

“Necessary but not sufficient”

Adding voice and choice to Big Data

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Growing Up in New Zealand

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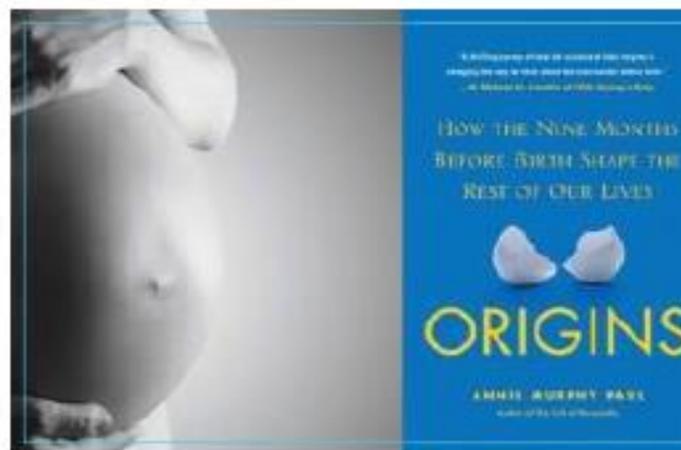
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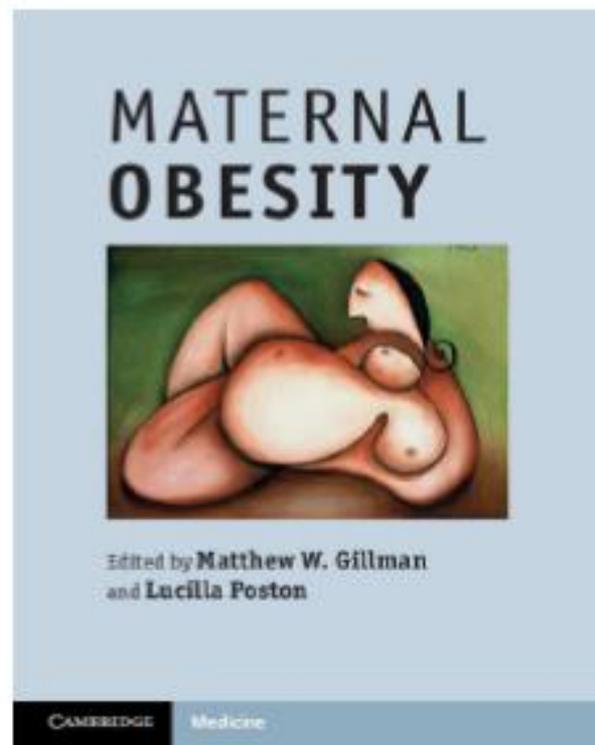
THE NEW ENGLAND JOURNAL OF MEDICINE

Developmental Origins of Health and Disease

Matthew W. Gillman, M.D.

At first glance, it may seem implausible that your mother's exposure to stress or toxins while she was pregnant with you, how she fed you when you were an infant, or how fast you grew during childhood can determine your risk for chronic disease as an adult. Mounting evidence, however, indicates that many occurring in the earliest stages of human

disease outcomes decades later.³ Researchers have found consistent inverse associations between birth weight and a central distribution of body fat, insulin resistance, the metabolic syndrome, type 2 diabetes mellitus, and ischemic cardiovascular disease.⁴ Moreover, the phenotype of lower birth weight coupled with a higher body mass index in

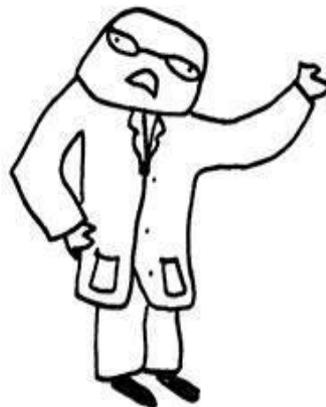


Challenges for providing evidence for change

- Strong associations are not sufficient to inform action
- Needed to move beyond “risk factorology”
- Causation usually multifactorial, accumulating over time and interacting over time, acting at multiple levels of influence – and resulting in co-morbidities

SCIENCE vs. THE PEOPLE!

correlation is
not causation!



i dunno what
those are but
i disagree
and i vote!



Providing evidence to inform policy



“It is one thing to understand the health effects of (*insert childhood condition here*) – but taking action to relieve its effects entails a far richer understanding of the health effects of social and economic policies”

Sir Michael Marmot

(Fair Society, Healthy Lives, 2010)



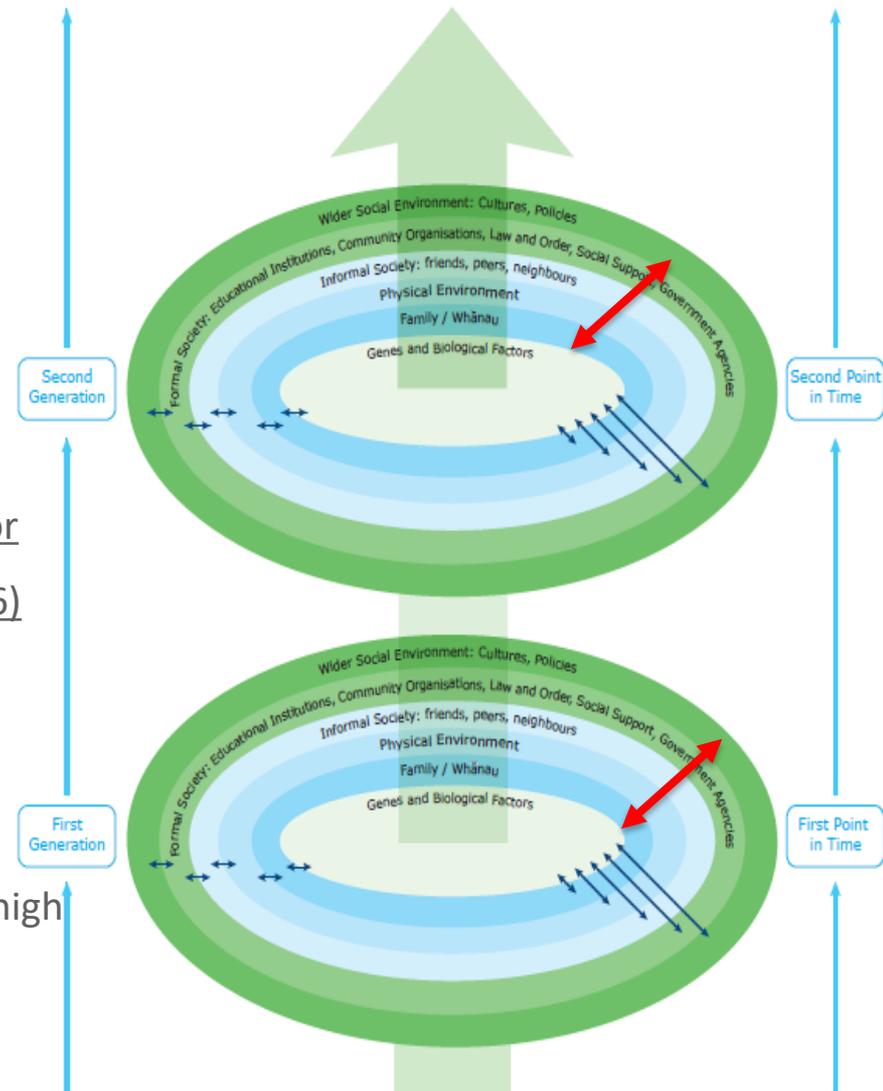
Overarching aim of *Growing Up in New Zealand*

To provide **robust evidence** about what shapes development and wellbeing for New Zealand children growing up in New Zealand today in the context of their diverse families.

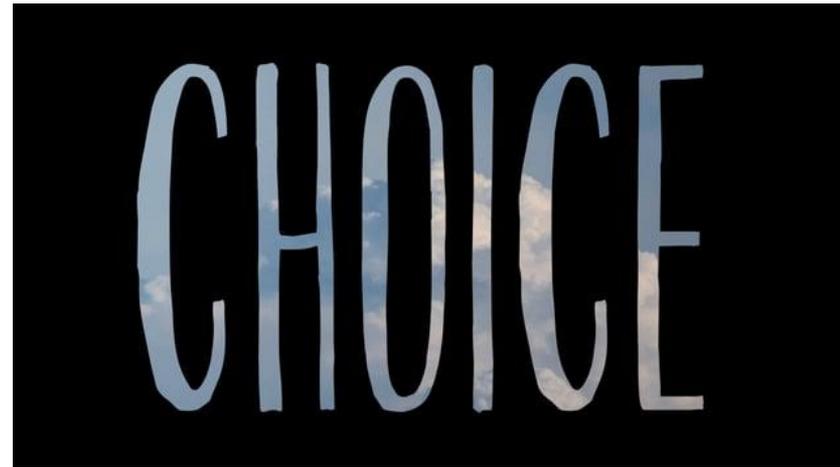


Growing Up in New Zealand – cohort

- **6,853** children recruited before their birth – via pregnant mothers in 2009 and 2010
- Partners recruited during pregnancy (**4,401**)
- Wellbeing central – acknowledges multidimensional and dynamic
- Cohort **size and diversity** ensure adequate explanatory power to consider trajectories for Māori (1 in 4), Pacific (1 in 5) and Asian (1 in 6) children, and multiple ethnicities (50%)
- Cohort **broadly generalisable** to current NZ births (diversity of ethnicity and family SES)
- **Retention rates** to 4.5 years have been very high (over 92% with minimal attrition bias)



“Extraordinary things emerge from following ordinary people’s lives”
Helen Pearson (Nature, 2015)



CHURN

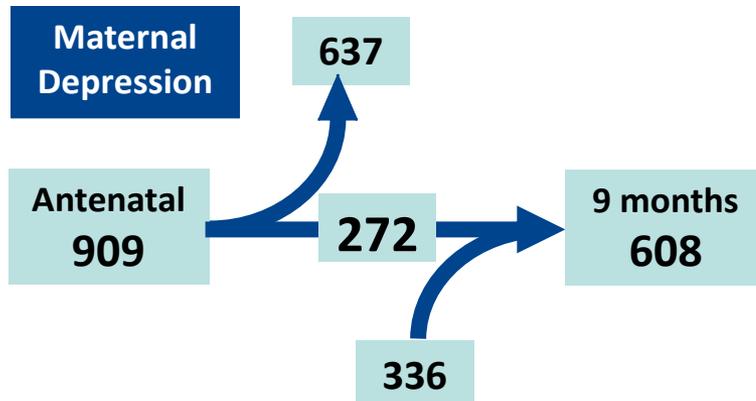
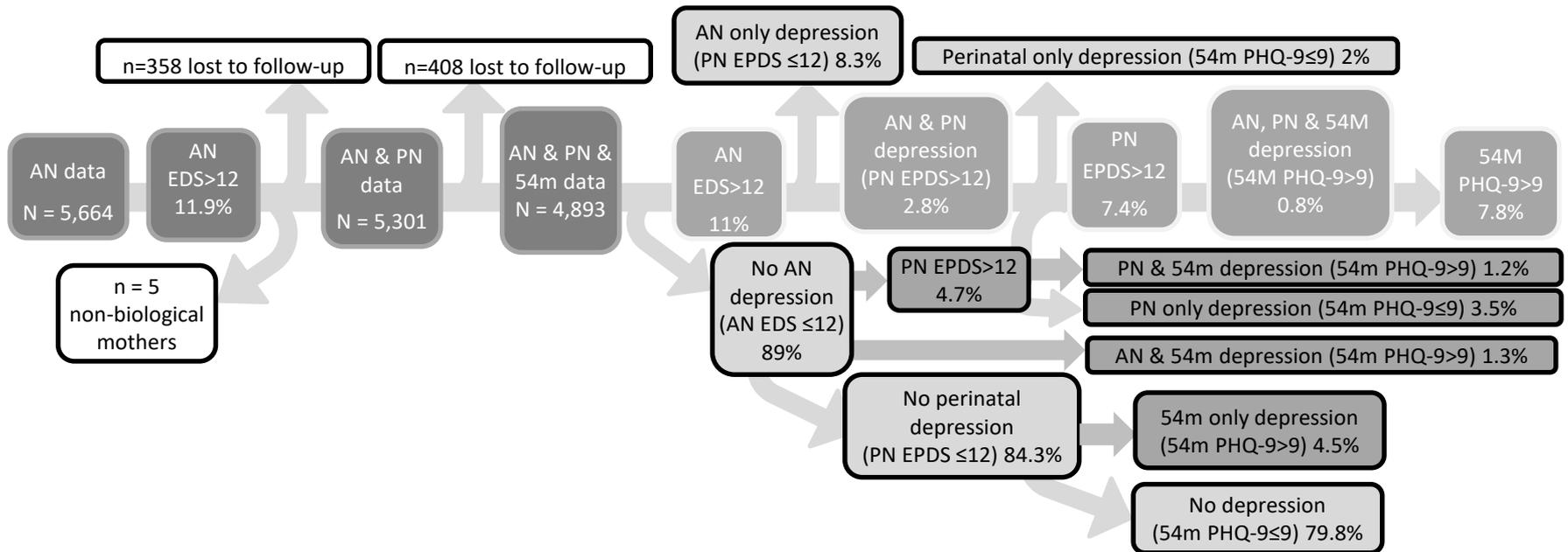
That they feel like that they are part of a ethnically diverse country and part of a community, e.g. school, neighbourhood, friends. Freedom to comfortably come and go as they please

We want our child to be happy and healthy, and to finish school. Education is extremely important – as long as she gets an education she can make her own decisions

Voice

I hope my child will grow up in a safe neighbourhood, with people who care about them

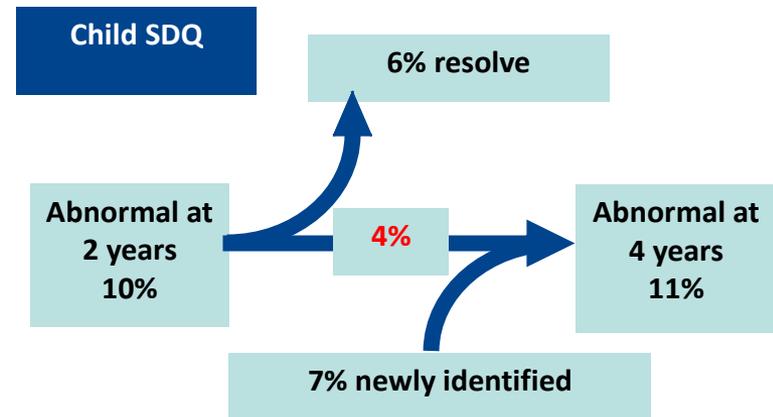
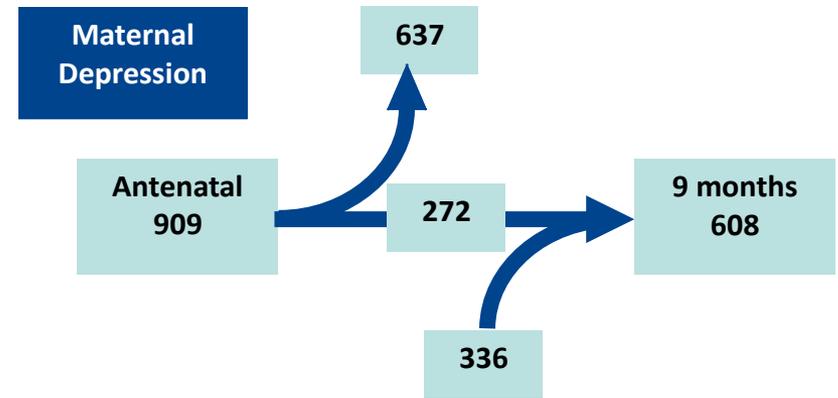
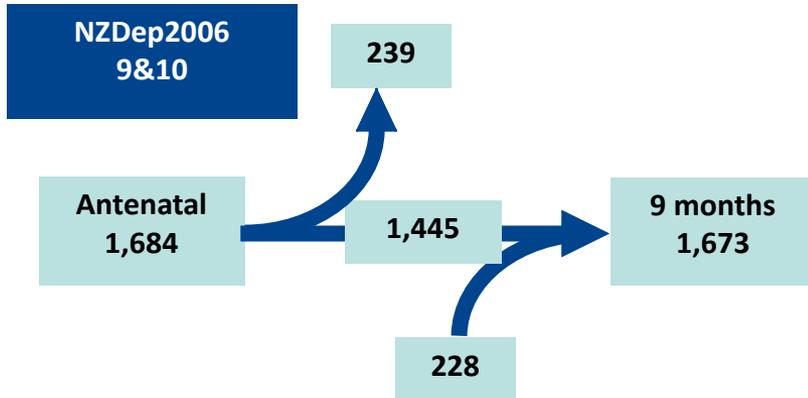
Churn – at individual level and contexts



"Not just new mums: dads get the blues too"

UK Express Feb 2017

Stability over time (indicators and outcomes)

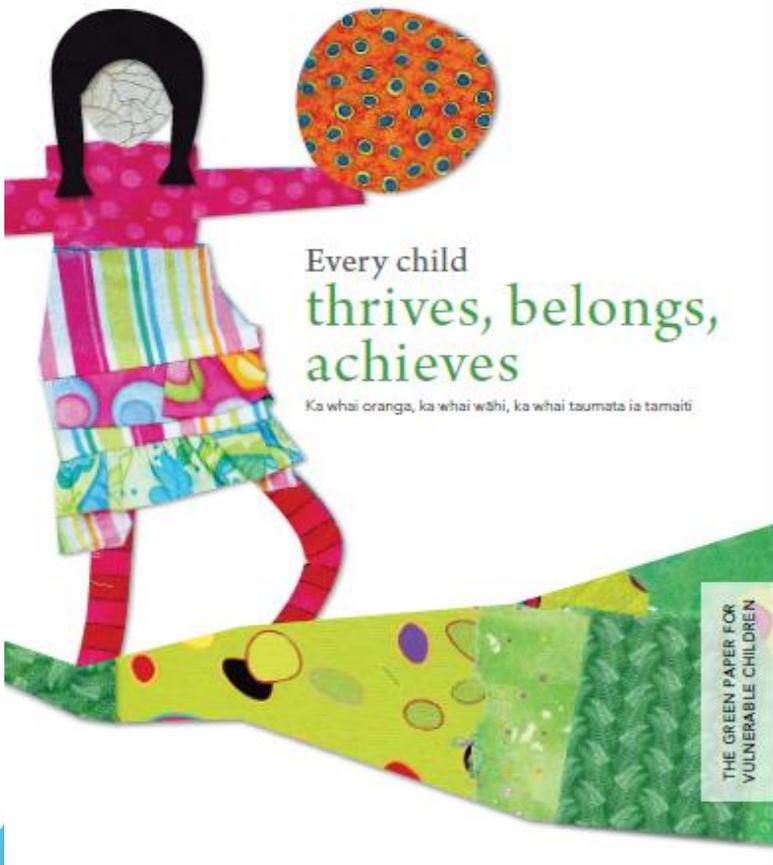


Residential Mobility – household tenure and safety

Tenure type	Antenatal	9 months	2 years	54 months
Family Home	55.2	56.2	56.2	57.8
Private rental	38.3	37.8	38.1	35.8
Public rental	6.5	6.0	5.7	6.4



Focusing on Vulnerable children



Proximal Family Variables

- *Maternal depression (antenatal using EPDS>12)*
- Maternal physical wellbeing (poor or fair)
- Maternal smoking in pregnancy (after first trimester)
- Maternal age (teenage pregnancy)

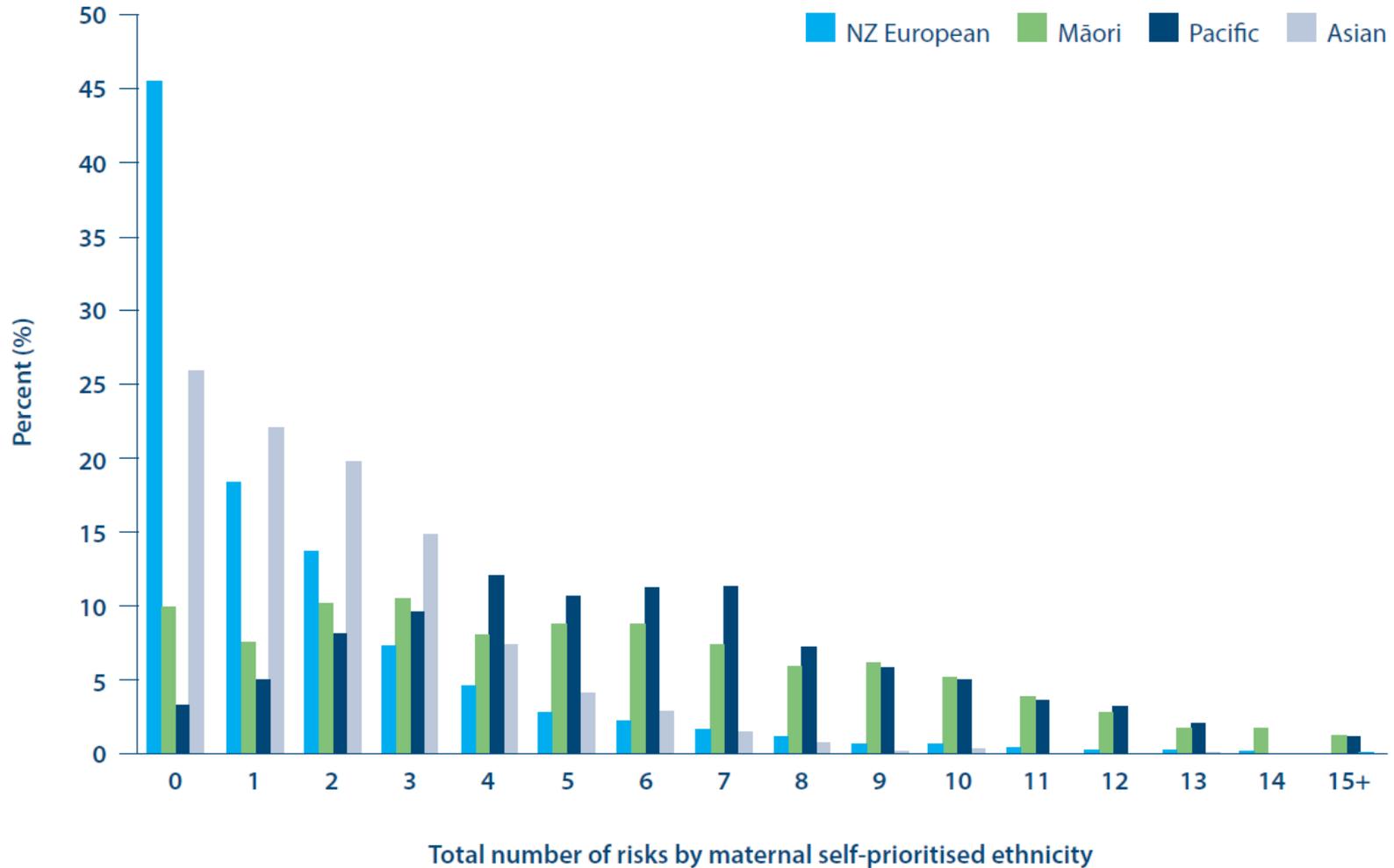
Distal Family Variables

- Relationship status (no partner/single)
- Maternal education (no secondary school qualification)
- Financial stress (regular money worries)

Home environment

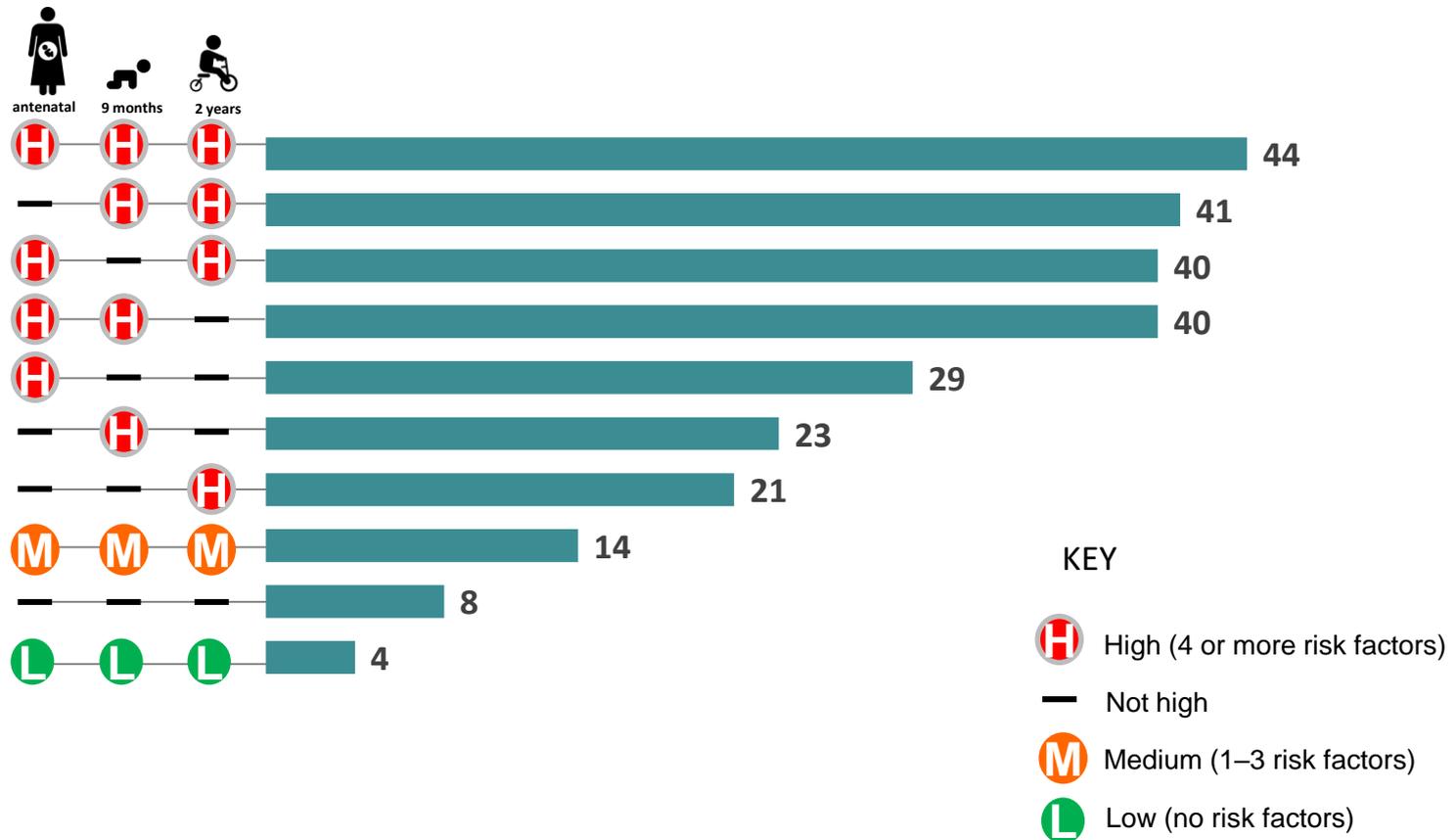
- Deprivation area (NZDep2006 decile 9 or 10)
- Unemployment (mother not in work or on parental leave)
- *Tenure (public rental)*
- Income tested benefit (yes/no)
- Overcrowding (≥ 2 per bedroom)

Cumulative exposure to indicators – maternal ethnicity



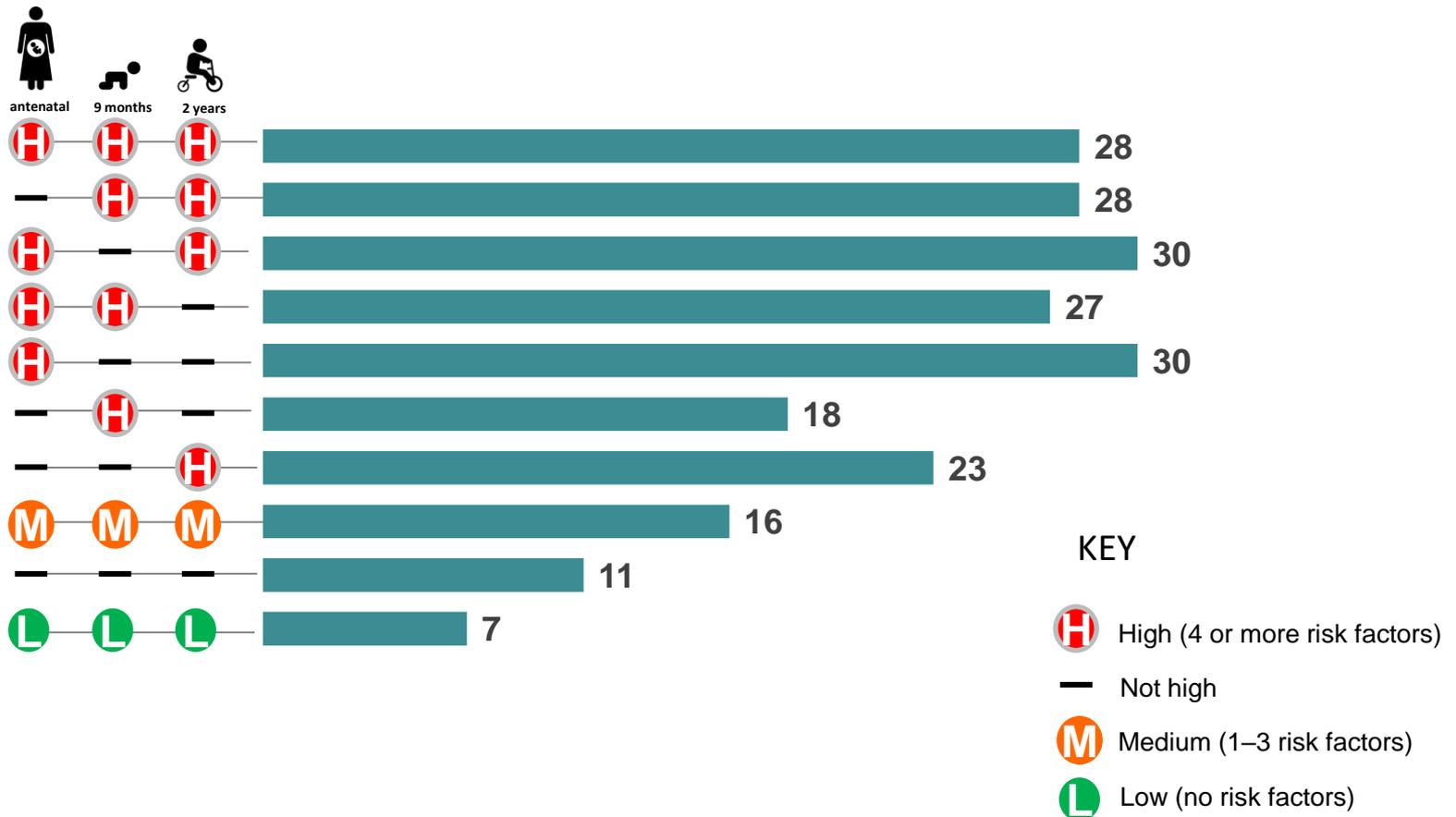
Impact of exposure over time – behaviour

SDQ score in Abnormal range at 4.5 years (%)



Impact over time – overweight/obesity

Obesity (WHO reference) at 4.5 years (%)



Capturing resilience – “what works”



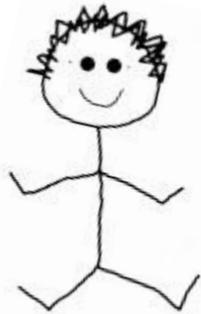
Collaborative partnership between *Growing Up in New Zealand* and the Southern Initiative (South Auckland) to facilitate the development of a community intervention programme to promote story-reading and “talking” to the under-2’s – used a co-design process.



Daily screen time increased to average of greater than two hours a day

Reality gap – Parental Perception

- 1 in 3 NZ children (aged 2–14) are overweight or obese
- 14% of the cohort are overweight or obese by 4 years of age (9% at 2 years)



Underweight

Normal weight

Overweight

10%

85%

5%

Perception

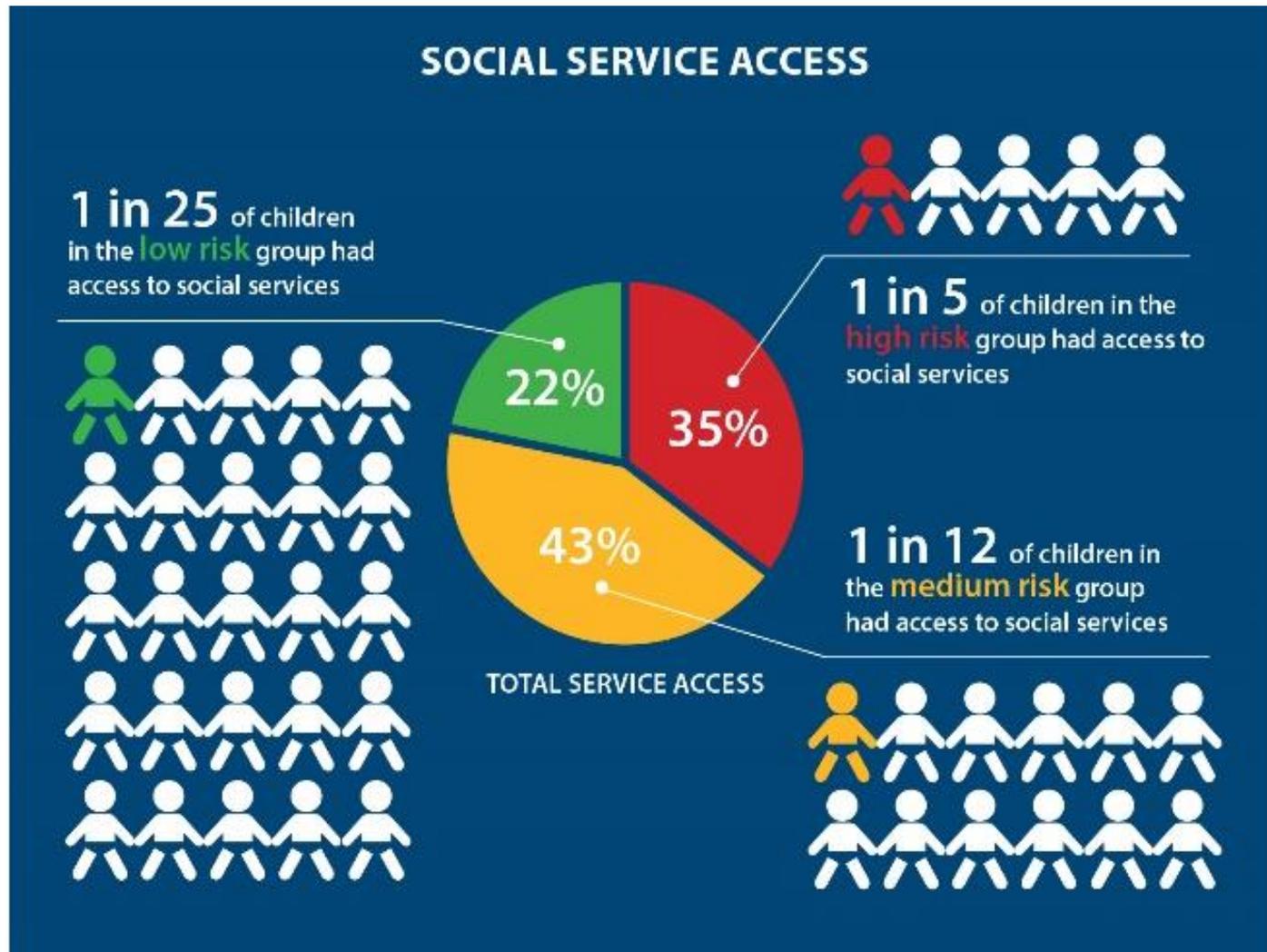
0%

86%

14%

Reality

Measuring “vulnerability” and meeting need



“We manage what we measure”

Proxy measures for:

- “Participation”
- “Referrals”
- “Hospitalisations”
- “Notifications”
- “WELLBEING”

	No B4SC participation (n = 241)		Completed B4SC (total n = 5378)		Total (n = 5619*)
	n	%	n	%	n
Maternal age group					
< 30 years	113	5	2180	95	2293
30+ years	121	4	3159	96	3280
Maternal Education					
No secondary school qualifications	29	8	318	92	347
Secondary qualification	66	5	1185	95	1251
Diploma or Trade Certificate	78	5	1615	95	1693
Bachelor degree	43	3	1313	97	1356
Higher degree	18	2	895	98	913
NZDep2013 group™					
Low (deciles 1 – 3)	53	3	1670	97	1723
Medium (deciles 4 – 7)	66	3	1962	97	2028
High (deciles 8 – 10)	119	6	1733	94	1852
Child ethnicity					
NZ European	74	2	2921	98	2995
Māori	57	7	762	93	819
Pacific People	78	10	685	90	763
Asian	22	3	671	97	693
MELAA/ Other	<10	2	78	98	78
New Zealander	<10	<1	179	>99	179



Context relevant solutions – understanding why and what works for whom, when and where



Children's own voices at 8 years (2017–18)



Acknowledgements

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Dame Whina Cooper