

# Developmental Trauma and the Brain

EPIDEMIOLOGICAL DATA AND NEUROLOGICAL IMPACTS

DR. GOVIND KRISHNAMOORTHY PHD AND DR. KAY AYRE EDD



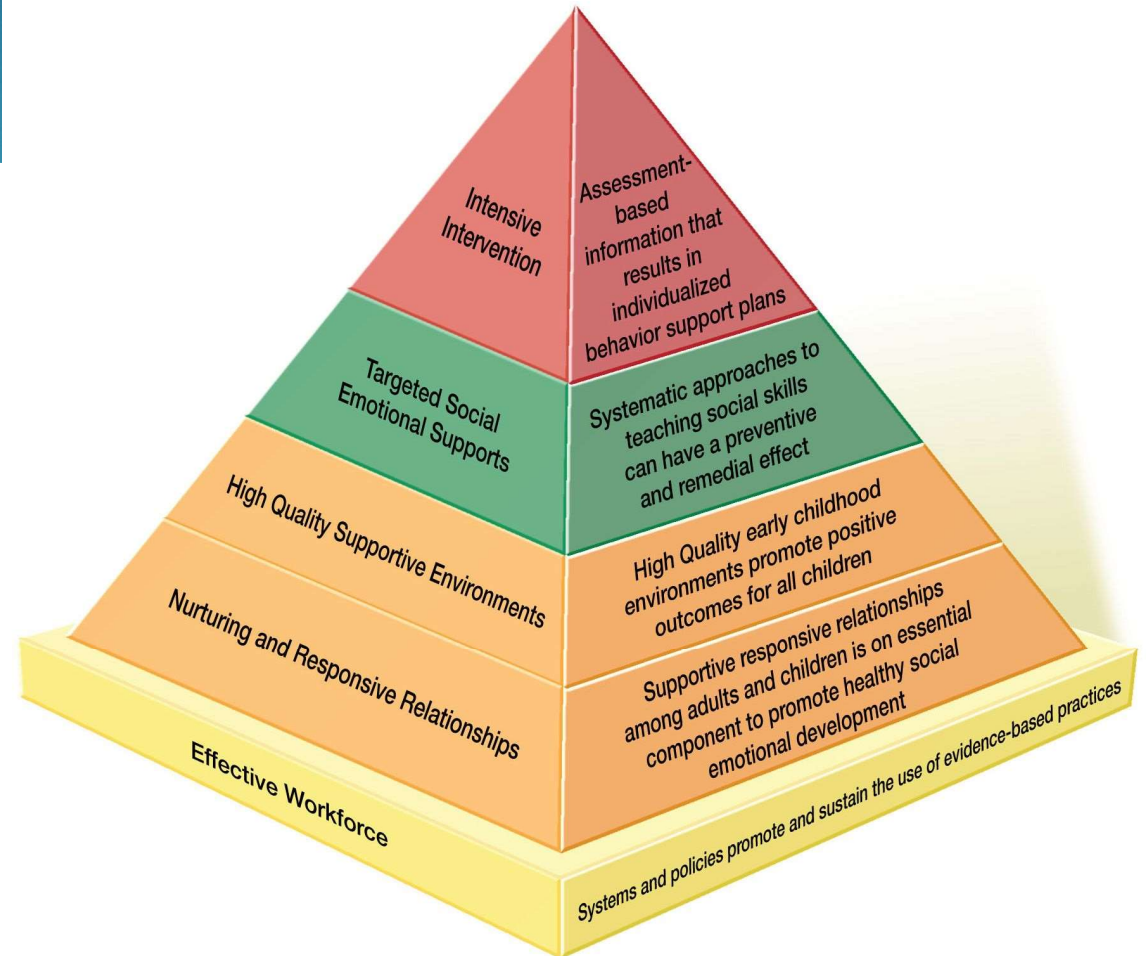
YOUNG MINDS  
Clinical Psychology

# Introduction & Overview

- ▶ Introduction to us (Kay)
- ▶ Developmental trauma in the early years (case study) (Kay)
- ▶ Impact of child trauma on school functioning: Epidemiological and neurological impacts. (Govind)
- ▶ Gaps in evidence and the need for a new approach: Trauma informed positive behaviour support (Govind)
- ▶ Application to case study (Kay)

# Introduction to us

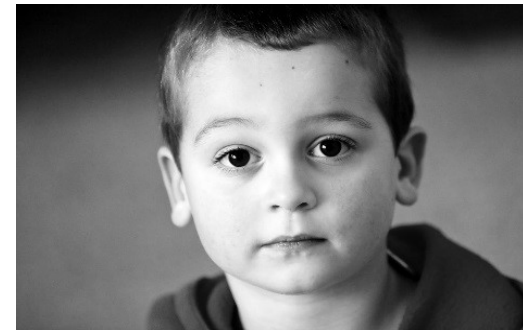
- ▶ Dr. Kay Ayre
- ▶ Dr. Govind Krishnamoorthy



Credit: Hemmeter et al. (2018)

# Case study – Meet Luke

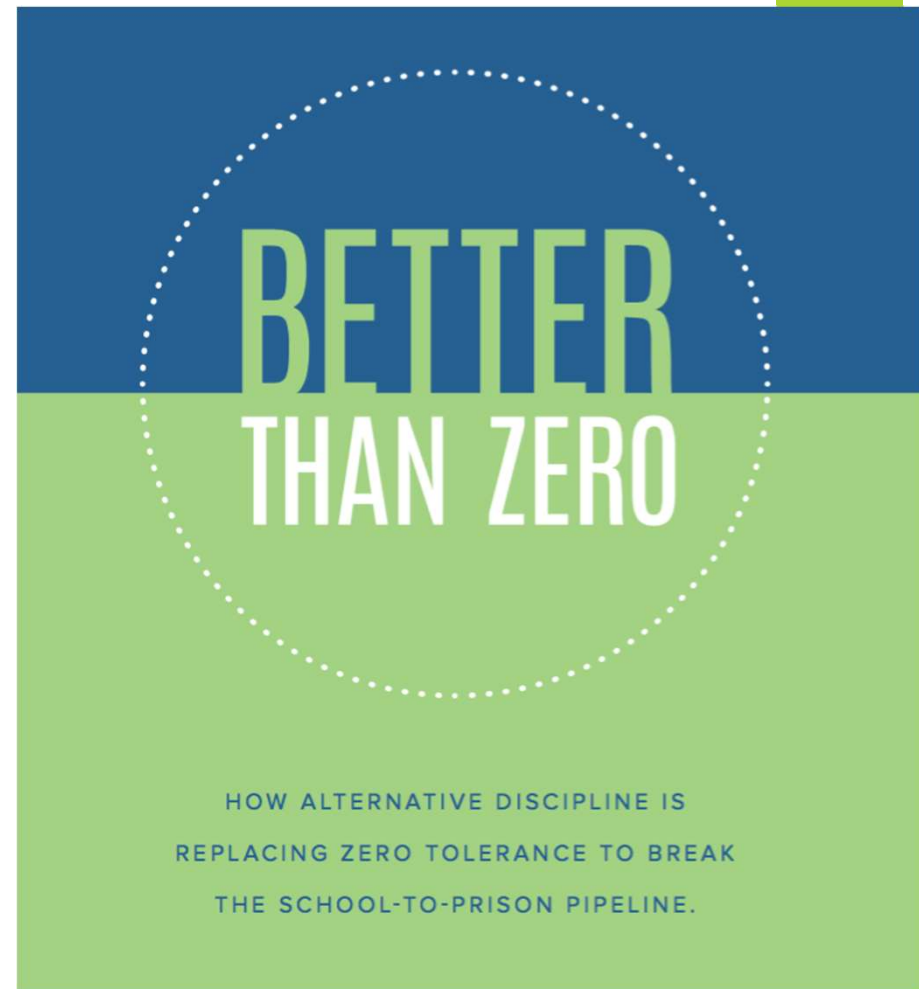
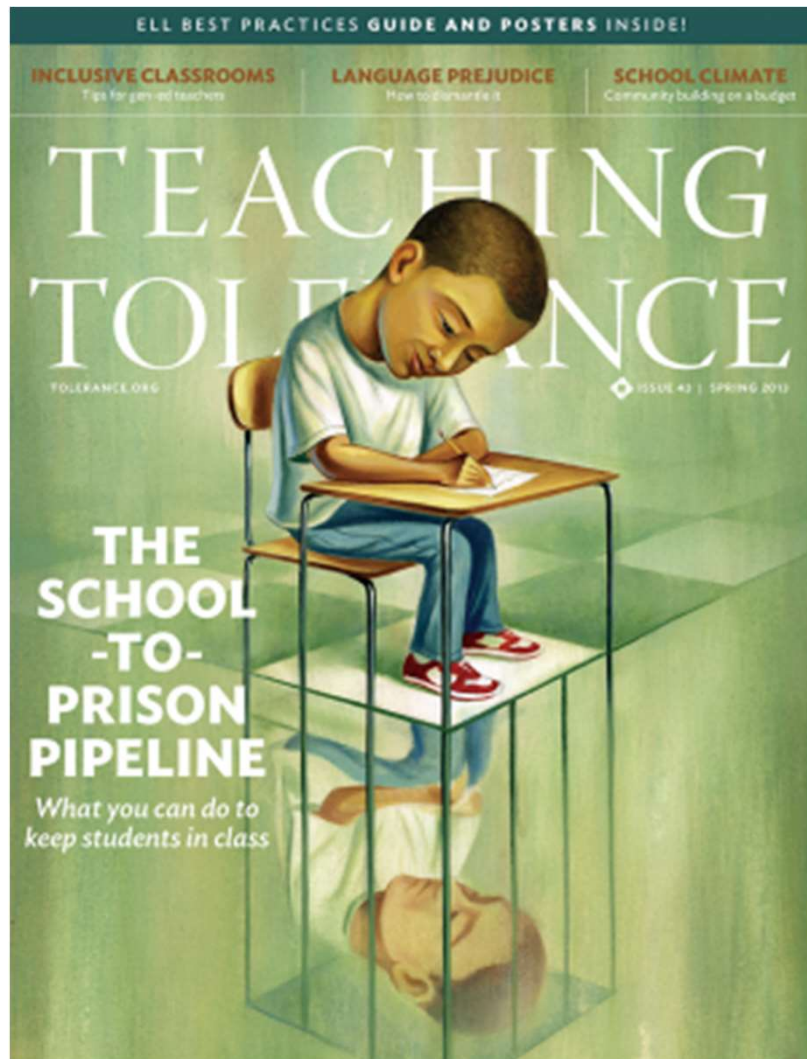
- ▶ What is the most concerning aspects of the case?
- ▶ Why do you think his behaviours are so severe?
- ▶ What do you think will help?





# Adversity in Childhood

EPIDEMIOLOGICAL DISCOVERIES



# Impact of Trauma on School Functioning

School Mental Health (2016) 8:7–43  
DOI 10.1007/s12310-016-9175-2



ORIGINAL PAPER

## **School-Related Outcomes of Traumatic Event Exposure and Traumatic Stress Symptoms in Students: A Systematic Review of Research from 1990 to 2015**

**Michelle M. Perfect<sup>1</sup> · Matt R. Turley<sup>1</sup> · John S. Carlson<sup>2</sup> · Justina Yohanna<sup>2</sup> · Marla Pfenninger Saint Gilles<sup>2</sup>**

*Other Academic Outcomes (e.g., Discipline, Dropout, Attendance)*

Eckenrode et al. (1993, 1995) found that youth who had been maltreated had more discipline referrals and suspensions and were more likely to be retained than non-maltreated counterparts. Those who had endured physical abuse had more discipline referrals. Shonk and Cicchetti (2001) found higher rates of grade retention, absences, and special education services among youth who had been maltreated compared to those who had not. Daignault and Hébert (2009) found that 39 % of their participants who had experienced sexual abuse were rated by their parents and teachers as experiencing academic difficulties and 24 % had repeated a grade. Similarly, Fantuzzo et al. (2011) found differential impact of traumatic event exposure on attendance, academic engagement, and suspensions based on whether they experienced neglect or physical abuse and the timing of when the maltreatment occurred. Students who had been maltreated and had higher levels of dissociative symptoms had lower perceived school membership and lower academic competence (Perzow et al., 2013).





**Table 2-2 Response rates in the Australian Temperament Project and other prospective birth cohorts of a similar age**

Study	Year established	Sample size	Number of waves of data collection to date	Net response in early adulthood
<b>Australian and New Zealand birth cohorts</b>				
The Australian Temperament Project <sup>7,8</sup>	1983	2443, increasing to 2514 in Wave 2	16 (to 32–33 years)	40% (1000 responses) at 23–24 years 42% (1052 responses) at 27–28 years
Christchurch Health & Development Study <sup>1-3</sup>	1977	1265	23 (to 35 years)	80% (1011 responses) at 21 years 76% (962 responses) at 35 years
Dunedin Multidisciplinary Health and Development Study <sup>4</sup>	1972	1037	13 (to 38 years)	96% (992 responses) at 21 years 93% (961 responses) at 38 years
Mater-University of Queensland Study of Pregnancy <sup>9</sup>	1981	7223	6 (to 30 years)	53% (3805 retained <sup>a</sup> ) at 21 years 40% (2900 retained <sup>a</sup> ) at 30 years
The Western Australian Pregnancy Cohort (Raine) Study <sup>10</sup>	1989	2868	13 (to 22 years)	43% (1234 responses) at 22 years
<b>International birth cohorts</b>				
1970 British Cohort Study <sup>11</sup> (UK)	1970	17 284	8 (to 42 years)	50% (8654 responses) at 26 years 54% (9354 responses) at 42 years
Children of the 90's (part of the 1990 Avon Longitudinal Study of Parents and Children) <sup>12</sup> (UK)		Complex; 14 062 live births, increasing to 14 775 live births by 18 years	Complex (up to 68 points of data collection to 18 years)	37% (5535 responses) at 18 years

<sup>a</sup>number of responses not clear and possibly less.



# Scope of the problem

## Research Article

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# **Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults**

## **The Adverse Childhood Experiences (ACE) Study**

Vincent J. Felitti, MD, FACP, Robert F. Anda, MD, MS, Dale Nordenberg, MD, David F. Williamson, MS, PhD, Alison M. Spitz, MS, MPH, Valerie Edwards, BA, Mary P. Koss, PhD, James S. Marks, MD, MPH

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Dr. Felitti made the connection that overeating made patients feel better by soothing their anxiety, fear, anger, or depression and losing weight increased their anxiety, fear, and depression to levels that were intolerable. He introduced his findings at a convention in Atlanta, where he met Dr. David Williamson and Dr. Robert Anda, both medical epidemiologists for the CDC. These three doctors and their colleagues began laying out the criteria for the ACE Study to understand how childhood events might affect adult health.<sup>17</sup> The ACE Study was designed to answer the question: “If risk factors for disease, disability, and early mortality are not randomly distributed, what early life influences precede the adoption or development of them?”<sup>18</sup>



## ABUSE



Physical



Emotional



Sexual

## NEGLECT



Physical

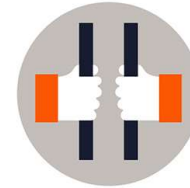


Emotional

## HOUSEHOLD DYSFUNCTION



Mental Illness



Incarcerated Relative



Mother treated violently

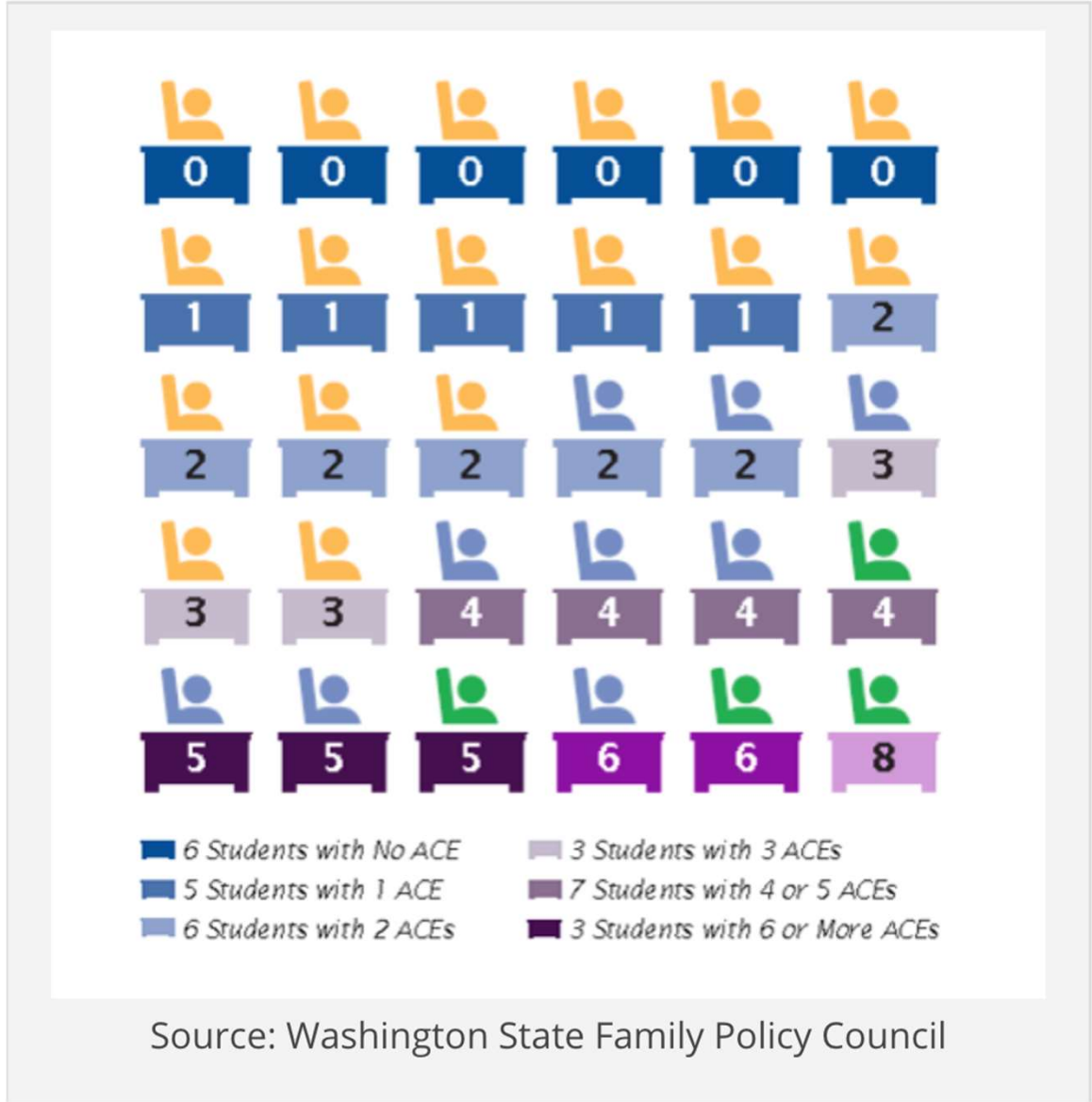


Substance Abuse



Divorce

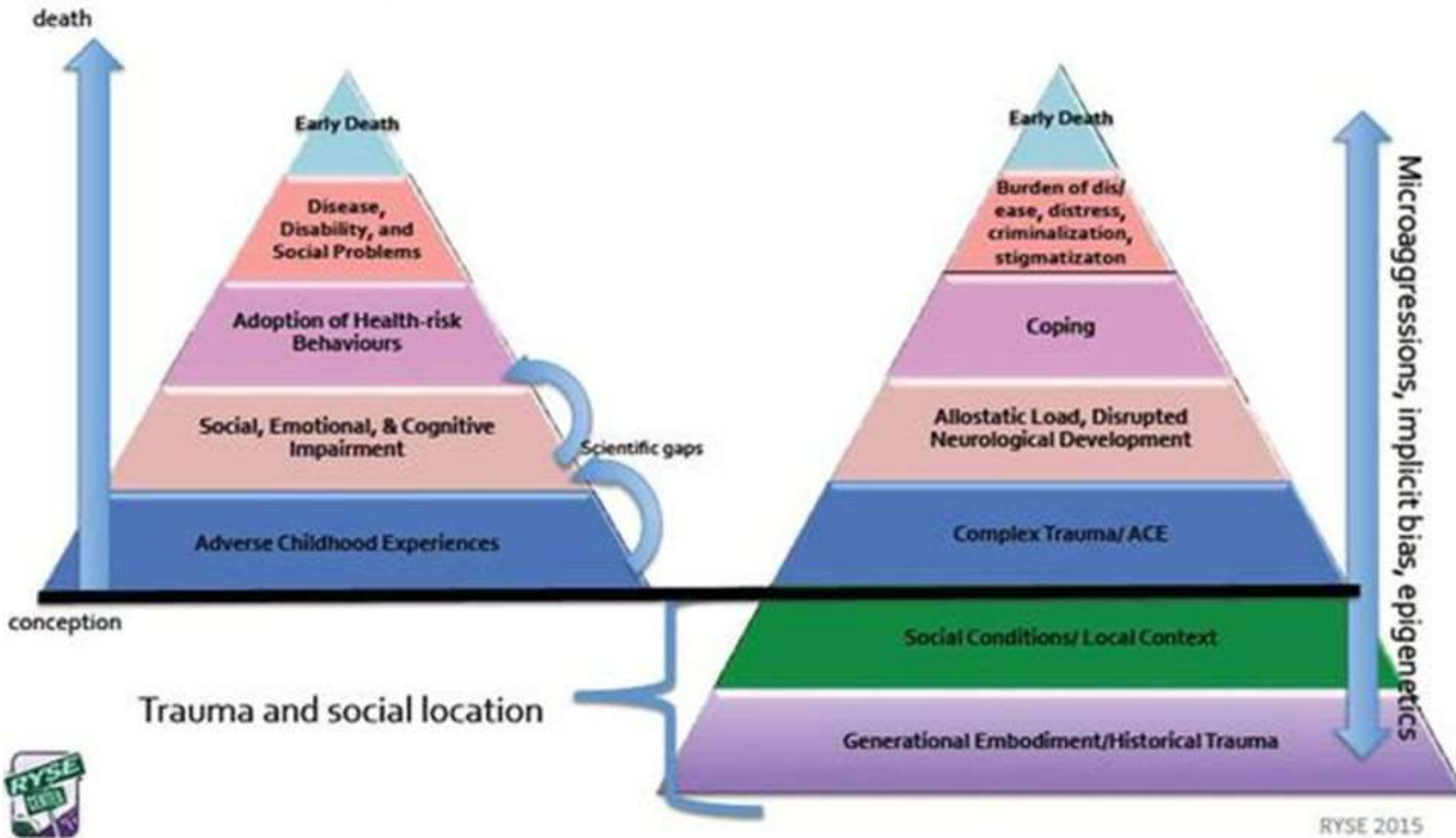
Credit: Robert Wood Johnson Foundation. [Rwjf.org](http://Rwjf.org)



# Trauma and Social Location

Adverse Childhood Experiences

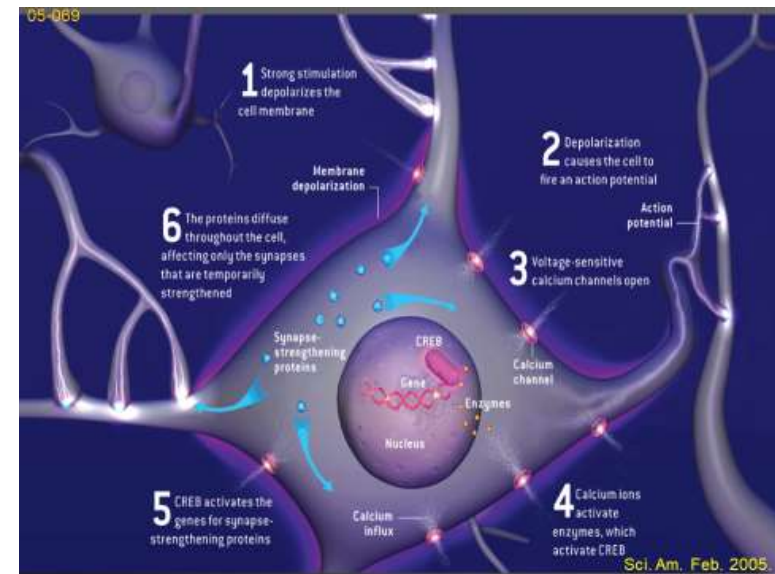
Historical Trauma/Embodiment



<http://www.acesconnection.com/blog/adding-layers-to-the-aces-pyramid-what-do-you-think>

# Neurological impacts

- ▶ Technological advances and the decade of the brain.
- ▶ The period of most rapid growth is in early childhood
- ▶ At birth the brain is largely underdeveloped
- ▶ By age 4, the brain is 90 % adult size.



▶ Optimal environments for learning (Perry, 2017):

- ▶ Relevant (developmentally matched)
- ▶ Rhythmic (resonant with neural patterns)
- ▶ Repetitive (patterned)
- ▶ Rewarding (pleasurable)
- ▶ Respectful (child, family and culture)





# Examples of activities

- ▶ State Regulation:
  - ▶ Massage, grooming, brushing hair, singing.
  - ▶ Rocking, holding, touching, swinging, cuddling.
  - ▶ Baby games and nursery rhymes (little miss piggy)
- ▶ Somatosensory Integration:
  - ▶ Music, rhyming, poems, clapping, drumming.
  - ▶ Movement, playing with balls, balancing
  - ▶ Sand and clay, stress balls, playdoh, finger painting.

# Examples of activities

- ▶ Emotion Regulation
  - ▶ Simon says, pass the face, Mr. Wolf
  - ▶ Doing plays, drawing, art, acting
  - ▶ Dance, playing with pets
  - ▶ Nature discovery
- ▶ Abstract thought
  - ▶ Story-telling
  - ▶ Drama/theater
  - ▶ Games such as “who am I”?
  - ▶ Writing
  - ▶ Life story work

www.tipbs.com



# TRAUMA INFORMED POSITIVE BEHAVIOUR SUPPORT

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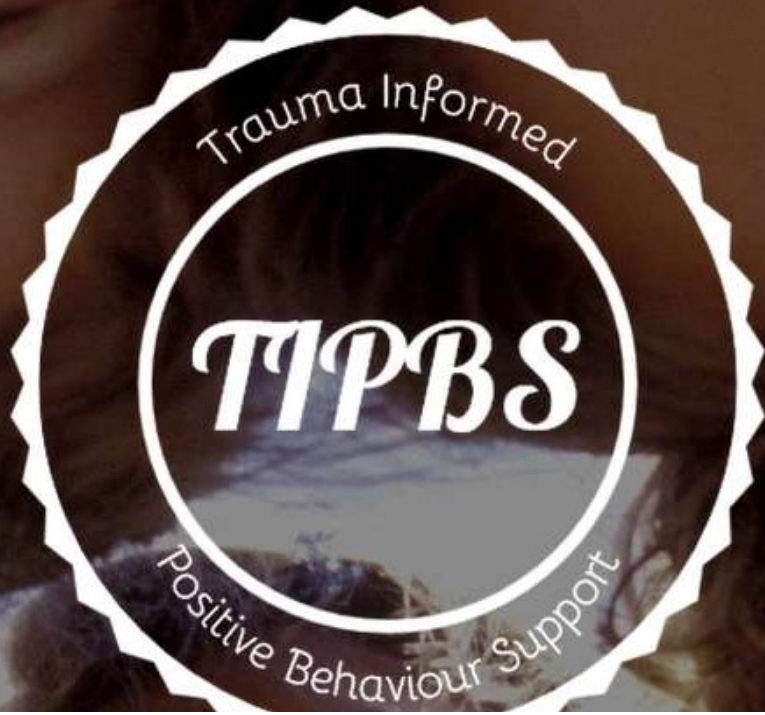
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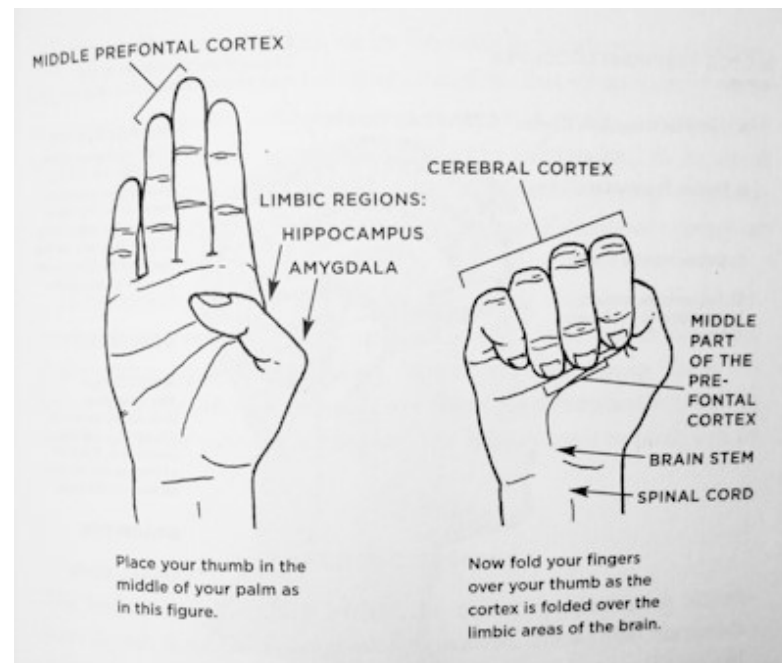
# Evidence based practice meets practice based evidence

- ▶ Trauma informed support – just another fad or trend? What does it mean for real-world practice?
- ▶ Trauma informed positive behaviour support – Key principles and practices.
- ▶ Why is the behaviour occurring? What is the function?
- ▶ What needs for this child have not been met?
- ▶ How is the child feeling?
- ▶ What is the child trying to say?

# Case study: “when” as important as “what”

- ▶ Rest / Baseline: Calm
- ▶ Escalation: Alarm
- ▶ Fight: Terror / Rage
- ▶ Flight: Fearful / Avoidant
- ▶ Freeze: Numbing

Siegel, 2016



# Evidence based practice meets practice based evidence

- ▶ Trauma-informed practices to support the healing of the child affected by trauma:
  - Safety and belonging
  - Trust
  - Supportive and caring relationships
  - Positive experiences
  - Predictable routines
  - Improved social and emotional competency
  - Remain calm and regulated yourself.

## Future sessions

- ▶ Impact of adversity and trauma on attachment (session 2) and its implications for guiding behavior (session 3).



# Thank you

QUESTIONS AND COMMENTS



# References

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