Growing Up in New Zealand –
Findings from the first 1000 days of development

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www.growingup.co.nz
Overview of talk

• Brief overview of the *Growing Up in New Zealand* longitudinal study

• Focus on the cohort over their first 1000 days – some key findings

• Looking ahead ….opportunities for the future
Overarching Aim of Growing Up in New Zealand

To provide contemporary **population relevant evidence** about the determinants of developmental trajectories for 21st 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 RFP in 2004.
Why a new longitudinal study?
The Growing Up in New Zealand cohort

- Recruited 6853 children before their birth - via pregnant mothers (6823)
- Partners recruited and interviewed independently in pregnancy (4401)
- Cohort has adequate explanatory power to consider trajectories for Maori (1 in 4), Pacific (1 in 5) and Asian (1 in 6) children, and to consider multiple ethnic identities (approx. 40%)
- Cohort broadly generalisable to current NZ births (diversity of ethnicity and family SES)
- Retention rates to 4.5 year DCW have been very high (92% with minimal attrition bias)
Snapshot of information collected
### Longitudinal Information collected to date

<table>
<thead>
<tr>
<th>Child age</th>
<th>Antenatal</th>
<th>Perinatal</th>
<th>6 wk</th>
<th>35 wk</th>
<th>9 mth</th>
<th>12 mth</th>
<th>16 mth</th>
<th>23 mth</th>
<th>2 yr</th>
<th>31 mth</th>
<th>45 mth</th>
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* CAPI computer assisted personal interview
† CATI computer assisted telephone interview
‡ Child measurement
** Linkage to health and education records (eg National Minimum Dataset, National Immunisation Register, ECE participation)
Cohort recruited before birth
Choice not equally distributed: Pregnancy unplanned (overall 40%)
Supplements taken during pregnancy

- Did not take Folate (n=952)
- Did not take Iron (n=1782)
- Did not take vit / multivit / min (n=2333)
Maternal smoking during pregnancy

% NZDep2006

Least deprived Most deprived

Active Smoker Passive Smoker
Maternal alcohol during pregnancy

- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

Least deprived

Most deprived

4 or more drinks per week

1-3 drinks per week

<1 drink per week

I did not drink alcohol
Pre- and post-natal information
Intentions and Realities for timely immunisation

1. by Area Level Deprivation

![Graph showing immunisation rates by area deprivation quintile](image-url)
Intentions and Realities for timely immunisation

2. by Maternal ethnicity (Stats NZ Level 1)
“Mind the gap” – policy guidelines and family realities

Exclusive breastfeeding - duration

<table>
<thead>
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<th>Period</th>
<th>Percent (%)</th>
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<tr>
<td>First day</td>
<td>96.3</td>
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<td>First week</td>
<td>92.8</td>
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<td>First month</td>
<td>81.7</td>
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<td>2nd month</td>
<td>74.0</td>
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<td>3rd month</td>
<td>63.4</td>
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<td>4th month</td>
<td>47.3</td>
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<td>5th month</td>
<td>28.1</td>
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<tr>
<td>6+ months</td>
<td>6.0</td>
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</table>
Moving beyond “risk factorology”

**SCIENCE** vs. **THE PEOPLE**!

correlation is not causation!

i dunno what those are but i disagree and i vote!
Seeking answers to why?

Mind the gap
Partnerships to facilitate translation

Study design

Data collection

Data analyses

Dissemination of results

Policy interaction
First 1000 Day Reports for Policy Stakeholders

Bridge the gap?
The children at 2 years of age
“Now we are Two”

**ETHNICITY**

- **71%** European
- **24%** Māori
- **20%** Pacific
- **16%** Asian
- **3%** MELAA/Other

- **62%** of children were from a planned pregnancy
- **42%** were the first child in the family
- **6%** of mothers had treatment to assist with becoming pregnant
- **12%** have three or more siblings

**Gender**

- **48%** Girls
- **52%** Boys

**Average height at two years was** 87 cm
**Average weight at two years was** 13.3 kg

“Being a boy he is hard to manage – not like a girl – he doesn’t do what he’s told.”

“I have given a best friend to my older child, and now I have two best friends in the world.”
**Health and wellbeing (in first 1000 days)**

- **86%** were in excellent or very good health.
- **10.5 hours** was the average length of sleep per night.
- **94%** received at least some of their 15 month immunisations.
- **6** was the average number of GP visits over the last year.
- **Most common favourite first food:** banana.

Of the children:
- **47%** had an ear infection.
- **40%** had a chest infection.
- **43%** had gastroenteritis.
- **14%** had a skin infection.

Told by a doctor they had:
- an allergy **10%**
- eczema **26%**
- asthma **12%**

**20%** had one or more hospital stays.
Primary health care use

I have a single doctor who I see for most of my [child/children’s] doctor visits
66.5%

I see one of several doctors in the same practice
27.2%

I see one of several GPs in different practices
2.2%

I take my [child/children] to a hospital emergency department
0.3%

I usually see the afterhours doctors or services
0.8%

I have not had to take my [child/children] to a doctor
1.9%

Other
1.0%

PERCENT (%)
Family and Household structure

- **5%** PARENT ALONE
- **69%** TWO PARENTS ALONE
- **20%** PARENT(S) WITH EXTENDED FAMILY
- **6%** PARENT(S) WITH NON-KIN

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“It is amazing how much she’s learning from being at home with her grandparents.”

“As a parent I have learned a lot – I have learned I am a responsible person. It has made me stronger too as I have no family support and I can manage on my own.”
Home environment

- 81% had the TV on in the same room
- 79% watched TV / DVD
- 66% had books read to them at least daily
- 66% listened to music daily
- 15% used a computer / laptop / children's computer system
- 60% 1-3 hours
- 30% more than 3 hours
- 85% watched just children's programming
- 64% watched 1-3 hours per day
- 13% watched adult programming
- 72% less than one hour per day

“Trying to cut his TV hours down is a real challenge.”

“He’s learning a lot from the TV – while he is watching TV he can answer all the questions.”
"That she can speak Māori and that's her first language when she speaks."

Languages understood:

- Namaste
- Nêih hōu
- Kia Orana
- As-salam alaykom
- Talofa Lava
- Hola
- Kia Ora
- Malo e lelei
- Ni hao
- Kumusta
- Konnichiwa

*English language excluded. Translation of 'Hello' into each relevant language, with font size proportional to frequency understood.
Repeat measures from the same children and families

Area level deprivation measured at 3 time points in 1st 1000 days

"The lack of money stops us from doing things or buying things for her or us as a family."
BUT individual exposures change over time....
Residential mobility – in the first 1000 days

• Common and central part of life
• Often associated with major life course events
• Policy relevant – service planning
• Hard to accurately estimate rates of residential mobility from census data or cross-sectional surveys
• Longitudinal information is useful to understand the extent of mobility and how this affects child wellbeing
Residential mobility – very common in this cohort

<table>
<thead>
<tr>
<th>Enrollment Period</th>
<th>Percentage Distribution</th>
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<tbody>
<tr>
<td>Five years before pregnancy</td>
<td>15% lived in the same dwelling</td>
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<tr>
<td></td>
<td>26% moved once</td>
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<td></td>
<td>74% moved twice or more</td>
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<tr>
<td>Between pregnancy and when baby was nine months</td>
<td>26% moved</td>
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<td></td>
<td>84% of these moved once</td>
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<td>12% moved twice</td>
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<td></td>
<td>4% moved 3+ times</td>
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<tr>
<td>Between nine months and two years</td>
<td>32% moved (over 2000 whānau)</td>
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<td></td>
<td>80% of these moved once</td>
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<tr>
<td></td>
<td>16% moved twice</td>
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<td>4% moved 3+ times</td>
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Overall, between birth and two years of age, 45.3% (n = 2796) of the *Growing Up in New Zealand* cohort had moved at least once.
Characteristics associated with residential mobility
Mobility between birth and nine months: Univariate associations

by Maternal Ethnicity

by Household structure
Mobility between birth and nine months: Relationships between variables

Maternal Ethnicity and Household structure

![Bar chart showing mobility between birth and nine months for different ethnicities and household structures.](chart.png)
Mobility between birth and nine months: Multivariate model
Value of the longitudinal data: change variables

Change in partner status

No change  Newly Partnered  Newly partner-less

Change in household income group

Same income group  Increase  Decrease

Birth to nine months
Mobility between nine months and two years: Relationships between variables

Maternal age and Tenure type

“We had to move house because the rental was sold. I'd rather not have to have my children move.”
Early longitudinal findings ... in summary

Family events:
- Change in parental partnership

Residential mobility:
- At least one move from birth to age two years

Demographics, family and parental characteristics:
- European ethnicity
- Household structure – extended families
- Younger maternal age
- First child

Housing tenure:
- Private rental accommodation

Child outcomes
Focus on Vulnerability and Resilience

Growing Up in New Zealand
Vulnerability Report 1: Exploring the Definition of Vulnerability for Children in their First 1000 Days
2014

Growing Up in New Zealand
Vulnerability Report 2: Transitions in exposure to vulnerability in the first 1000 days of life
2015
Defining Vulnerability – Report 1

Proximal Family Variables
- Maternal depression (antenatal using EPDS>=12)
- Maternal physical wellbeing (poor or fair)
- Maternal smoking in pregnancy (after first trimester)
- Maternal alcohol use (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)
- Mobility (moved >5 times in last 5 years)
Most commonly experienced risk factors (of 12)

VULNERABILITY IN EARLY LIFE  
(FROM BEFORE BIRTH TO AGE TWO)

Over half of all children were exposed to at least one risk factor

1 in 10 children were exposed to four or more risk factors

Most common vulnerability risk factors for children

- Living in an area of high deprivation
- Mother experiencing regular financial stress
- Mother on an income tested benefit
- Living in overcrowded accommodation
Clustering of risk factors

Factors that commonly occur alone

- Financial stress
- Maternal depression
- Poor maternal physical wellbeing

Factors that commonly occur together

- Living in a public rental home
  - Maternal age (teen parent)
  - Maternal smoking
  - Having no partner
  - Being on an income tested benefit
- Having no secondary school education
Prevalence of cumulative exposure over first 1000 days
Vulnerability Report 2 – Focus on Transitions

Analyses that focus on:
- Transitions in and out of individual risk factors (section 3)
- Association of family and environmental characteristics with vulnerability transitions (section 4)
- Impact of vulnerability transitions on child outcomes (section 5)

Analyses that focus on transitions between vulnerability risk groups (sections 4 and 5)

Outcomes (section 6)
Of the 2503 children in the LOW risk group at AN, 75% remained LOW risk at 9 months.

83% of children LOW risk at 9 months remained LOW risk at 2 years.

Over the 3 time periods, 64% of the 2503 children were persistently LOW risk.
Movement in and out of HIGH risk group (AN to 9mths to 2 years)

- Of the 740 children in the HIGH risk group at AN, 62% remained HIGH risk at 9 months.
- 73% of children HIGH risk at 9 months remained HIGH risk at 2 years.
- Over the 3 time periods, 49% of the 740 children (AN) were persistently HIGH risk.
A longitudinal perspective – transitions over time

CHANGES IN EXPOSURE TO VULNERABILITY IN EARLY LIFE (FROM BEFORE BIRTH TO NINE MONTHS)

More than 1 in 4 children moved between vulnerability risk groups

Risks most likely to change

Risks least likely to change

[Diagram showing risks that are most likely to change versus those that are least likely to change]
Effects of exposure to persistently high vulnerability

EFFECT OF HIGH VULNERABILITY ON CHILDREN’S HEALTH AND BEHAVIOUR BY AGE TWO

Consistently high vulnerability

- Chest infections: ↑
- Completeness of immunisations: ↓
- Behavioural problems: ↑
- Ear infections: →
Targeting - Support for the most vulnerable?

**SOCIAL SERVICE ACCESS**

- **1 in 25** of children in the **low risk** group had access to social services.
- **22%**
- **35%** of children in the **high risk** group had access to social services.
- **43%** of children in the **medium risk** group had access to social services.
- **1 in 12** of children in the **medium risk** group had access to social services.

**TOTAL SERVICE ACCESS**
Policy Briefs & Fast-track requests

Growing Up in New Zealand Policy Brief 1
Nutrition and physical activity during pregnancy: evidence from Growing Up in New Zealand

Growing Up in New Zealand Policy Brief 2
Keeping our children injury-free: household safety evidence from Growing Up in New Zealand

Growing Up in New Zealand Policy Brief 3
Measuring the Economic Environment: What resources are available to children in their first 1000 days?
Safety begins at home…. 

NB: 28% of all cohort children had at least 1 injury requiring medical attention before their 2\textsuperscript{nd} birthday.

- 72% had medicines locked away
- 43% had their hot water adjusted
- 82% kept matches out of reach
- 76% had a fully fenced outside play area
- 32% installed secure gates at stairs
- 38% did not have a fully fenced driveway
- 98% used a car seat
- 46% had most or all electrical outlets covered
- 79% had working smoke alarms
- 28% had an accident needing medical attention
Household Safety by tenure type

The proportion of homes without working smoke alarms (A) and without fenced outdoor play areas or fully fenced driveways (B) by housing tenure.
Intergenerational Te Reo Māori – Policy brief (July 2015)

**Pre-pregnancy**
Parental use of te reo Māori in their own childhood:
- Mothers – 1.5%
- Fathers – 0.8%

**During pregnancy**
Parental ability to hold a conversation in te reo Māori:
- Mothers – 5%
- Fathers – 3%

**At two years of age**
- When baby was 9 months old:
  - Mothers speaking some te reo Māori to their infant – 15%
  - Fathers speaking some te reo Māori to their infant – 7%
  - Mothers and fathers speaking some te reo Māori to their infant – 4%

**Māori identity and understanding te reo Māori at two years of age**
- Neither Māori nor understand te reo Māori
- Identified as Māori but do not understand te reo Māori
- Identified as Māori and understand te reo Māori
- Understand te reo Māori but not identified as Māori
C4LongR - opportunities to utilize the resource

- UoA Centre for Longitudinal Research – cross faculty (health, family, education, economics, social epidemiology, psychology etc)
- Collaborations, PhDs, pdfs (C4LongR), bespoke reports
- Accredited researchers – e.g. from stakeholder agencies (C4LongR)
- External datasets – anonymized for independent research
Acknowledgements

- Participants and their families
- *Growing Up* team
- University of Auckland/UniServices
- C4LongR Advisory Board
- Superu and Families Commission
- Ministry of Social Development
- Multiple other government agencies
- Collaborative partners
- Policy Forum members
- Advisory and Stakeholder groups (DAC, ESAG, PF)
- GUiNZ Executive Board