

Overview: Toxic Stress / Adverse Experiences in Vermont

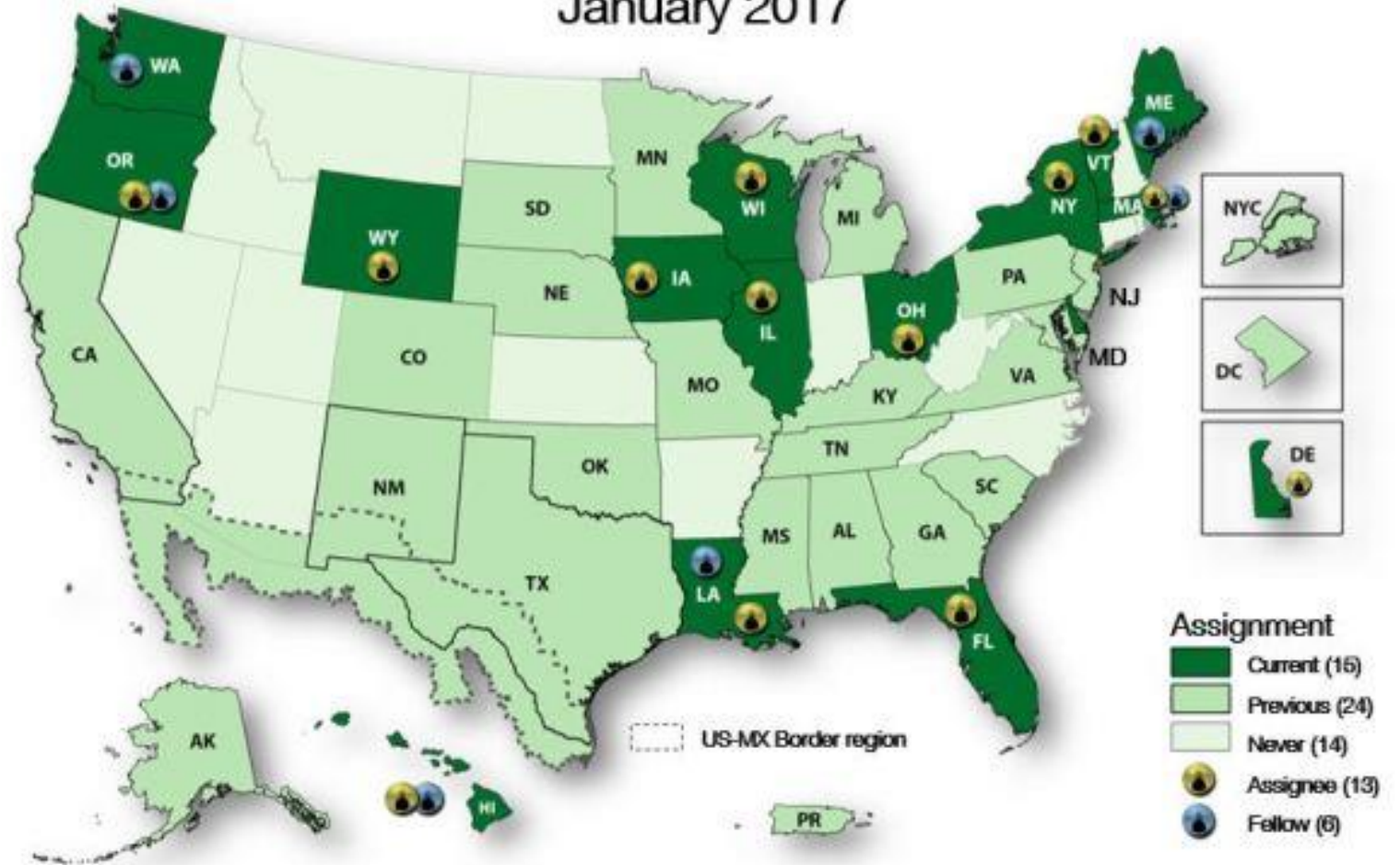
LAURIN KASEHAGEN, MA, PHD

EPIDEMIOLOGIST / CDC ASSIGNEE TO

VERMONT DEPARTMENTS OF HEALTH & MENTAL HEALTH

- Maternal and Child Health Epidemiology Program
 - Located within CDC / ONDIEH / NCCDPHP / DRH / FSB
 - 14 assignees and about 10 fellows in the field, including Vermont
- Assignment first of its kind
 - VT, CDC, NCBDDD, SAMHSA, HRSA / MCHB
 - Primary focus on child and family behavioral, emotional, and mental health and wellness
 - Significant investment
 - VT selected for its innovation, collaboration, and size

Places with MCHEP Supported Public Health Staff, January 2017



<http://www.cdc.gov/reproductivehealth/mchepi/assignees.htm>

What is the population health approach and evidence-based public health?

Population Health is an approach that

- focuses on **interrelated conditions and factors that influence the health of populations over the life course**,
- identifies **systematic variations in their patterns of occurrence**, and
- **applies the resulting knowledge to develop and implement policies and actions** to improve the health and well-being of those populations.

Evidence-based public health is the mechanism by which population health information is used for the

- ...development, implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program planning models.

Sources: D Kindig and G Stoddart, What is population health? *Am J Public Health*, 2003; 93(3):380-383;

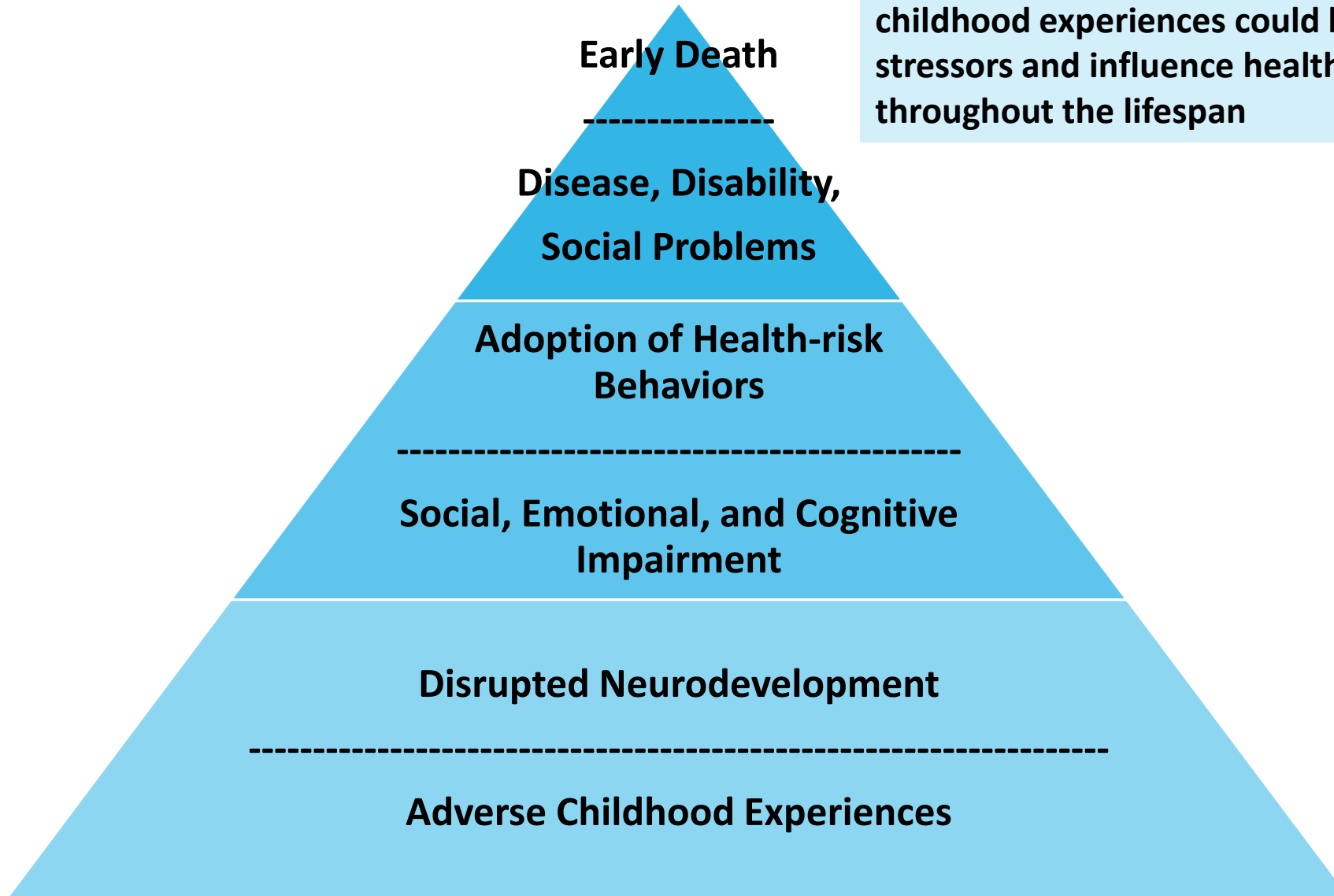
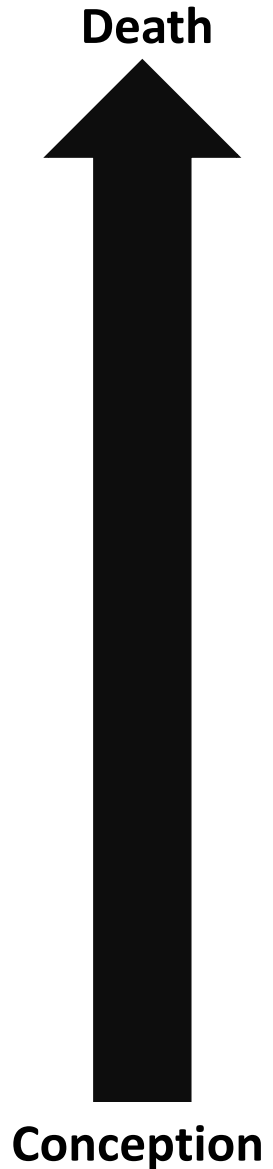
Brownson, Ross C., Elizabeth A. Baker, Terry L. Leet, and Kathleen N. Gillespie, Editors. *Evidence-Based Public Health*. New York: Oxford University Press, 2003

Definitions: Toxic Stress and Adverse Childhood Experiences (ACEs)

Toxic stress is a term used to describe the kinds of **experiences, particularly in childhood, that can affect brain architecture and brain chemistry**, such as severe abuse.

Adverse childhood experiences (ACEs) are **potentially traumatic events that can have negative, lasting effects on health and well-being**, typically occur in a person's life before the age of 18 and have lasting impact as an adult. ACEs can be toxic stressors, particularly if the adversity is not buffered or counterbalanced with supportive relationships and the types of experiences and emotions that comprise resilience.

Sources: DNA Learning Center. <https://www.dnalc.org/view/1226-Toxic-Stress.html>, accessed 9/5/2017. Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., & Koss, M. P. (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American journal of Preventive Medicine 14(4), 245-258.



Mechanism by which unbuffered adverse childhood experiences could become toxic stressors and influence health and well-being throughout the lifespan

Source: adapted from CDC

Which adverse experiences are measured?

Adult & Child Questions

Live with anyone (parent / guardian) who ...

- Was **depressed, mentally ill, or suicidal**?
- Was a **problem drinker or alcoholic**?
- Used **illegal street drugs / abused prescription medications**?
- Served time / was sentenced to **serve time in a prison, jail or other correctional facility**?
- Got **separated or divorced**?
- Were parents (/ guardians) **separated or divorced**?
- See / hear **parents or adults in your home ever slap, hit, kick, punch or beat each other up**?

Adult Questions

- Did a parent or adult in your home ever
 - Hit, beat, kick, or physically hurt you in anyway (does not include spanking)?
 - Swear at you, insult you, or put you down?
- Did anyone at least 5 years older than you or an adult
 - Touch you sexually?
 - Try to make you touch them sexually?
 - Force you to have sex?

Child Questions

- Ever the victim or violence / witness neighborhood violence?
- Ever treated / judged unfairly because of race or ethnic group?
- Live in a household where it was hard to cover basics like food or housing?
- Live with a parent/ guardian who died?

Sources of Data for Adverse Experiences

ADVERSE CHILDHOOD EXPERIENCES (ACE)

2011 Vermont Behavioral Risk Factor Surveillance System (BRFSS)

Samples 1 in 100 Vermont adults

Respondents recall their own childhood

ADVERSE FAMILY EXPERIENCES (AFE)

2011-12 National Survey of Children's Health (NSCH)

Samples 1 in 70 Vermont children

Parents / guardians respond for child

ADVERSE EXPERIENCES BEFORE PREGNANCY (AEBP)

2012-2014 Pregnancy Risk Assessment Monitoring System (PRAMS)

Samples 1 in 5 Vermont births

Respondents recall their own experiences before, during and after pregnancy and the first 2-3 months of the newborn's life

All 3 of these surveillance systems

- Are designed and data collected in a manner that allow **valid state-to-state, regional, and national comparisons**
- **Yield weighted data prevalence estimates** for comparable non-institutionalized populations **in each state and nationally**

Do BRFSS, NSCH and PRAMS measure resilience or other assets that buffer toxic stress?

FLOURISHING AND THRIVING

Children 6 mo – 5 yrs --

- (1) child is affectionate and tender
- (2) child bounces back quickly when things don't go his/her way
- (3) child shows interest and curiosity in learning new things
- (4) child smiles and laughs a lot

Children 6-17 yrs --

- (1) child shows interest and curiosity in learning new things
- (2) child stays calm and in control when faced with a challenge
- (3) child finishes tasks and follows through with plans

ADDITIONAL POSITIVE INDICATORS

overall health status

relationship with family and peers (parent reads/sings/tells stories to child, plays with children own age, parent-child relationship, family eats meals together)

school engagement (cares about doing well in school and completes all required homework)

self-care and healthy decisions (physical activity, adequate sleep)

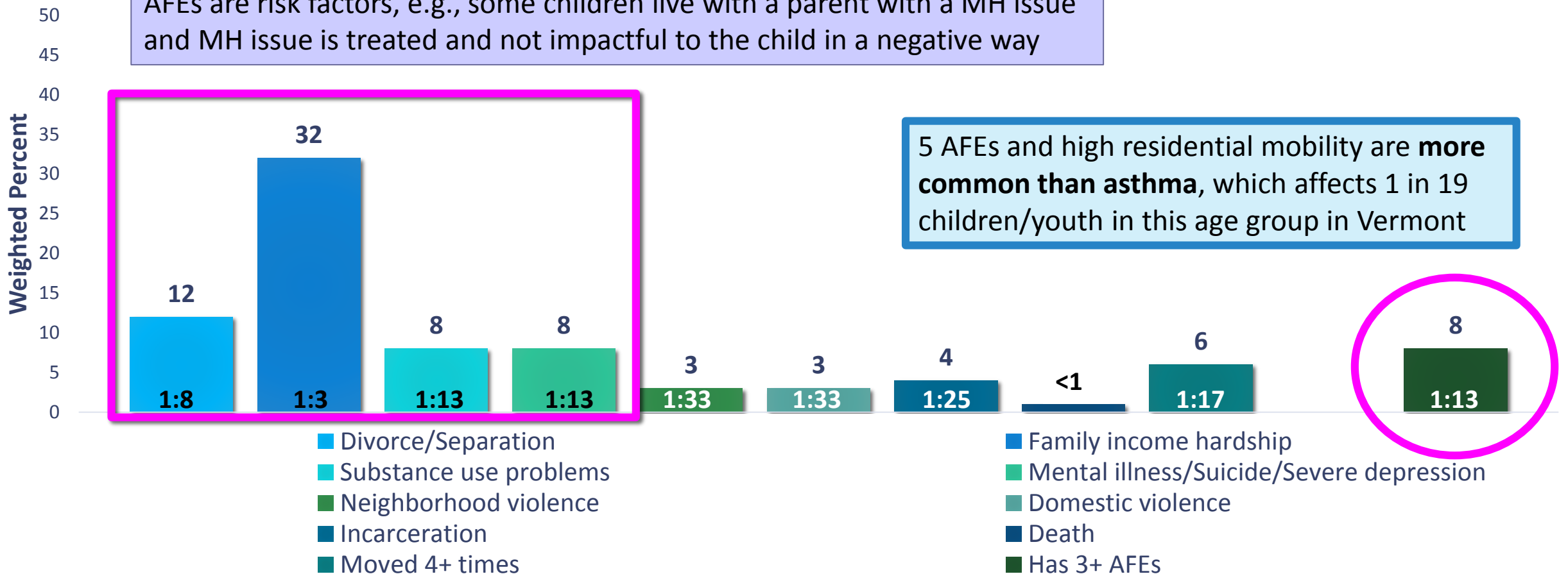
participation in activities (extracurricular activities, volunteering, work for pay outside home)

What does toxic stress look like among Vermonters?

THE CUMULATIVE ADVERSITY OR ADVERSE CIRCUMSTANCES THAT MANIFEST AS BEHAVIORAL PROBLEMS, HIGH RISK TAKING BEHAVIOR, CHRONIC CONDITIONS

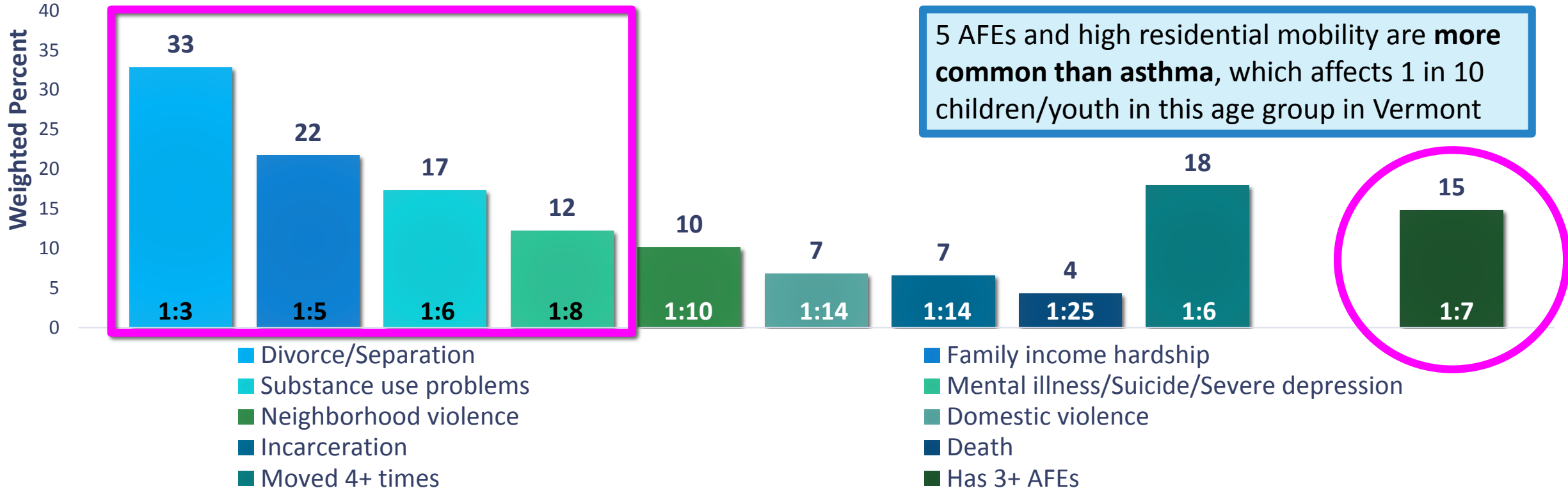
Burden of Adverse Family Experiences and Residential Mobility among Vermont Children <1-5 years, 2011-12 National Survey of Children's Health

AFE's are risk factors, e.g., some children live with a parent with a MH issue and MH issue is treated and not impactful to the child in a negative way

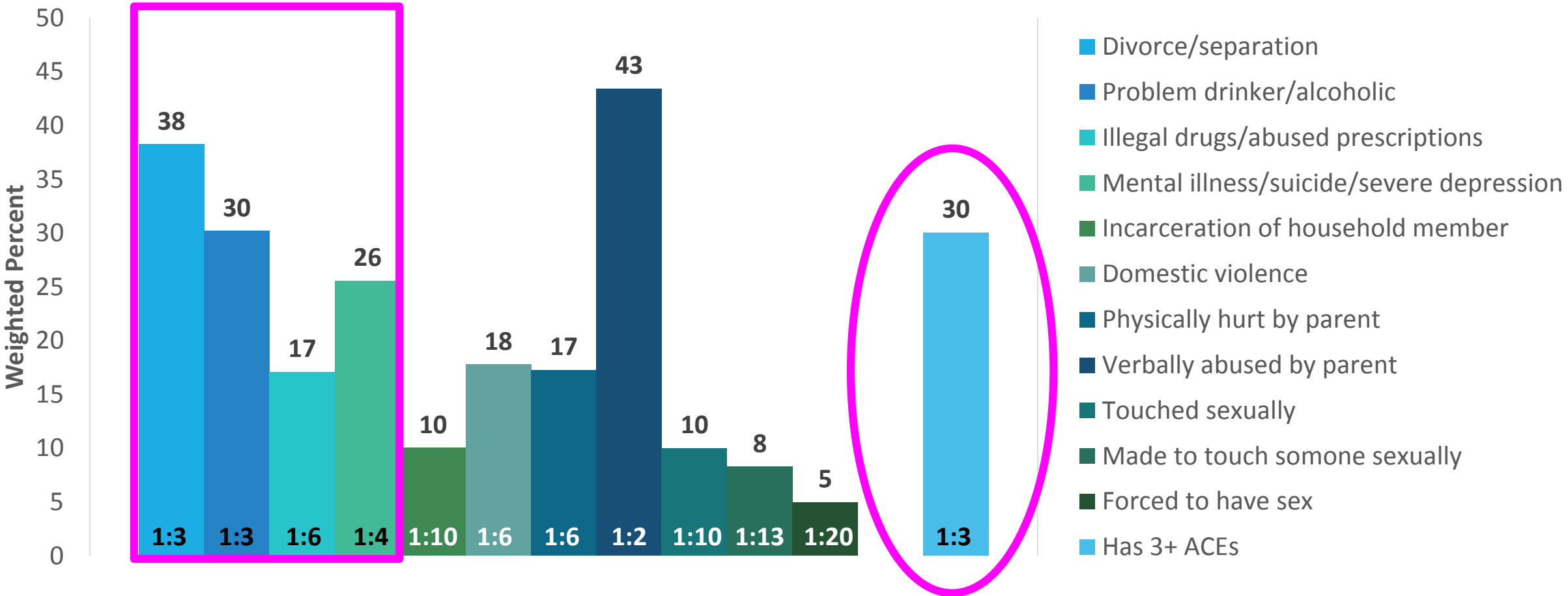


Burden of Adverse Family Experiences and Residential Mobility among Vermont Children & Youth 6-17 years, 2011-12 National Survey of Children's Health

AFEs are risk factors, e.g., some children live with a parent with a MH issue and MH issue is treated and not impactful to the child in a negative way

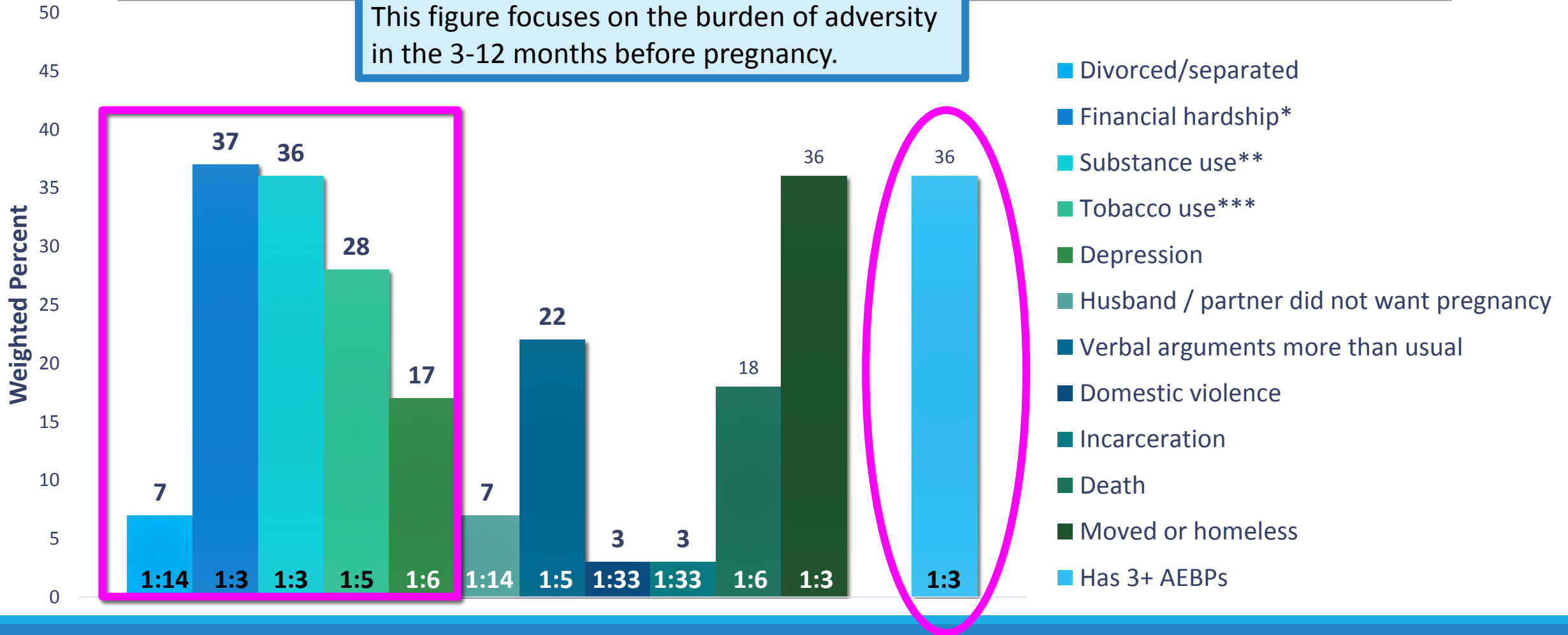


Burden of Adverse Childhood Experiences among Vermont Adults, 18-44 years, 2011 BRFSS



Burden of Adverse Experiences Before Pregnancy among Vermont Women who have had a live birth, 2012-14 PRAMS

This figure focuses on the burden of adversity in the 3-12 months before pregnancy.

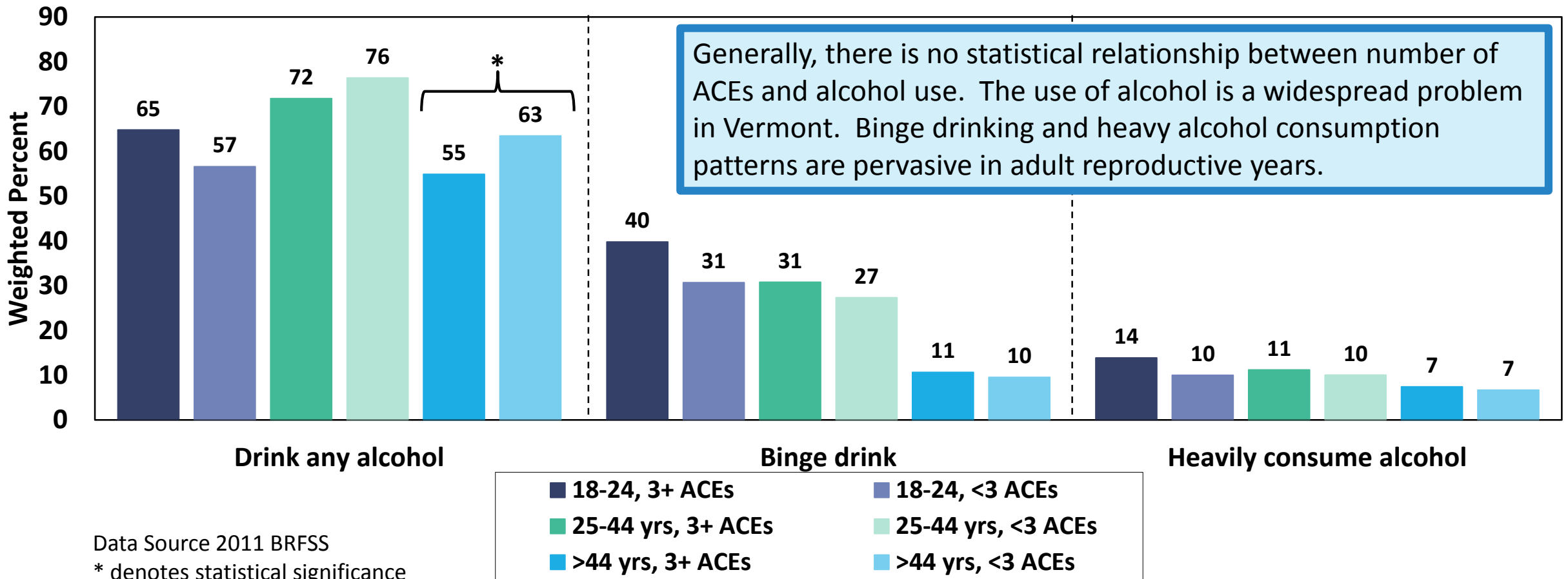


Take away points...adverse experiences are...

- very common and often largely unrecognized
- interrelated, not solitary
- strong predictors of social malfunction, mental illness, health risks, disease and premature death
- the basis for much of adult medicine and of many common public health and social problems
- a leading determinant of the health and social and economic outcomes of our state and nation
- although the original ACE study is more than 20 years old, we are just now making these linkages and embarking on a public health approach to raise community awareness and response

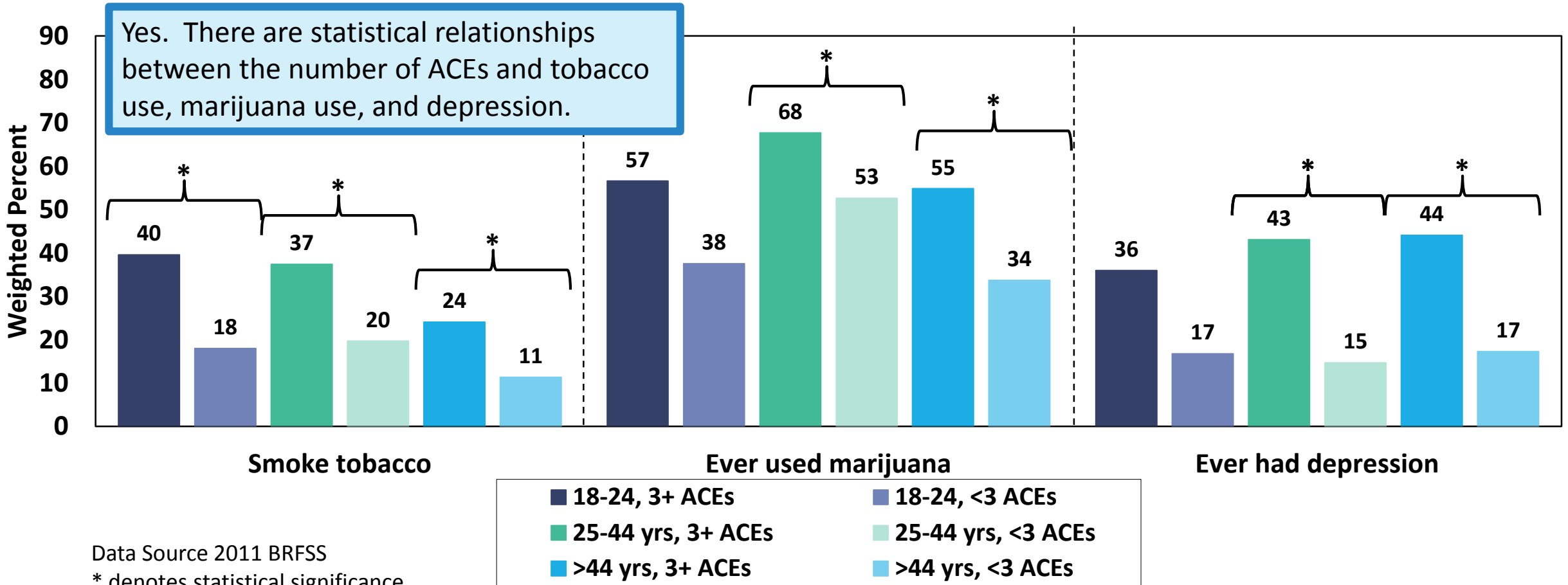
Why is it important to use multiple population level data sources to understand adversity and the things that buffer toxic stress?

Do adults with 3+ ACEs report higher prevalence of alcohol use than those with <3 ACEs?



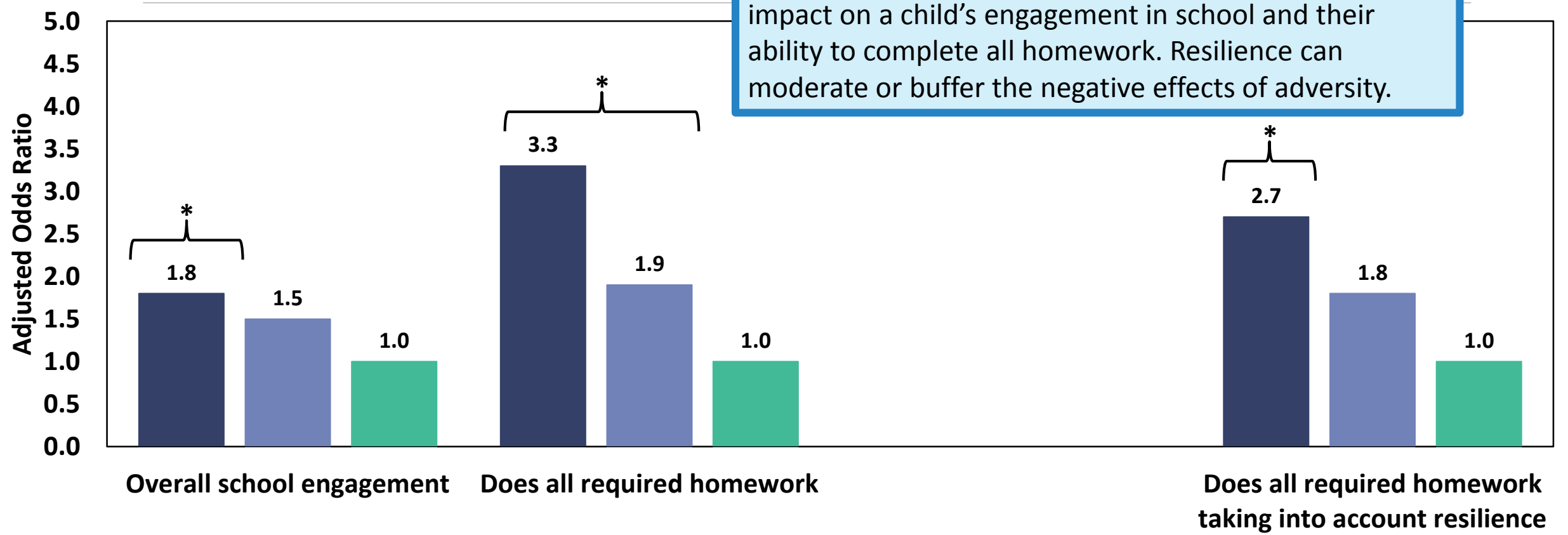
Data Source 2011 BRFSS
 * denotes statistical significance

Do adults with 3+ ACEs report higher prevalences of tobacco use, marijuana use, or depression than those with <3 ACEs?



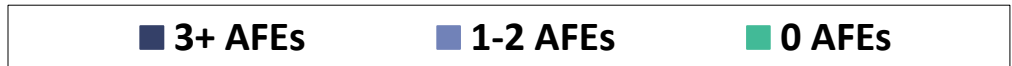
Are children 6-17 years with 3+ AFEs less engaged in school than those with <3 AFEs? Is this different for children who demonstrate “resilience”?

As few as 1 or 2 adverse family experiences can have an impact on a child’s engagement in school and their ability to complete all homework. Resilience can moderate or buffer the negative effects of adversity.

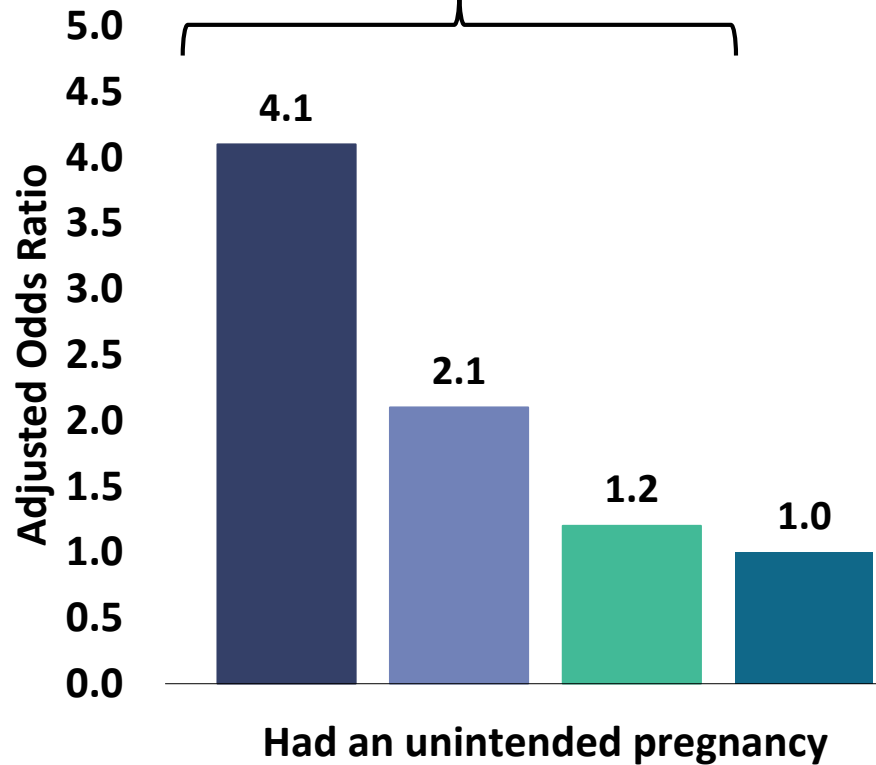


Data Source 2011-12 NSCH

* denotes statistical significance



Are women with adverse experiences before pregnancy at greater risk of having an unintended pregnancy compared to those with no adverse experiences?



About 40% of pregnancies in Vermont are unintended, mistimed, or not wanted.

As few as 1 or 2 adverse experiences can have an impact on a couple's planning for pregnancy. Helping women and men to be ready for pregnancy, childbirth, and a new baby could help change the family environment in which babies are being born.

Data Source 2012-14 PRAMS

* denotes statistical significance



If we know what toxic stress is and how it manifests, what now?

THE GOOD NEWS AND THE BAD NEWS

Bad news ... there is no silver bullet ...



fa401378 freeart.com ©

vaccine, pill or singular, “one-size fits all” intervention that can “cure” cumulative toxic stresses

Individual-level interventions do not change the underlying conditions in communities that enable toxic stress to continue

Good news ...

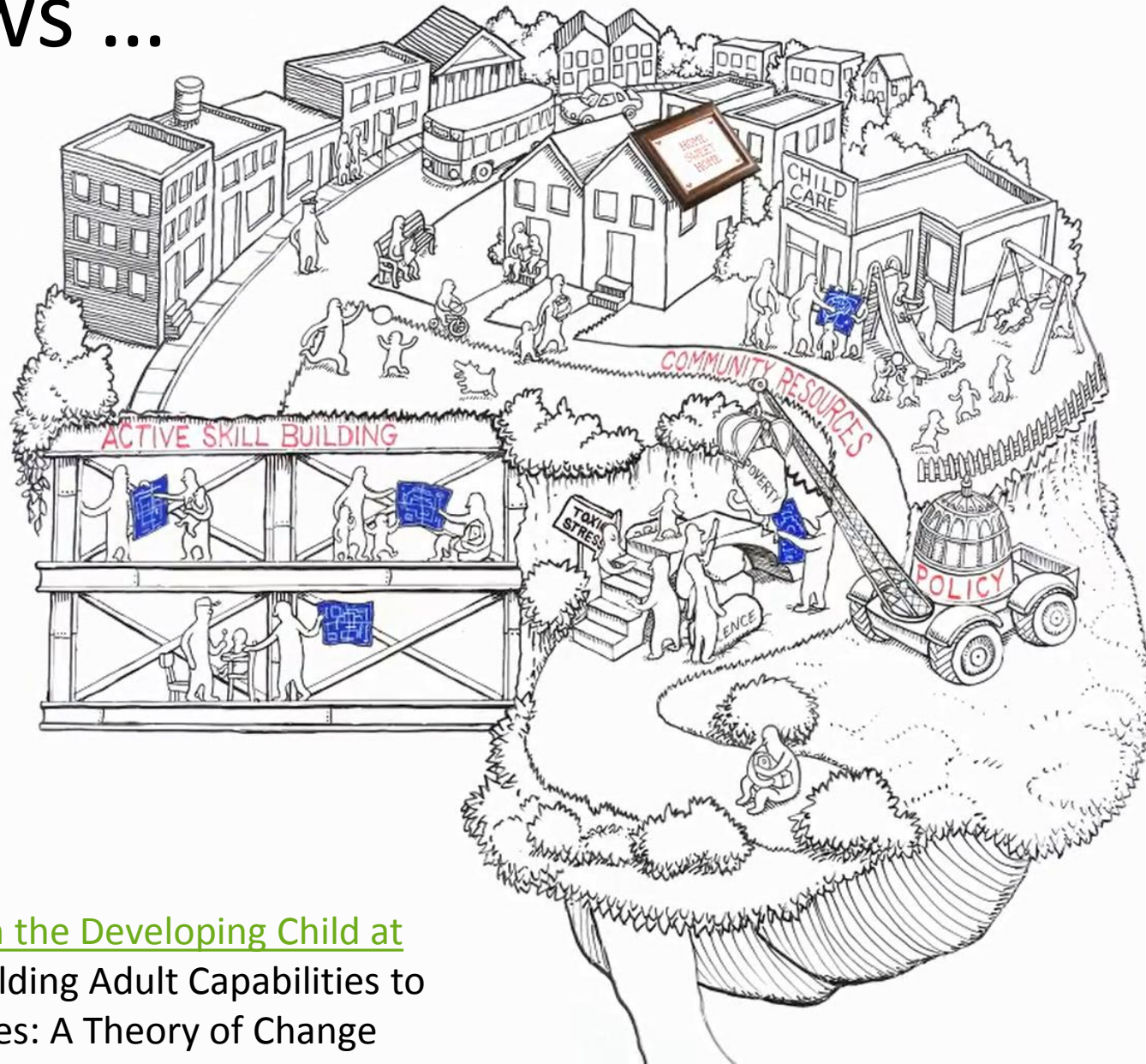
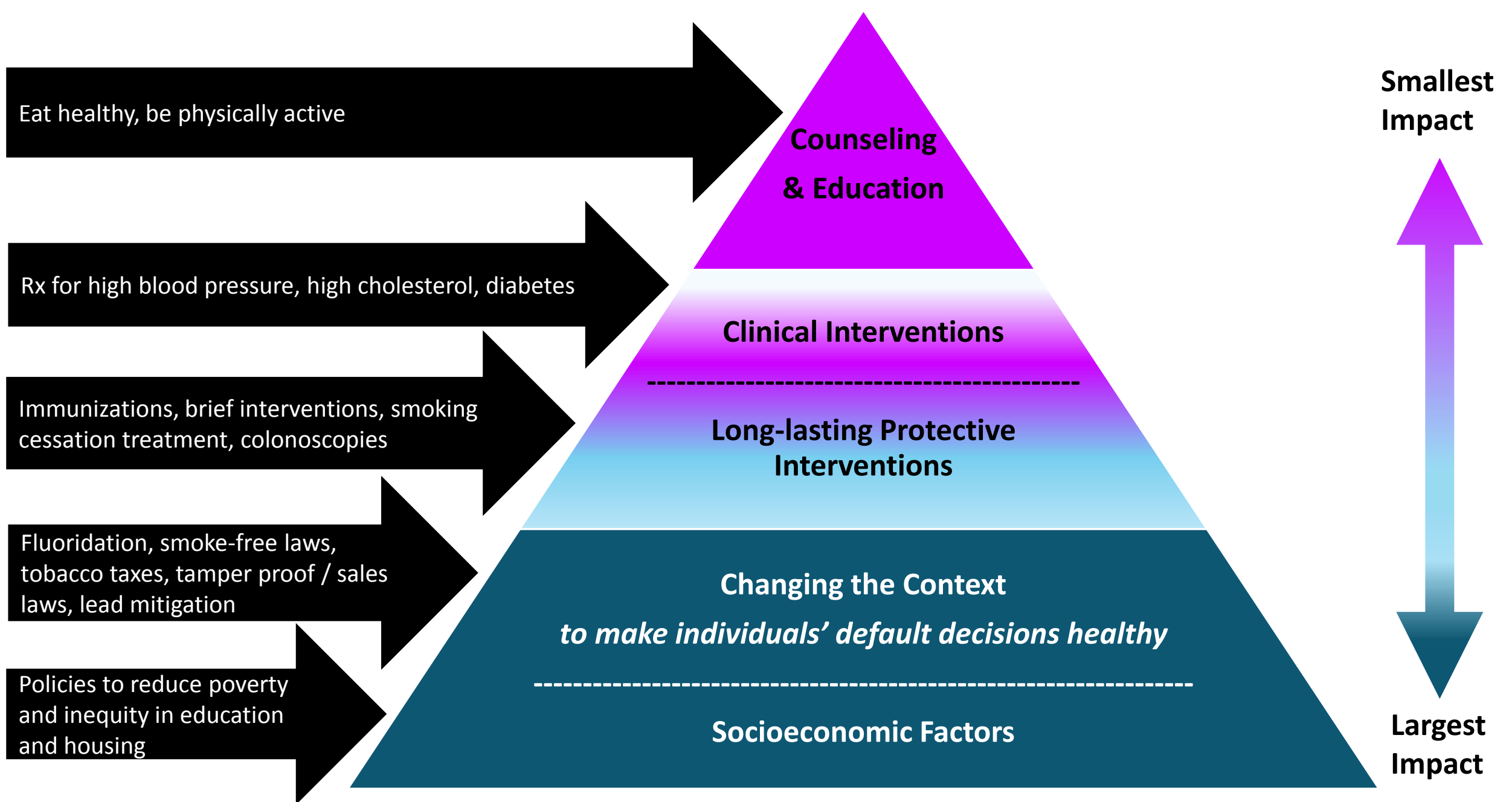
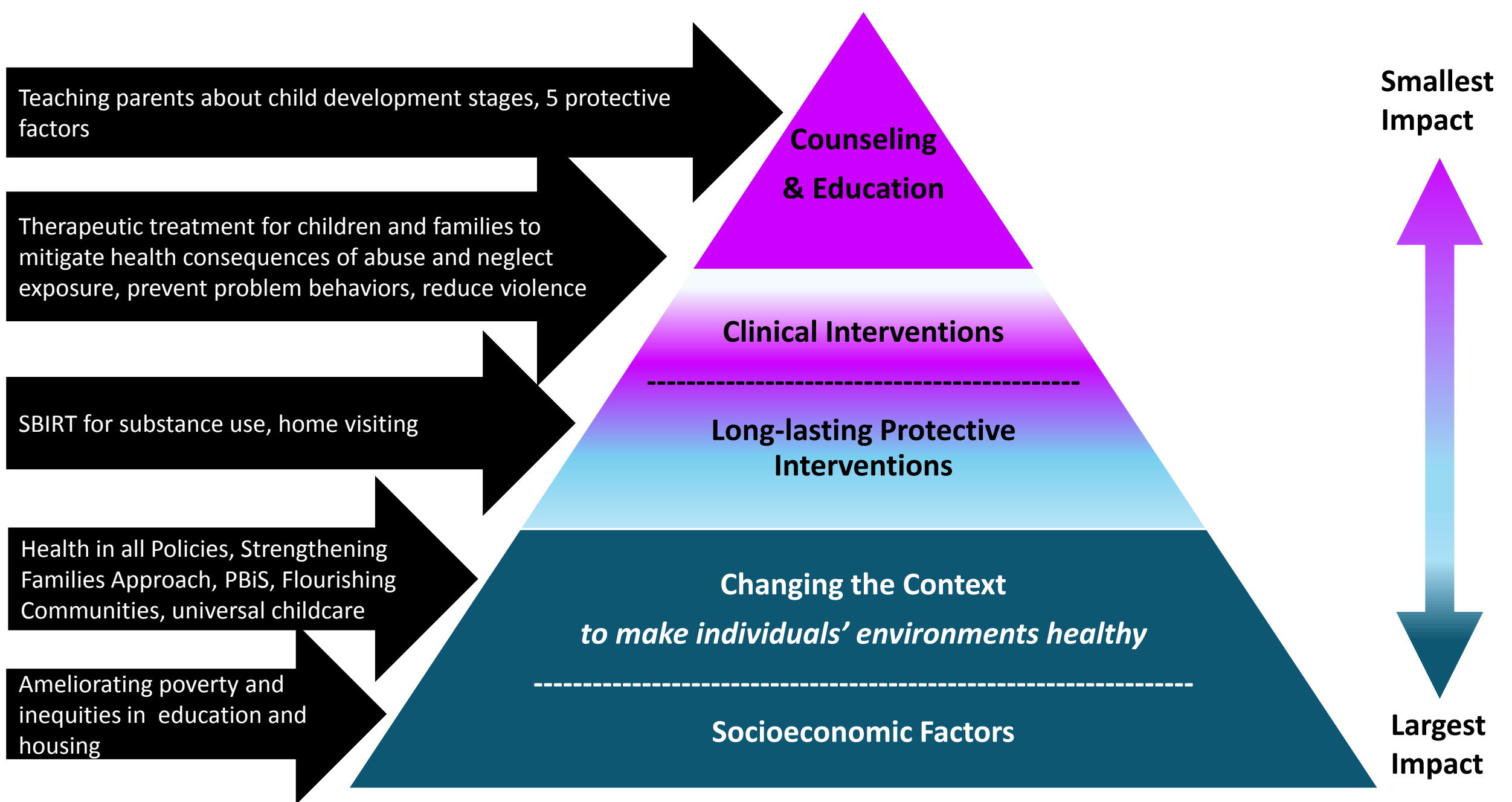


Image from: [Center on the Developing Child at Harvard University](#), Building Adult Capabilities to Improve Child Outcomes: A Theory of Change





Gaps

DATA

We have three population level surveillance systems in which we can collect information on adverse experiences and assets:

- BRFSS
- PRAMS
- NSCH

Important to ensure

- continued support and funding of these systems and
- dissemination of the findings from analysis.

MEASURES

Within the population level surveillance systems, we need to balance the collection of information about adverse experiences with the collection of information on assets -- this is particularly true for the adult population.

We have programmatic level data that includes strengths and needs for children and their caregivers, but the link of these measures to the population level could be problematic.

What works? An example from the Technical Package on Preventing Child Abuse and Neglect

Strategy	Approach
Strengthen economic supports to families	<ul style="list-style-type: none">▪ Strengthening household financial security▪ Family-friendly work policies
Change social norms to support parents and positive parenting	<ul style="list-style-type: none">▪ Public engagement and education campaigns▪ Legislative approaches to reduce corporal punishment
Provide quality care and education early in life	<ul style="list-style-type: none">▪ Preschool enrichment with family engagement▪ Improved quality of child care through licensing and accreditation
Enhance parenting skills to promote healthy child development	<ul style="list-style-type: none">▪ Early childhood home visitation▪ Parenting skill and family relationship approaches
Intervene to lessen harms and prevent future risk	<ul style="list-style-type: none">▪ Enhanced primary care▪ Behavioral parent training programs▪ Treatment to lessen harms of abuse and neglect exposure▪ Treatment to prevent problem behavior and later involvement in violence

Source: Fortson, B. L., Klevens, J., Merrick, M. T., Gilbert, L. K., & Alexander, S. P. (2016). *Preventing child abuse and neglect: A technical package for policy, norm, and programmatic activities*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

What does success look like? An example from the Technical Package on Preventing Child Abuse and Neglect

Strategy	Potential Outcomes
Strengthen economic supports to families	<ul style="list-style-type: none">▪ Improvements in children’s health, development and health insurance coverage▪ Reductions in physical abuse of children and child neglect▪ Reductions in maternal depression and parental stress▪ Reductions in adolescent risky health behaviors▪ Reductions in chronic disease among adults and the leading causes of death
Change social norms to support parents and positive parenting	<ul style="list-style-type: none">▪ Shift in perceived responsibility for children – from personal to shared▪ Increase in public support for policies supportive of children and families▪ Increase in seeking help for parenting
Provide quality care and education early in life	<ul style="list-style-type: none">▪ Reduced encounters with child welfare services▪ Lower rates of out of home placement, juvenile arrests / incarceration, grade retention and special education services, and disability

Source: Fortson, B. L., Klevens, J., Merrick, M. T., Gilbert, L. K., & Alexander, S. P. (2016). *Preventing child abuse and neglect: A technical package for policy, norm, and programmatic activities*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

Discussion & Questions

Laurin Kasehagen, MA, PhD

Laurin.Kasehagen@partner.Vermont.gov

802-863-7288
