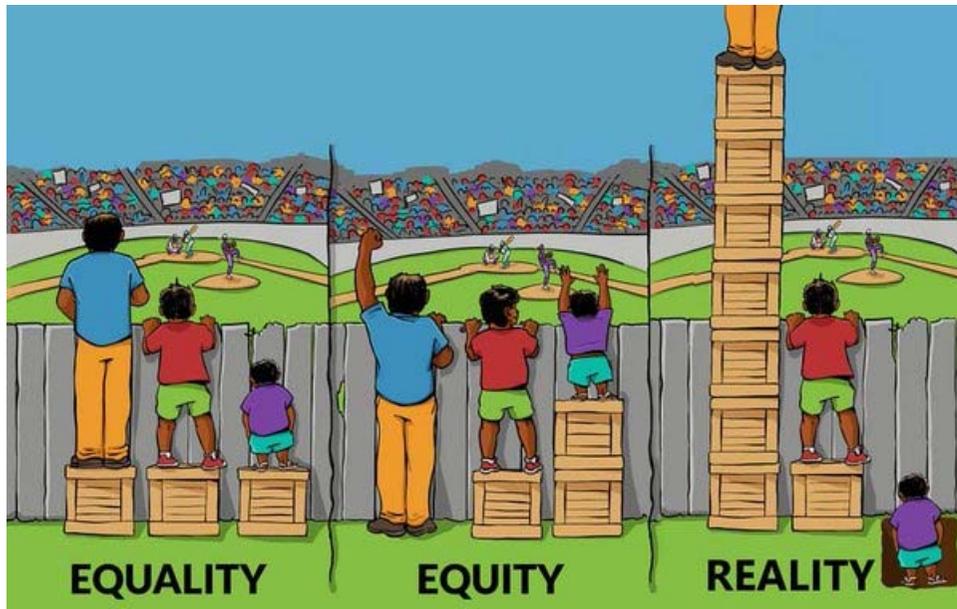


Inequity in Child Health addressing the inverse care law – be part of the solution not the problem

A/Prof Elisabeth Murphy
Senior Clinical Advisor – Child and Family Health
Health Services Policy Branch



Health

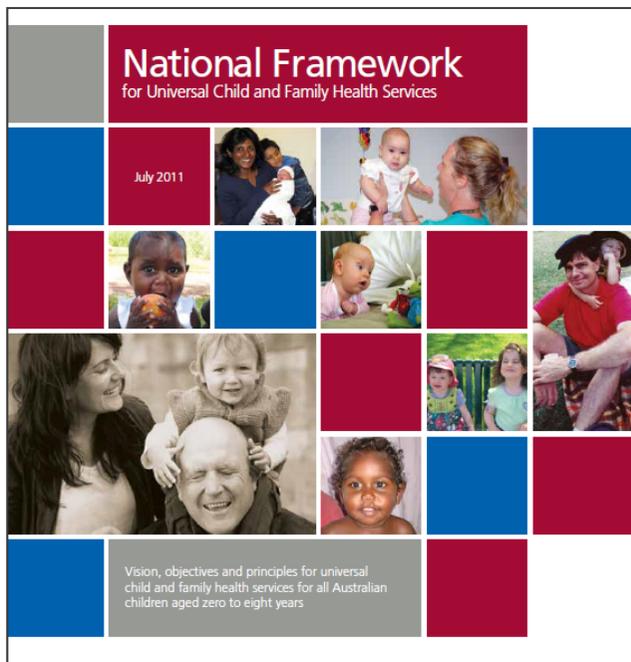


The national frameworks

Healthy, Safe and Thriving: National Strategic Framework for Child and Youth Health

August 2015

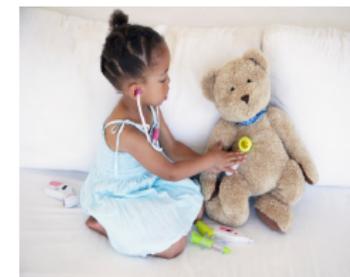
Australian Health Ministers' Advisory Council



National Framework for Child and Family Health Services – secondary and tertiary services

December 2015

Australian Health Ministers' Advisory Council



Guiding Principles

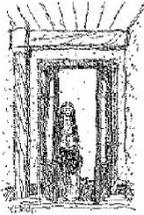
- Prevention and early intervention: universal and targeted prevention services and early intervention for those identified as in need is best practice and essential for achieving optimal health outcomes
- Strengths based approach: health services for children, young people and families are delivered from a social health perspective, building on strengths, enabling children and young people to grow up thriving and resilient
- Environment: children and young people should grow up in healthy and safe families, environments and communities
- **Equity: all children and young people in Australia should have appropriate access to health services to ensure equitable outcomes**
- Proportionate universalism: the provision of health services must be universal, but with services provided at a level proportionate to need

Increasing evidence

REVERSING THE REAL BRAIN DRAIN

Early Years Study

Final Report



April 1999
Co-chairs: Hon. Margaret Norrie McCain & J. Fraser Mustard

From Neurons to Neighborhoods

The Science of Early Childhood Development

Committee on Integrating the Science of Early Childhood Development

Jack P. Shonkoff and Deborah A. Phillips, *Editors*

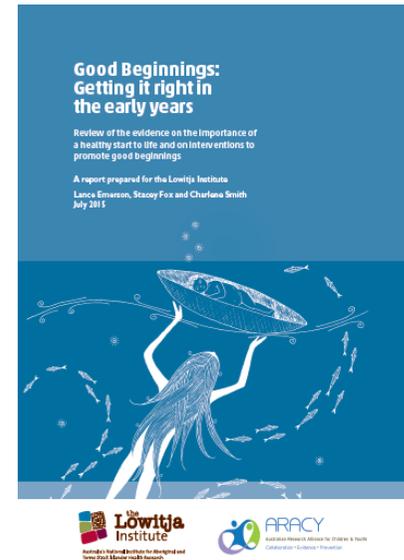
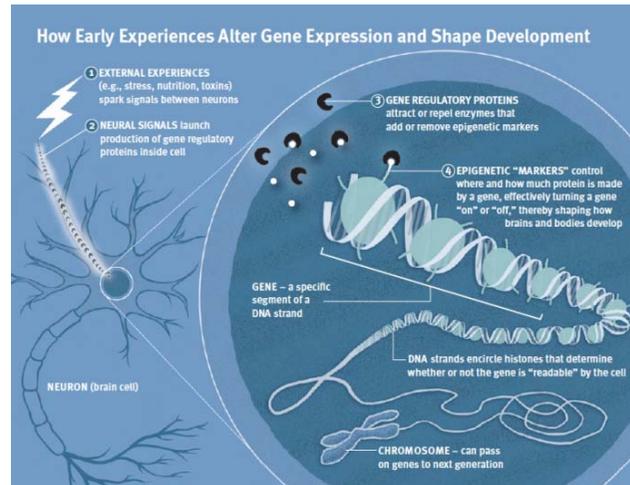
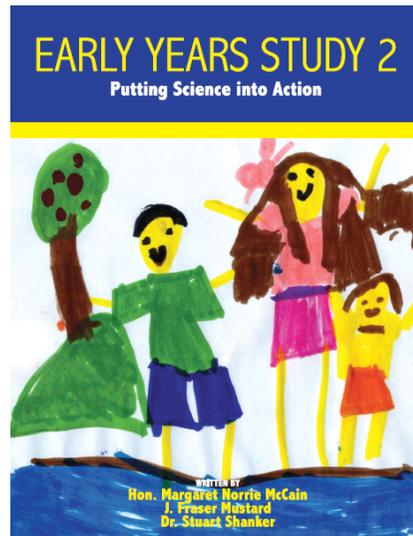
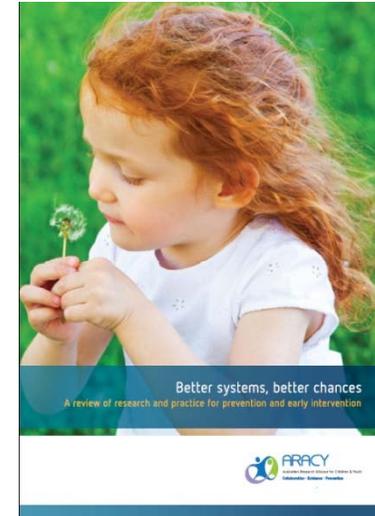
Board on Children, Youth, and Families
National Research Council and Institute of Medicine

Centers for Disease Control and Prevention
MMWR Morbidity and Mortality Weekly Report
Weekly / Vol. 59 / No. 49
December 17, 2010

Adverse Childhood Experiences Reported by Adults — Five States, 2009

Adverse childhood experiences (ACEs) include verbal, physical, or sexual abuse, as well as family dysfunction (e.g., an incarcerated, mentally ill, or substance-abusing family member; domestic violence; or absence of a parent because of divorce or separation). ACEs have been linked to a range of adverse health outcomes in adulthood, including substance abuse, depression, cardiovascular disease, diabetes, cancer, and premature mortality (1–3). Furthermore, data collected from a large sample of health maintenance organization members indicated that a history of ACEs is common among adults and ACEs are themselves interrelated (4). To examine whether a history of ACEs was common in a randomly selected population, CDC analyzed information from 26,229 adults in five states using the 2009 ACEs module of the Behavioral Risk Factor Surveillance System (BRFSS). This report describes the results of that analysis, which indicated that, overall, 59.4% of respondents reported having at least one ACE, and 8.7% reported five or more ACEs. The high prevalence of ACEs underscores the need for 1) additional efforts at the state and local level to reduce and prevent child maltreatment and associated family dysfunction and 2) further development and dissemination of trauma-focused services to these ACEs.* The ACEs module was implemented in five states (Arkansas, Louisiana, New Mexico, Tennessee, and

*The 11 ACE questions were modified from the Kaiser-CDC ACEs study questions (5) to conform to fewer BRFSS question response categories and were tested for understanding using focus groups. Respondents were told that the 11 questions referred to the time before they were aged 18 years. Less than 0.5% responded “don’t know or not sure” to any one of the questions, which was defined as a negative response for that ACE category. Verbal abuse was defined as a “more than once” response to the question “How often did a parent or adult in your home ever scold or yell at you, smother you, or put you down?” In contrast to “never,” “once,” or “about once a year,” physical abuse was defined for a response of either “once” or “more than once.” Physical abuse was defined for a response of either “once” or “more than once” to the question “How often did your parents or an adult in your home ever hit, beat, kick, or physically hurt you in any way (do not include spanking)?” Sexual abuse was defined for a response of either “once” or “more than once” to any one of the three following questions: “How often did anyone at least 5 years older than you or an adult ever touch you sexually?” “How often did anyone at least 5 years older than you or an adult try to make you touch them sexually?” or “How often did anyone at least 5 years older than you or an adult force you to have sex?” Two separate household dysfunction variables were defined by affirmative responses to questions about living with anyone who “was diagnosed, mentally ill, or suicidal” or “served time or was sentenced to serve time in a prison, jail, or other correctional facility.” Living with a household substance abuse was defined by an affirmative response to at least one of two questions about living with anyone who “was a problem drinker or alcoholic” or “used illegal street drugs or abused prescription medications.” Having “parents who were separated or divorced” was defined by an affirmative response to a question asking about that in contrast to those remaining “together.”



National Health Goals and Targets for Australian Children and Youth 1992

- Reducing preventable premature mortality
- Reducing the impact of disability
- Reducing the incidence of vaccine preventable disease
- **Reducing the impact of conditions occurring in adulthood with their origins or early manifestation in childhood or adolescence**
- Enhancing family and social functioning

Days of our lives

- In 1900 life expectancy was **17,773 days**
- In Australia, a child born in 2013 - 2015 can expect to live approximately **30,000 days** (some variation)
- If a child is Aboriginal or Torres Strait Islander they are expected to live approximately 10.6 years or **3,800 days less**
- The first **2000 days** from conception to school are critical



1. **Antenatal**
2. **Alcohol**
3. **Architecture**
4. **Adverse childhood**
5. **dohAd**
6. **“Apigenetics”**
7. **Aboriginal**

ATTACHMENT

Antenatal - Stress

The Western Australian Pregnancy Cohort (*Raine*) Study

Stressful life events study

To determine the impact of maternal stressful life events during pregnancy on offspring behavioural outcomes with differentiation between:

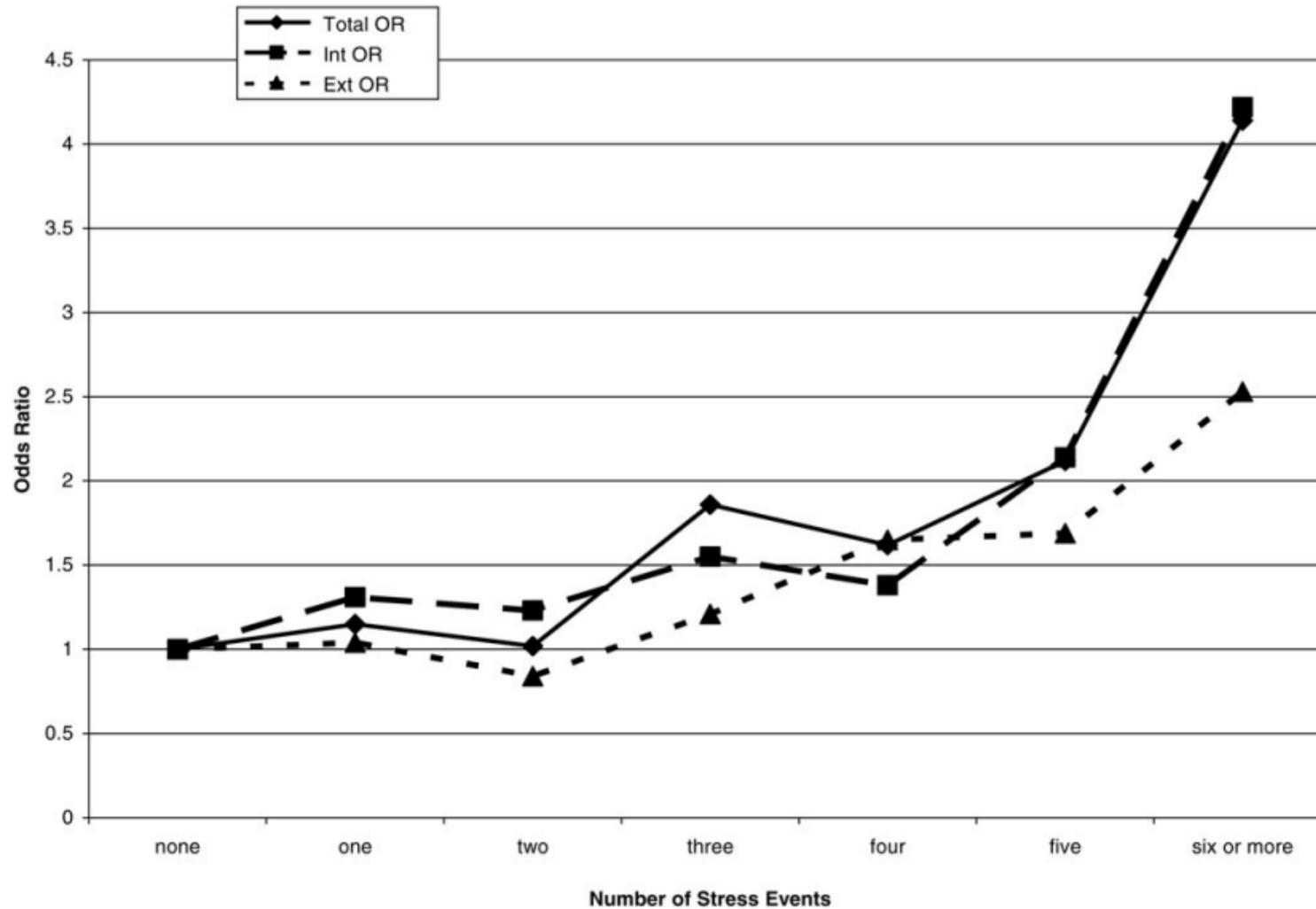
- The number of stressful events
- The type of stressful events
- The timing of stressful events

Raine Study



Prenatal stress and child behavioural morbidity

- 2900 pregnant women – detailed obstetric data



DOI: 10.1111/1471-0528.13611

www.bjog.org

Prenatal antidepressant exposure and child behavioural outcomes at 7 years of age: a study within the Danish National Birth Cohort

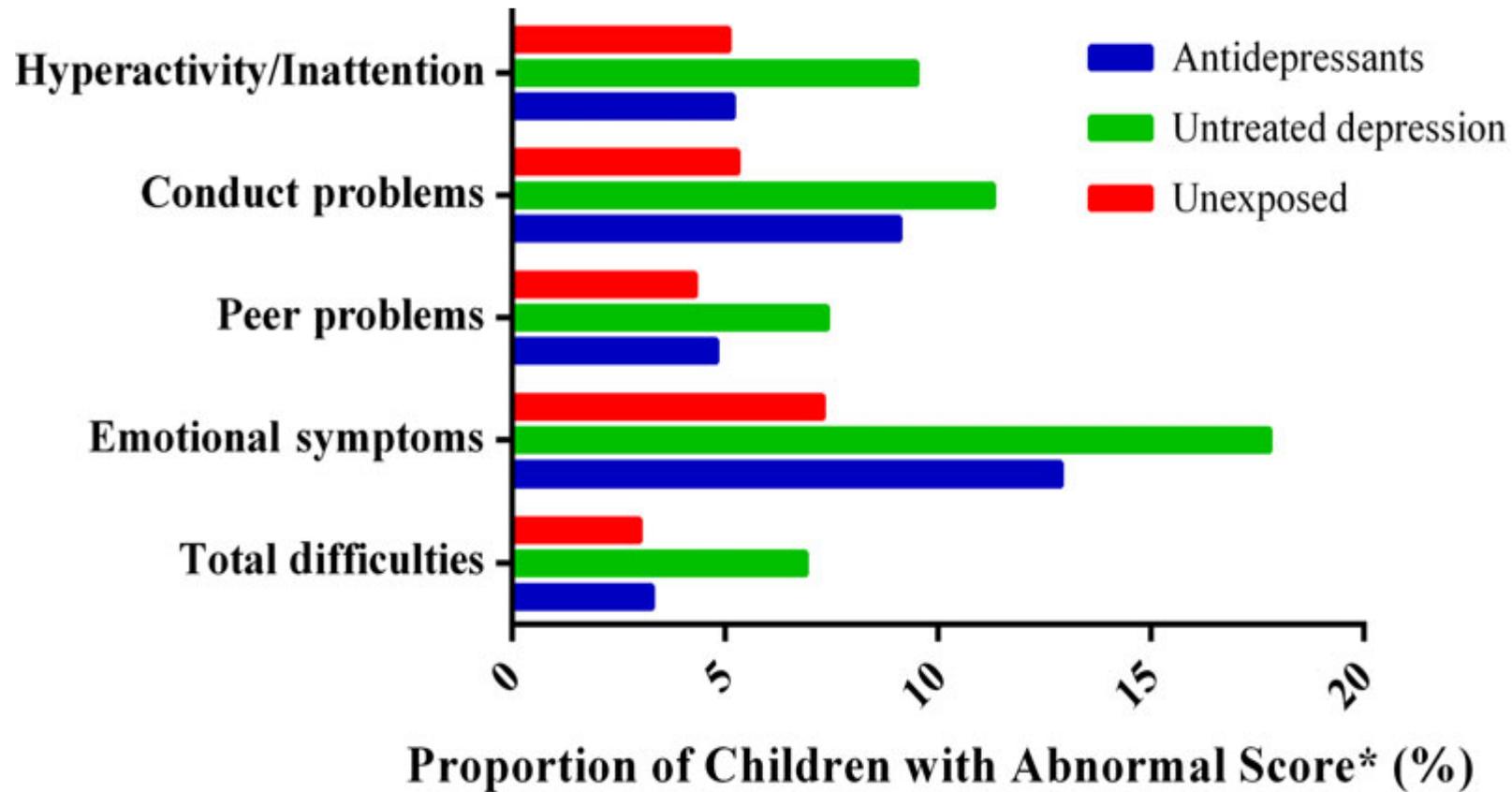
LE Grzeskowiak,^{a,b} JL Morrison,^c TB Henriksen,^d BH Bech,^e C Obel,^{d,f} J Olsen,^e LH Pedersen^g

^a The Robinson Research Institute, School of Paediatrics and Reproductive Health, The University of Adelaide, Adelaide, SA, Australia ^b SA Pharmacy, Pharmacy Department, Flinders Medical Centre, Bedford Park, SA, Australia ^c School of Pharmacy and Medical Sciences, Sansom Institute for Health Research, University of South Australia, Adelaide, SA, Australia ^d Perinatal Epidemiology Research Unit, Department of Paediatrics, Aarhus University Hospital, Skejby, Denmark ^e Section for Epidemiology, Department of Public Health, Aarhus University, Aarhus, Denmark ^f Department of Public Health, Institute of General Medical Practice, Aarhus University, Aarhus, Denmark ^g Department of Obstetrics and Gynaecology, Institute of Clinical Medicine, Aarhus University, Aarhus, Denmark

Correspondence: Dr LE Grzeskowiak, c/o Pharmacy Department, Flinders Medical Centre, Bedford Park, SA 5042 Australia.
Email Luke.Grzeskowiak@adelaide.edu.au

Accepted 7 July 2015. Published online 16 September 2015.

Untreated prenatal depression compared with treatment & unexposed children



*Behavioural problems defined as scores above the 90th percentile on the parent-report version of the Strengths and Difficulties Questionnaire (SDQ)

Grzeskowiak, L. E., et al. (2016). "Prenatal antidepressant exposure and child behavioural outcomes at 7 years of age: a study within the Danish National Birth Cohort." *BJOG: An International Journal of Obstetrics & Gynaecology* **123**(12): 1919-1928.

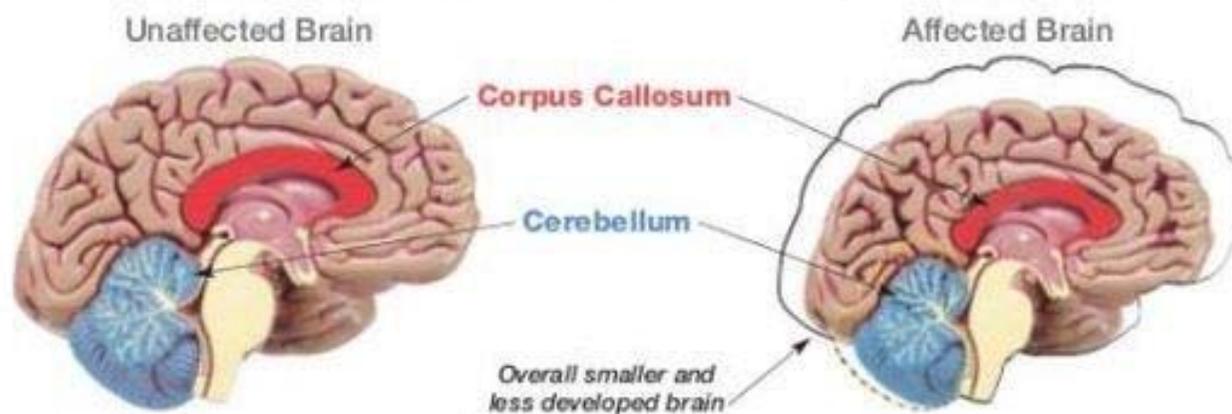
NSW Policy Response

- SAFESTART
- Antenatal Psychosocial Questionnaire

2. Antenatal - Alcohol

Alcohol

Brain Structures Most Sensitive to Prenatal Alcohol Exposure



| Brain Structure | Function | Prenatal alcohol exposure may result in problems with: |
|-----------------|--|--|
| Corpus Callosum | Communicates motor, sensory and cognitive information between the two hemispheres of the brain | Storing and retrieving information, problem solving, attention and verbal memory |
| Cerebellum | Processes input from other areas of the brain to coordinate motor and cognitive skills | Controlling movements, maintaining balance and fine motor skills |

National Organization on Fetal Alcohol Syndrome (NOFAS)
1.800.66NOFAS or visit www.nofas.org



POLICY RESPONSE

NHMRC

- **Guideline 4: Pregnancy and breastfeeding**
- Maternal alcohol consumption can harm the developing fetus or breastfeeding baby.
- **A. For women who are pregnant or planning a pregnancy, not drinking is the safest option.**
- **B. For women who are breastfeeding, not drinking is the safest option**

3. Architecture



www.forestwander.com

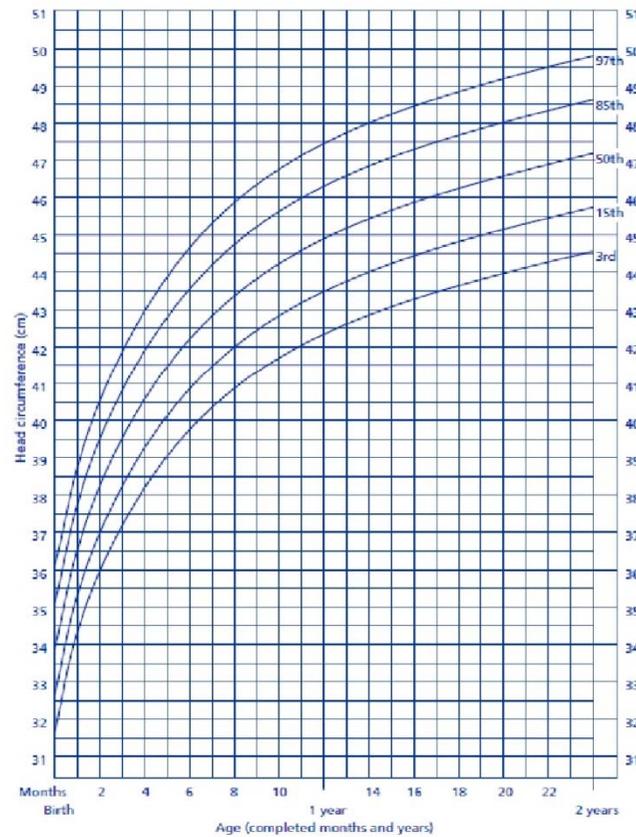
The Developing brain

- At birth brain connections are relatively few – 50 trillion – these are determined by genes from parents
- In the first few months connections increase to **1,000 trillion** – these are determined by a baby's experience
- Experience determine which pathways are formed & repeated experiences make these stronger and stronger – pathways not used fade away
- Experiences wire channels – emotions of love and affection **or** anger and aggression

Brain Structure - Head Circumference

My personal health record

Head circumference-for-age percentiles
GIRLS - birth to 2 years



Source: World Health Organisation Child Growth Standards www.who.int/childgrowth/en

Romanian orphanage study

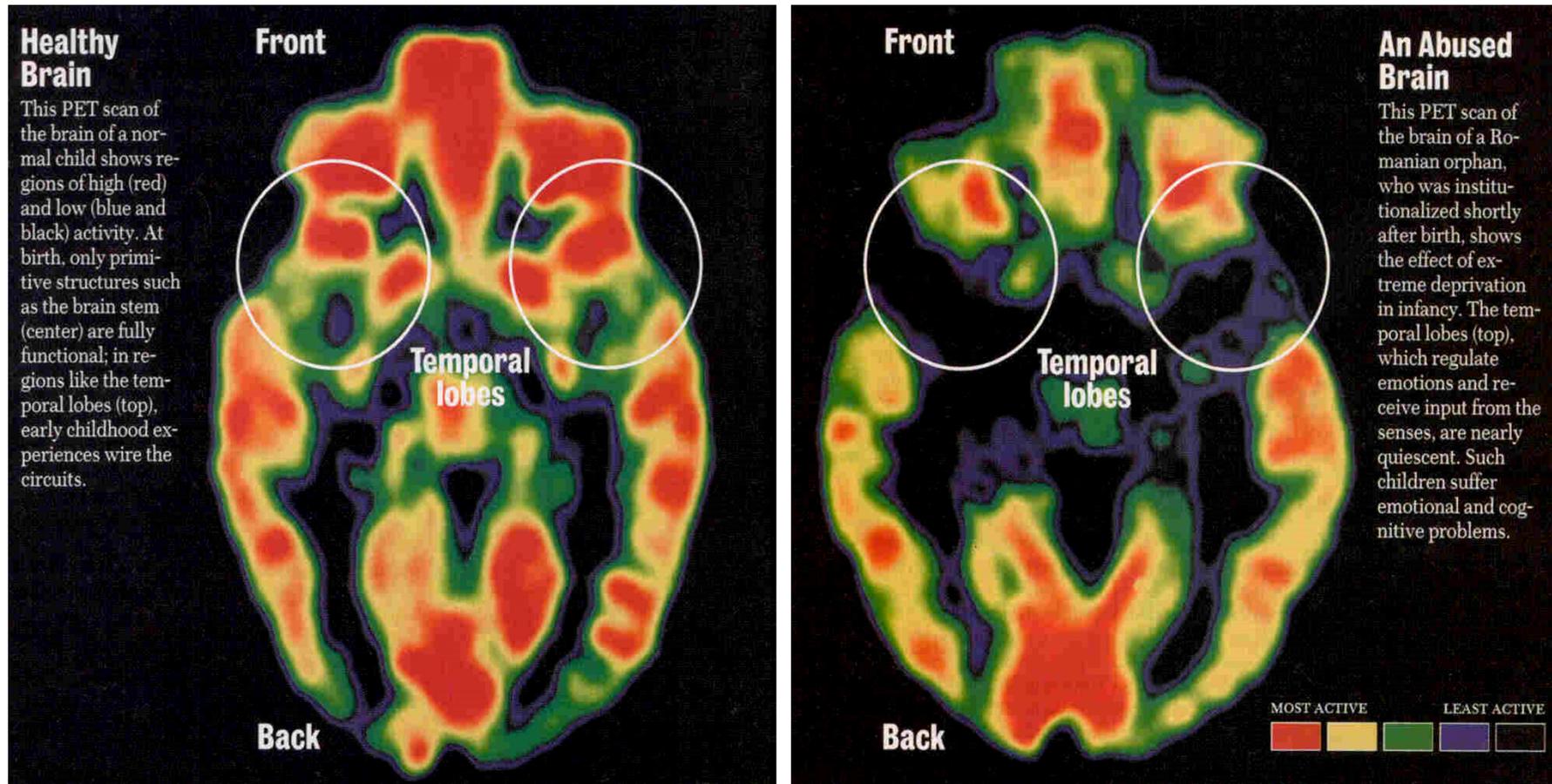
A “Natural” Experiment

- Children adopted into middle class homes after 8 months in the orphanages show at 11 years in contrast to children adopted early:
 1. Abnormal brain development (small brain, low metabolic activity, abnormal EEG)
 2. Social and cognitive problems
 3. High vulnerability to behavioural problems (ADHD, aggression, quasi autism)

Kolb, U Lethbridge

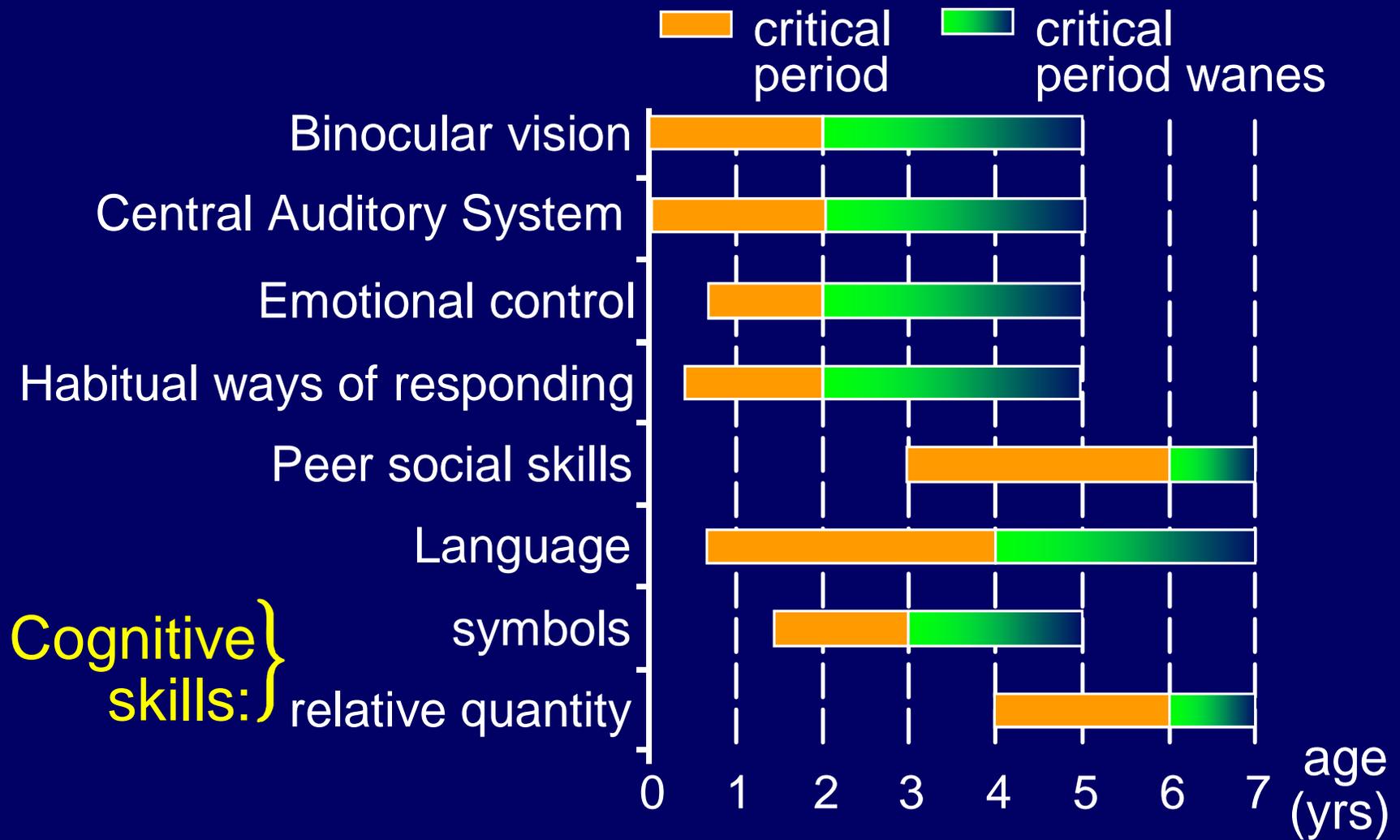
RESILIENCE!

Adversity impacts on brain development



Source: The Founders' Network www.founders.net

Sensitive Periods for Early Development



NSW POLICY RESPONSE

SCHOOL SCREENING FOR VISION AND HEARING
REPLACED BY

- SWISH – AND HEARING SURVEILLANCE
- StEPS – AND VISUAL SURVEILLANCE

“A child’s development score at just 22 months can serve as an accurate predictor of educational outcomes at 26 years.”

Ref: Allen G. *Early Intervention: The Next Steps*. An Independent Report to Her Majesty’s Government. HM Government, UK. Jan 2011. <http://www.dwp.gov.uk/docs/early-intervention-next-steps.pdf>

Data Support

- Australian Early Development Census
- NAPLAN

POLICY RESPONSE

Child Health Programme

- Developmental Surveillance

- NSW - LEARN THE SIGNS ACT EARLY

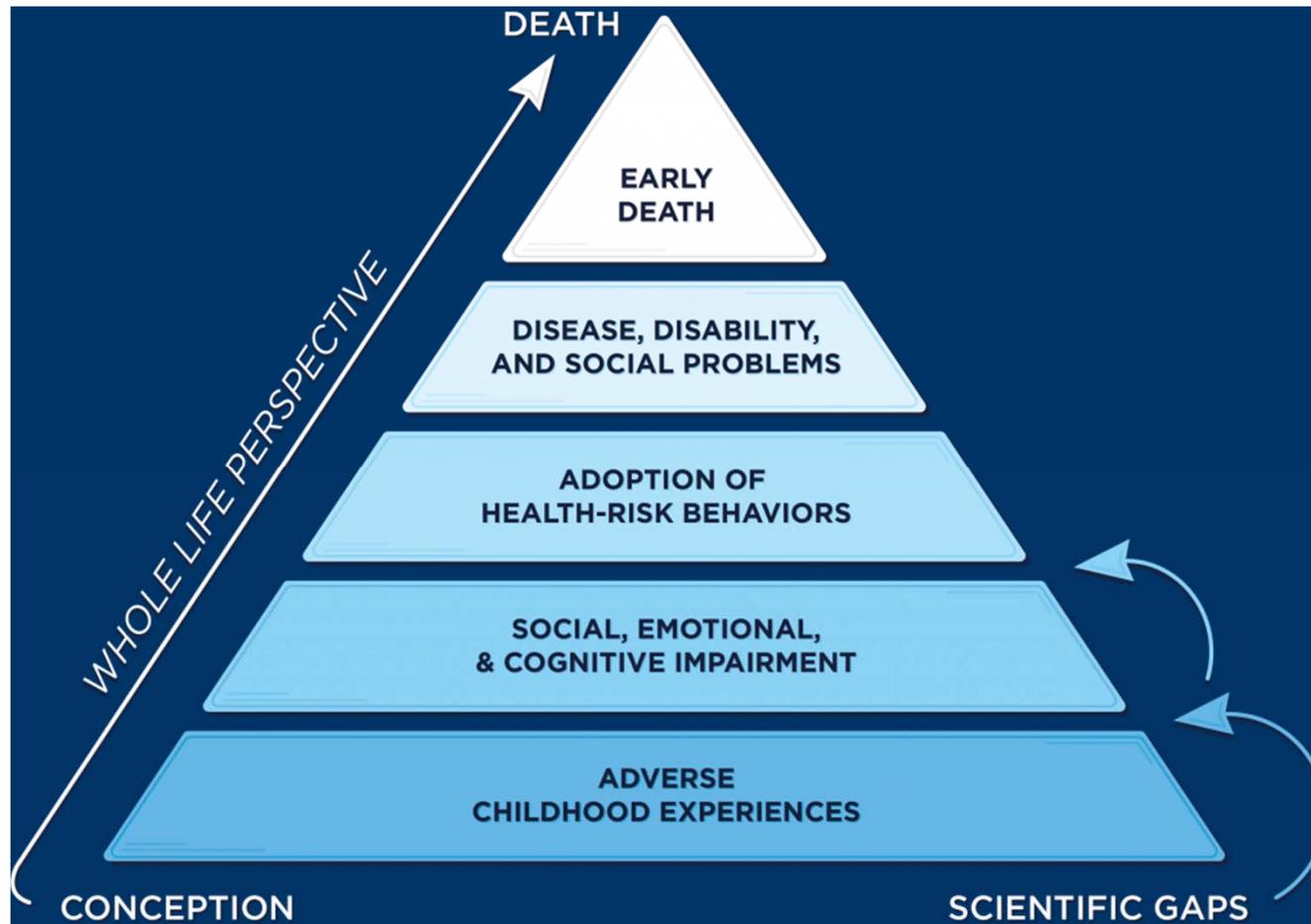
4. Adverse childhood events



**Negative experiences
in the early years have
long-lasting effects
that can be difficult to
overcome later.**

ACE Score has strong and graded relationship to health-related behaviours and outcomes during childhood and adolescence including early initiation of smoking, sexual activity, and illicit drug use, adolescent pregnancies, and suicide attempts.

Adverse Childhood Experience (ACE) Pyramid



One of the largest studies undertaken to examine the associations between childhood maltreatment and later-life health and well-being

Source: changingmindsnow.org

Adverse Childhood Experiences

Abuse

- Emotional abuse • Physical abuse • Sexual abuse

Neglect

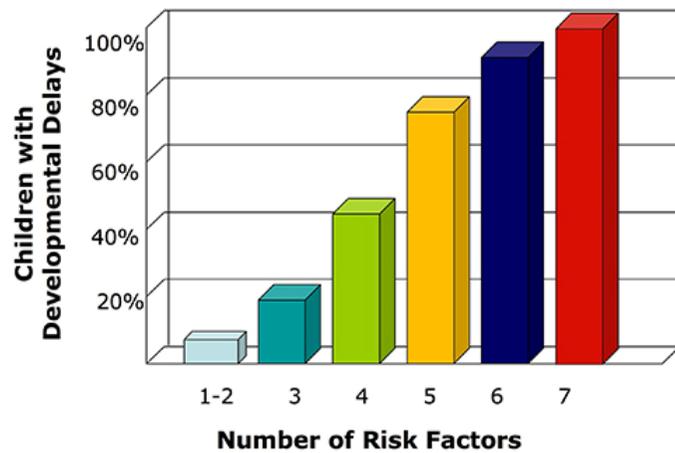
- Emotional neglect
- Physical neglect

Household Dysfunction

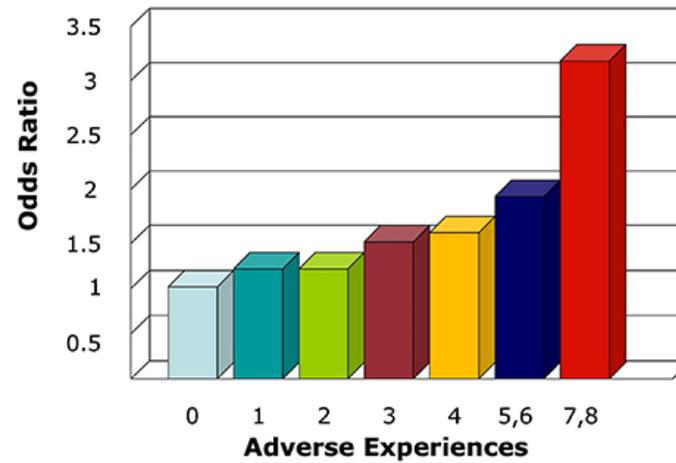
- Mother treated violently
- Household substance abuse
- Household mental illness
- Parental separation or divorce
- Incarcerated household member

Early experience - life long outcomes

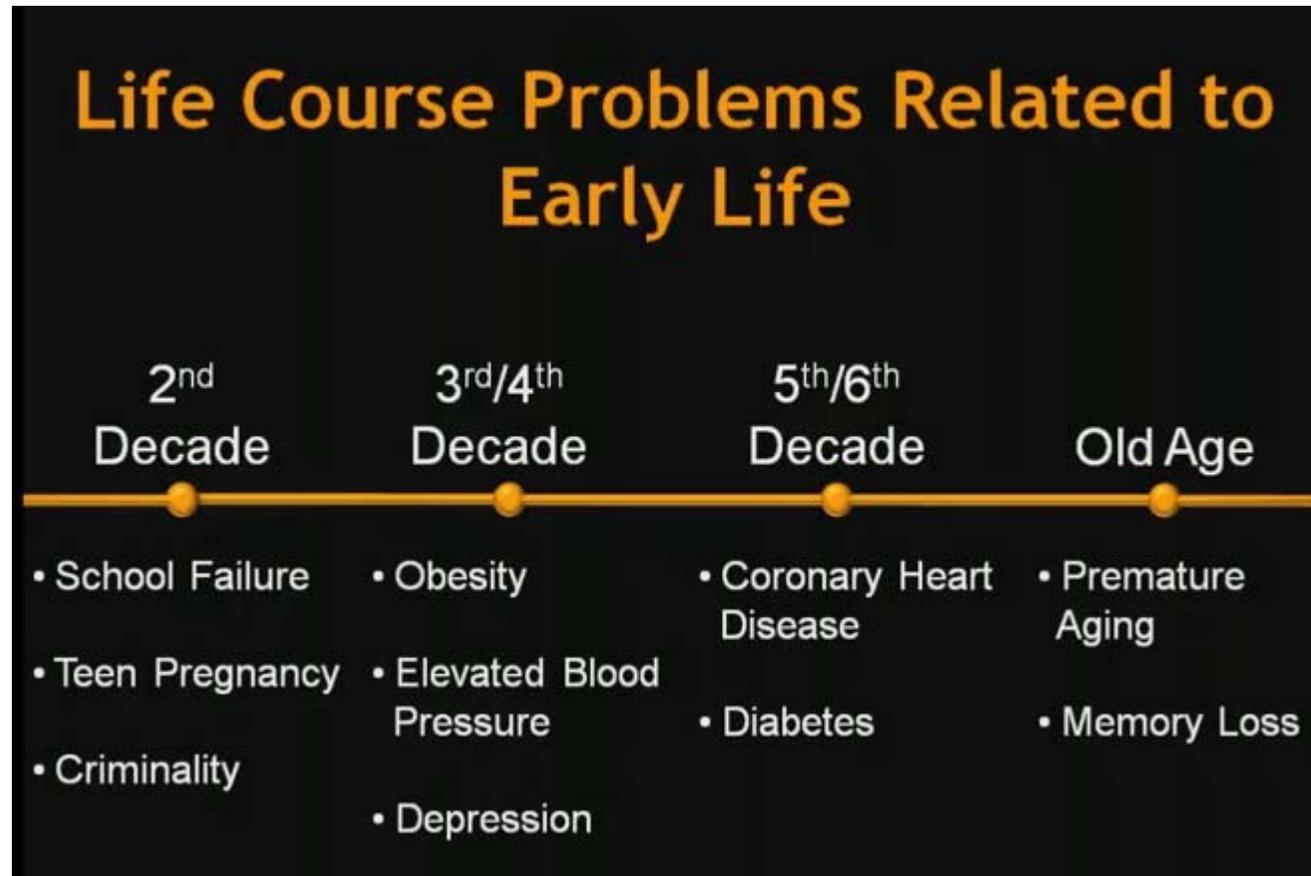
Significant Adversity Impairs Development in the First Three Years



Risk Factors for Adult Heart Disease are Embedded in Adverse Childhood Experiences

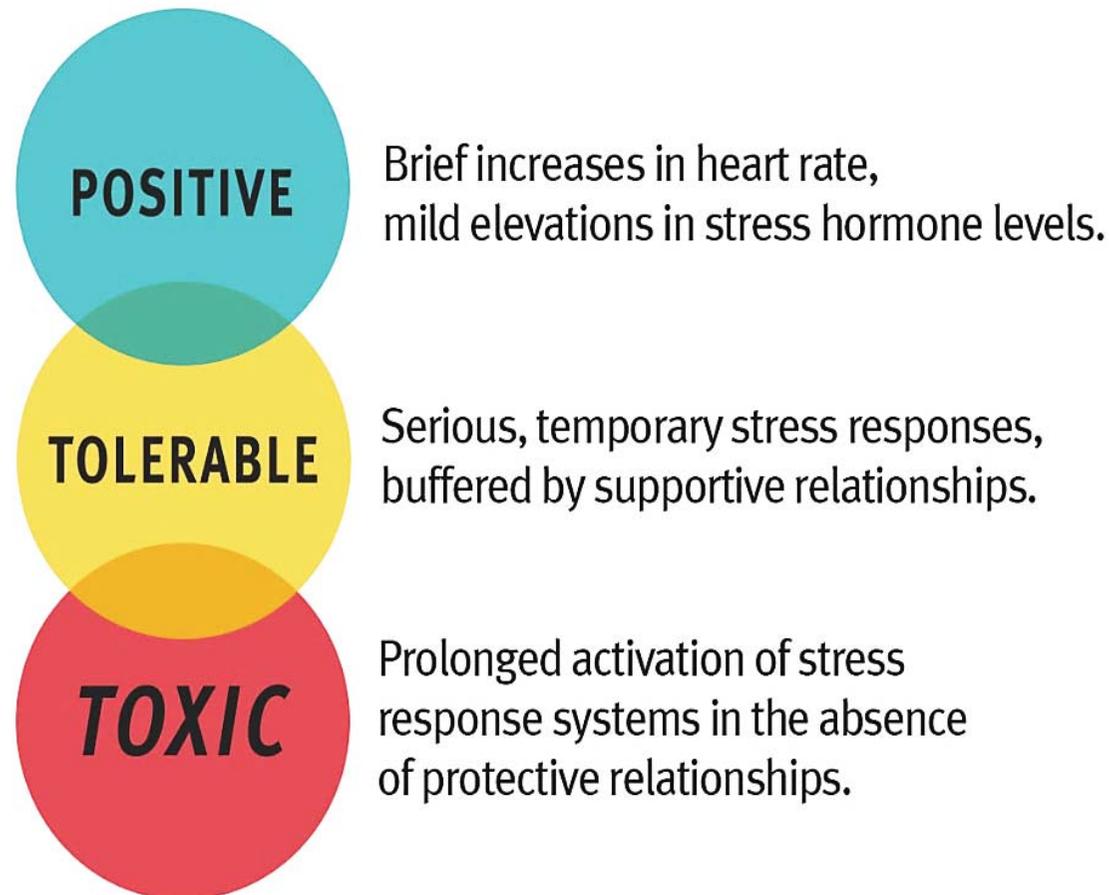


Long term affect on life



Source: <https://alfinnextlevel.wordpress.com/2013/08/12/getting-started-early-sensitive-periods-of-childhood-development/>

Biochemistry – Stress Hormones



Source: Center on the Developing Child, Harvard University

5. DOHaD

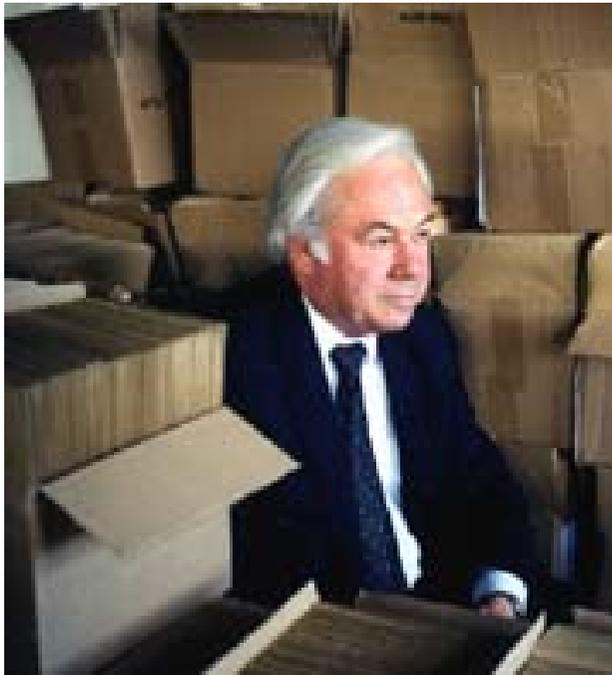
Who is this midwife?



Documentation that launched DOHAD!

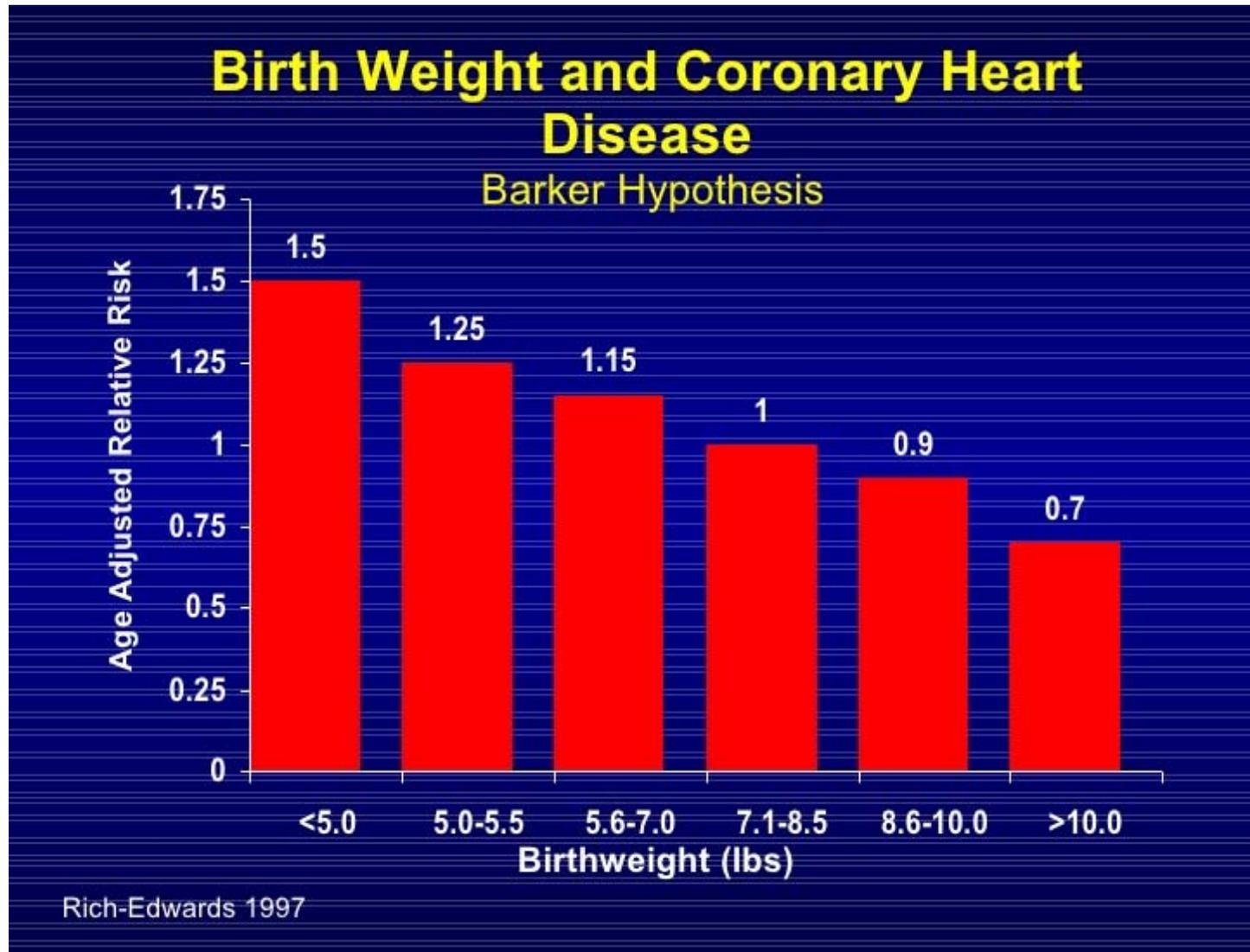
| Weight at Birth. | Weight 1st Year | Food. | No. of Visits. | Condition, and R Health Visi | | |
|---|-----------------|-------|----------------|------------------------------|----|---|
| | | | | W | V | R |
| 8 1/4 lbs | 24 1/2 lbs | B. | 11 | Y | - | - |
| Healthy & well developed. | | | | Buckland School. | | |
| 7 lbs | 18 1/4 lbs | B | 12 | h | Y. | |
| Moved to Nury Green St. Natham. | | | | Had measles, pne | | |
| 8 | 20 | Bot. | 11 | Y. | Y. | |
| T.B. abscess in neck opened. Ant. fontanelle still open at 3 yrs. Abdomen | | | | | | |
| 8 1/2 | 22 | B.B. | 9 | Y | Y | |
| Healthy & normal. | | | | Buckland School. | | |

Dr Barker



- Identified 15,000 Hertfordshire residents with detailed birth records in 1930s
- 3000 dead
 - ~ 1500 from CHD

Early – the Foetal Origins of Disease 1995



DoHaD - Developmental Origins of Health and Disease

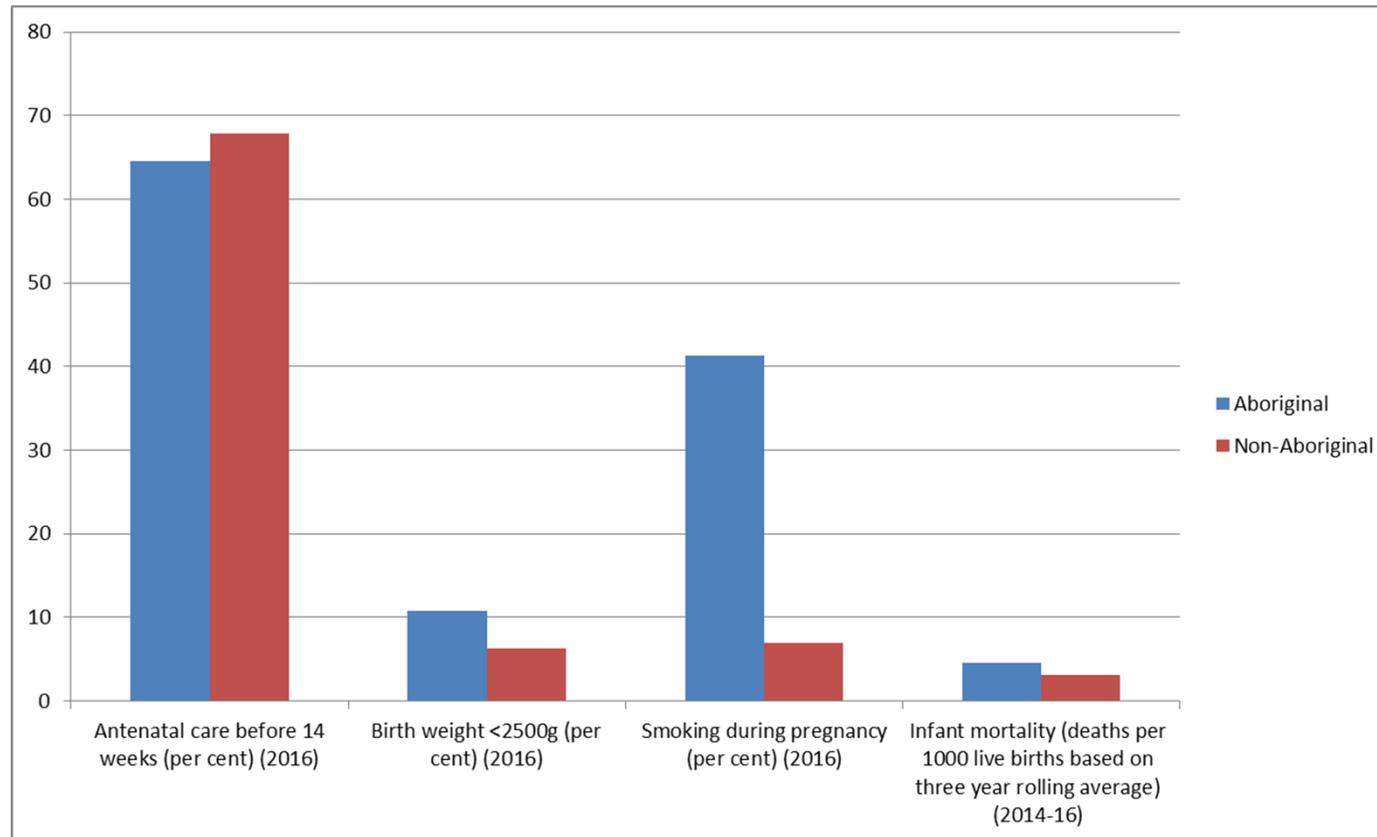


“Supports for families and appropriate training for providers of early care and education across all types of care, including informal arrangements as well as established centers, can improve health outcomes throughout the life course”

The Foundations of Lifelong Health Are Built in Early Childhood, July 2010, Center on the Developing Child at Harvard University, p 8.

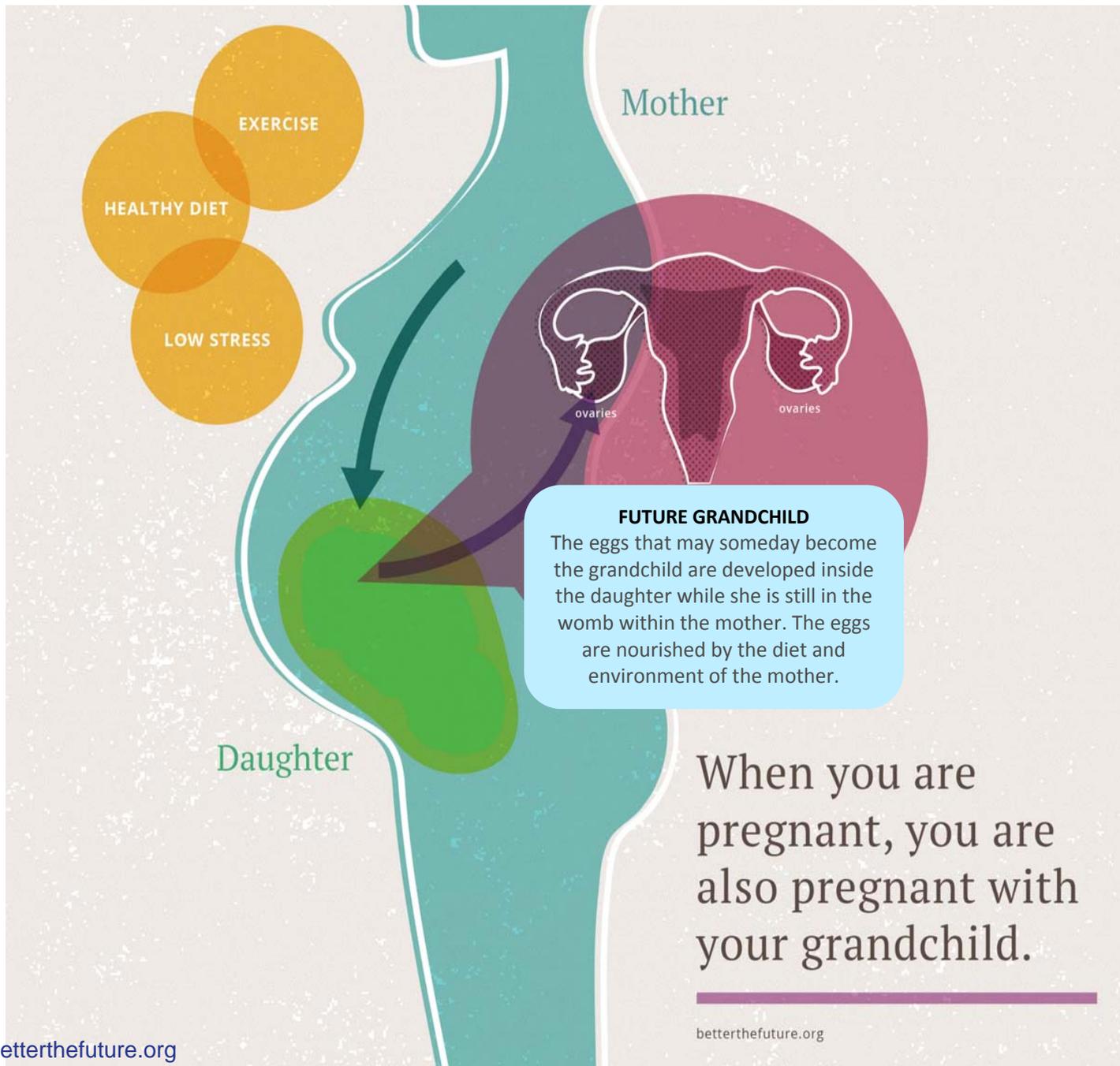
- **Aboriginal Maternal
and Infant Health**

Aboriginal Maternal and Infant Health Indicators NSW 2016



Source: Centre for Epidemiology and Evidence. New South Wales Mothers and Babies 2016. Sydney: NSW Ministry of Health, 2017.

6. “Apigenetics”



Mother

HEALTHY DIET

EXERCISE

LOW STRESS

ovaries

ovaries

FUTURE GRANDCHILD

The eggs that may someday become the grandchild are developed inside the daughter while she is still in the womb within the mother. The eggs are nourished by the diet and environment of the mother.

Daughter

When you are pregnant, you are also pregnant with your grandchild.

A life course approach



How Early Experiences Alter Gene Expression and Shape Development

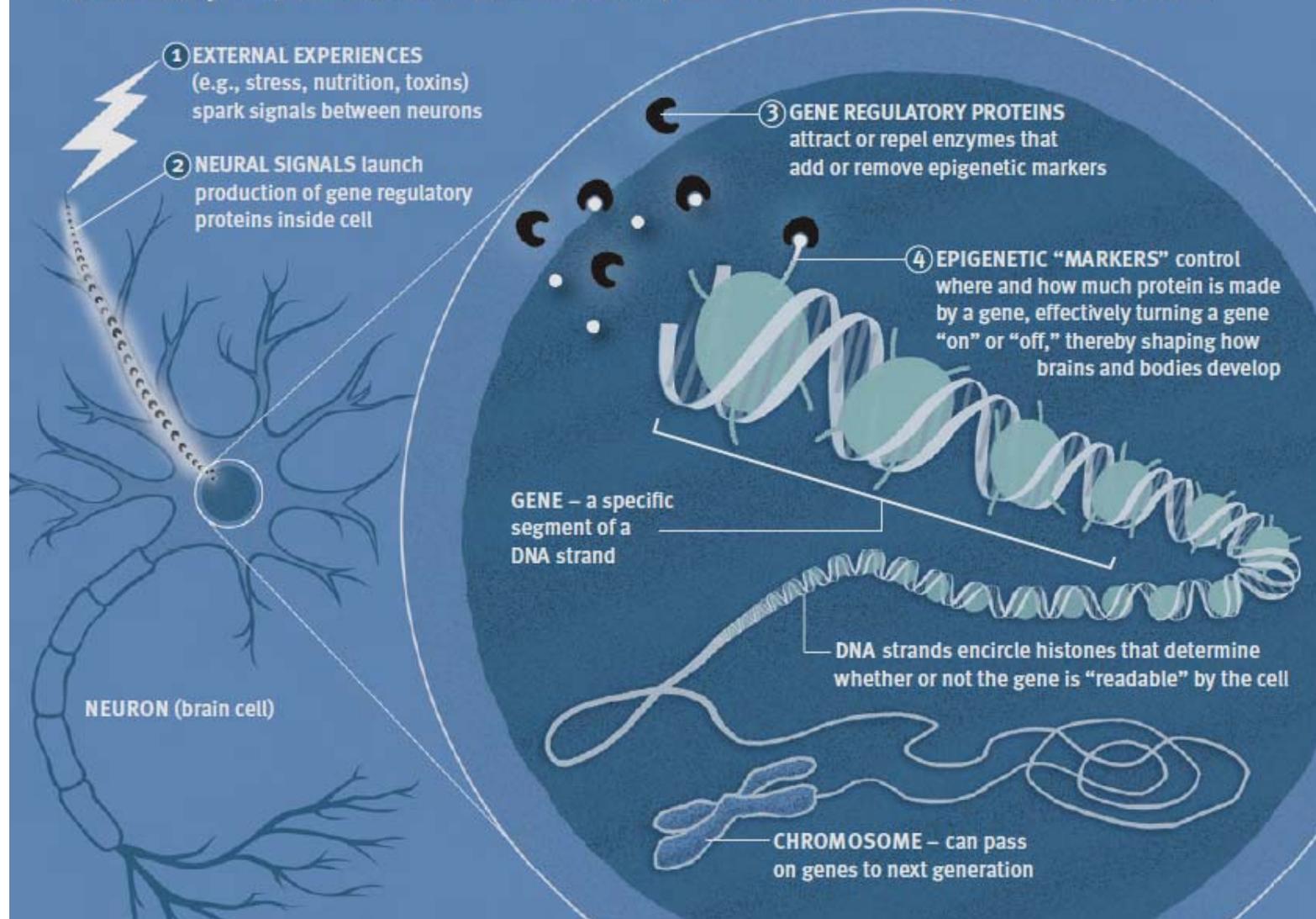


Illustration by Betsy Hayes. Source: Harvard Center on the Developing Child.

8. Attachment



Attachment

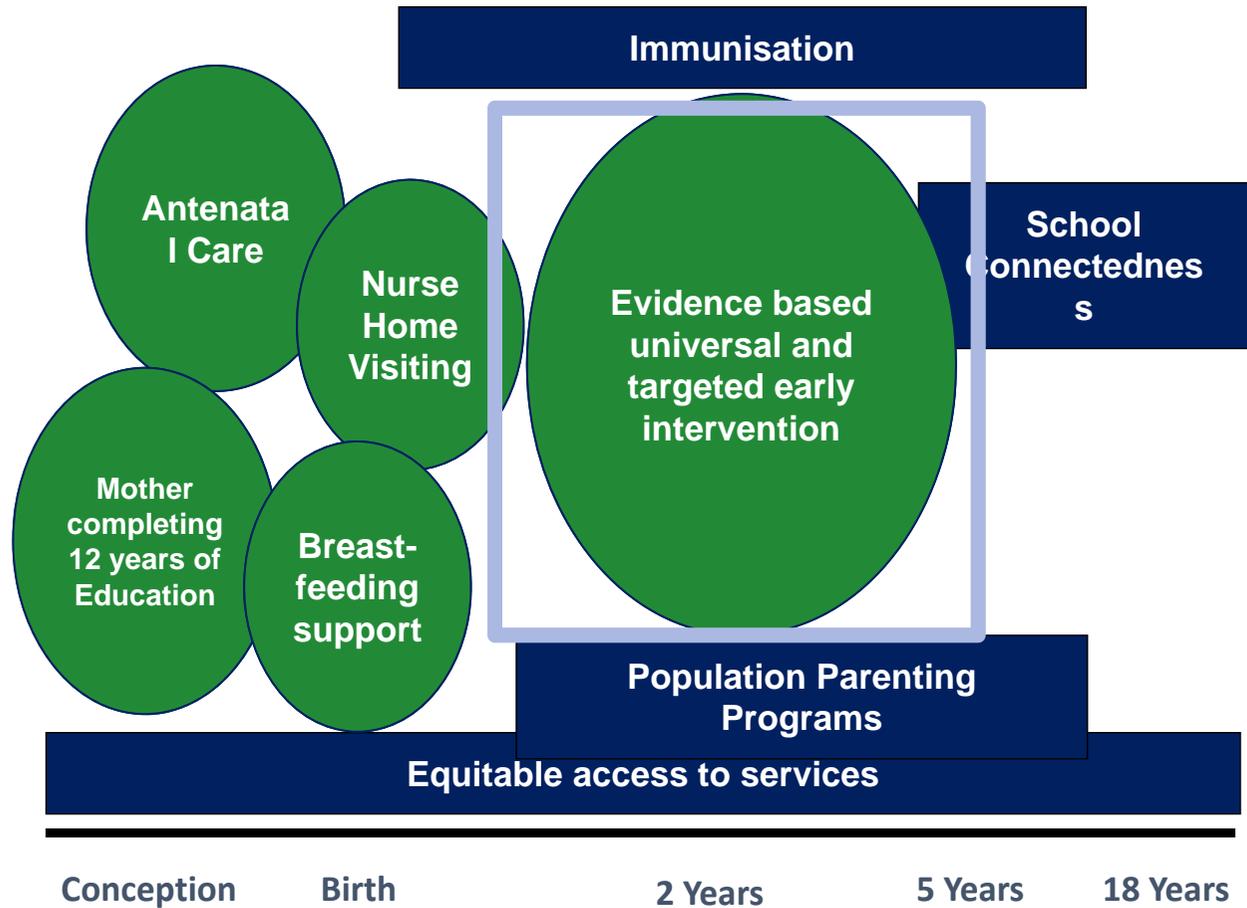


Source: Forældre og Fødse

What to do?

- Personal Health Record
- Developmental Surveillance
- Love Talk Sing Read Play

2) Scale Up Evidence Based Interventions



Source and thanks to:
Altman L, Burrett S,
Woolfenden S 2017

Advocacy - enhance social, political, economic and physical environment; legislation (e.g. seatbelts); structural changes (e.g. housing design)



POLICY

- PERSONAL HEALTH RECORD (THE BLUE BOOK)
- SAFE START
- **FIRST 2000 DAYS FRAMEWORK**

The draft First 2000 Days has three goals at its core

1. We all understand the importance of the first 2000 days of life and what needs to happen
2. The health system responds to the needs of mothers, children and families in NSW so that they receive the right help when they need it
3. Families are supported to develop skills, connections and resources to overcome challenges

