A Better Start is funded by the Ministry of Business, Innovation and Employment
Disclaimer

Access to the data presented was managed by Statistics New Zealand under strict micro-data access protocols and in accordance with the security and confidentiality provisions of the Statistic Act 1975. Our findings are not Official Statistics. The opinions, findings, recommendations, and conclusions expressed are those of the researchers, not Statistics NZ.
National Science Challenges

• 11 National Science Challenges
• A better start aims to improve the potential for young New Zealanders to have healthy and successful lives
National Science Challenges

- Big Data Theme: Nichola Shackleton, Barry Milne, Stephanie D’Souza, Sheree Gibb, Rick Audas, Jess Kokaua, Nick Bowden, Justine Camp, Rose Richards, Barry Taylor
- Collaborate with other themes
- Lead our own research initiatives
Big Data Theme approach

- Monitor national trends
- Understand risk factors
- Use IDI
  - Whole population linked
  - Large numbers for subgroups
  - B4 School Check
  - Longitudinal
  - Intergenerational
  - Sibling/twin analyses
B4School Check

• Established September 2008
  – We use 2010/2011 to 2015/2016

• Eligible children
  – Enrolled with a PHO on their 4th birthday
  – Target is 90% of eligible children

• Coverage 72-92%
  – 55-60,000 children added each year
Who gets a B4 School Check?

Vision and hearing

Nurse checks

SDQ-Teacher

NZ Dep quintile

Vision and hearing

Nurse checks

% completing

0 20 40 60 80 100

% completing

1 2 3 4 5

% completing

0 20 40 60 80 100

% completing

1 2 3 4 5
Healthy weight: trends

Healthy weight: communities

Prevalence

Slope

Gibb et al. (under review) ANZJ Pub Health
Healthy weight: Antibiotic use

Mother antibiotics

Child antibiotics

Leong et al. (in preparation)
Healthy weight: Antibiotic use

- Meta analysis (child use) shows modest effect (OR = 1.05)
- ...But IDI twin analysis indicates NO effect
  - Twins experience potentially different AB exposure, BUT same maternal AB exposure and family exposures
- ...AND IDI sibling analysis indicates NO effect
  - Sibs experience potentially different maternal AB exposure, BUT same family exposures
- Suggests no causal effect
Healthy weight: Planned investigations

• Seasonal of measurement and childhood obesity
  – Milne et al., under review, Int J Obesity

• Decomposing ethnic differences in obesity
  – Shackleton et al., under review, Int J Obesity (UP NEXT!)

• Childhood obesity and ADHD medication use
  – D’Souza et al., in preparation
Resilient teens: Antidepressant dispensing

Bowden et al. (under review) ANZ J Psychiatry
Resilient teens: Planned investigations

• Clustering of (treated) mental health conditions
  – Bowden et al., (planned)

• Self harm and the lunar calendar
  – Camp et al., (planned)

• Justice interactions for youth with mental health conditions
  – Bowden et al., (planned)
Successful learning: Literacy interventions

Q: Can B4SC be used to as a screen for who will likely need (receive) a literacy intervention?

A: No.
While all demographic and B4SC measures associated with later literacy intervention, overall prediction is poor (c=0.62)

Schluter et al. (in press) Child Development
Successful learning: Planned investigations

• Literacy interventions for Pacific children
  – Schluter et al. (in press) Scientific Reports

• Literacy interventions for Māori children
  – Planned
Māori and Pacific focus

• Consultation strategy with Māori & Pacific stakeholders
  – Iwi, Te Mana Raraunga
  – Pasifika Futures
• Māori- and Pacific
  – led research agendas
  – involvement with all research projects
  – workforce development in big data analytics
    • One Research Fellow, Five students
Comment

• B4SC and IDI allow a wealth of data and analytic possibilities
  – We are not running out of things to do...

• Also plans to work together with other NSC challenges (Healthier Lives; Aging Well) to undertake life-course analyses
Comment: Data issues

- B4SC coverage incomplete
- No later screen (for any theme)
- No primary health care data
- B4SC aside, data capture who has received a service
  - Impacted by service provision and access barriers
- Lack of ‘soft’ measures
  - E.g., assessment of mental health symptoms, education experiences (SDQ in B4SC has quality issues)
- Additional data being considered
### Community assets/Geospatial indicators

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<th>Natural Spaces</th>
<th>Outlets</th>
<th>Other</th>
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<td>Gambling</td>
<td>Volunteerism</td>
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<td>Blue Space</td>
<td>Fast Food</td>
<td>Civic Engagement</td>
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<td>Native Space</td>
<td>Alcohol Outlets</td>
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<td>Community Alcohol and Drug (CAD) Treatment Services</td>
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<td>Rainfall</td>
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<td>Beaches</td>
<td>Marae</td>
<td>Dependency Ratio</td>
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QUESTIONS?