children. PCIT is associated with decreased risk for re-abuse and improvement in parent-child interaction, and significant improvements in children's aggressive and disruptive behavior.
Child Parent Psychotherapy (CPP)	50-session clinic-based intervention for children birth to age five and their mothers affected by domestic violence or other significant traumatic events. The intervention focuses on understanding the impact of the mother's relationship and trauma history to her parenting behavior, and incorporates approaches from psychodynamic, attachment, trauma, cognitive-behavioral, and social learning interventions.	CPP is associated with significant improvement in mother's distress and parenting, children's behavior and trauma symptoms, safety and well-being indices, and child welfare outcomes (including increased rates of reunification and fewer returns to foster care).

Interventions to Mitigate the Effects of Child Maltreatment and Other ACEs

While there are numerous trauma treatments that have been developed and are being disseminated, there are only four interventions that have been rigorously tested and shown to be effective using randomized controlled trial study designs. These four interventions are described briefly in Table 4 on the previous page.

The trauma treatment intervention with the longest follow-up to date that has examined its impact on the broadest range of outcomes, including multiple physiological indices, is the Attachment Biobehavioral Catch-up (ABC) intervention. Among children referred to child protective services due to concerns about child abuse and neglect who remained in the care of their parents—when compared to children who received an education-focused control intervention—participation in the ABC intervention was associated with improvement in attachment, behavior, and stress system (e.g., cortisol) measures immediately post-treatment;[43,44] the maintenance of these outcomes at a three-year follow-up;[45] and normal patterns of neural functioning examined with electroencephalography (EEG) in middle childhood.[46] The ABC intervention was also associated with positive changes in neural processing of emotional stimuli in parents assessed using event-related potentials (ERP), with positive changes in the neural measures at follow-up, and is predictive of enhanced maternal sensitivity when interacting with her child.[47] Children's improved attachment relationships following the ABC intervention were also associated with a reduction in C-reactive protein (CRP), which is good because CRP is inflammatory and reducing it lowers risk for obesity in later childhood.[48,49] In addition, unpublished preliminary data in a small subset of the infants that participated in this trial suggest the intervention may promote epigenetic modifications in genes involved in neuronal development and regulation of metabolism—relevant biological processes for the primary health outcomes associated with early adversity.[50]

Of all the different trauma interventions, Trauma-Focused Cognitive Behavior Therapy (TF-CBT) has been studied the most extensively and been shown in 12 randomized controlled clinical trials to significantly reduce PTSD symptoms in youth ages 3-18.[38,51] It has been implemented in a number of different cultural settings; delivered in individual and group format; and used to address trauma symptoms secondary to sexual abuse, witnessing domestic violence, and a range of other childhood adversities.[38,51] In one study that conducted functional brain imaging assessments before and after TF-CBT treatment, reduction in PTSD symptoms was associated with increased functional connectivity in key brain regions involved in emotion regulation.[52]

These studies preliminarily suggest that evidence-based trauma treatments can reverse the broad range of negative social, emotional, behavioral, physiological, and health outcomes associated with early adversity. While it is unclear what elements of the treatments mediate the positive effects of the models, given research suggesting parental participation significantly enhances the beneficial impact of TF-CBT for traumatized children,[37] enhancing supportive parenting may be a common element across the interventions that is key to mitigate the negative effects of ACEs.

Other Promising Interventions that May Mitigate the Effects of ACEs

Two-generation and family-focused interventions that address co-occurring ACEs. As discussed at the opening of this report, ACEs often co-occur. Unfortunately, a father involved with the child protective services system who engages in domestic violence and struggles with an addiction disorder is typically referred to one place for anger management, to another agency to deal with his substance abuse problem, and to a third agency for parenting classes. This sort of fragmented approach to treatment rarely succeeds. Fathers for Change

is an innovative intervention that integrates evidence-based treatment for substance abuse, anger management, and parenting, and has reported promising findings in two initial clinical studies.[53,54] There are likewise promising home-based intervention strategies that have been developed that address co-occurring mental health, substance abuse, and parenting problems, including the Family-Based Recovery (FBR) and the Building Stronger Families programs. (Note: There is a clinical program in Baltimore called Family Recovery Program, but it does not use the FBR intervention model described above.) These home-based integrated treatment models have been successfully implemented with families receiving services from the child protective services system, and have prevented the foster placement of the children in the majority of the cases.[55-57] These three two-generation, multi-faceted, family-focused interventions have been widely disseminated in multiple low-income urban regions in Connecticut, and Fathers for Change has also been integrated into two residential drug treatment programs in Florida.

Yoga and mindfulness-based interventions. Several randomized controlled trials conducted in adults with PTSD secondary to diverse causes suggest that yoga- and mindfulness-based interventions are associated with significant reductions in trauma symptoms.[58,59] In school-based settings with non-clinic-referred children, participation in yoga and mindfulness interventions compared to control interventions has been associated with enhancement of attention and social skills,[60] reduction in measures of anger and hostility,[61] and decreased anxiety.[62] The positive benefits of these interventions also were reported in urban schools with significant rates of poor and minority students at high risk for ACEs.[63] Our group conducted a pilot study to evaluate a group yoga intervention for clinically referred urban boys exposed to chronic trauma, and participation was associated with improvements in behavior and emotion regulation and a high level of parent and youth satisfaction with the intervention,[64] suggesting the utility of these sorts of interventions with youth with PTSD and other stress-related psychiatric disorders. While neuroimaging studies of the effects of these interventions on brain measures have yet to be conducted in children, a systematic review of research in adults suggest yoga- and mindfulness-based interventions are associated with functional and structural changes in key brain regions associated with attention, impulse control, and emotion regulation.[65]

Prevention programs focused on older youth. As noted previously, most ACEs prevention programs have focused on children birth to age three. The Strong African American Families (SAAF) intervention is an evidence-based intervention program with a broad range of positive documented outcomes that was developed for 11-year-old youth. It was initially developed for youth from low-income families from disadvantaged neighborhoods in rural Georgia; however, it is currently being implemented in urban communities around the nation,[66,67] including 24 social services agencies in Harlem.[68] SAAF consists of seven consecutive 2.5-hour weekly family group meetings held at community facilities, with separate skill-building curricula for youths, their primary caregivers, and families. The caregiver sessions emphasize positive parenting skills, including the consistent provision of instrumental and emotional support, high levels of monitoring and control, adaptive racial socialization strategies, and methods for communicating about sex and alcohol use. Youth sessions focus on forming goals for the future and making plans to attain them, resistance efficacy skills, and adaptive behaviors to use when encountering racism. At SAAF meetings, families eat a meal together and then divide into small parent and child

The cost of ACEs to the individual—and to society—is enormous. ACEs are associated with increased risk for a broad range of negative social outcomes, psychiatric and substance use disorders, health risk behaviors, and medical health problems.

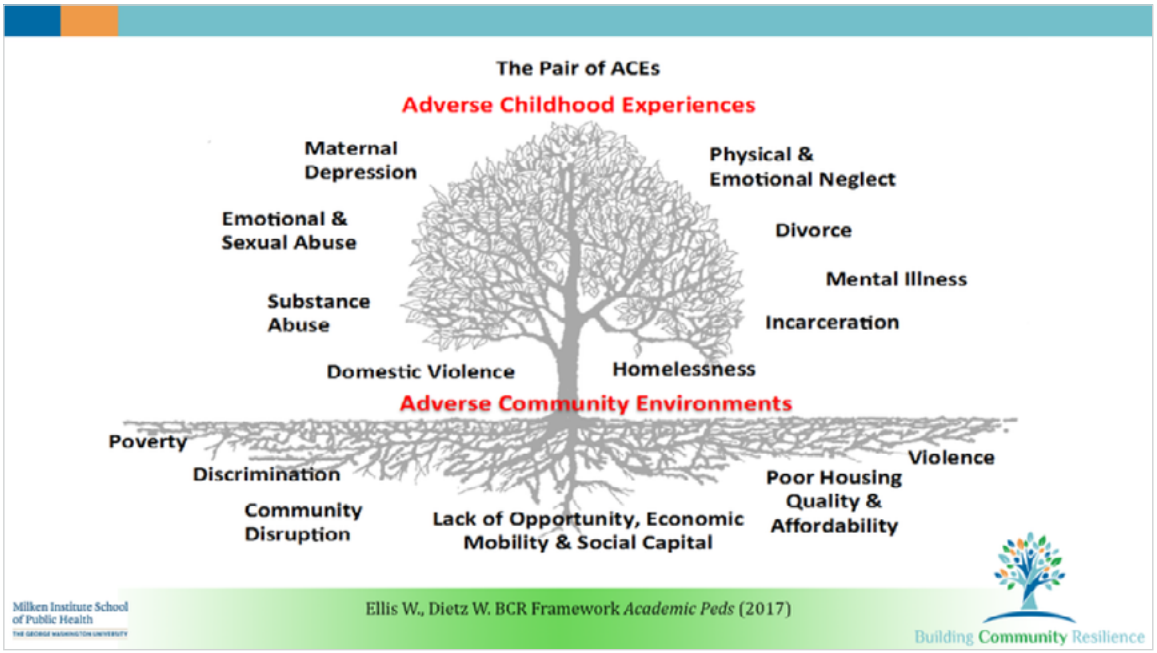
discussion groups. For the final hour of each session, the parents and youth reunite for a two-generation group meeting.

The SAAF program has been associated with positive outcomes on ACEs-related child behavioral problems, ACEs-related health risk behaviors, ACES-related health outcomes, and ACEs-related physiological indices. Specifically, SAAF participation has been associated with decreased rates of conduct problems in youth two years after the intervention;[69] reduced rates of smoking,[70] drinking,[71] drug use,[72] and risky sexual behaviors[73] in late adolescence and early adulthood; and reduced risk of obesity[74] and prediabetes in young adulthood.[75] In the latter study, ACEs were not associated with a risk for prediabetes in young adults who participated in the SAAF intervention, but among the youth in the control intervention, each additional ACE was associated with a 37% increase in risk for prediabetes.[75] In terms of physiological indices associated with ACEs, the SAAF intervention was associated with reducing the impact of family risk factors on the stress system (e.g., adrenaline, norepinephrine)[76] and epigenetic[77,78] and inflammation[79] markers. The SAAF intervention and its impact on enhancing supportive parenting was also associated with diminishing the impact of poverty on hippocampal and amygdala brain volumes measured in adulthood—key brain regions affected by stress.[80] The positive benefit of the SAAF intervention is hypothesized to be due to its impact on enhancing supportive parenting, which seems to be a common element of most evidence-based interventions, and its inclusion of curriculum for parents and youth targeting race-specific issues that impact African American youth. The developers of SAAF have also created programs for older youth and programs to enhance parenting relationships.[81-84]

Service System and Communitywide Initiatives to Address ACEs

To improve identification and treatment of ACEs, training materials have been developed to infuse trauma-informed care practices into pediatric and mental health care service systems, child welfare and juvenile justice service systems, the schools, and law enforcement.[85-90] Communitywide initiatives have also been implemented to organize and link informal networks of community residents with local organizations and institutions to derive community-based solutions to prevent and respond to ACEs.[31,91,92] With outreach workers and resources to sustain collaborations and innovative programming, these neighborhood-based community collaborations have been found to enhance residents' perceptions of social support, promote gains in the use of positive parenting strategies, and decrease rates of founded reports of child maltreatment and coded injuries suggestive of child maltreatment documented in medical records. Support for outreach workers and the infrastructure to maintain the organization-resident partnerships appears critical to the success of these sorts of communitywide collaborations.[31] Although additional research is needed to understand the impact of service system and communitywide interventions designed to reduce the risk for ACEs.

Figure 3: Understanding Health Disparities: Beyond the Traditional ACEs



III. BEYOND THE TRADITIONAL ACES

The original ACEs were derived from studying a predominantly white, upper middle class cohort. As noted previously, rates of all categories of ACEs, except emotional and physical neglect, are greater in low-income samples,[2] highlighting the importance of examining the social contexts that increase risk for ACEs.[2,93] In recent years, there has been a burgeoning of research aimed at identifying the social determinants of health and health disparities. The diagram on page 11 depicts examples of Adverse Community Environments—the other ACEs—which are hypothesized to increase exposure to the traditional ACEs, exacerbate the negative impact of the traditional ACEs, and independently contribute to health disparities.

As depicted in Figure 3 above, the Adverse Community Environments that contribute to the occurrence of the traditional ACEs and health disparities include experiences of discrimination, community violence, and multiple poverty-related factors.

Racism and perceived discrimination are now recognized as key factors contributing to health disparities between blacks and whites.[94-97] Perceived discrimination has been found to be a potent predictor of negative health outcomes and health disparities between blacks and whites, even after taking into account income, education, and other measures of stress.[94] Discrimination is hypothesized to "get under the skin" and increase risk for the broad range of negative mental and physical health outcomes associated with the traditional ACEs through similar biological mechanisms, including stress, brain, epigenetic, and immune system mechanisms.[97,98] Racial biases have also been found to influence the quality of health care that racial minorities receive, especially African Americans, with minorities found to

receive poorer quality health care than their white counterparts for a wide variety of conditions, even after controlling for sociodemographic factors and patients' ability to pay for care.[95] In a recent review paper published in one of the leading medical journals, Lancet, it was argued that to promote equity and equality in health in the United States, structural racism must be addressed, including discriminatory housing, education, employment, credit, and criminal justice policies that perpetuate inequity and racism.[96]

Strategies to Address Adverse Community Environments

While addressing racism and the factors that contribute to Adverse Community Environments can appear daunting, there are data to support certain strategies, and other promising strategies that have been proposed. A few of these are briefly described below.

Increasing the minimum wage. Research has consistently demonstrated that children living in poverty are at greater risk for child maltreatment and other ACEs. In a study that used national child maltreatment data from 2004 to 2013 to investigate the relationship between changes in states' minimum wage and changes in child maltreatment rates, it was found that for every $1 increase in the minimum wage, there was a statistically significant 9.6% decline in neglect reports.[99]

Creating job opportunities for people with felony convictions/breaking the cycle of crime. To reduce criminal recidivism rates, decrease neighborhood crime and gun violence, and promote economic opportunity, companies like Boeing and JPMorgan Chase are working to increase their hiring of people with felony convictions.[100] Research has found that employment can break the cycle of crime and strengthen families, and these sorts of novel hiring initiatives are likely to positively impact both the traditional family-focused ACEs and the community-focused ACEs.

De-criminalizing addiction. Legislation that de-criminalizes addiction, promotes treatment over incarceration, and provides the necessary resources to increase access to quality community-based substance abuse and mental health care services holds significant promise in reducing health disparities and ACEs exposures.[101]

Addressing police misconduct. To date, there is only outcome data on one program developed to address police misconduct, the Ethical Policing is Courageous (EPIC) program. EPIC is a peer-intervention program that was designed by the New Orleans Police Department to improve policing in response to a federal consent decree—a mandate from the U.S. Department of Justice outlining sweeping reforms the department must adopt to correct a history of civil rights abuses, with the shooting of several unarmed black citizens setting the consent decree in motion. The training of New Orleans officers in EPIC resulted in fewer complaints against officers, a 93% drop in the use of serious force, rates of interactions with police described as pleasant and courteous increasing to 87% from 53%, and a drop in homicide rates to a 47-year low.[90,102,103] Given the findings of the Department of Justice's Investigation of the City of Baltimore Police Department,[104] the EPIC program has considerable relevance to the city with its positive data on decreasing police misconduct and reducing homicide rates.

A Public Health Perspective on ACEs

There is growing consensus in the field that given the widespread prevalence of ACEs and what is known about their impact, a public health approach is needed to derive effective and sustainable solutions. In their discussion of applying a public health lens to traumatic stress, Magruder and colleagues propose the use of the Centers for Disease Control and Prevention's four-level social-ecological model for prevention.[105] Levels include: individual, relationship, community, and societal— the individual level takes into account personal characteristics. Relationship factors include family, marital, peer, and other interpersonal relationships. Community-level risk factors

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include poverty level and safety features of the neighborhood. Societal-level factors include systemic racism and other societal issues.[106]

Trauma-informed care is an example of a practice rooted in the public health concept of prevention. Hargreaves and colleagues argue for the importance of collective community capacity-building as a mechanism for addressing ACEs at the population level.[107] Rather than waiting for the effects of ACEs experienced in childhood to have a negative impact on adult outcomes, early identification and intervention is the best option for changing the trajectory between ACE experience and outcome. In addition to the specific trauma-focused treatments subsequent to ACE exposure(s), it is critical to include 1) prevention; 2) early intervention; and 3) resilience-promoting strategies at the individual, relationship, community, and societal levels. Examples of these include the promotion of healthy child development; working with children and families on the development and maintenance of nurturing and supportive relationships; whole family approaches (e.g., including parental mental health/substance use interventions); intergenerational interventions; grassroots change efforts; sector/discipline partnerships; and care integration and community networks.

Baltimore City has incorporated many features of this public health approach, and has an array of services designed to mitigate the negative effects of both the traditional and community-level ACEs. This includes a wide breadth of prevention and intervention strategies and initiatives across an extensive service continuum at the individual, relationship, community, and societal levels.

Before discussing these, some of the unique factors that contribute to ACEs in Baltimore are reviewed.

Factors that Contribute to Baltimore City's Adverse Community Environments

The largest city in Maryland, Baltimore has a 2019 estimated population of 622,000 with approximately 126,500 individuals under the age of 18. The city is approximately 63% African American, 31.6% white, 5.3% Hispanic/Latino, 2.8% Asian, 0.4% American Indian or Alaska Native, and 0.1% Native Hawaiian or other Pacific Islander, with population estimates exceeding 100% due to some individuals reporting two or more races or ethnicities.[108]

Baltimore City has a long history of local and federal government-sanctioned discriminatory legislation and practices such as residential segregation, school segregation, redlining, blockbusting, subprime lending, and mass incarceration, as well as zero tolerance policies in policing and schools that target African Americans. The intergenerational transmission of these racist practices can be seen in the finding that approximately 70% of Baltimore neighborhoods that were redlined in the 1930s are currently low income and minority.[109,110] Collectively, these historic patterns of institutional and structural racism have created unequal opportunities and deep disparities that continue to be perpetuated at a systemic level in the city's socio-economic landscape. Racial disparities exist in accumulated wealth, education, employment, health outcomes, and incarceration.[111]

Reflecting the city's racial demographics, the public-school system is predominantly African

American. A majority of students live in low-income households. Among Maryland's 24 school districts, Baltimore City ranks first in number of families below the poverty line,[112] and a little over a quarter of public schools are located in neighborhoods with high incarceration rates.[113]

In its 2016 report on the investigation of the Baltimore Police Department that led to the current consent decree with the Baltimore City Police Department,[104] the Civil Rights Division of the U.S. Department of Justice compares Baltimore statistics to other large urban cities and discussed some of the factors that seem relevant to understanding the experience of toxic stress by children and families:

- Household income and educational attainment below national averages;
- Unemployment and poverty rates higher than state and national averages (nearly a quarter of households are below the poverty line);
- Higher levels of racially segregated neighborhoods with a disproportionate number of African Americans residing in those that are economically disadvantaged;
- Substantially higher violent crime (murder, rape, aggravated assault, robbery) rates (Baltimore City's 2017 violent crime rate was more than four times the state's rate);
- Homicide being the leading cause of death for 15 to 24-year-olds in Baltimore City;
- Lead poisoning among children three times the national rate, with the highest percentage in three predominantly African American neighborhoods; and
- Racially discriminatory and unconstitutional policing policies and practices that have a disproportionate negative impact on African American individuals and poor African American neighborhoods.

IV. BALTIMORE CITY LANDSCAPE OF PROGRAMS TO ADDRESS ADVERSE CHILDHOOD EXPERIENCES AND ADVERSE COMMUNITY ENVIRONMENTS

This section describes work being done in Baltimore in the following categories: 1) child maltreatment prevention/early intervention; 2) evidenced-based/-supported treatments; 3) other promising interventions that may mitigate effects of the traditional and community-level ACEs; and 4) service systems-level/communitywide interventions. The strategies listed fall on a continuum from novel and promising approaches with no empirical evidence of impact to those that are evidence-based. A systematic research-based survey methodology was not employed. The information was collected through phone interviews, e-mail communication with agency/service/initiative representatives, as well as document review and/or website review when personal communication was unavailable. It was impossible for this paper to document all of the different services taking place and those providing them in the city. The authors' intent was to provide a comprehensive representative sample of what's available and not an inventory of every service in Baltimore that strives to address issues related to ACE exposures. Many entities doing great work, particularly at the grassroots and community-based level, are not included. This landscape was designed to be descriptive in nature. With the exception of the evidence-based interventions included, it was beyond the scope to provide an analysis of the effectiveness of programs listed. Lastly, the service delivery numbers that are reported in this paper were collected via phone call and e-mail inquiry to agency representatives and were not verified through independent data collection methodology. In other cases, efforts to collect service delivery data were unsuccessful.

Child Maltreatment Prevention /Early Intervention Programs

Four of the six most widely distributed and/or researched child maltreatment prevention programs listed in Table 3 are available in Baltimore City: Safe Environments for Every Kid (SEEK), Early Head Start, Healthy Families America, and Nurse-Family Partnership. SEEK is being implemented at two pediatric clinics in Baltimore City (Midtown and Sinai) and in Franklin Square Hospital in Baltimore County. Early Head Start served 1,005 children citywide in FY 2018. In FY 2019, Healthy Families America served 518 families, and the Nurse-Family Partnership served 139 families for a total of 657 families served by these evidence-based home-visiting models.

Additional statewide or citywide child maltreatment prevention and early intervention programs are discussed below.

Family Tree. Family Tree is a statewide organization based in Baltimore City that focuses on preventing child abuse and neglect. Services for families include parent education classes, trauma-informed counseling, several different home-visitation models, and a 24-hour helpline. It also provides trainings for child-/family-serving professionals and other community members on a variety of topics including abuse prevention, child maltreatment, child development, ACEs, trauma and its impacts, and mandatory reporting requirements. A national affiliate of Prevent Child Abuse America, Family Tree oversees the implementation of Maryland's Enough Abuse campaign and partnered with Maryland Essentials for Childhood to launch the ACE Interface Master Training initiative here in Baltimore (see "Multi-Agency Collaborations and Systems Interventions" for a description of this program).

Healthy Steps. Healthy Steps is an evidence-based two-generation program that embeds a developmental specialist within a pediatric care team, able to offer a range of services focused on well-being that pediatricians might not have time to address. In Baltimore, Healthy Steps is operated by the Department of Family and Community Medicine, University of Maryland, School of Medicine. It serves primarily low-income children under the age of three. A recent collaborative initiative between University of Maryland's Taghi Modarressi Center for Infant Study and the Department of Family and Community Medicine enrolled 225 families in the Healthy Steps program from May 2016 to December 2018.

Baltimore City Child Care Resource Center. Baltimore City Child Care Resource Center (BCCCRC) provides training and on-site technical assistance for child care providers to promote healthy child development, effective parenting, and provider self-care. Training topics include basic health and safety, best practices in infant and toddler care, ACEs, resiliency, and trauma-informed care. BCCCRC also offers the Early Intervention Project, which provides free on-site consultation for children who are having developmental/behavioral issues. In FY 2019, BCCCRC trained 510 family child care providers and 289 group care providers; provided technical assistance to 390 child care providers; and provided support in 53 cases through its Early Intervention Project.

Baltimore Child Abuse Center (BCAC). BCAC is a nonprofit organization that collaborates with city agencies to deliver services to children who have experienced sexual abuse and their families. The investigative process includes Baltimore City's State's Attorney's Office, the Police Department, and Child Protective Services under one roof. A pediatrician is available for medical examinations, and family advocates can easily be accessed if deemed necessary to the process. BCAC also provides evidence-based trauma mental health services. In 2017, 1,305 children were helped across all service areas. BCAC also provides training services beyond the Baltimore area, and in 2017, it trained 9,244 professionals across 15 states.

Evidence-Supported/-Based Interventions to Mitigate the Effects of Child Maltreatment and Other ACEs

The four interventions with the strongest evidence base noted in Table 4 (i.e., ABC, TF-CBT, PCIT, and CPP) are also available in Baltimore (see Table 6 on page 17 for a listing of the agencies that offer these programs). Despite the strong evidence-base support for the Attachment Biobehavioral Catch-up intervention, it has not been widely disseminated in Baltimore City to date. Cost has been noted by some agency administrators as a prohibitive factor. In an effort to expand the use of ABC in Baltimore, the University of Maryland's Institute for Innovation and Implementation received a grant to train the staff of several organizations and launched a "community of practice" workgroup to support implementation and sustainability of the intervention.

In addition to the four evidence-based interventions discussed in the literature review section of this report, there are three other interventions currently being disseminated in the city that have some evidence supporting them: Cognitive Behavioral Intervention for Trauma in Schools (CBITS),[114] Strengthening Family Coping Resources (SFCR), [115] and Circle of Security (COS).[116,117] These three additional trauma-informed interventions are described in Table 5 below.

Table 5: Additional Trauma-Informed Interventions Available in Baltimore City

Intervention	Brief Description	Targeted Outcomes
Cognitive Behavioral Intervention for Trauma in Schools (CBITS)[114]	School-based intervention delivered in group and individual formats designed to ameliorate traumatic stress symptoms related to an event(s) for students grades 3-12. It is comprised of 10 student group sessions, 1-3 individual sessions, 1 teacher session, and 2 parent sessions.	Reduced PTSD, depression, and behavioral acting out; enhanced school performance (grade, attendance, functioning, and coping capacities; increased support from peers and parents.
Strengthening Family Coping Resources (SFCR) [115]	Multi-family group clinic or community-based intervention for children and their parents/caregivers who live in traumatic contexts. Family systems-level interventions that are implemented in 10 or 15 weekly sessions for two hours each.	Co-regulation and reduction of traumatic stress symptoms/ reactions; increased identification and use of available social supports; enhanced sense of safety and family functioning.
Circle of Security (COS) [116,117]	Eight-chapter parent training program designed for high-risk children under age 6 and their parents/caregivers. COS-Parenting is implemented in various community settings, and COS-Home Visiting-4 includes 4 mandatory home-visitation sessions as part of the intervention.	Increased parent-child attachment, attunement, capacity for self-reflection, and self-regulation.

Table 6: Baltimore City Organizations Providing Trauma Interventions

Attachment and Biobehavioral Catch-up

- The Family Tree
- BCHD Office of Adolescent Health
- Benjamin Franklin High School childcare program
- Baltimore Infants and Toddlers Program
- Early Childhood Mental Health Consultation
- Youth Empowered Society

Trauma Focused-Cognitive Behavioral Therapy

- Associated Catholic Charities
- Baltimore Child Abuse Center
- Hope Health, Outpatient Clinic and School-based Services
- Hopkins Bayview, School-based Mental Health Program,
- Hopkins Bayview, Child and Adolescent Psychiatric Services
- KKI, Center for Child and Family Traumatic Stress
- UMB, Outpatient Child and Adolescent Psychiatry Services, Trauma Disorders Clinic
- UMMC, School Mental Health Team
- UMB, Taghi Modaressi Center for Infant Study

Parent Child Interaction Therapy

- Hope Health
- Hopkins Bayview Child and Adolescent Psychiatry
- KKI, Center for Child and Family Traumatic Stress
- Mount Washington Pediatrics

Child Parent Psychotherapy

- Catholic Charities
- Hope Health
- KKI, Center for Child and Family Traumatic Stress
- UMMC, Taghi Modarressi Center for Infant Study

Cognitive Behavioral Intervention for Trauma in Schools

- JHMI, School-Based Mental Health Services
- UMB, School Mental Health Team

Strengthening Family Coping Resources

- KKI, Center for Child and Family Traumatic Stress
- Liberty Elementary School and Recreation Center (Peer to Peer Model)
- UMB, Outpatient Child and Adolescent Psychiatry Services, Trauma Disorders Clinic

Circle of Security

- Abilities Network
- BCHD, Baltimore Infants and Toddlers Program
- B'More for Healthy Babies
- Children's Guild
- Family Recovery Program
- The Family Tree
- Healthy Start
- Hopkins Bayview Community Psychiatry
- Hopkins Bayview Clinical Preschool
- KKI, Center for Autism and Related Disorders
- KKI, PACT
- Liberty Elementary Judy Center
- Little Flowers Daycare (Furman Site)
- Marian House
- Promise Heights (Frederick Douglass High School, Mondawmin)
- St. Vincent de Paul
- The ARC Baltimore
- UMB, School of Social Work, Community Outreach Service, Family Connections Baltimore, and Social Worker in the Library Program (Enoch Pratt Free Library)
- UMMC, Taghi Modaressi Center for Infant Study

Acronyms: BCHD=Baltimore City Health Department; JHMI= Johns Hopkins Medical Institute; KKI=Kennedy Krieger Institute; UMMC= University of Maryland Medical Center

Of the interventions listed in Table 5, only the Circle of Security parenting intervention without home visits has been tested using a randomized controlled trial study design,[117] the most stringent method to demonstrate program effectiveness, and it produced equivocal findings. Cognitive Behavioral Intervention for Trauma in Schools (CBITS) and Circle of Security-Home Visitation are rated as promising interventions, with prior research showing efficacy in at least one study that included a comparison intervention. Strengthening Families Coping Resources has not been studied using any comparison interventions, but some positive findings with changes in clinical ratings obtained before and after the clinical interventions were reported.

Table 6 lists the sites where the four strong evidence-based (Table 4) and three trauma-informed interventions (Table 5) are offered in Baltimore City. Circle of Security is currently implemented in the largest number of settings. A subset of the agencies listed in Table 6 were funded by the Zanvyl and Isabelle Krieger Fund to implement Circle of Security-Parenting. As a result of this funding in 2017, 31 staff were trained across 13 agencies with 223 parents/caregivers completing the intervention; in 2018, 43 staff were trained across 18 agencies with a total of 79 parents/caregivers reported to have completed the intervention.

Other Novel/Promising Interventions that May Mitigate Effects of ACEs

Table 7 on page 19 outlines novel and promising interventions being implemented by various organizations around the city. Readers are encouraged to reach out to each agency for additional information.

Service System and Communitywide Initiatives to Address ACEs

Efforts to impact the traditional and community-level ACEs must include collaborations and system-level interventions. Below is a description of some of the service system and communitywide initiatives designed to address ACEs in Baltimore.

Breakthrough Series Collaboratives. Developed by the Institute for Healthcare Improvement, the Breakthrough Series Collaborative (BSC), typically a year-long process, is an organizational change methodology in which participating organizations learn from each other and from recognized experts in topic areas where they want to make improvements.[118] BSC findings have demonstrated successful outcomes in the areas of medicine and social services.

Pediatric Integrated Care Collaborative. Started in 2013 and currently in its second cycle, Pediatric Integrated Care Collaborative focuses on providing whole family trauma-informed and responsive care by promoting collaboration, coordination, and communication between behavioral and physical health care service providers. Metrics tracked include: trauma- and resilience-informed office environment, community relationships, family engagement in their own care, assessing/addressing whole family health and resilience, and service/support coordination. Sponsoring partners include: Pediatric Integrated Care/Johns Hopkins University, Center for Mental Health Services in Pediatric Primary Care, and the National Child Traumatic Stress Network. While participating teams have come from around the country, Baltimore City teams have come from Franklin Square, Harriet Lane, Hopkins Bayview, Chase Brexton, and Total Health Care.

Baltimore: A Trauma-Informed Resilient City Collaborative. This effort occurred in 2015-2016 and was sponsored by the University of Maryland Schools of Social Work and Medicine, Center for Child and Family Traumatic Stress, and the Zanvyl and Isabelle Krieger Fund. Participating teams included: Advanced Therapeutic Connections OMHC, Bon Secours Behavioral Health, ED Pride Program, Communities United, The Family Tree, New Lens, House of Ruth, Kidz Stuff Childcare,

Table 7: Novel/Promising Practices in Baltimore City

Program Name	Brief Description	Population/Numbers Served and/or Implementation Sites
Holistic Life Foundation	Offers mindfulness, yoga, stress reduction, and other self-care programs in Baltimore City schools designed to help children in under-resourced communities cope with adversity and develop stress management skills.	24 schools, 10,000 BCPS students/week
Baltimore Cease Fire	Grassroots anti-violence effort with a vision of ending murders in Baltimore City. For one weekend on a quarterly schedule, city residents are "called" to avoid murder for the specified period of time. Throughout the year, Baltimore Ceasefire sponsors various community events in support of the vision.	Citywide initiative
Safe Streets	Initiative to reduce gun violence implemented by community organizations. The program uses street outreach workers with direct knowledge and experience in the criminal justice system and in the neighborhoods where they are placed, who make efforts to de-escalate situations that could lead to gun violence.	Sandtown-Winchester, Cherry Hill, McElderry Park, Park Heights, Belair-Edison, Brooklyn, Woodbourne-McCabe, Penn-North, Franklin Square, Belvedere –opening fall 2019
A Revolutionary Summer	Designed for girls/young women age 15 and older. A critical reading and writing program, it focuses on creating and sustaining positive narratives about African American girls and women. For eight weeks during the summer, participants convene with teachers, authors, and community activists to discuss the works of African American women writers. Core components of the program include the following: use of opening and closing circles, writing workshop, yoga and mindfulness, self-love strategies, vocabulary acquisition, and deconstruction of thought techniques.	20 participants per summer
Kindred Community Healing-/Sista SoulQuest	Using circle methodology, Sista SoulQuest brings together young African American girls ages 9-18 and exposes them to a variety of topics including: physical health, emotional wellness, stress management, leadership, communication skills, identity, goal setting, sexuality, spirituality, and self-defense. Grounded in African ancestry, racial pride, community accountability, as well as heart-centered and mind/body healing traditions; practices are designed to be both trauma-responsive and resilience-building.	40 girls at Matthew Henson Elementary School
Safety, Emotions, Loss and Future (SELF) Community Conversations	Developed as an evidence-supported framework for understanding, preventing, and responding to trauma. The strategy utilizes culturally relevant techniques in the facilitation of small group and/or community dialogues focused on increasing healthy coping strategies and self-regulation to deal with the effects of trauma exposure.	Youth Empowered Society, Martin Pollak Project, Supporting Male Survivors of Violence, New Song Academy U-TURNS, East Baltimore Community Trauma Response Program, Living Classrooms.

Rather than waiting for the effects of ACEs experienced in childhood to have a negative impact on adult outcomes, early identification and intervention is the best option for changing the trajectory between ACE experience and outcome.

Center/Scarlet Covering and Sage Wellness Group, and Pressley Ridge. Teams were composed of different levels within the agency (e.g., management, line staff), as well as community partners and family members. It focused on efforts to enhance the capacity of organizations across the city in the area of trauma-informed and resiliency service delivery to children and families. Each made a commitment to improving practices in the areas of authentic partnerships, racial justice, trauma-/resilience-informed supports, and healthier communities/programs. Metrics included numbers of staff trained/educated on trauma, racism, and resilience; number of individuals screened for trauma; number of referrals to trauma services; number of new collaborative relationships developed; number of practices, policies, and procedures reviewed for implicit bias/racial inequities; and change in organizational assessment of trauma-informed practices.

Thriving Communities Collaborative. The Thriving Communities Collaborative is an open network of organizations and individuals in Baltimore focused on increasing awareness around the causes and effects of trauma as well as reducing its negative impact through the facilitation of access to resources and tools. Advocacy for the full continuum of services and the need for tackling issues at systemic and structural levels that impact exposure, experience, and the effects of trauma guide many of the activities. The group sponsors monthly presentations.

Maryland Essentials for Childhood/ACE Interface Program. Maryland Essentials for Childhood is a statewide initiative that includes several agencies, disciplines, and partners from the private and public sectors, all focused on preventing child maltreatment and other ACEs. Educational efforts and legislative advocacy are critical activities of this initiative. Core to the mission is the alignment of the various stakeholders around a common agenda. The adoption of the ACE Interface model was decided upon as a mechanism for achieving this outcome. ACE Interface is a company that has embarked on a national public health effort designed to widely share ACE and resilience science, and to use what is known to improve well-being for children, families, and the communities in which they live. Individuals in jurisdictions implementing the program are selected to take part in a two-day Master Trainer program, which consists of licensed materials and is presented by experts. Using a train-the-trainer model, Master Trainers do the presentations themselves and also train other presenters who are then able to go out and educate others on the information. Maryland has more than 25 master trainers who cover a wide range of professional disciplines to ensure that professionals being trained can learn from a trainer in their field and increase the likelihood of receptiveness to the information. Completed trainings are mapped according to presenter, geographical region, and sector/discipline. More than 4,000 individuals have been trained across Maryland with 43% of all trainings occurring in Baltimore City. Organizations that have received training can track their progress on becoming trauma-informed and resilience-promoting based on 11 targeted objectives. The ACE Interface initiative maintains an interactive website that provides a wealth of regularly updated information (http://www.aceinterface.com).

City Schools. Like many school districts around the country, the Baltimore City Public School System is working to become trauma-informed in its efforts to optimize learning (and, in some cases, healing) environments for students, teachers, staff, and administrators. Several initiatives have been implemented over the last several years, including: Whole School Approaches, Restorative Practices, and a federally funded Trauma Sensitive Schools initiative. Table 8 describes two examples of the school system partnering with other agencies to further work in this arena.

CITY AGENCIES

Behavioral Health System Baltimore (BHSB). BHSB is the city's behavioral health coordinating body. It supports numerous prevention and intervention programs designed to respond to family- and community-level ACEs, including: 1) B-More Resilient: Supports transformative change in Baltimore City by increasing understanding of trauma and knowledge of practices that promote healing and resilience; 2) Crisis Response Team: Responds to calls believed to be related to behavioral health crises occurring in the Central District of downtown Baltimore City; 3) Collaborative Planning and Implementation Committee (CPIC) (Co-led by BHSB): Oversees work underway to meet the behavioral health requirements of the consent decree between Baltimore City, the Baltimore City Police Department, and the Department of Justice; 4) Law Enforcement Assisted Diversion: Oversees low-level drug cases referred to treatment and support services instead of being prosecuted; and 5) U-TURNS (Sandtown-Winchester): Utilizes a trauma-informed approach to create a safe space where young people who have been exposed to violence, chronic stress, and trauma can be supported to fulfill their potential.

Baltimore City Health Department (BCHD). BCHD provides preventive home-visitation services for pregnant women and young mothers; it also was a key partner in the initiation of the Safe Streets gun violence prevention program described in Table 7. Two additional programs relevant to addressing community-level ACEs are the Youth Services and Advocacy Project, which serves youth with either direct or

Table 8: Baltimore City School – Agency Partnership Initiatives

Initiative	Brief Description /# Participating City Schools
Expanded School Behavioral Health Program	A partnership between Baltimore City Schools and Behavioral Health System Baltimore. Five organizations around the city provide mental health services to students in approximately 128 schools, 15 of which also have substance abuse services.
Positive Schools Center/UM SSW	The Positive Schools Center collaborates with Baltimore City Schools and works primarily with principals in an effort to shift a school's culture/climate and to work on issues related to student discipline, with the goal of reducing detentions and suspensions. Trauma-responsive learning environments, racial equity/justice, honoring student/family/community voices, social-emotional development, and restorative/ healing practices are tenets that provide the framework for key activities. In the 2018-2019 academic year, there were 17 schools involved in this initiative.

vicarious violence exposure and provides psycho-education, case management, and referrals to additional resources; and the Office of Youth and Trauma Services, which focuses on preventing traumatic exposures and assisting survivors of crime and those with substance use disorder and/or mental health needs (includes Supporting Male Survivors of Violence and ReCast projects).

Baltimore City Department of Social Services (BCDSS). BCDSS is the state agency charged with responding to allegations of abuse and neglect in the city, which comprise half of the traditional ACEs. In addition to investigating allegations of abuse and neglect, BCDSS provides family preservation services to prevent re-abuse and the out-of-home placement of children, and monitors children in out-of-home care who remain under protective supervision or who become wards of the state. BCDSS also implements family reunification plans to address the problems that necessitated children's out-of-home care (e.g., foster care, congregate care, relative placement).

BCDSS has been under a consent decree for many years, spurring efforts that have led to significant reductions in the number of children in out-of-home placements in Baltimore City, from 5,347 children in January 2009 to 1,801 in September 2019. BCDSS efforts have also led to a significant reduction in the number of children in congregate care. Currently, less than 6% of the children in out-of-home care are in congregate care, compared to nearly 14% in 2009. Average length of stay in foster care has also decreased significantly, from 53 months in the past to approximately 36 months currently. Nonetheless, recidivism rates—the level of re-abuse and reentry into foster care after returning home—are exceedingly high with approximately one in four children returned to out-of-home care within 12-18 months post-reunification. Caseloads are also up from an optimum of 12 per worker to a median of 19 per worker, with large numbers of new hires and a significant need for ongoing training and case consultation for workers to improve case outcomes.[119]

Recently passed state legislation addressing ACEs

The following three bills were recently passed at the recommendation of the Maryland Essentials for Childhood and the State Council on Child Abuse and Neglect to prevent ACEs and/or reduce their impact.[120]

$15 minimum wage: Increases Maryland's minimum wage to $15/hour by 2023. Initiatives that increase family income to reduce rates of child maltreatment.

SESAME Act- HB 486: Helps prevent child sexual abuse and exploitation in schools by eliminating hiring of personnel with prior history of abuse or misconduct. All students have the right to be free from trauma at school, including freedom from sexual abuse and misconduct.

Child advocacy center defining legislation: Ensures that every abused or victimized child in Maryland has access to an accredited children's advocacy center (CAC), a critical first stop after an allegation of abuse is made. CACs provide evidence-based, trauma-informed services that help children cope with and recover from childhood trauma.

SUMMARY AND CONCLUSIONS

Baltimore City and the state of Maryland have a wide array of services and initiatives designed to prevent and mitigate the negative effects of both the traditional and community-level ACEs. In addition to specific trauma-focused treatments subsequent to ACE exposure(s), the city offers a broad spectrum of prevention, early intervention, and resilience-promoting programs. There has been widespread dissemination of multiple evidence-based treatments, promotion of whole family and intergenerational intervention approaches, exciting grassroots change efforts, multiple sector/discipline partnerships, new legislation, and care integration efforts mobilized to impact ACEs.

Despite the many innovative efforts underway in the city, Baltimore experienced its highest murder rate in its history in 2017,[121] and while 2018 saw a nearly 10% drop in homicides,[122] Baltimore still ranked number two in the nation in murder rates of major U.S. cities.[123] As noted in this report, rates of trauma exposure and revictimization of children are exceedingly high.

Given the significant efforts to address the traditional and community-level ACEs in Baltimore, and clear indicators that conditions of toxic stress abound, some new strategies and approaches appear warranted to continue to make progress in addressing this public health crisis.

The recommendations resulting from this report are organized into seven sections: 1) prevention, 2) intervention, 3) service systems, 4) communitywide initiatives, 5) structural, 6) policy, and 7) performance evaluation. The need to abandon the myth of inoculation effects, as defined below, and move beyond the goal of resilience-building in an approach to addressing ACEs, are central tenets underlying the recommendations included in this report.

The concept of "inoculation effects" was introduced by Professor Zigler in an interview in 1993 when talking about Head Start:

> We have to get away from this inoculation model of Head Start—the idea that if children are in a program for one year, that will be enough to make their lives better. No program, no matter how good, is sufficient in one year to affect the growth trajectory of children. We should have not a one-year program, but a series of programs that dovetail. . . You could have one program with prenatal care and early education; then the Head Start we have now, and then, when children get to school in kindergarten and first and second grade, you should have a follow through with the same variety of services—health care, parental involvement, and so on.

A similar approach needs to be taken in preventing ACEs exposure; prevention programs focused on youth from birth to age three are not sufficient. In addition, the goal of prevention and intervention efforts needs to be more than just resilience-building. The rates of ACEs exposure in Baltimore City and elsewhere in this country are not acceptable. The end goal has to be a drastic reduction in children's exposures to ACEs, not for them to bounce back after being a bystander shot in a drive-by shooting or burying a parent or sibling who died in a city where racism reigns and distrust of the police runs deep. Baltimore is a strong city, with residents who are committed to supporting their neighbors and finding innovative solutions to the city's problems. Solutions must address the structural racism and other unique factors endemic to Baltimore that perpetuate a state of toxic stress for its residents.

RECOMMENDATIONS

1. Prevention

Increase prevention efforts targeting middle school and high school students. As noted in the literature review and survey of the Baltimore landscape, most of the prevention programs that have been widely disseminated target families of children birth to age three. While this is a period of rapid brain development, so, too, is adolescence. In the spirit of Professor Zigler, more prevention dollars should be invested across the age span, including two-generation prevention efforts targeting middle school and high school-aged students, such as the Strong African American Families model discussed earlier in this report.

2. Intervention

Expand the availability of two-generation and family-focused interventions that address co-occurring ACEs. ACEs often co-occur, and unfortunately, services addressing co-occurring ACEs (e.g., mental health disorders, child abuse, domestic violence) are often fragmented. The availability of innovative programs like Fathers for Change that address domestic violence, substance misuse, and parenting issues, and other programs that take a two-generation family-focused approach to address co-occurring ACEs like the Family–Based Recovery and Building Stronger Families programs, need to be brought to Baltimore and scaled to capacity. The potential of using flexible funding available through the Families First Prevention Services Act to bring these interventions to Baltimore should be explored.

3. Service Systems

Increase support for Baltimore City Department of Social Services (BCDSS) in attaining positive family outcomes. Since the implementation of the modified consent decree, efforts by BCDSS have led to significant gains on multiple child and family case outcomes. Nonetheless, recidivism rates—the level of re-abuse and reentry into foster care after returning home—are exceedingly high, with approximately one in four children returned to out-of-home care within 12-18 months post-reunification. It is, therefore, recommended that a series of meetings be held with BCDSS leadership and other relevant stakeholders to attain their perceptions of the barriers to achieving better outcomes for children and families, and to develop an action plan to cut the re-entry rate by 50% within five years. As part of the action plan, it is also recommended that resources be available to allow for ongoing training and expert consultation for BCDSS workers to improve the outcomes of BCDSS cases, and that flexible funding available through the Families First Prevention Services Act be used to assure the two-generation and family-focused interventions discussed above are available to DSS families, given the frequent co-occurring ACEs experienced by families served by DSS. The children and families served by BCDSS represent some of the most challenging clinical cases, yet the front-line workers are often novices with little experience or support to carry out the herculean tasks they are charged with.

4. Communitywide Initiatives

Create a clearinghouse of trauma-informed initiatives needed in Baltimore. It was impossible to get a thorough inventory of available trauma-informed services and resources in the city. It is, therefore, recommended that a user-friendly website tracking this information be created and maintained to serve as a resource for families and professionals alike.

Support outreach workers and infrastructure to maintain communitywide collaborations. Prior research has found that support for outreach workers and the infrastructure to maintain organization-resident partnerships is critical to the success of communitywide collaborations.[31] As discussed in the literature review section of this report, with outreach workers and resources to sustain collaborations and innovative programming, neighborhood-

"Be optimally committed to the development of each child. They are our partners in the learning enterprise, and we have the special responsibility to make the lives of these children better." –Dr. Edward Zigler

based community collaborations have been found to enhance residents' perceptions of social support, promote gains in the use of positive parenting strategies, and decrease rates of founded reports of child maltreatment and coded injuries suggestive of child maltreatment documented in medical records.[31] Baltimore needs a comprehensive plan for integration and meaningful collaboration between the myriad of available resources to deal effectively with ACEs. While there are many programs and initiatives, each often operates in a silo that has limited progress in reducing the prevalence and negative effects of ACEs.

5. Structural

Create job opportunities for people with felony convictions, and break the cycle of crime and violence. Efforts of companies like Boeing and JPMorgan Chase that are working to increase their hiring of people with felony convictions to reduce criminal recidivism rates should be supported. As noted previously, research has found that employment can break the cycle of crime and strengthen families, and these sorts of novel hiring initiatives are likely to positively impact both the traditional family-focused ACEs (e.g., household member incarcerated), and the community-level ACEs (e.g., poverty, gun violence).

Address police misconduct. It is promising that the former police chief from New Orleans who led the implementation of the Ethical Policing is Courageous (EPIC) peer intervention program is now here in Baltimore. As discussed previously, EPIC resulted in fewer complaints against officers, a 93% drop in the use of serious force, rates of pleasant and courteous interactions with police increasing to 87% from 53%, and a drop in homicide rates to a 47-year low. It is recommended that the police chief, and the bodies charged with monitoring the consent decree and the police department as a whole, be given the resources and support necessary to implement the same changes in Baltimore. Youth and community resident collaboration in the effort is also essential. As noted, EPIC not only reduced racial biases in policing, but it was also associated *with a significant drop in homicide rates as well*, suggesting the importance of legislation to support implementation in Baltimore and elsewhere in the state.

6. Policy

Support the legislative recommendations outlined below. These recommendations have been proposed by the Maryland Essentials for Childhood and the State Council on Child Abuse and Neglect to prevent ACEs and/or reduce their impact.[120]

> *Trauma-Informed Schools- HB 256, SB 223*: Establishes programs and funding to help schools better identify trauma exposure and address its ramifications among students and staff. School-based programs that address trauma symptoms improve educational outcomes for children.
>
> *2019 Time to Care Act- HB 341*: Provides up to 12 weeks of paid family leave. Paid family leave is associated with decreased infant mortality, improved child health, improved parent-child bonding, and reduced child maltreatment.

Temporary Cash Assistance (TCA) Funding – HB 339: Raises TCA from 61% to 71% of the Maryland minimum living level over five years. Increases in family income improve family stability, reduce family stress, and may prevent child neglect.

It is additionally recommended to develop legislation to de-criminalize addiction, promote treatment over incarceration, and provide the necessary resources to increase access to quality community-based substance abuse and mental health care services. The Law Enforcement Assisted Diversion (LEAD) program, operated through Behavioral Health Systems Baltimore, oversees low-level drug cases referred to treatment and support services instead of being prosecuted. This is an example of an extant program consistent with this recommendation.

7. Performance Evaluation

The recent review of child maltreatment prevention programs conducted by the U.S. Preventive Services Task Force and published in the Journal of the American Medical Association (JAMA) highlights the importance of ongoing performance evaluation of prevention, intervention, and other efforts to reduce ACEs and mitigate their effects. Program availability and service needs should also be tracked to ensure that evidence-based treatments and promising programs are appropriately scaled, and outcomes and costs should be monitored, which requires the development of a data management plan and the necessary resources for cross-system data integration to track society's investments in these efforts.

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Prevention, Intervention, and Policy Strategies to Reduce the Individual and Societal Costs Associated with Adverse Childhood Experiences (ACEs) for Children in Baltimore City

By Elizabeth Thompson, PhD, and Joan Kaufman, PhD
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About the Abell Foundation

The Abell Foundation is dedicated to the enhancement of the quality of life in Maryland, with a particular focus on Baltimore. The Foundation places a strong emphasis on opening the doors of opportunity to the disenfranchised, believing that no community can thrive if those who live on the margins of it are not included.

Inherent in the working philosophy of the Abell Foundation is the strong belief that a community faced with complicated, seemingly intractable challenges is well-served by thought-provoking, research-based information. To that end, the Foundation publishes background studies of selected issues on the public agenda for the benefit of government officials; leaders in business, industry and academia; and the general public.

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