

# *Growing Up in New Zealand:* “transforming ordinary into extraordinary”

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*Growing Up in New Zealand*

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[www.growingup.co.nz](http://www.growingup.co.nz)



# Overarching aim of *Growing Up in New Zealand*



To provide contemporary **population relevant evidence** about developmental trajectories for 21<sup>st</sup> century New Zealand children in the context of their families.

*“The Ministry of Social Development and the Health Research Council of New Zealand, in association with the Families Commission, the Ministries of Health and Education and the Treasury, wish to establish a new longitudinal study of New Zealand children and families, ....” to gain a better understanding of the causal pathways that lead to particular child outcomes (across the life course)*



























..... introduction to the RfP in 2004 - UoA led research team successfully bid to design and conduct study.

# The *Growing Up in New Zealand* cohort

- **6853 children** recruited before their birth - via pregnant mothers (6823)
- Partners recruited and interviewed pregnancy, 9mths and 2years (4401), WATD follow-up 2015-16
- Cohort size and diversity ensures adequate explanatory power to consider trajectories for Maori (1 in 4), Pacific (1 in 5) and Asian (1 in 6) children, and multiple ethnic identities (approx. 1 in 2 by 4yrs)
- Cohort is broadly generalisable to current NZ pre-schoolers (diversity of ethnicity and family SES)
- Retention rates up to 4 year DCW very high (over 90% with minimal attrition bias)



# Longitudinal Information collected

| Child age          | Ante-natal  | Peri-natal  | 6W  | 35W   | 9M  | 12M   | 16 M  | 23 M  | 2Y  | 31 M  | 45 M  | 54 M  | 72M   | 8Y  |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mother CAPI*       |  |   |   |   |  |   |   |   |    |   |   |    |   |   |
| Father CAPI*       |  |   |   |   |  |   |   |   |    |   |   |   |   |   |
| Child CAPI*        |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
| Mother CATI†       |   |   |  |  |   |   |  |  |   |  |  |   |   |   |
| Mother Electronic  |   |   |   |   |   |   |   |   |   |   |   |   |  |    |
| Father Electronic  |   |   |   |   |   |   |   |   |   |   |   |   |  |   |
| Child‡             |   |    |   |   |   |   |   |   |    |   |   |    |   |    |
| Child Samples<br>◊ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Data<br>Linkage**  |   |  |   |   |   |  |   |   |  |   |   |  |   |  |

\* CAPI computer assisted personal interview

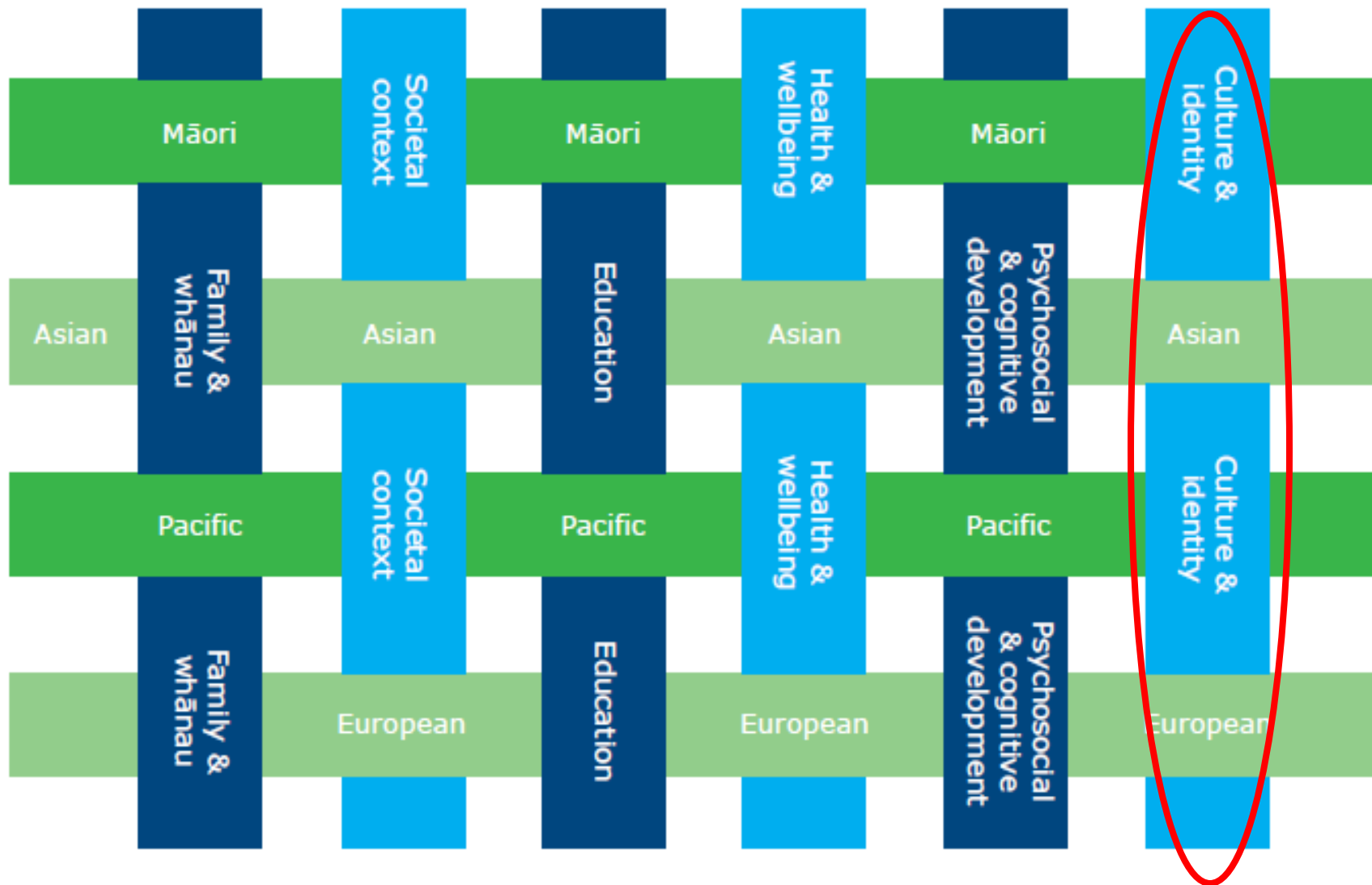
† CATI computer assisted telephone interview

‡ Child measurements

◊ Child biological samples - throat, nose and elbow swab and saliva

\*\* Linkage to routine health records

# Child centered and multi-disciplinary



# Culture and Identity Domain



- Ethnic identity (mother, partner, intended for child) and development over time
- Multiple levels of ethnicity collected – self-prioritised and able to be externally prioritised
- Cultural values, beliefs and expectations
- Cultural practices
- Cultural capital
- National identity
- Sense of self
- Influence of other cultures on the individual
- Attitudes about others
- Discrimination – perceived and context
- Religiosity/Spirituality
- Community capital

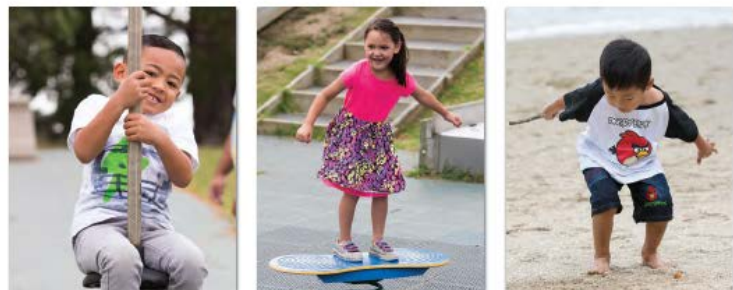




# Preschool Information

## Growing Up in New Zealand

Now We Are Four: Describing the preschool years  
2017



Household income  
Housing tenure  
Material hardship  
Housing stability  
Mothers' health  
Media use  
Antibiotics  
Child health  
Residential mobility  
Diet  
Area level deprivation  
ECE & care arrangements  
Social & emotional functioning  
GP visits  
Parental work  
Language & communication  
Recognising & understanding emotions  
Inter-parental relationship  
Sleep  
Home learning  
Parenting practices  
Physical activity  
Immunity  
Childhood illnesses  
Self control  
Household structure  
B4 School Check  
Behaviour & conduct  
Ready for school  
Oral health  
Body weight & BMI  
Family & whānau  
Screen time



# “*Snapshots*” from the preschool years







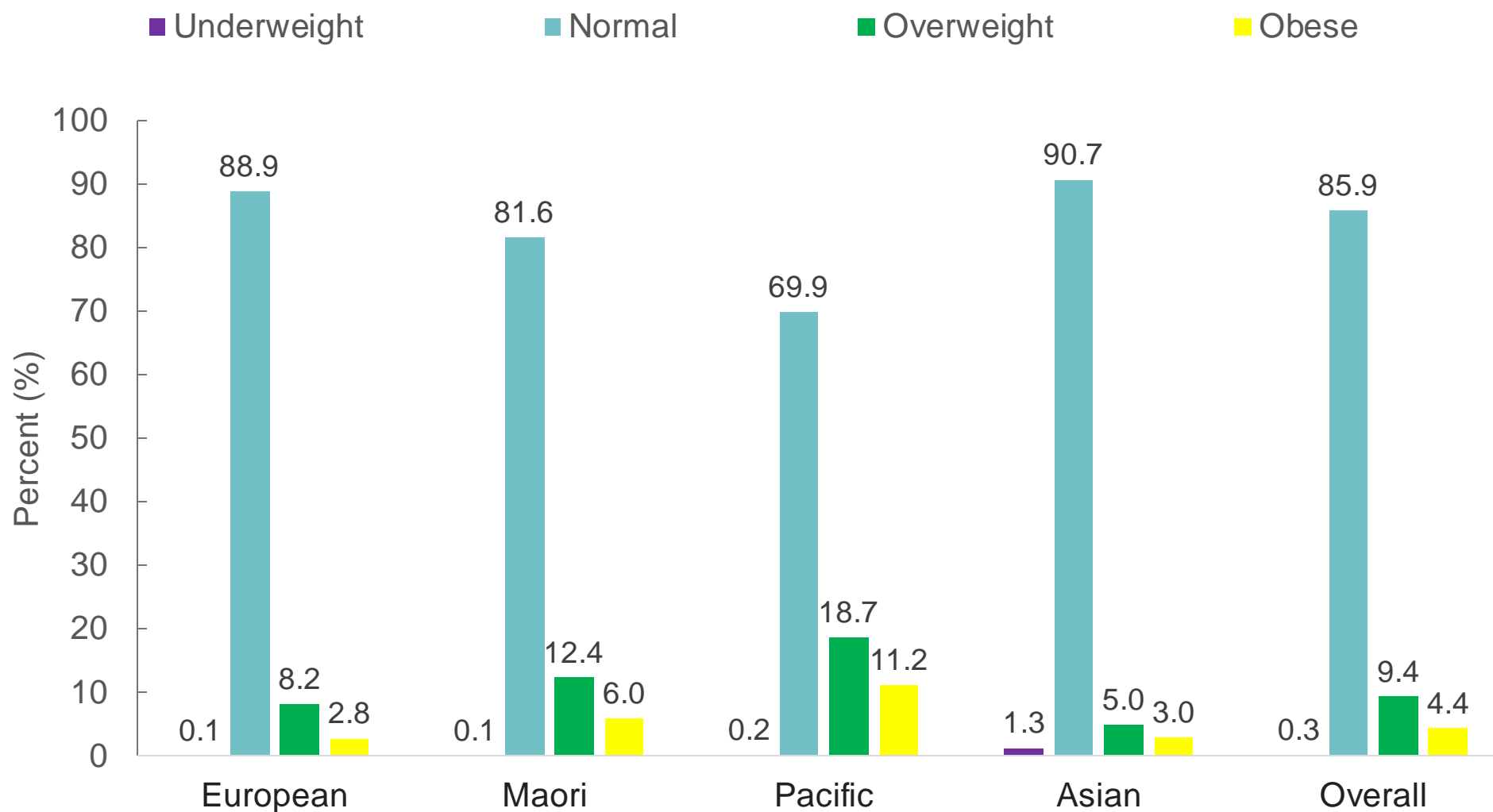
**One in two children moved house at least once between 2 and 4 years of age**





**Rates of overweight and obesity increased from 9% to 14% between 2 and 4 years**

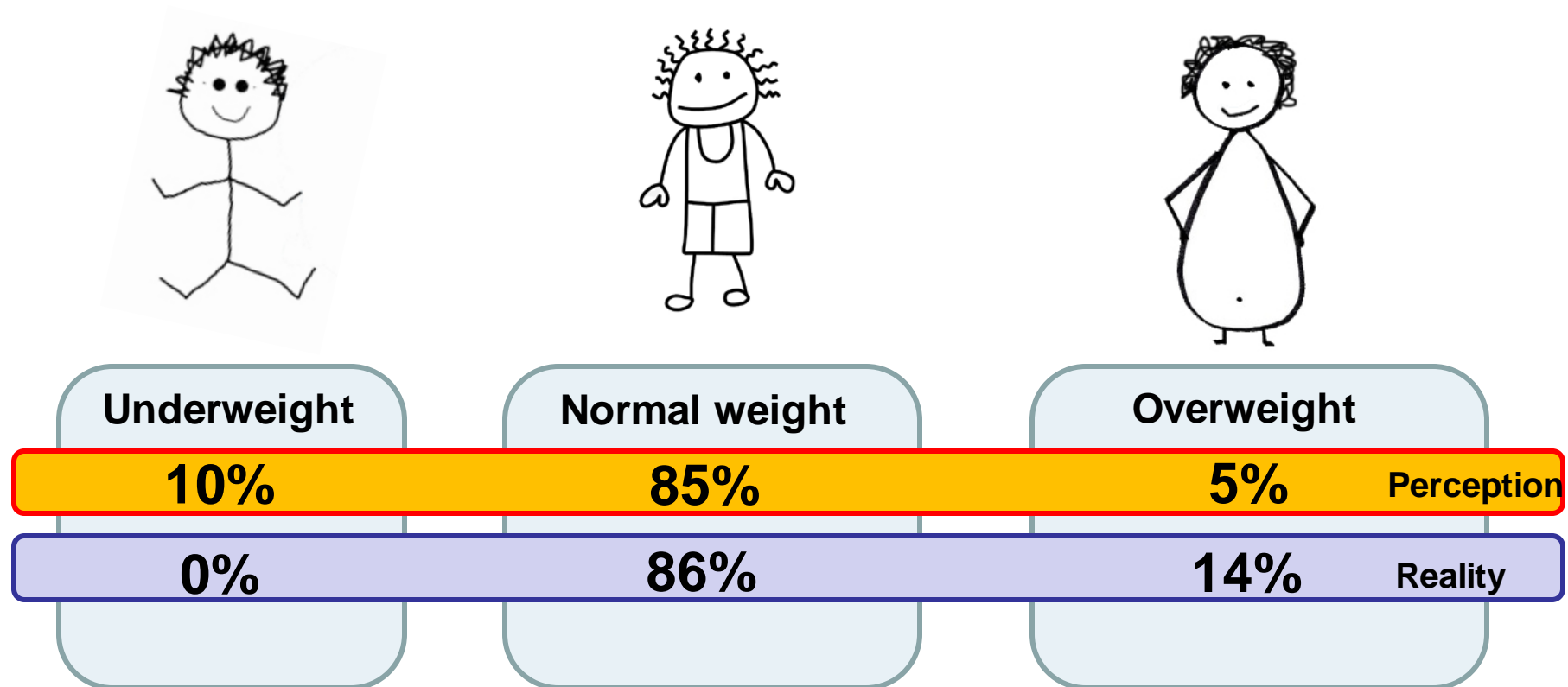
# Anthropometry at 4 years by ethnicity (WHO cut-offs)



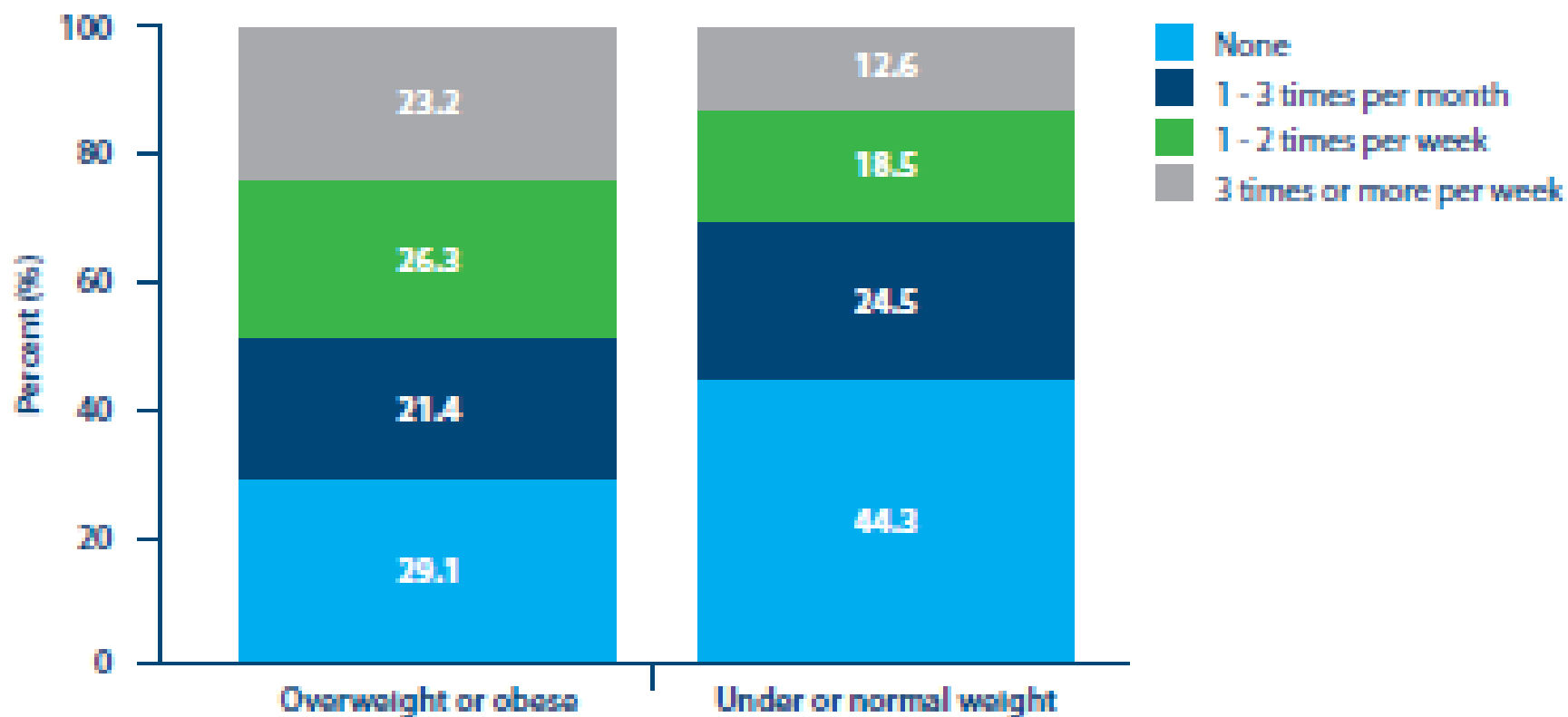


# Parental Perception of overweight

- 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)



# Obesity rates are associated with dietary patterns



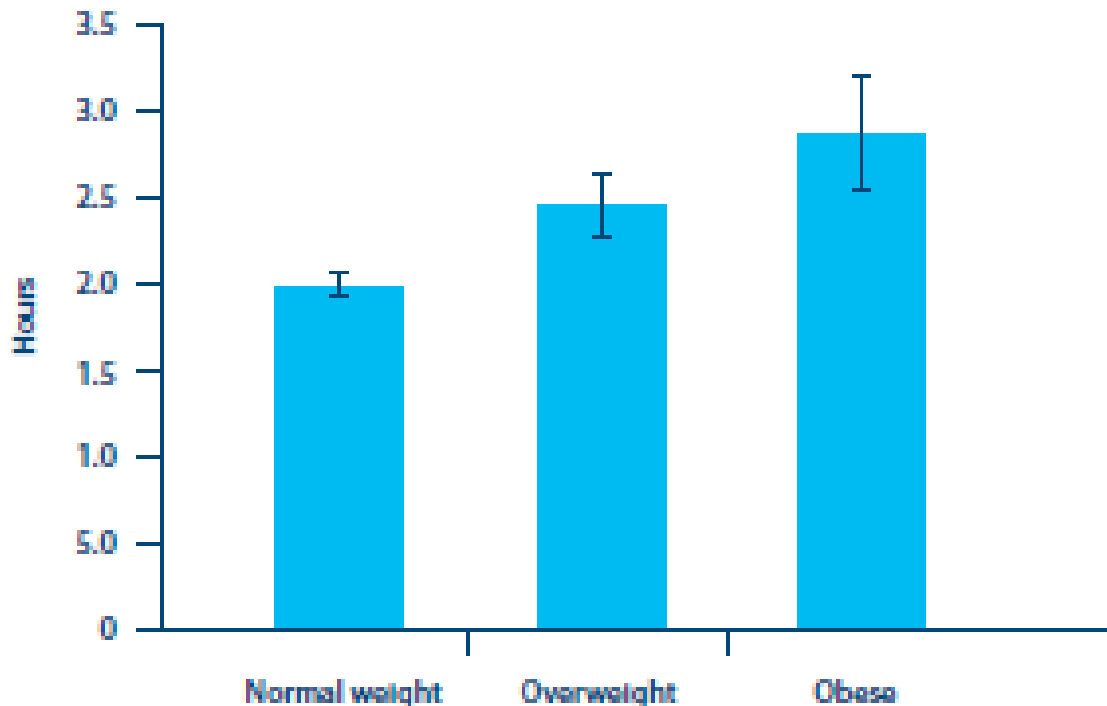
For example: Fizzy drink consumption (frequency) and obesity at 4 years



**Daily screen time increased to more than two hours a day (mean) for 4 year olds**



# Screen time and anthropometry



*Hours of screen time (mean per day) by anthropometric classification at 4 years*

## **MoH 2017 Child Health Status metrics include:**

% (2 to 14 year olds) watching two or more hours per day

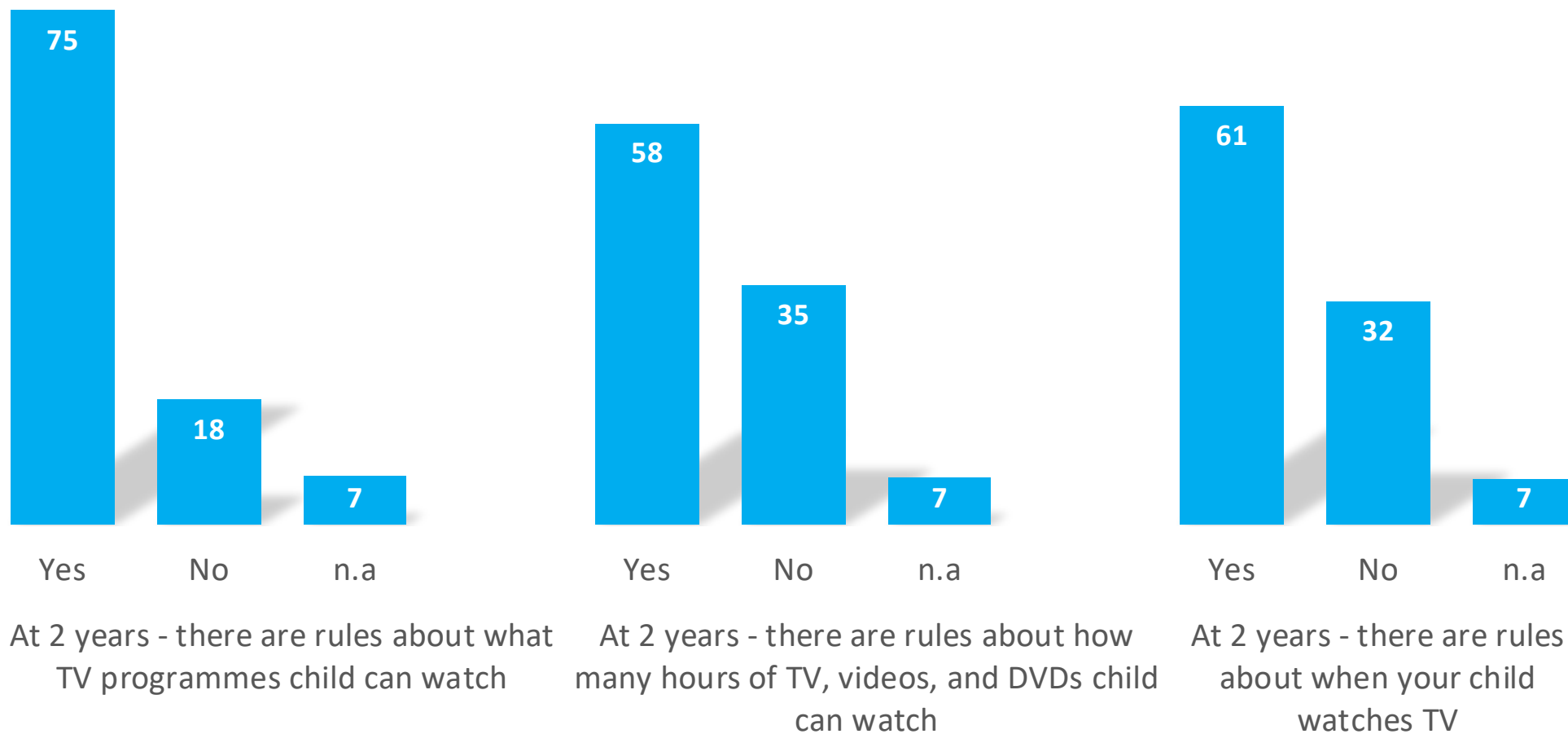
NZ MoH recommendation - less than 1 hour for under 2s (new WHO guidelines released 2019)

## **GUiNZ - At 4 years 16% were watching screens for over 2 hours per day**

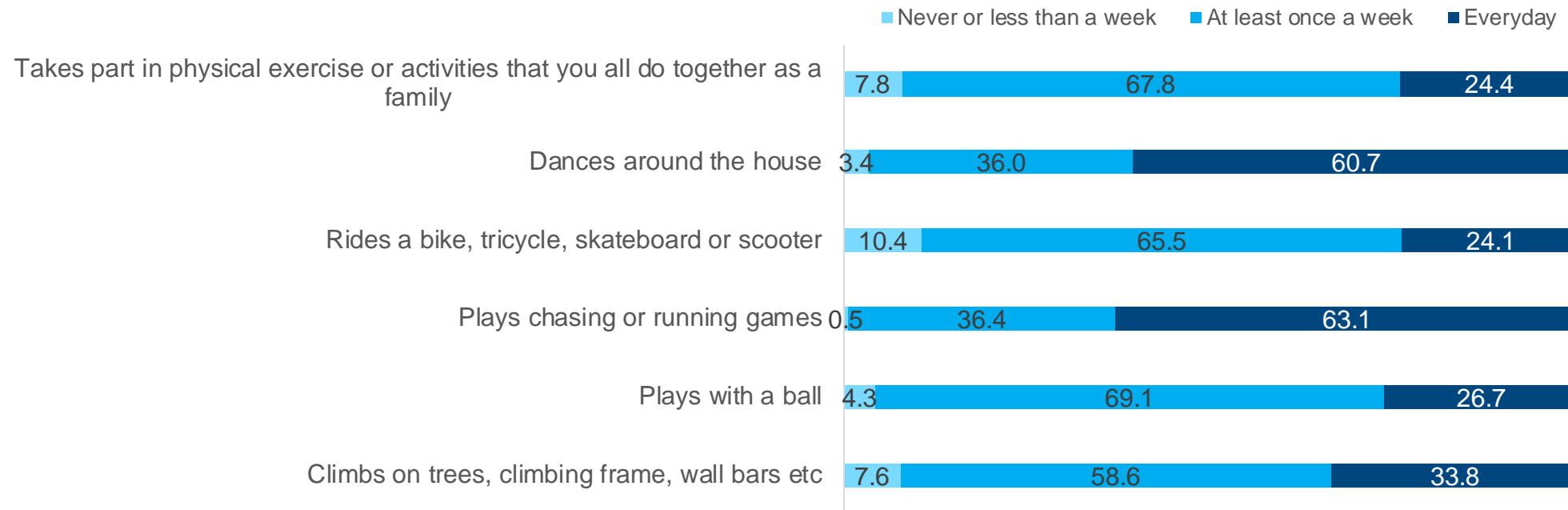
Also total screen time at 4 years was:

- Positively associated with time spent being physical active
- Negatively associated with parents regular book reading

## Is it screen time *per se* or rules about screen use?



# Activity information at 4½ years





# Untangling ethnicity, genes, and environment



## A thrifty variant in *CREBRF* strongly influences body mass index in Samoans

Ryan L Minster<sup>1,13</sup>, Nicola L Hawley<sup>2,13</sup>, Chi-Ting Su<sup>1,12,13</sup>, Guanyun Sun<sup>3,13</sup>, Erin E Kershaw<sup>4</sup>, Hong Cheng<sup>3</sup>, Olive D Buhule<sup>5,12</sup>, Jerome Lin<sup>1</sup>, Muagututi'a Sefuiva Reupena<sup>6</sup>, Satupa'itea Viali<sup>7</sup>, John Tuitele<sup>8</sup>, Take Naseri<sup>9</sup>, Zsolt Urban<sup>1,14</sup>, Ranjan Deka<sup>3,14</sup>, Daniel E Weeks<sup>1,5,14</sup> & Stephen T McGarvey<sup>10,11,14</sup>

International Journal of Obesity (2017), 1–5

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[www.nature.com/ijo](http://www.nature.com/ijo)

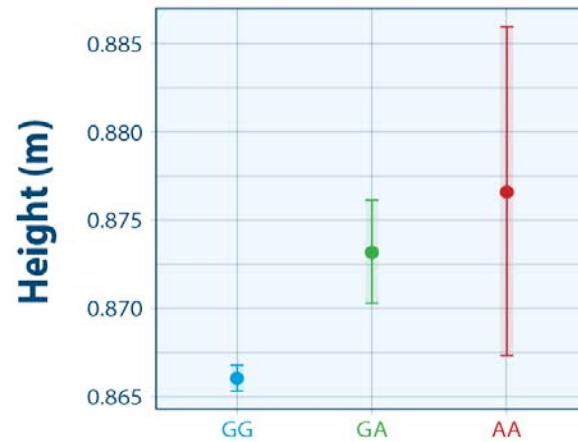
### ORIGINAL ARTICLE

Widespread prevalence of a *CREBRF* variant amongst Māori and Pacific children is associated with weight and height in early childhood

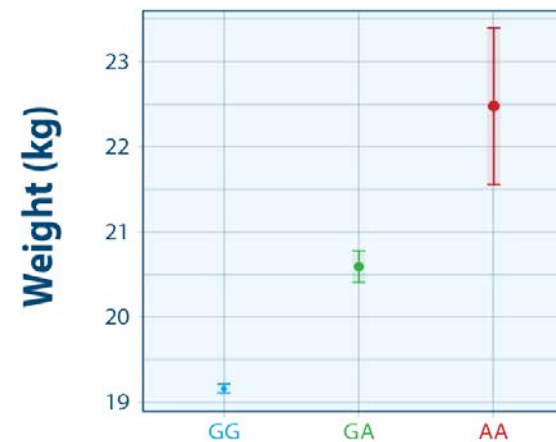
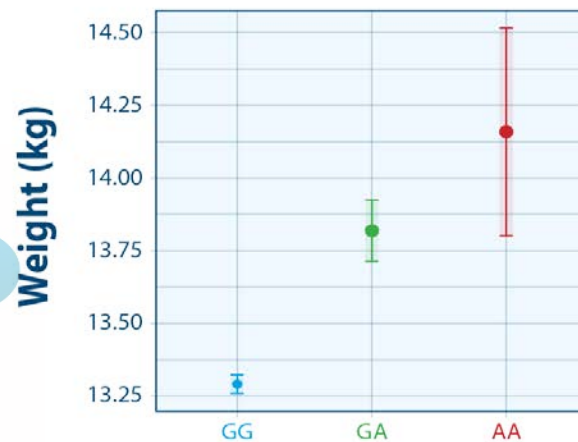
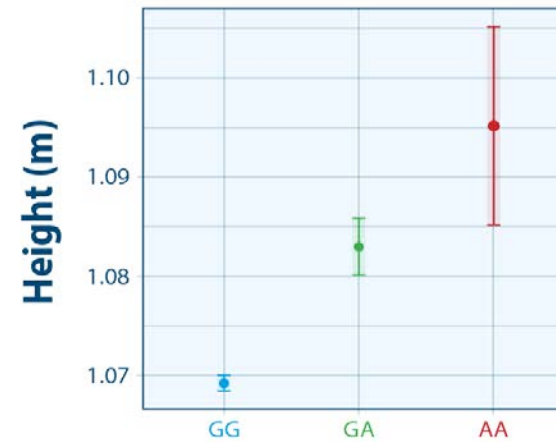
SD Berry<sup>1</sup>, CG Walker<sup>1</sup>, K Ly<sup>1</sup>, RG Snell<sup>2</sup>, PE Atatoa Carr<sup>3</sup>, D Bandara<sup>1</sup>, J Mohal<sup>1</sup>, TG Castro<sup>1</sup>, EJ Marks<sup>1</sup>, SMB Morton<sup>1</sup> and CC Grant<sup>1,4,5</sup>

# CREBRF weight and height

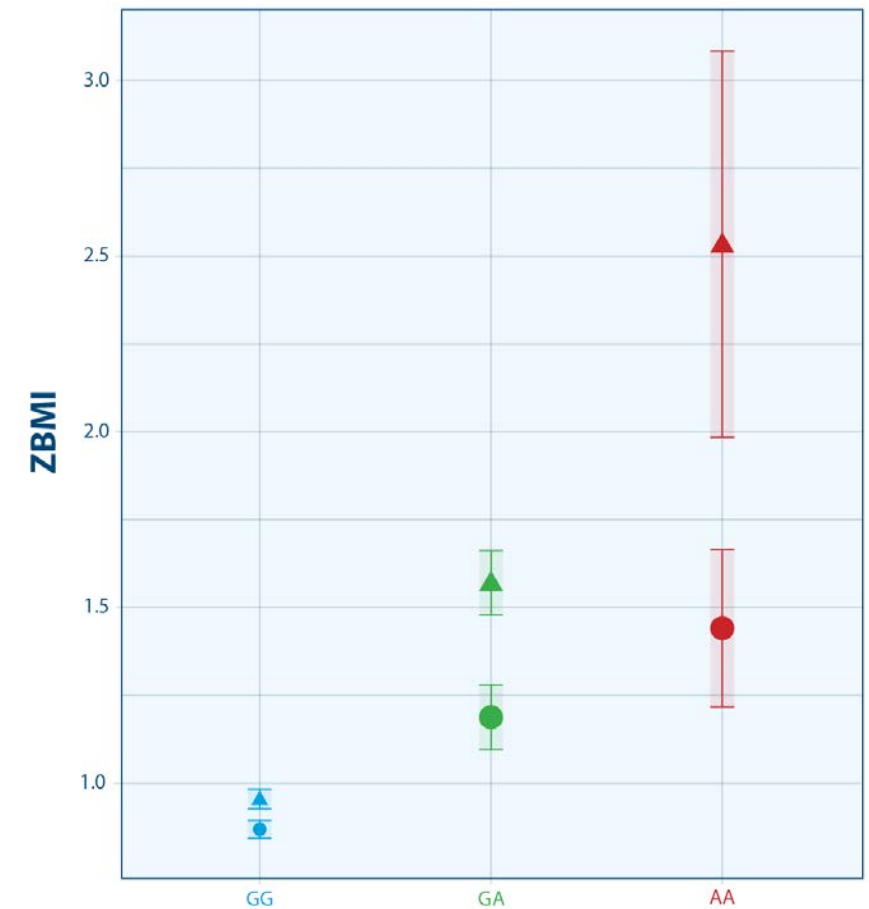
## At 2 years



## At 4 years



▲ Boys ● Girls







**At an individual level 40% of families of cexperience at least one material hardship**



# Child “poverty” clusters in the first 1000 days



## Economic capital



Labour force status  
Household income  
Sources of income  
Paid parental leave  
Economic hardship

## Physical capital



Housing tenure  
Residential mobility  
Household safety  
Health status  
Health service access

## Social capital



Parent-parent relationships  
Parent-child relationships  
Relationship status  
Household structure

## Human capital



Early childhood education  
Home educational environment  
Cultural identity and belonging  
Equity

## 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

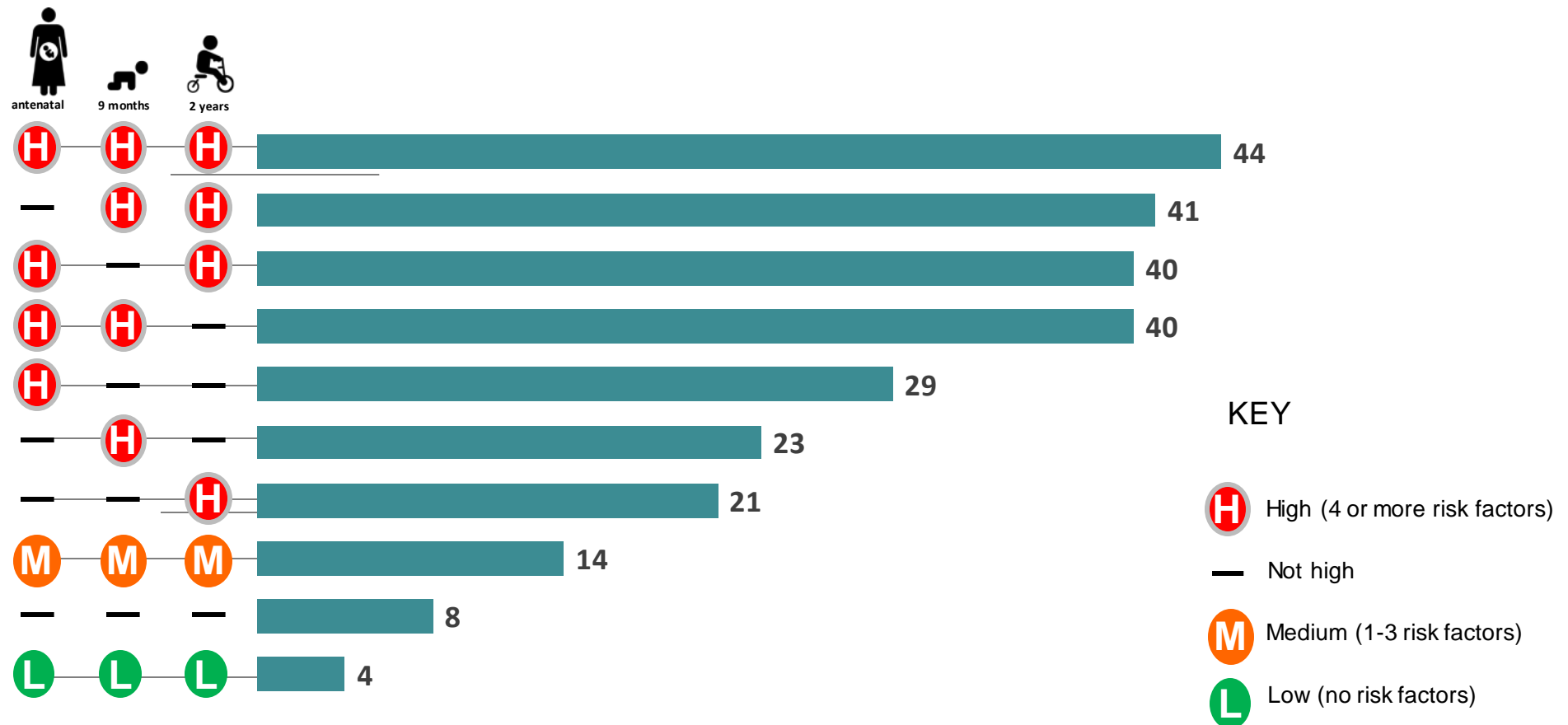
- Relationship status (no partner/single)
- Maternal education (no secondary school qualification)
- Financial stress (regular money worries)

## 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 ( $\geq 2$  per bedroom)

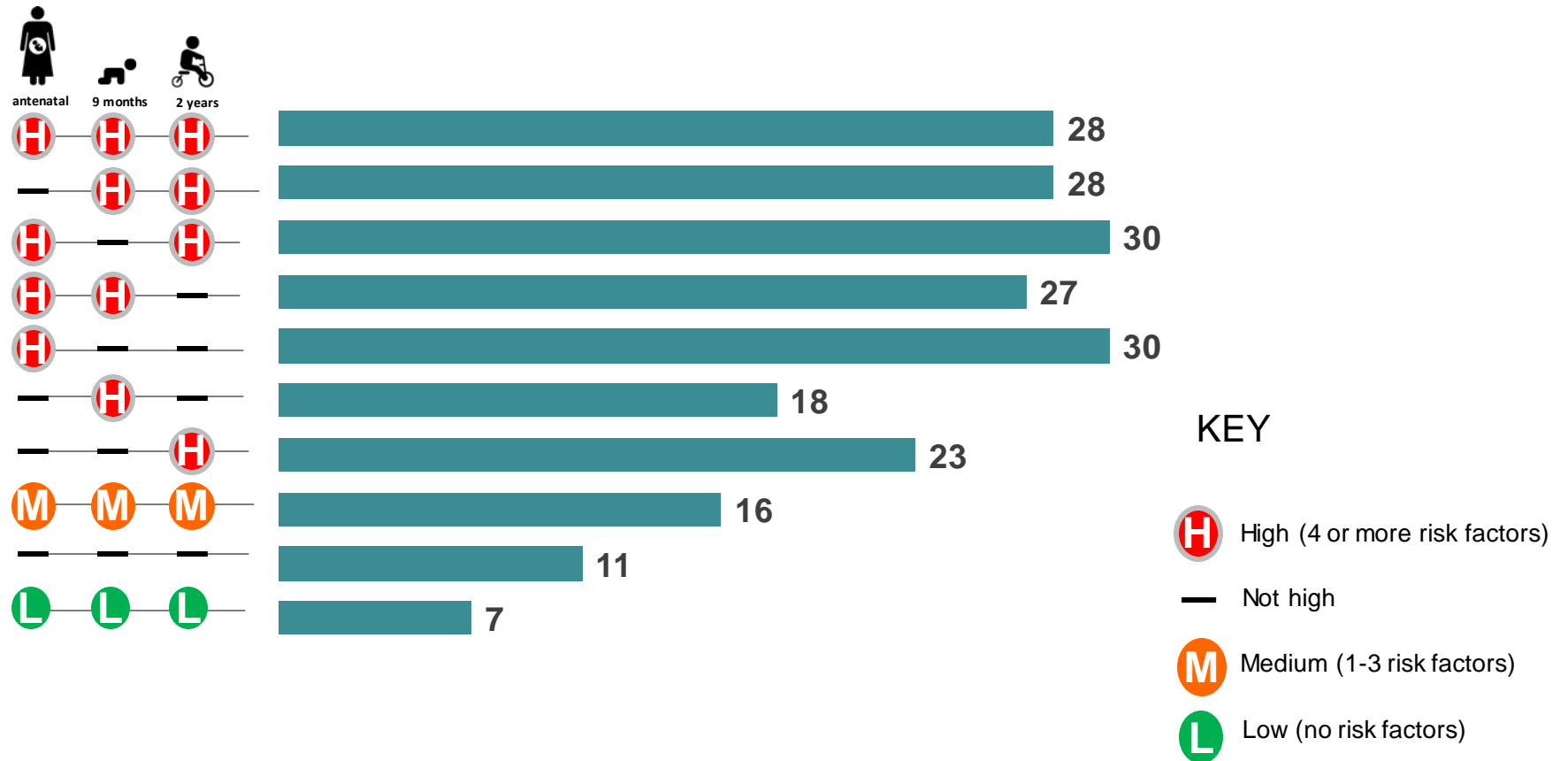
# Persistent poverty and preschool wellbeing

## Behaviour: SDQ score in “abnormal” range at 4.5 years (%)

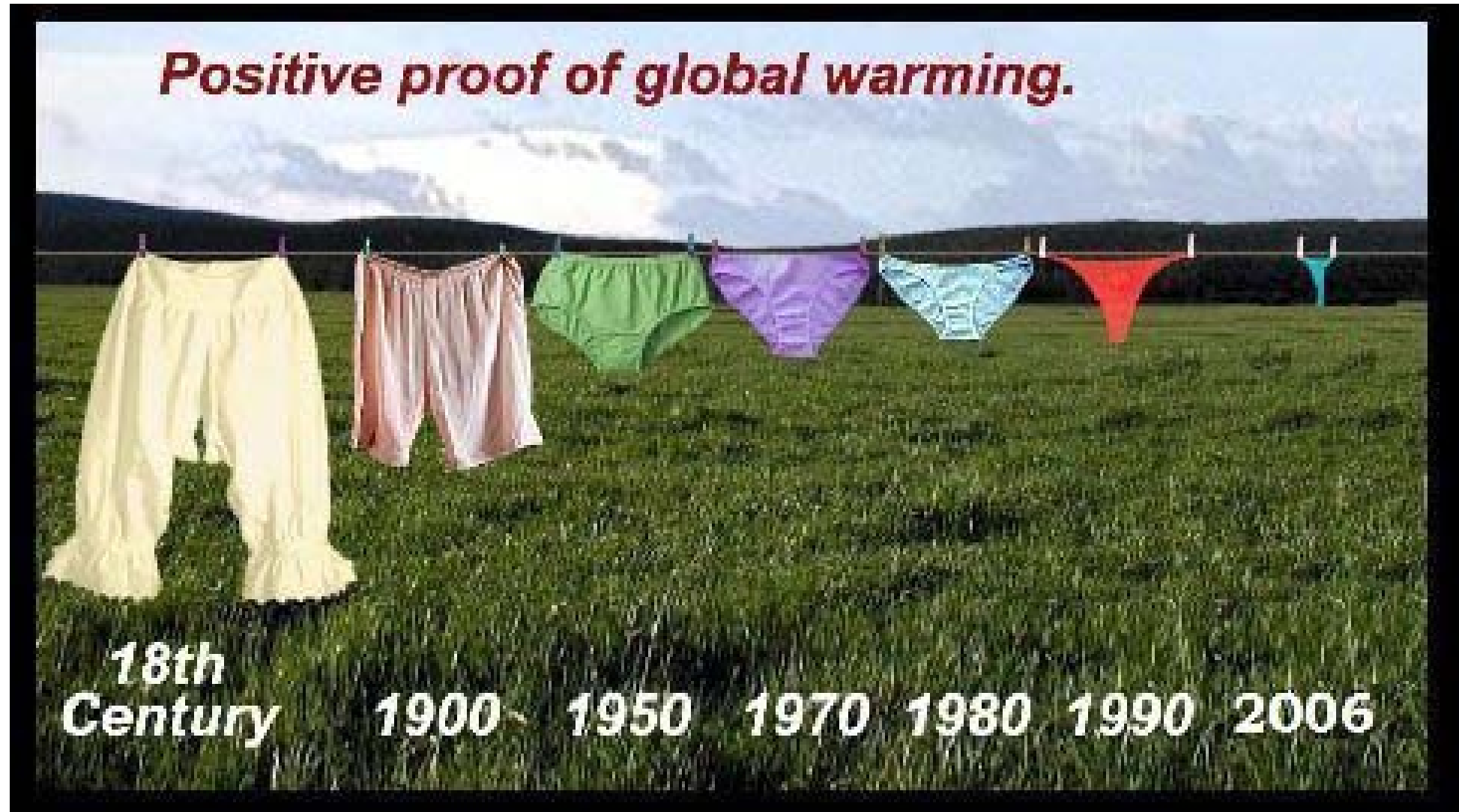


# Persistent poverty and Obesity

## Obesity (WHO reference) at 4.5 years (%)



# Life course solutions - understanding why and what works for whom, when and where





# Partnerships – building resilience (what works)

Resilience  
factors

Risk factors

Parent-child time

Positive family  
relationships

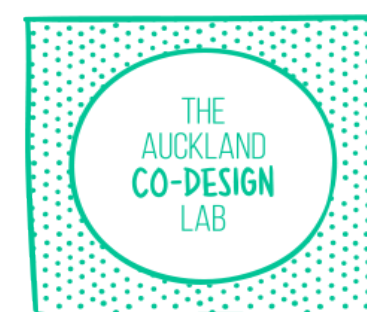
Community support

Unemployment

Family relationships

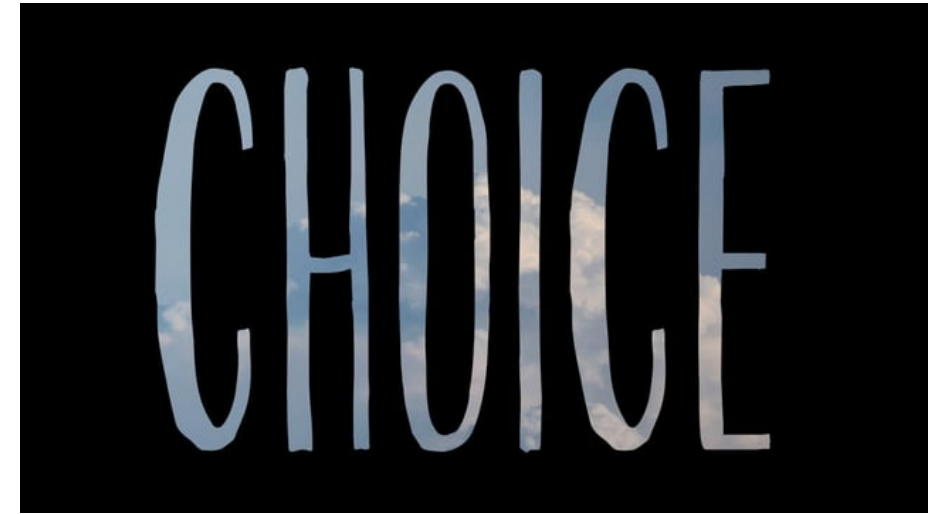
Maternal education

Tenure/Overcrowding



TOGETHER WE DISCOVER

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



**CHURN**

*Voice*

*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*

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

*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*

# Pre-schoolers - parental voices and aspirations



*I expect my baby to grow up to be a responsible and caring citizen in a country where she will not be judged by her colour or ethnicity, but rather by her abilities*

*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*

*I hope that she will be healthy, happy, and smart and that she has a good mix of her mother's and father's cultures and can speak both our languages. I dream that one day she can go to her father's country and see where he came from*

*I want my baby to have better things than I did in my life*

*I hope that my baby will be healthy, and will grow up negotiating beautifully with the two cultures that he is from*

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

*I hope that my child is familiar with his culture and has close links to where he is from on both sides*

*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*

*I hope that one day my baby says to me 'I really appreciate what you have done for me' – that will make all the hard work worthwhile*



# Children's own voices at 8 years



- Cognitive testing
- Te Reo tool
- Body image/perceptions
- Gender identity
- Self reported ethnicity
- Peer relationships – bullying
- School environment
- Educational aspirations
- Anthropometry
- Screen time
- Physical Activity
- Sleep
- Nutrition

## Acknowledgements – all children and families

“Take care of our children. Take care of what they hear, take care of what they see, take care of what they feel. For how the children grow, so will be the shape of Aotearoa.”

*Dame Whina Cooper*

