

# First 1000 days

RACP Congress May 2019

Johan Morreau

Aspiring

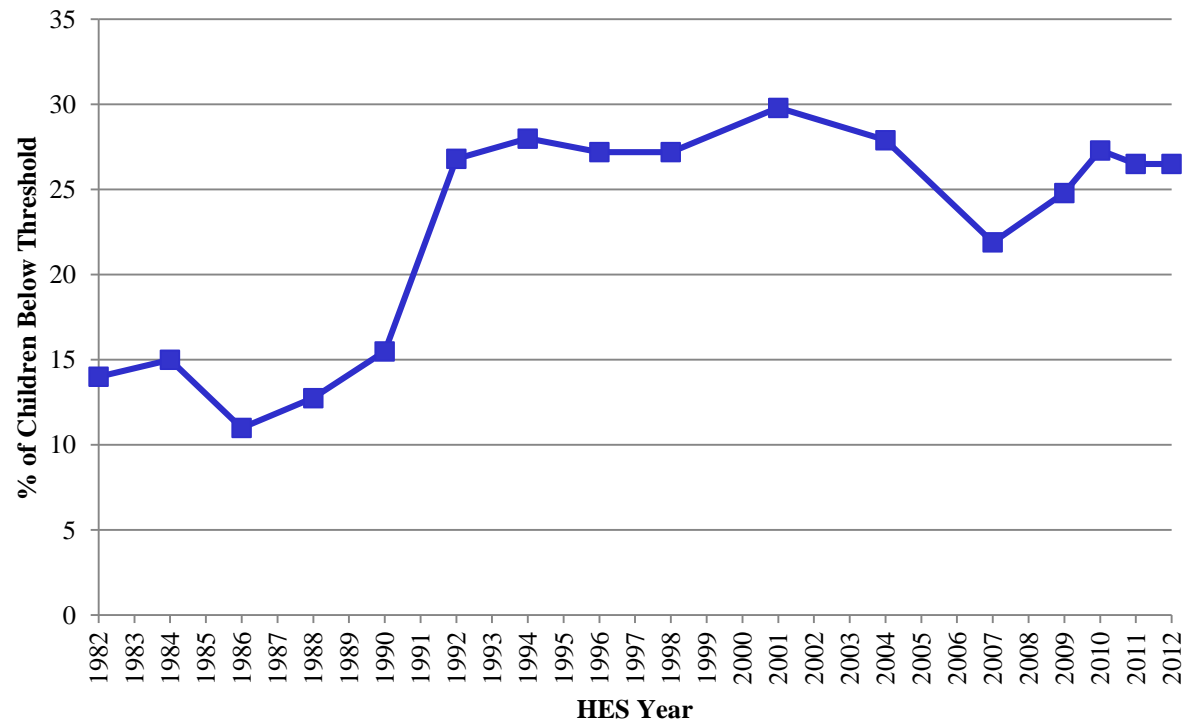
Self determining

Leaving a legacy



**“Ahakoa he iti , he iti pounamu”  
Although she is small she is precious**

# **NZ has Intergenerational poverty +++ - High levels of Poverty since 1991 = Inequity +++ Damaging and results in parenting issues**



First 1000 days – pure pregnancy

Wanted / Dreams  
Attachment during pregnancy

Good nutrition

No alcohol or drugs

No cigarettes

Early antenatal care

Protecting baby starts in pregnancy



28 -38 weeks Pregnant?  
FREE  
(for pregnant women only)  
**Whooping Cough  
Vaccine**  
See Michelle in Antenatal Clinic area Room A2 (Day Assessment Unit)  
Monday, Wednesday, Friday

# Attachment

Facilitated by  
oxytocin



# Early experience builds a brain

- Genes are the blueprint but experience is the carpenter
- Together they build a brain from the base up. Building a brain is like building a house – depending on the quality of experience a child grows a weak or a strong foundation
- This foundation is critical for the later development of executive skills and the ability to self control and manage a life



# 90%

**of a child's brain  
development  
happens  
before age 5**



- 90% Brain development before age 5
- 10% Brain development after age 5

*Source: Harvard Center for the Developing Child*



**Birth**

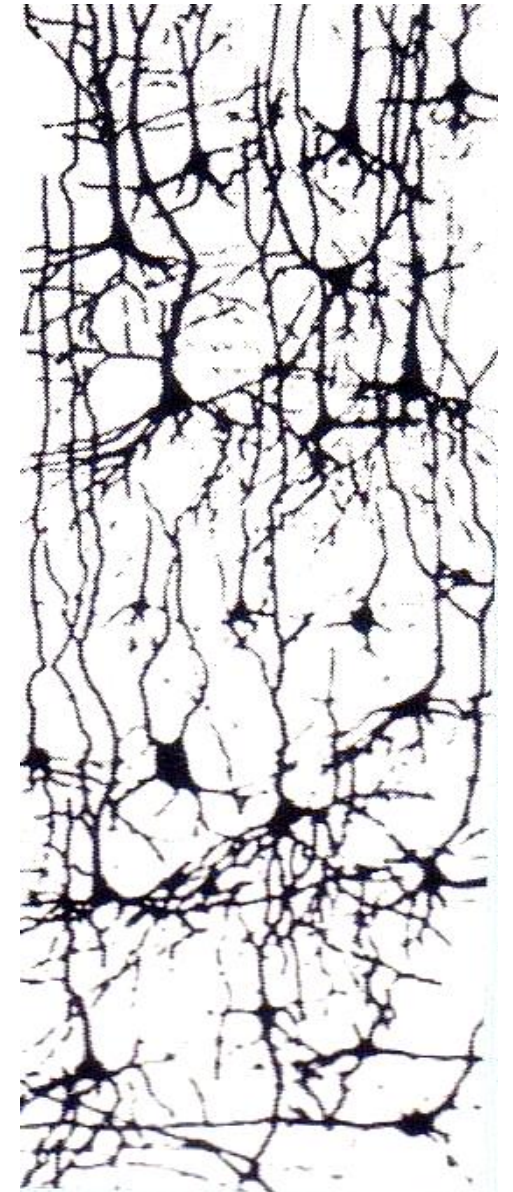


**At 3 years – Proliferation**

+++++



**14 years - Pruning**



# Summary

- Development occurs when a child and somebody else interact –somebody who is crazy about the child and gives them time.
- Through observing, playing, interacting with others a child develops their ability and their identity.



**Brainwave**<sup>™</sup>  
build a lifetime in the first three years

# The Biology of Adversity: Three Levels of Stress

## Positive

Brief increases in heart rate,  
mild elevations in stress hormone levels.

## Tolerable

Serious, temporary stress responses,  
buffered by supportive relationships.

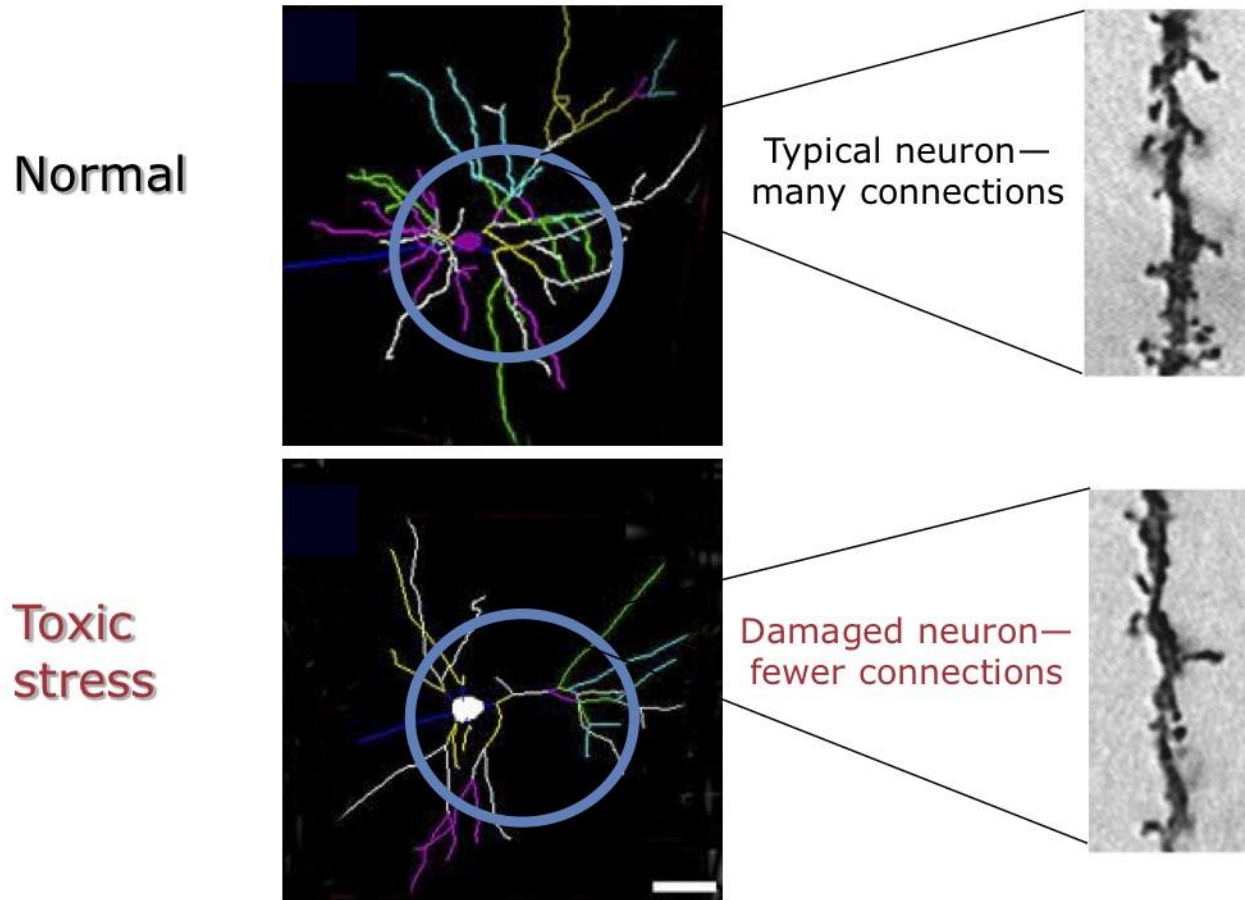
## Toxic

Prolonged activation of stress response systems  
in the absence of protective relationships.

# Toxic Stress derails healthy development

- When stress responses remain activated at high levels for significant periods of time, without supportive relationships to help calm them, toxic stress results.
- This can impair the development of neural connections, especially in the areas of the brain dedicated to higher-order skills, empathy, ability to control emotions and later cognitive skills - creating lifelong problems in learning, behaviour, and physical and mental health

## Toxic Stress Changes Brain Architecture



Prefrontal Cortex and  
Hippocampus

# *Serve & Return* interaction shapes brain circuitry

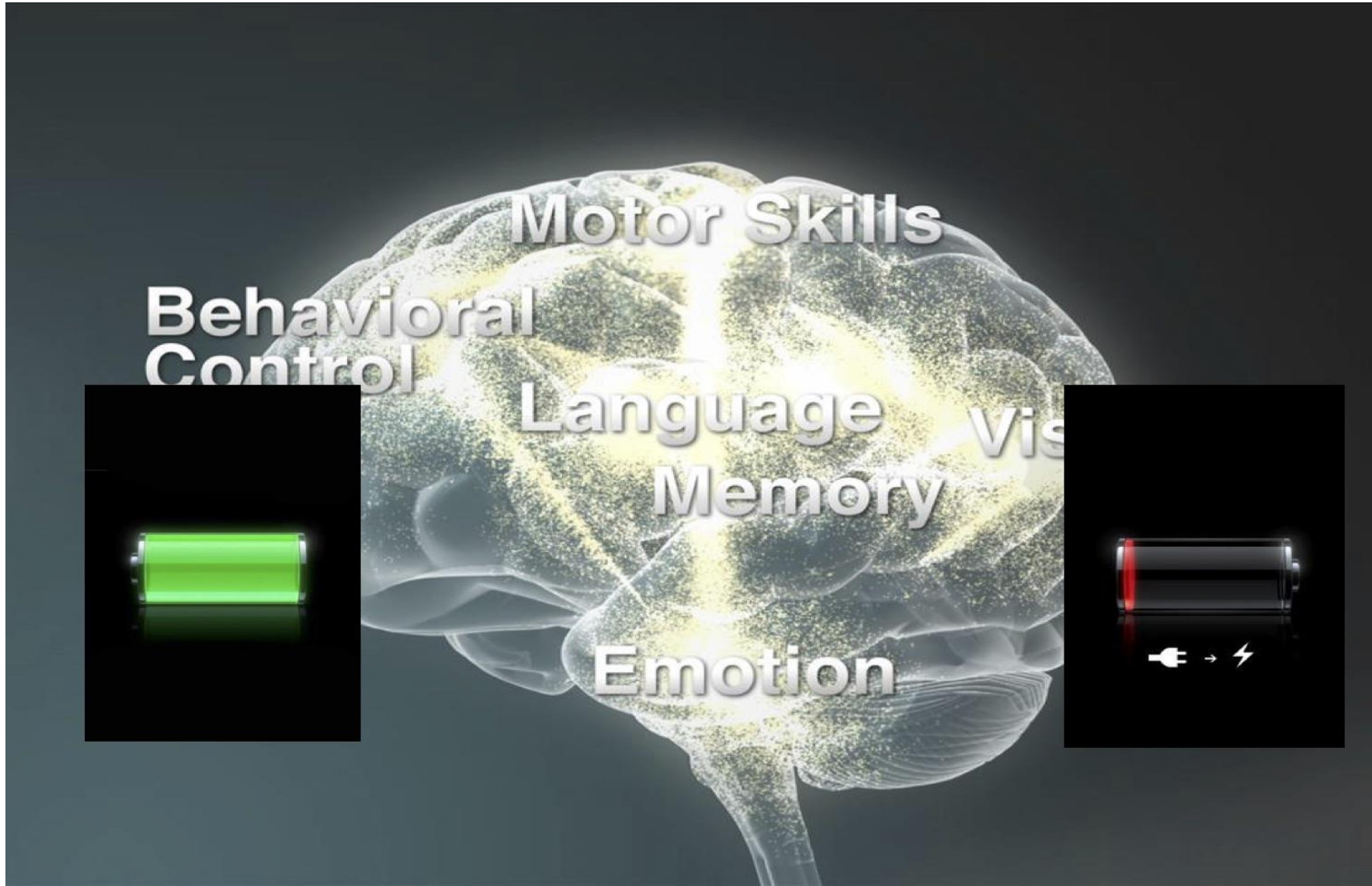
- Children *serve*
- Caregivers *return* their serves
- This back and forth is key to wiring the brain
- Works best within a trusting relationship
- Occurs inside and outside the home (school, community, extended family)



# Concepts inherent in “Serve and return”

- The absence of Serve and Return is a Toxic Stressor
- Serve and Return is a powerful therapeutic tool following Early Adversity (Never too late to start)
- I’m certain that the majority of children and young people we see with significant behavioural and mental health issues are suffering from PTSD and need “Serve and Return”

“Lights come on” with “Serve and Return”

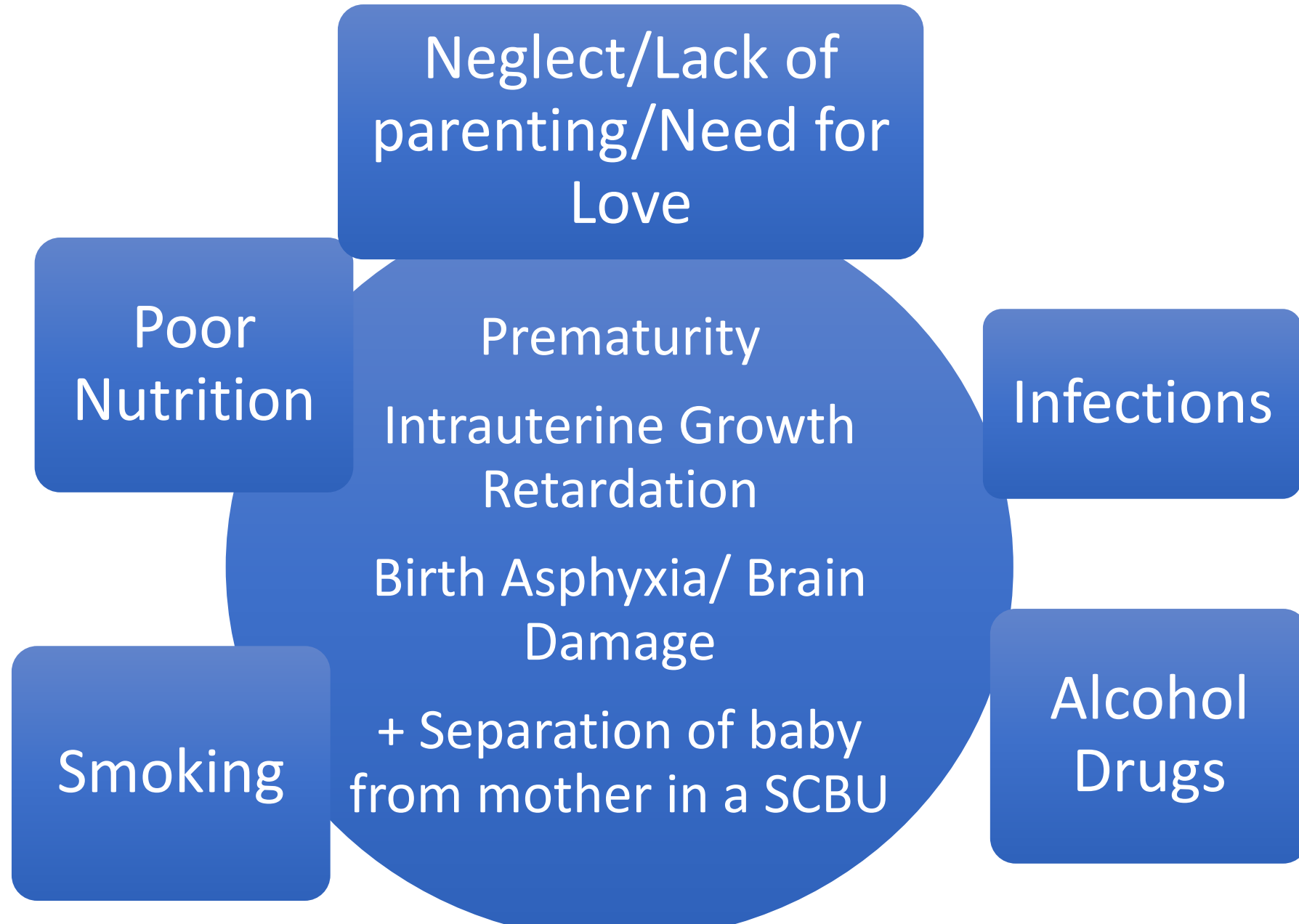




# **Pregnancy - poor placental function eg smoking**

- Growth retardation / small for dates
- Prematurity – complications ++
- Birth Asphyxia
- Hypoglycaemia
- Separation of baby from mother – attachment , breast feeding issues
- Smaller airways = Sicker when get bronchiolitis

# Origins of Vulnerability



## David Barker 1938-2013

“...the serendipitous discovery...”

*From obituary in Lancet 05 October 2013*



### WEIGHT IN INFANCY AND DEATH FROM ISCHAEMIC HEART DISEASE

D. J. P. BARKER  
C. OSMOND

P. D. WINTER  
B. MARGETTS

S. J. SIMMONDS

*MRC Environmental Epidemiology Unit, University of  
Southampton, Southampton General Hospital, Southampton  
SO9 4XY*

**Summary** Environmental influences that impair growth and development in early life may be risk factors for ischaemic heart disease. To test this hypothesis, 5654 men born during 1911–30 were traced. They were born in six districts of Hertfordshire, England, and their weights in infancy were recorded. 92.4% were breast fed. Men with the lowest weights at birth and at one year had the highest death rates from ischaemic heart disease. The standardised mortality ratios fell from 111 in

*Lancet. 1989;2(8663):577-80.*

# Morbidities associated with intrauterine growth restriction (IUGR) can be split into metabolic and nonmetabolic effects

*Joss-Moore Curr Opin Pediatr. 2009; 21:230*

## Adult phenotypes of intrauterine growth restriction

Metabolic	Nonmetabolic
Dyslipidemia	Attention deficit disorder
Hypertension	Chronic lung disease
Insulin resistance	Immunodeficiency
Poor postnatal growth	Neurodevelopmental delay
Renal insufficiency	Schizophrenia

# Epigenome - Environmental influences affect whether and if genes are expressed or not

The Epigenome is like the software in a computer's operating system

Experiences before and soon after birth can result in genes being chemically modified, turned on and off and sometimes not expressed at all.

Early Experiences Can Alter Gene Expression and Affect Long-Term Development

WORKING PAPER 10

10

Epigenome - Environmental influences affect whether and if genes are expressed or not. 2

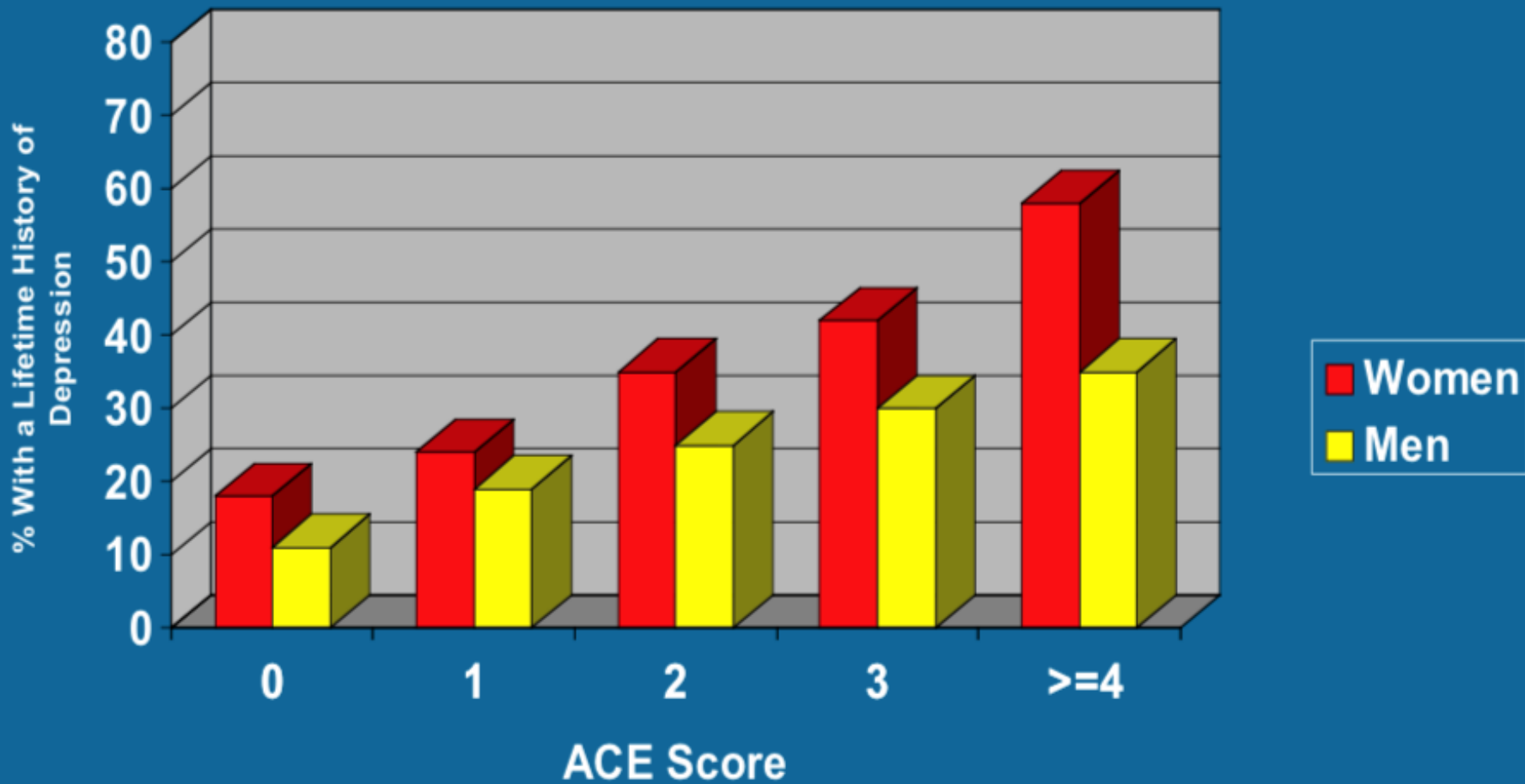
- Injuries during pregnancy or early childhood - malnutrition, chemical toxins , drugs, and toxic stress are built as epigenetic markers into the architectural software of the developing brain.
- Classic – gene for Conduct Disorder is expressed after exposure to emotional abuse and violence , but can otherwise remain unexpressed.

# Adverse Childhood Experiences (ACE's) 1995

Questionnaire – CDC and Kaiser Permanente-  
17,000 people. Middle Class Population

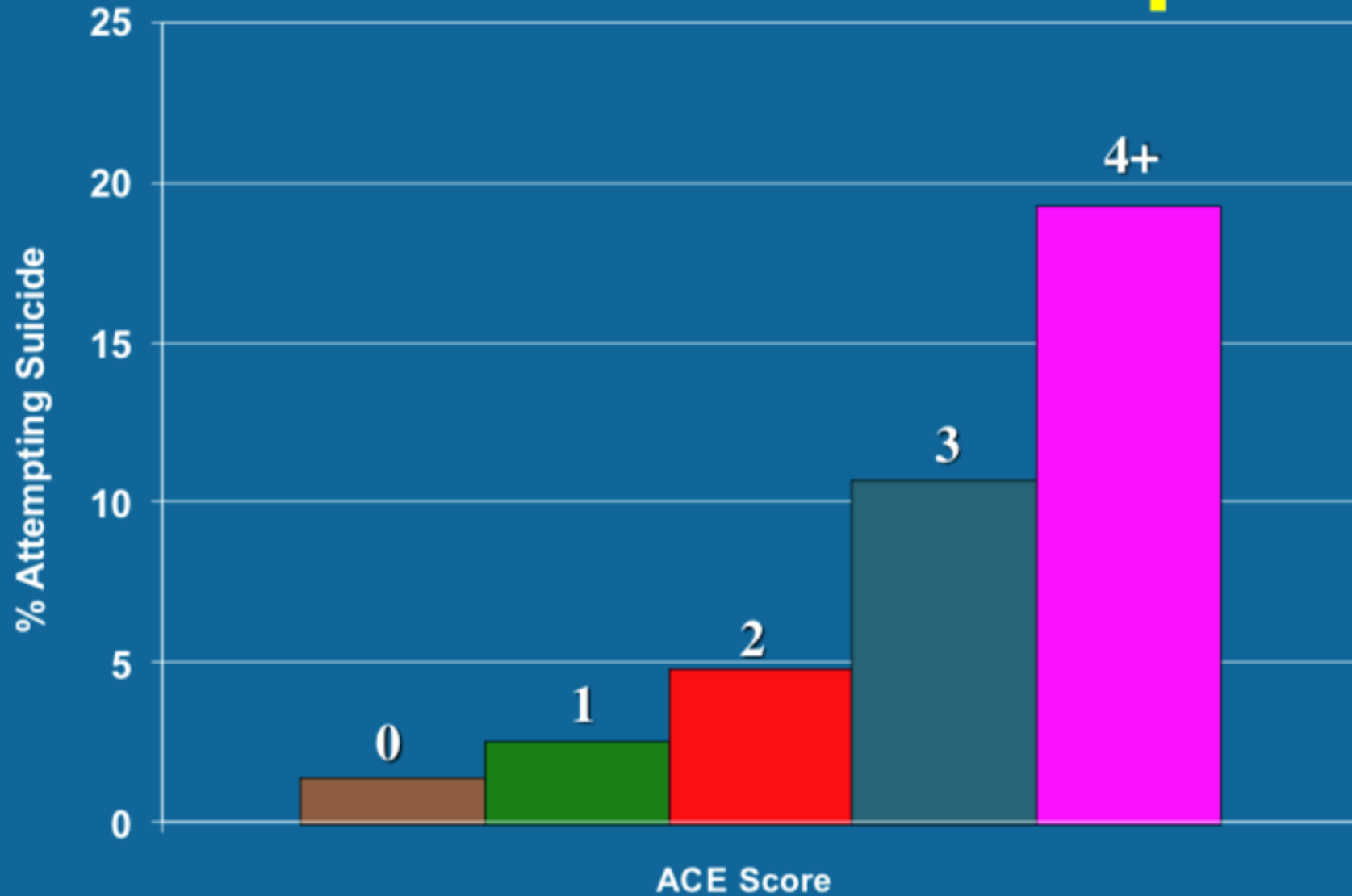
- Physical/Sexual/Emotional abuse
- Physical or emotional neglect
- Exposure to domestic violence
- Household substance abuse
- Household mental illness
- Parental separation or divorce
- Imprisoned household member
  
- More recently Poverty and Racism have been added

# Childhood Experiences Underlie Chronic Depression





# Childhood Experiences Underlie Suicide Attempts



ACEs frequently occur together - likely to be ? higher in NZ

- 40% of the original sample reported two or more ACEs and
- A little under 25% experienced 3 or more
- **12.5% experienced four or more ACE's** - leads to 12 fold increase in suicide risk, 5 fold increase in depression risk , 30% reporting being raped

# ACEs lower life expectancy

- **6 or more ACE's lowers life expectancy by 20 years**
- 7 or more ACE's leads to 3 fold lung cancer risk, 4 fold risk of heart disease
- ACEs are a key predictor of life long chronic illness, addictions, suicide or early natural death

## How do ACEs affect health?

**Through stress.** Frequent or prolonged exposure to ACEs can create toxic stress which can damage the developing brain of a child and affect overall health.

Reduces ability to respond, learn, or process effectively which can result in problems in school

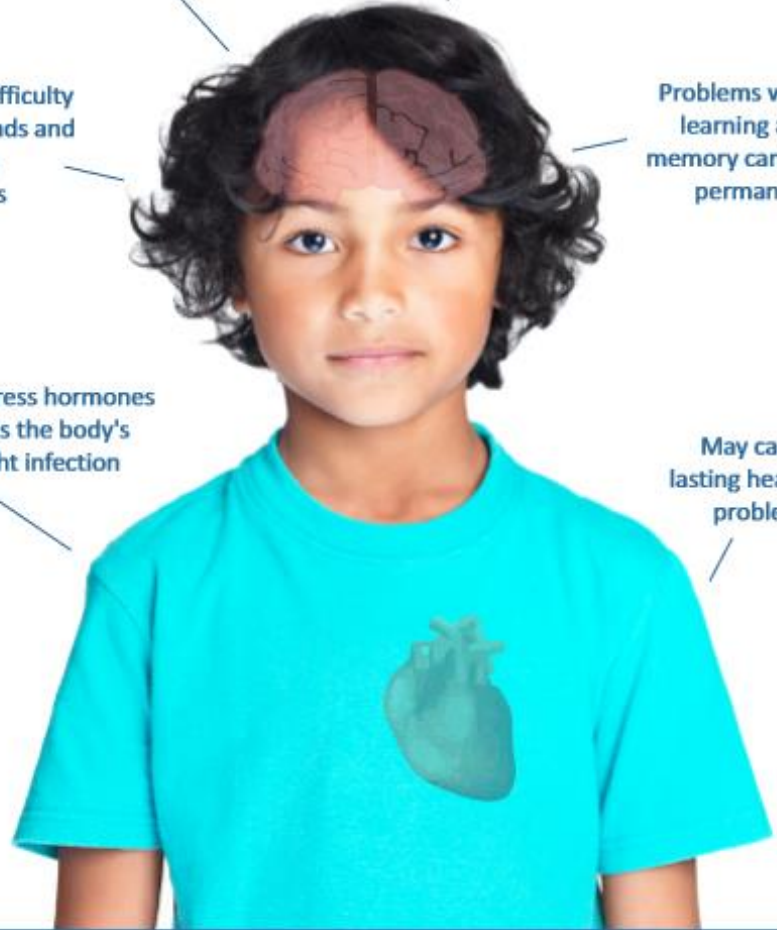
Lower tolerance for stress can result in behaviors such as aggression, checking out, and defiance

May have difficulty making friends and maintaining relationships

Problems with learning and memory can be permanent

Increases stress hormones which affects the body's ability to fight infection

May cause lasting health problems



A **Survival Mode Response** is one that increases heart rate, blood pressure, breathing and muscle tension. When a child is in survival mode, self-protection is their priority. In other words:

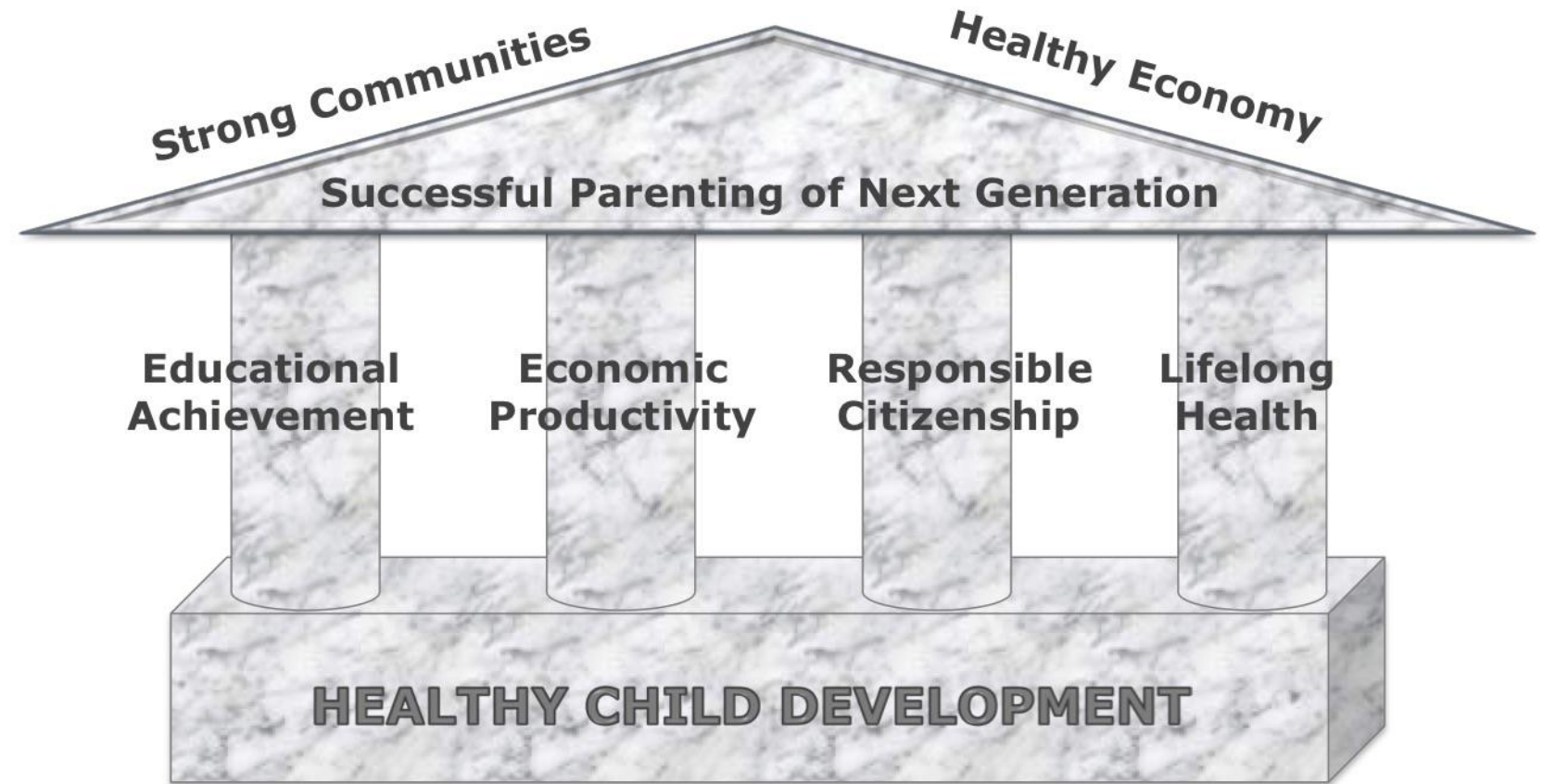
**"I can't hear you, I can't respond to you, I am just trying to be safe."**

# Attachment Problems / Toxic Stress damage

- Wired for stress – aggressive, defiant, no self control. Survival mode responses
- Limited empathy – can't make friends or relate easily to people
- Lifelong problems with memory, judgement and learning
- Multiple lifelong health issues
- Difficult to be a good enough parent

# The Foundation of a Successful Society is Built in *Early Childhood*

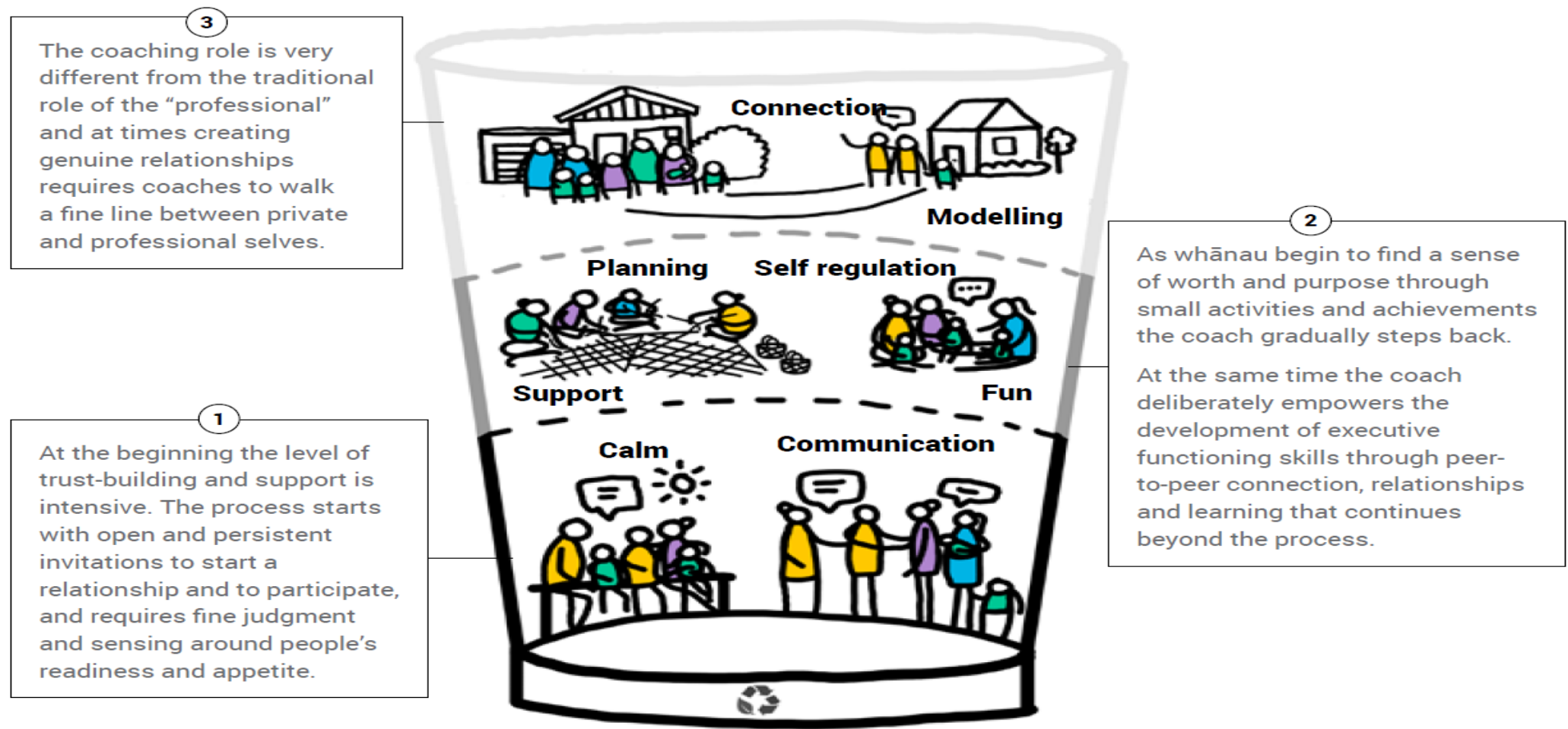
- SPEND \$1
- SAVE \$17



Lack of a satisfactory First 1000 days explains a large component of why:-

- NZ has one of the highest rates of youth suicide in the developed world
- NZ has a very high rate of incarceration
- We see increasing numbers of children and adults with a range of preventable medical, behavioural and mental health issues
- We see increasing numbers of patients with chronic metabolic related diseases

# We know what to do - Rx. Key worker to engage with pregnant mum and family. In NZ likely to be based around Community and Whanau Ora and Family Start



Rx  
UNICEF / CYFC  
focus on

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1. First 1000 days

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2. Young people  
(who will become  
parents) who  
also “need a leg  
up”.





**“Ma te huruhuru , ka rere te manu”**

**"Give a bird feathers and the bird will fly"**

# Panel Discussion

Haven't dealt with our other stressors ,  
contributors to ACE scores

- Colonialism
- Racism
- Financial systems increasing gap between rich and poor
- Loss of an egalitarian society

# Resources to look at at home

- **1. Subject: Experiences Build Brain Architecture**
- <https://youtu.be/VNNsN9IJKws>
- 
- **2. Subject: Serve & Return Interaction Shapes Brain Circuitry**
- [https://youtu.be/m\\_5u8-QSh6A](https://youtu.be/m_5u8-QSh6A)
- 
- **3. Subject: Toxic Stress Derails Healthy Development**
- <https://youtu.be/rVwFkcOZHJw>
- 
- **4. Subject: The Science of Neglect**
- 
- <https://youtu.be/bF3j5UVCSA>
- 
- **5. Subject: FIND: Using Science to Coach Caregivers**
- <https://youtu.be/4C9klZgnM04>

# Resources to look at at home

## **Brazil's audacious plan to fight poverty using neuroscience and parents' love**

- <https://qz.com/1298387/brazils-wildly-ambitious-incredibly-precarious-program-to-visit-every-poor-mother-and-change-their-childrens-destiny/>

## **TED Talk First 1000 days Johan M**

- <https://youtu.be/K1sIVo3BNtM>

## **First 1000 Days – Chloe Wright Foundation**

- <https://www.youtube.com/channel/UCerCpgZH TABKbelZcwD8Xg/videos>

- Inequity continues to increase
  - The Health System will be overwhelmed if we don't break the cycles
  - We need to radically transform our Mental Health & Addictions Services
- 
- Evidence based early interventions in childhood have the potential to change lives of current and future generations of families
  - We know what to do



- Build Strong Communities:
  - Inform and Educate
  - Enhance Skills
  - Provide Support
  - Enhance Access and Reduce Barriers
  - Community Activities
  - Modify/Change Policy



# Parenting First Aid

Rx

- Love and Serve and Return – Spending enough time listening , watching , ready to facilitate the next stage in learning and development , respond to “what child is telling parent”

Boundaries

- Safety
- Respect – people and property – Treating these well

Looking to support positive behaviours – child feels good about themselves. Build on successes.

- Identify protective factors:
  - Encourage nurturing and positive relationships
  - Provide knowledge of parenting and child development
  - Assist in developing parental resilience
  - Social connections
  - Concrete support in times of need

# Key Features

- Valuing the individual in all aspects of care
- Neutral, objective and supportive language
- Individually flexible plans and approaches
- Avoid shaming or humiliation at all times

*(Fallot & Harris, 2002; Cook et al., 2002; Ford, 2003; Cusack et al. 2003; Jennings, 1998; Prescott, 2000)*

# Attachment problems / Toxic Stress– Major loss of empathy, emotional and cognitive IQ and ability to form positive relationships

+/- Wanted or planned

Sick baby +

Separation

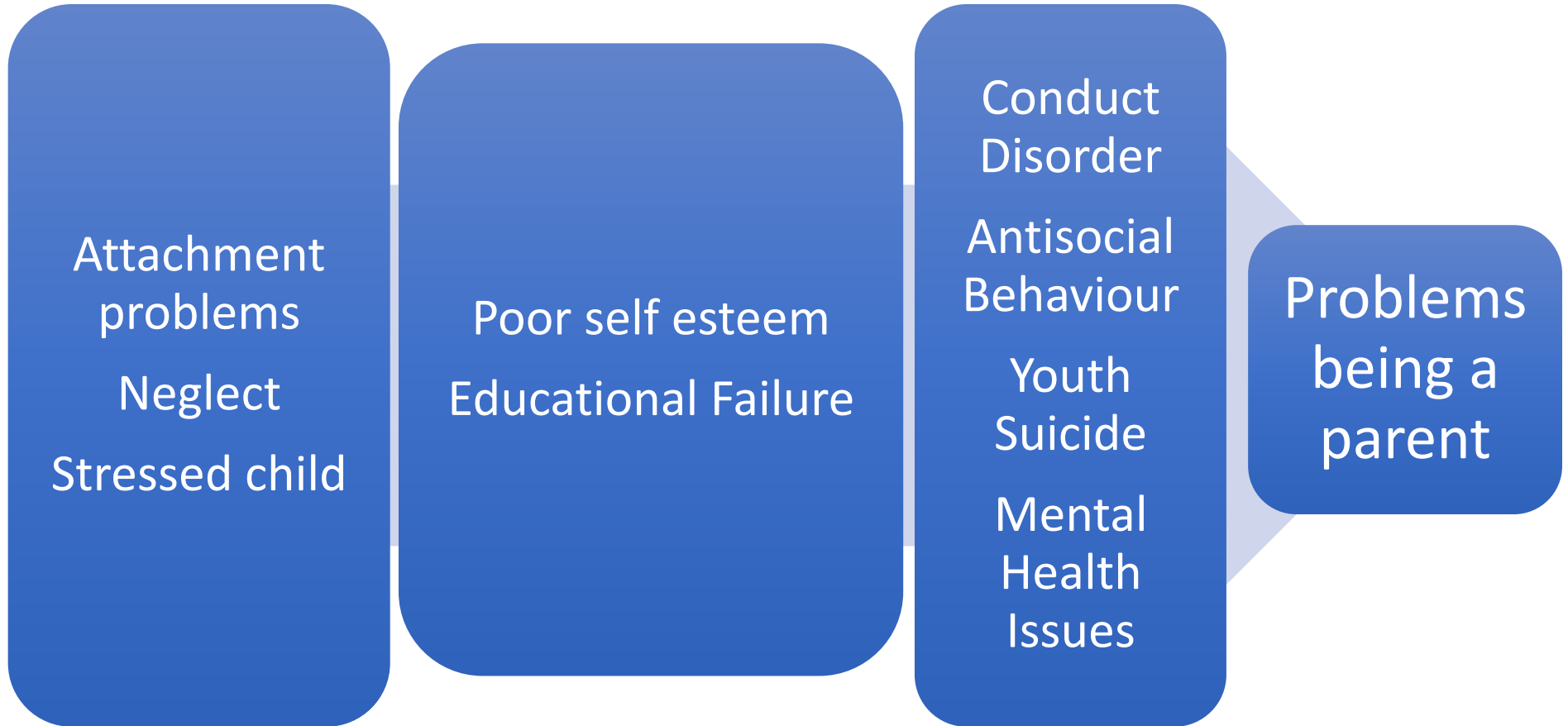
+ /- mental health

+/- addiction

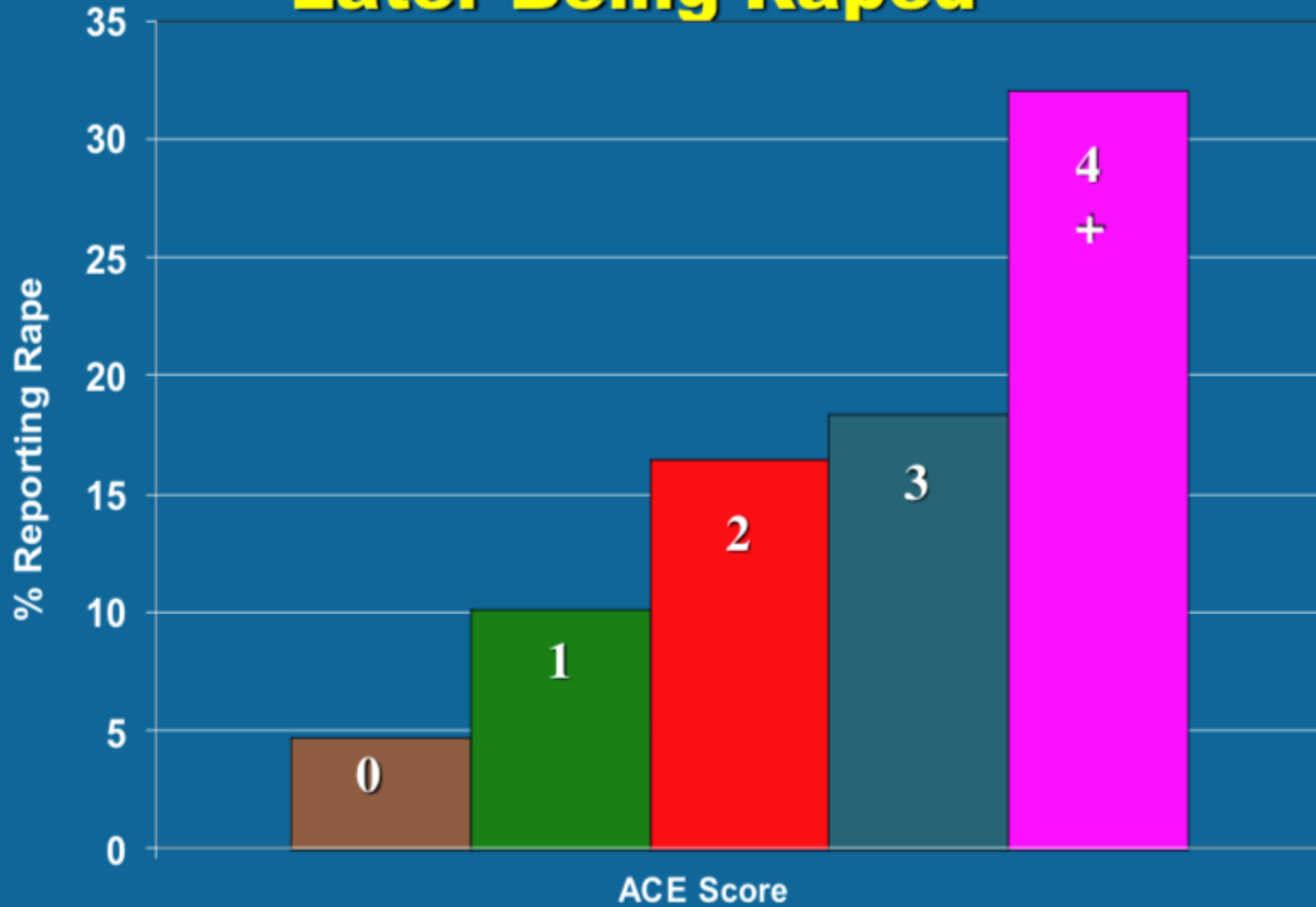
+ Low Breast  
feeding rates +  
Neglect

Attachment  
problems /  
Toxic Stress

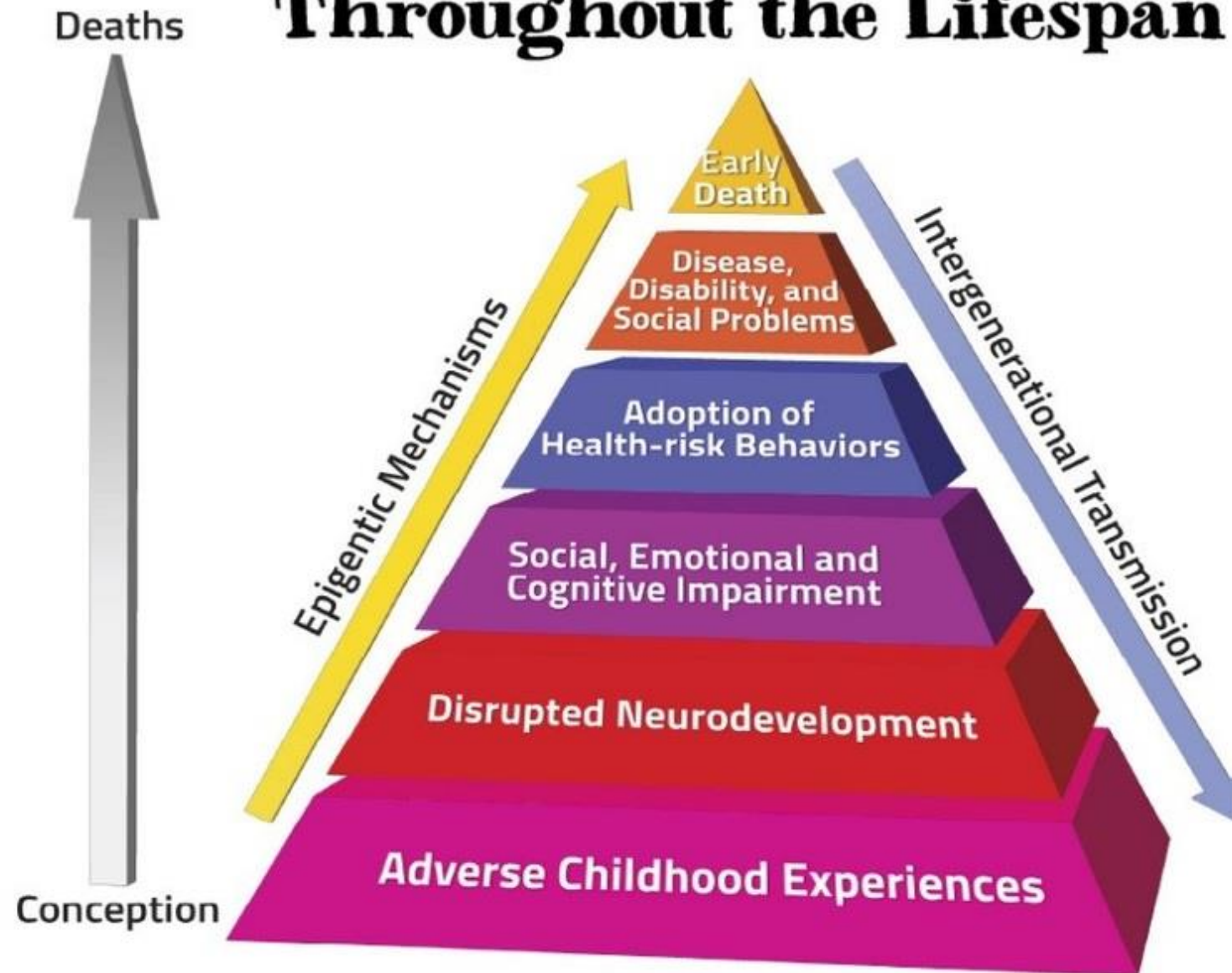
# Attachment / Toxic Stress related outcomes



# Childhood Experiences Underlie Later Being Raped



# Mechanisms by which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan



All of this lack of a positive “First 1000 days” is a major part of the jigsaw that explains why :-

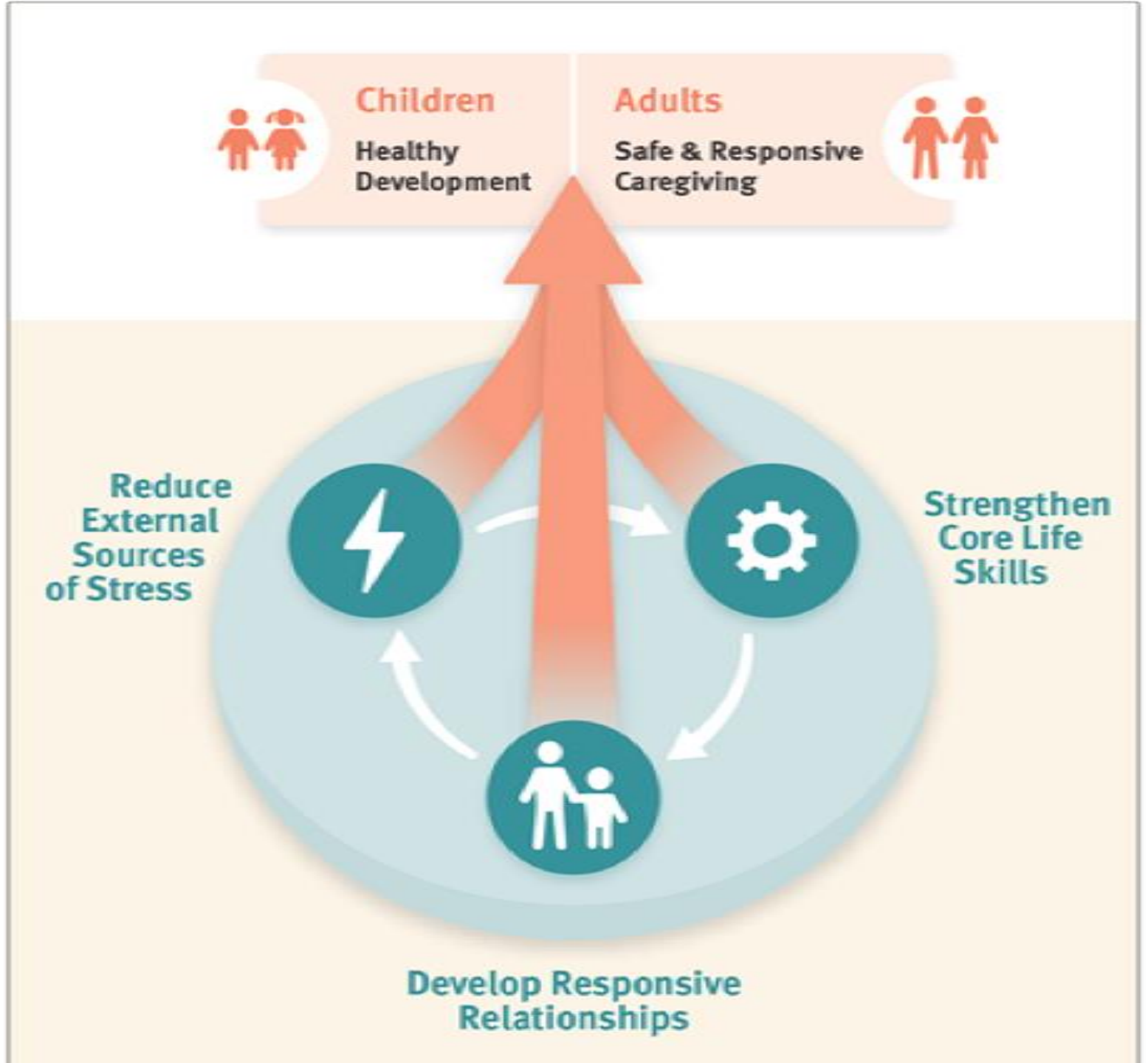
- We are now dealing with the impact of intergenerational poverty
- Our prison population is high , aggression is such a problem
- Increasingly we see children and adults with a range of preventable medical, behavioural and mental health issues
- We are seeing increasing numbers of patients with chronic metabolic related diseases
  
- Inequity continues to increasing
- The Health System will be overwhelmed if we don't break the cycles now



# Ongoing focus

- Reduce toxic stress
- Build responsive relationships
- Improve life skills
  
- Supporting parenting and parents

# Our roles



# Social Justice

Parents have the right to know  
the most powerful determinant  
of their children's future health, safety and productivity

# Health Problems

## Infancy

- Respiratory eg bronchiolitis
- Infections
- SUDI = Cot death

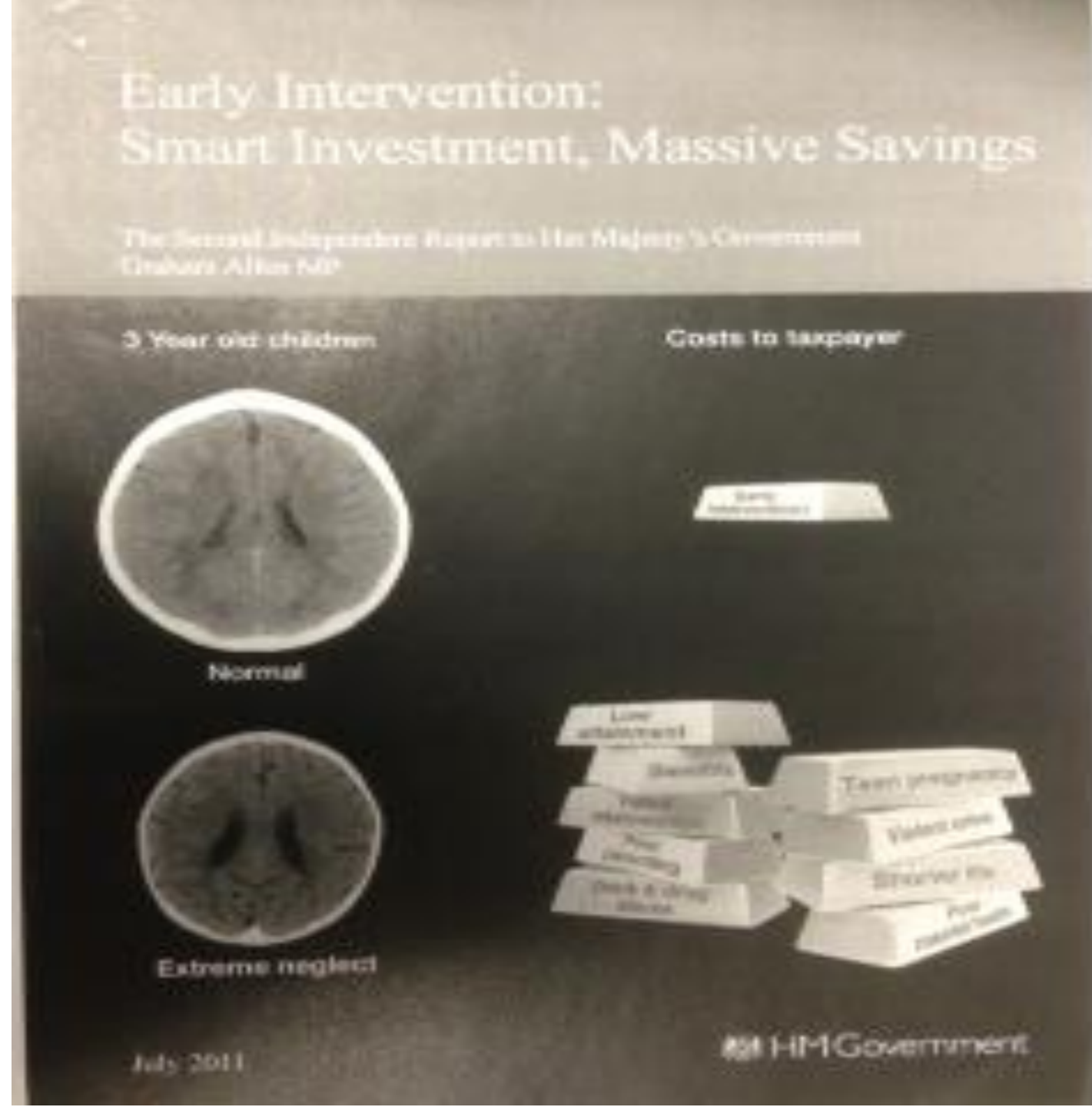
## Children

- DISABILITY
- OBESITY
- BEHAVIOUR – Post Traumatic Stress Disorder

## Youth and Adults

- CHRONIC DISEASES – Diabetes, Hypertension , Cardiovascular compromise , CVA
- YOUTH SUICIDE
- MENTAL HEALTH ISSUES / ADDICTIONS

- SPEND \$1
- SAVE \$17



# A theoretical framework related to "mismatch"

