

Adolescents' Travel to School Patterns in Urban, Semi-Urban and Rural Settings: Insights from the BEATS Research Programme

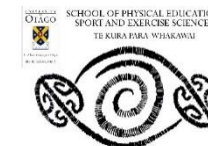
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and the BEATS Study Research Team

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OERC Symposium | 23 November 2018





BEATS Research Team 2017-2018



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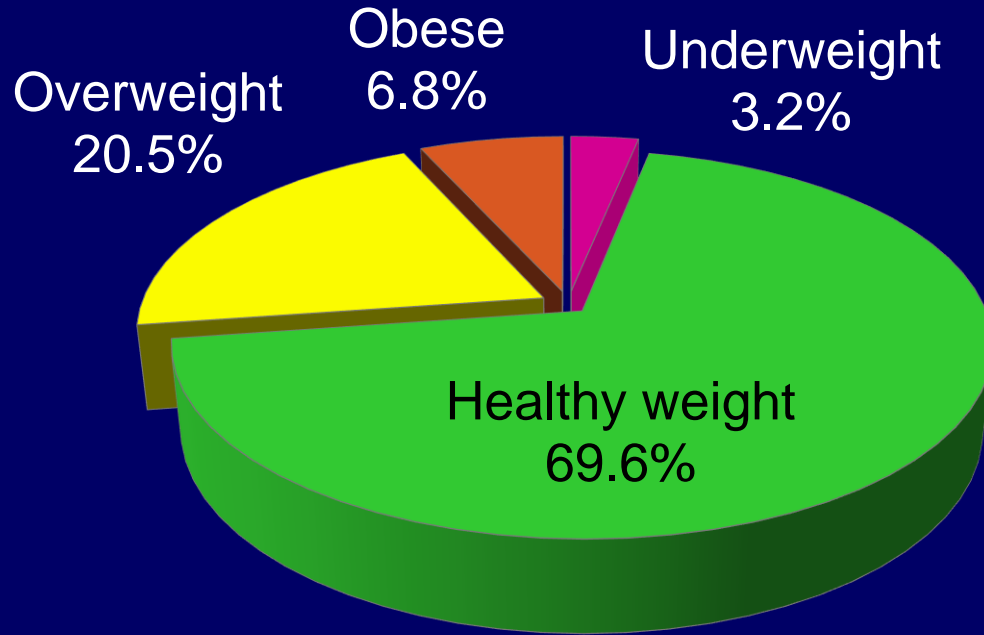
Mike Jensen ✓
(Canada)



Tessa Porskamp ✓
(The Neatherlands)

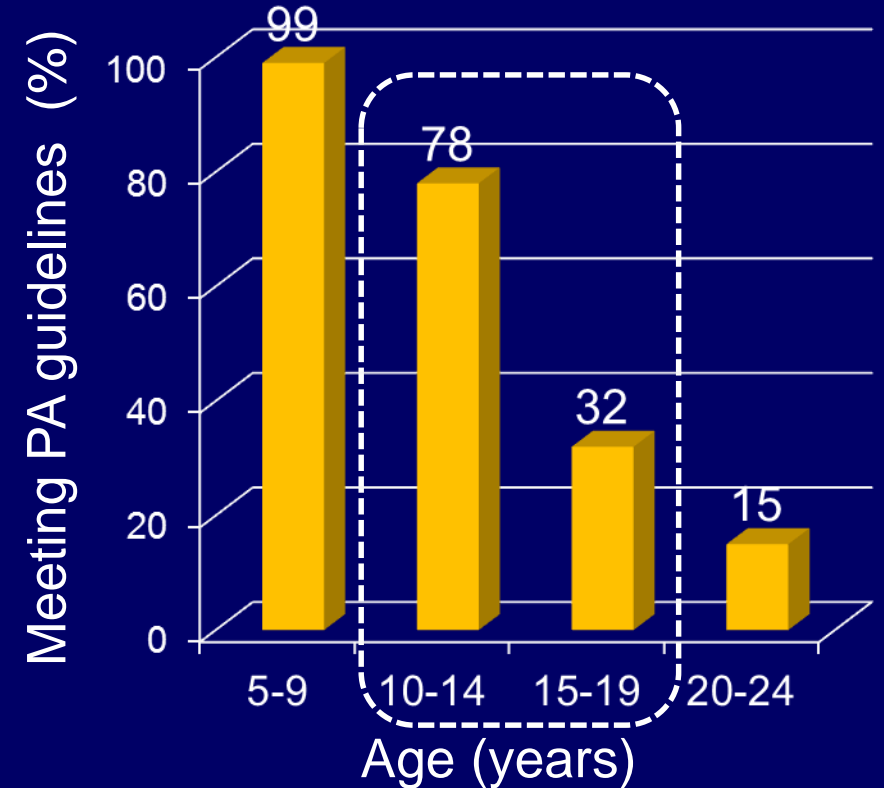


Physical Activity and Weight Status in New Zealand Adolescents



Source: BEATS Study (2014/2015)
1,300 Dunedin adolescents
(measured heights and weights)

Mandic et al. Am J Health Behav.
2017;41(3):266-275



National Survey of Children and Young People Physical Activity
and Dietary Behaviour in NZ. 2007/08



Ministry of Transport. (2015). 25 years of New Zealand travel: New Zealand household travel 1989–2014. Wellington: Ministry of Transport.

1989/1990



2.5 million vehicles

755 deaths

72% car travel

1h/day travel
(28 min driving)
(10 min walking)

2010-2014



3.4 million vehicles

294 deaths

78% car travel

1h/day travel
(32 min driving)
(8 min walking)

Travel to school:

21% driven
26% walking
19% cycling

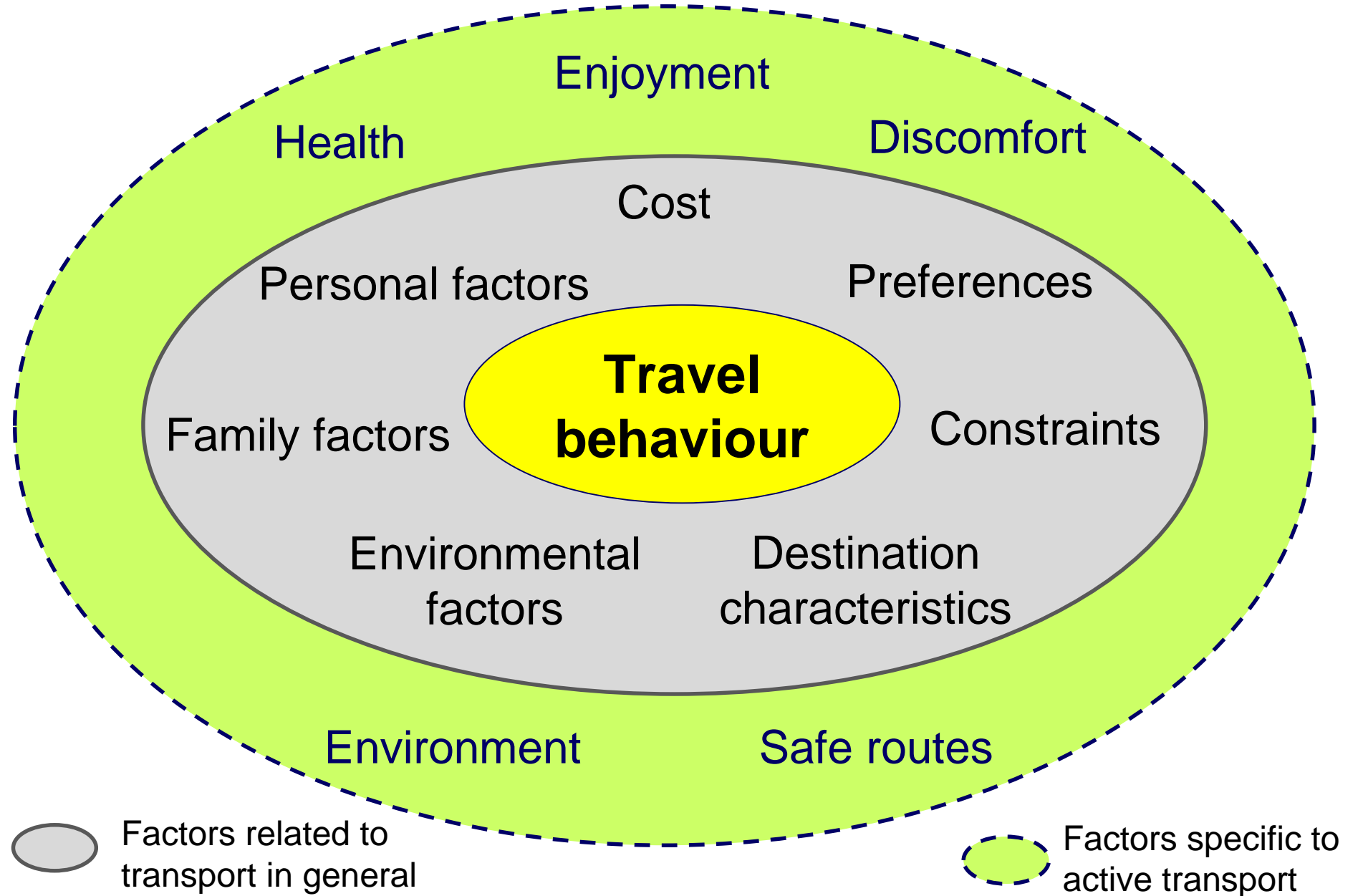
Travel to school:

32% driven
27% walking
3% cycling



Rationale

- Transitioning from the car-dominated transport system towards more sustainable active transport is necessary to address climate change and prevalent non-communicable health concerns.
- Encouraging active transport to school has the potential to develop into a life-long, environmentally sustainable, economical practice.
- Adolescents' transport to school has been extensively studied in urban centres but data are lacking in rural areas.
- Travel to school is context-specific and differences between rural and urban environments are expected.



Built Environment and Transport Behaviour

Activities: What people spend the majority of their time doing

LEISURE
Recreation/Entertainment



HOME
Domestic Activities



TRANSPORTATION
Commuting



- Walkable community design
- Pedestrian & bicycle facilities
- Perceived environment: accessibility and convenience

Built Environment Settings: That support physical activity in these areas

1 OPEN SPACES/
PARKS

2 URBAN DESIGN/
LAND USE

3 TRANSPORTATION

4 SCHOOLS

5 BUILDINGS/
WORKPLACES

BEATS Research Programme at Otago



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Haere mai, welcome to the BEATS Study

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BEATS Study

Built Environment and Active Transport to School

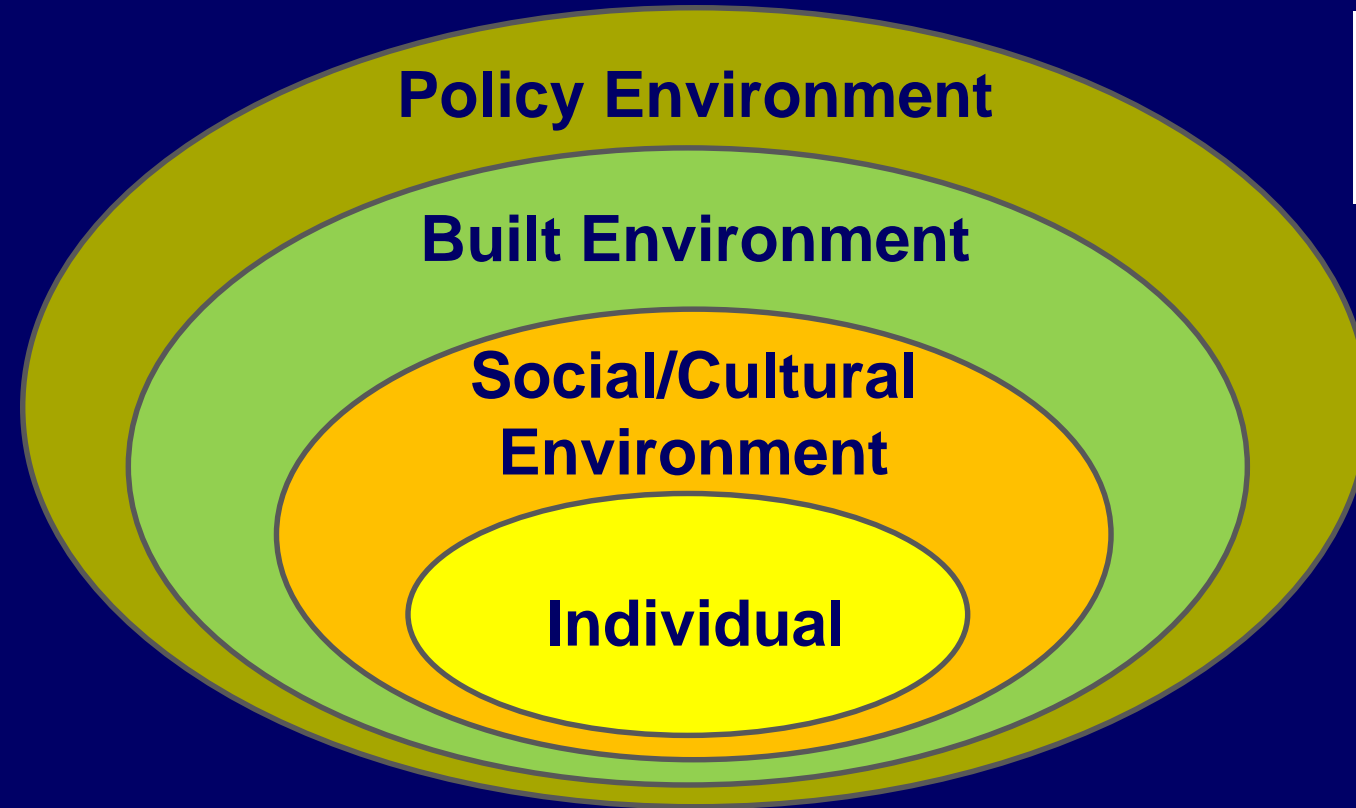
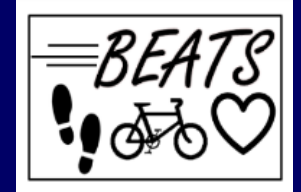


Built Environment and Active Transport to School (BEATS) Study

- Investigates:
 - transport to school habits,
 - the neighbourhood environment and
 - physical activity habits in Otago adolescents.

www.otago.ac.nz/beats

BEATS Research Programme Framework: Ecological Model for Active Transport



Adapted from
Sallis JF et al.
Circulation.
2012;125:729-
737

Mandic S et al.
BMJ Open.
2016;
6:e011196

**Disciplines &
impact areas:**

Exercise
Science

Public
Health

Transport

Built
Environment

Education

Partnerships:

Academia

City Council

Schools

Community



Research Methodology

Adolescents & Parents

Survey



Maps; GIS Analysis



Anthropometry



Physical Activity



School bag weight Adolescents

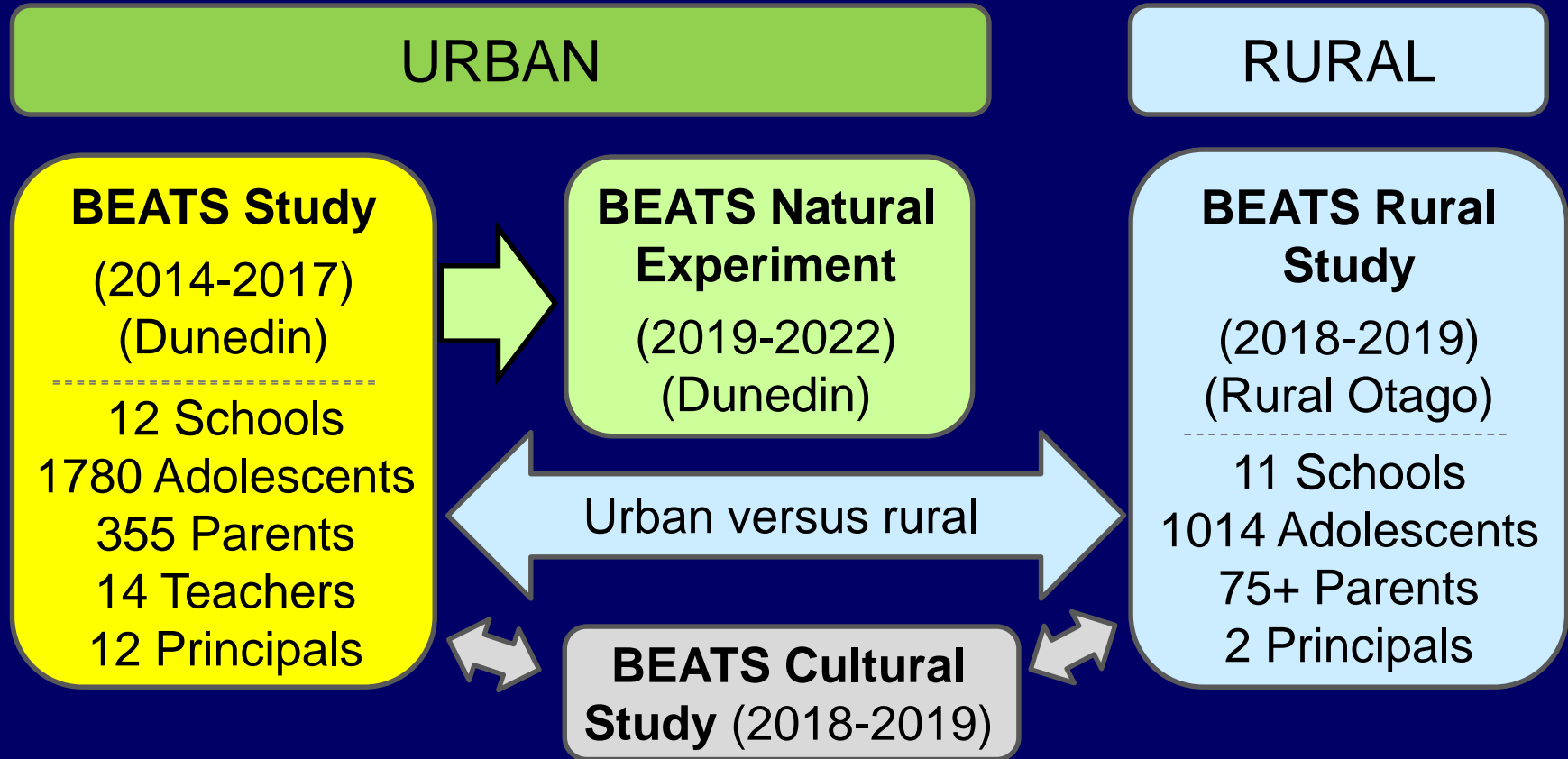


Focus groups Adolescents, Parents, Teachers



Interviews School Principals

BEATS Research Programme (2013-2022)



Disciplines & impact areas:

Exercise Science

Public Health

Transport

Built Environment

Education

Partnerships:

Academia

City Council

Schools

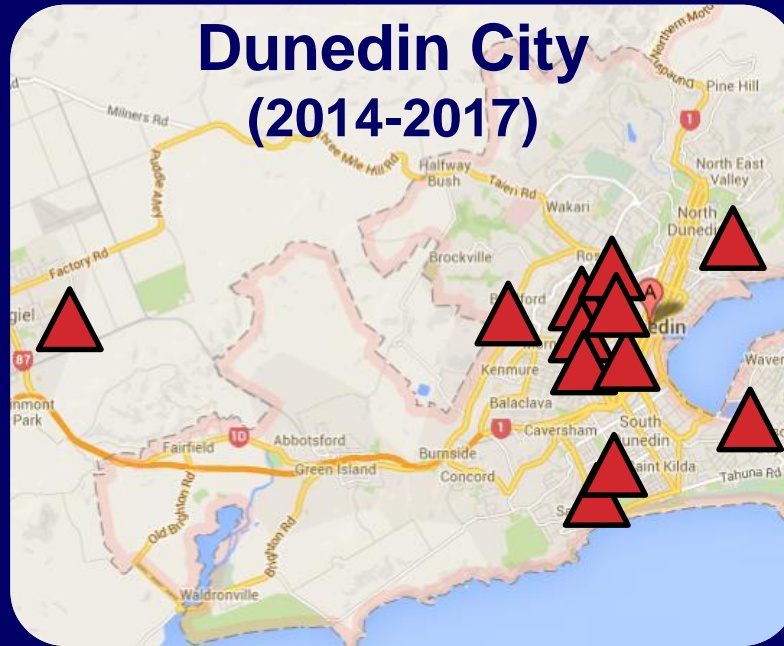
Community

BEATS Research Programme (2014-2018)



BEATS Study

Dunedin City (2014-2017)

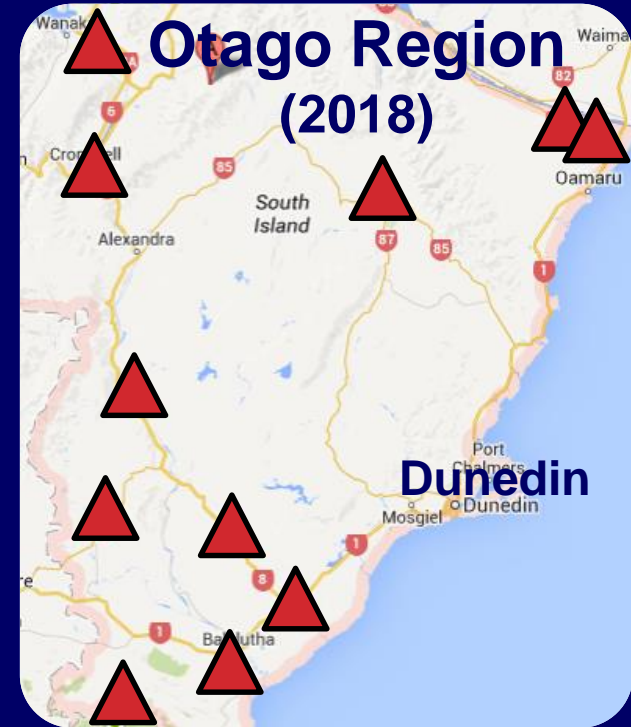


12 Secondary schools
(100% school recruitment rate)



BEATS Rural Study

Otago Region (2018)



11 Secondary schools
(73% school recruitment rate)



Otago Secondary Schools Supporting BEATS

(23 out of 27 schools; 85%)



Dunedin (2014/15)

(12 out of 12 school)



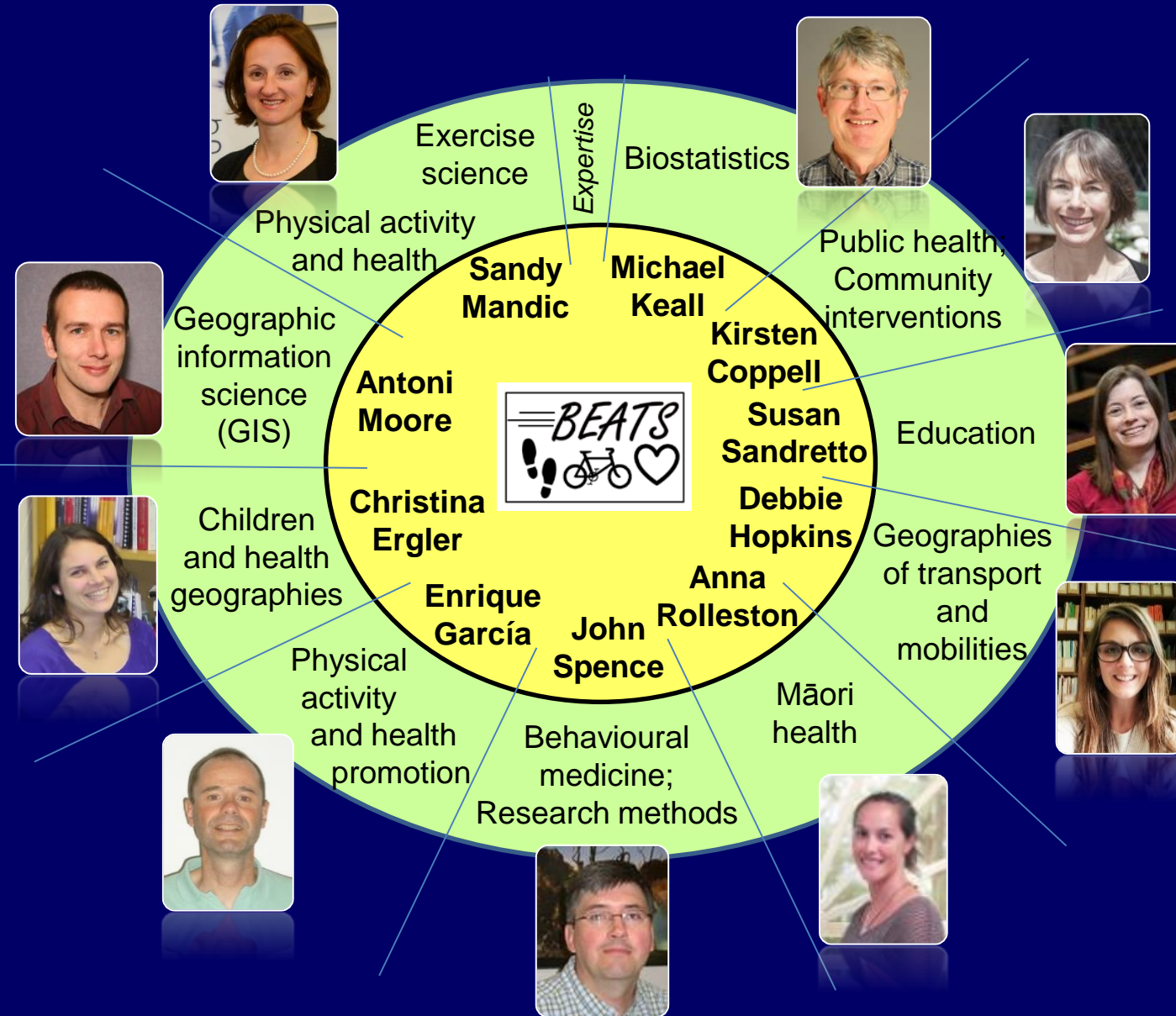
Rural Otago (2018)

(11 out of 15 school)



Total sample (n=2,656)

BEATS Team 2018: Multidisciplinary Expertise



Advisory Board Members:

**Gavin Kidd,
Gordon Wilson**
(Dunedin Secondary Schools' Partnership)

Nick Sargent
(Dunedin City Council)

Greame Rice
(NZ Transport Agency)

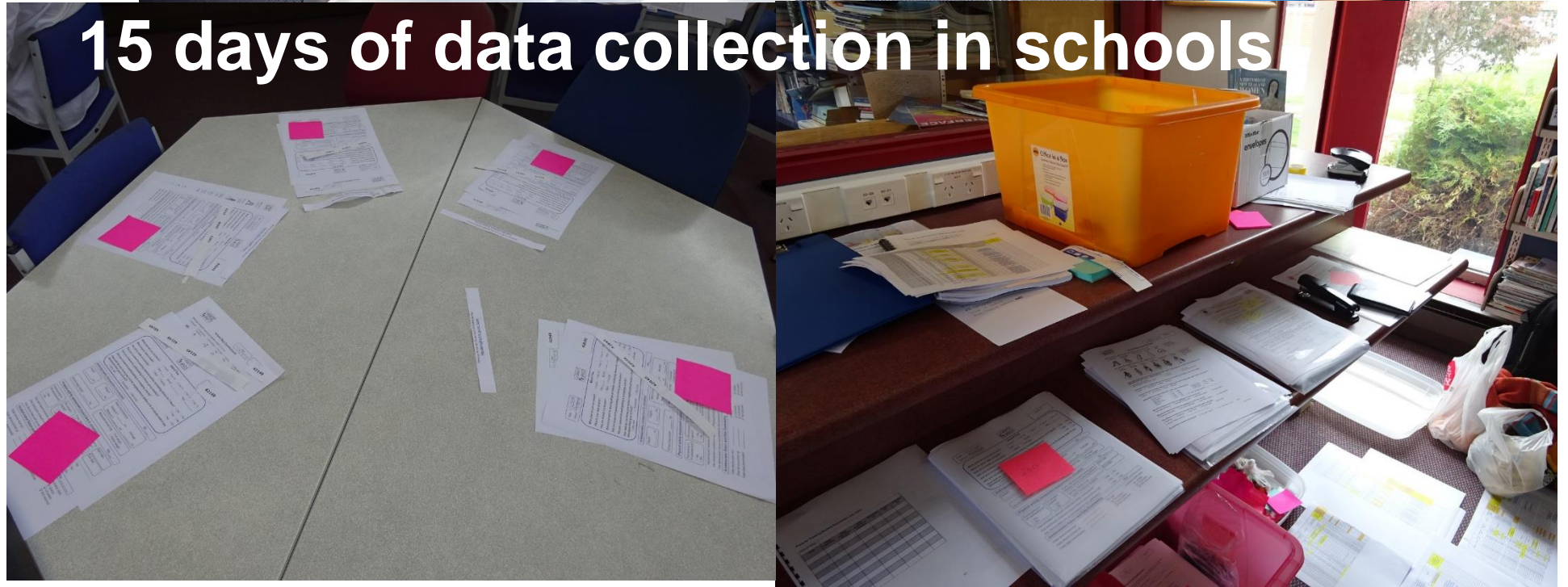
Janet Stephenson
(Centre for Sustainability)

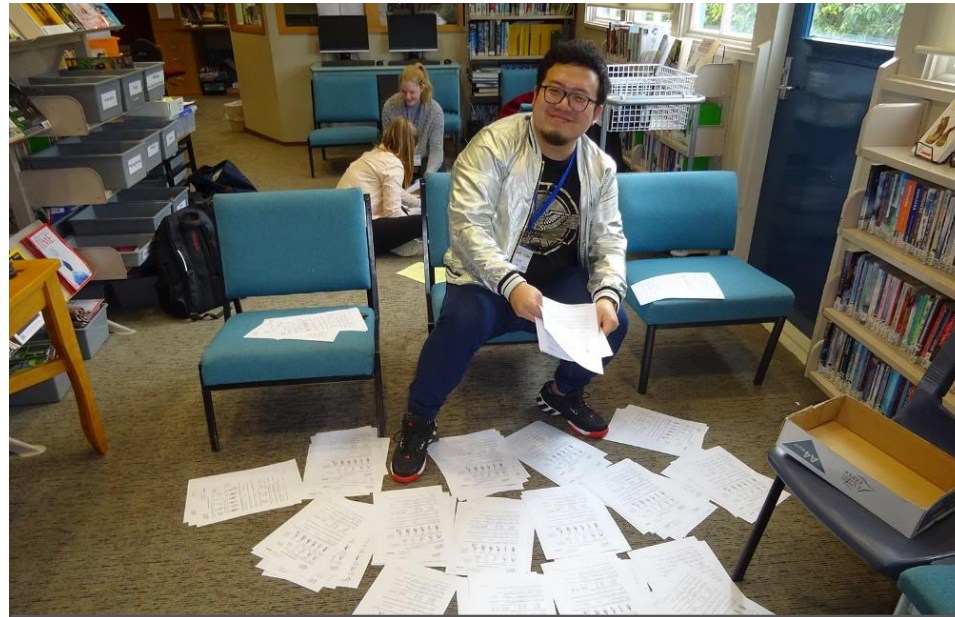
Frank Edwards
(Māori) and **Finau Taungapeau**
(Pacific) community representatives

BEATS Rural Study (2018)



15 days of data collection in schools





17 research staff
753 hours of research-person hours at schools





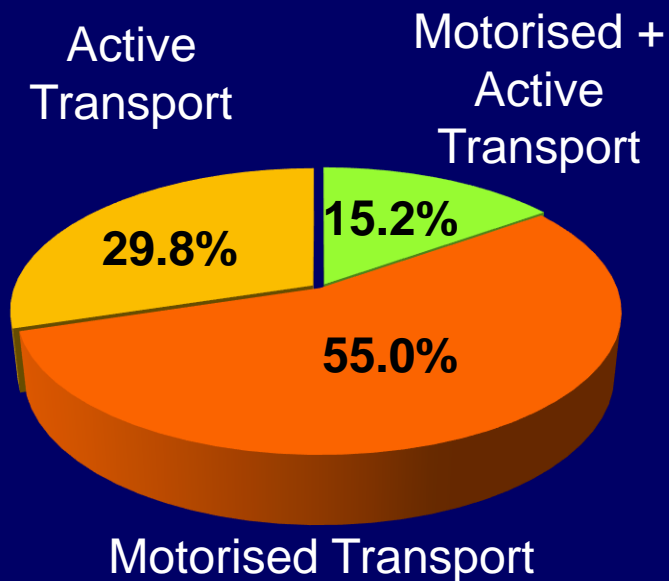
4,271 km driven
(more than twice the length of New Zealand)

BEATS Rural Study (2018)

Transport to School Patterns across Otago



Total sample
(n=2,656)



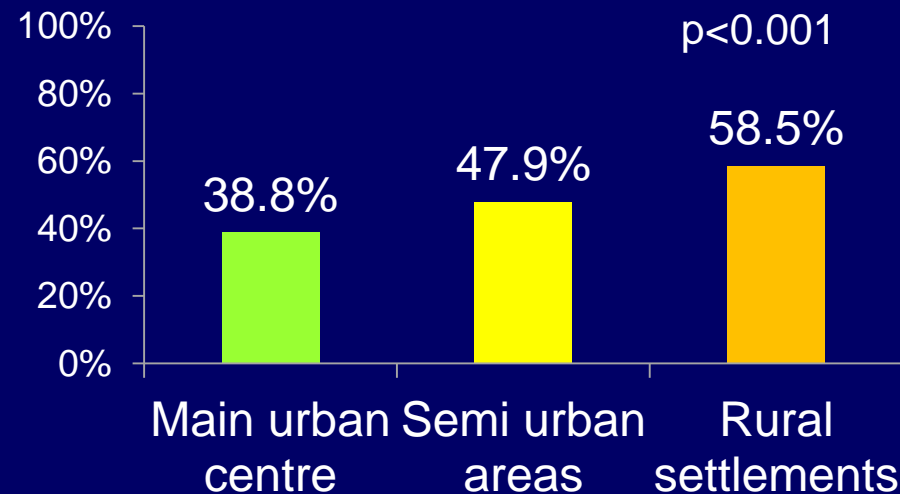
No significant difference across urbanisation settings

78.9% had a bicycle at home
75.8% had 2+ vehicles at home

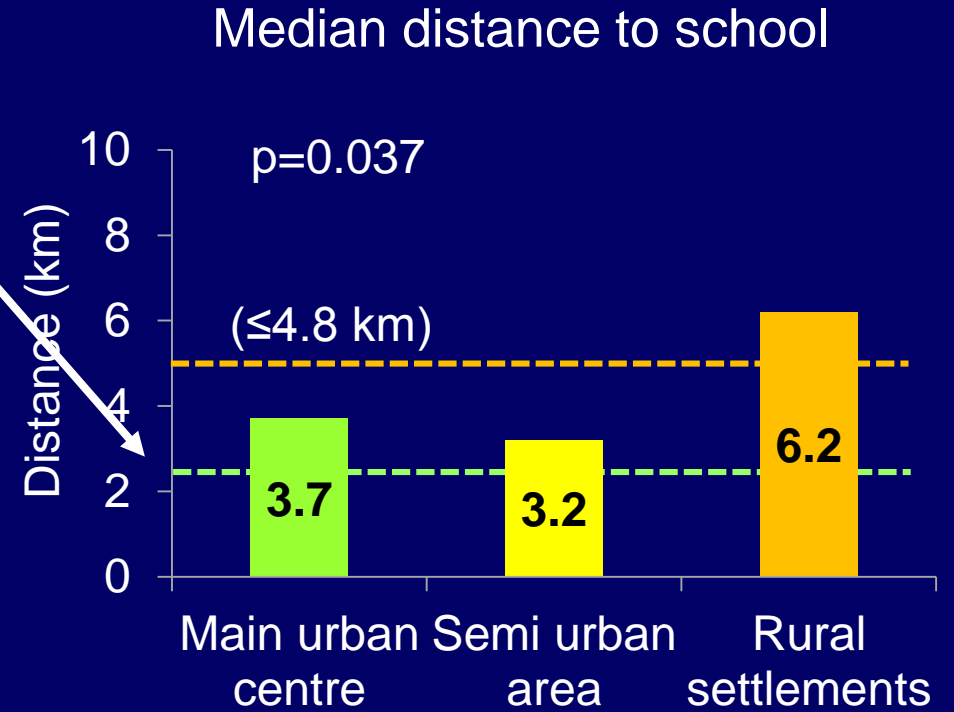
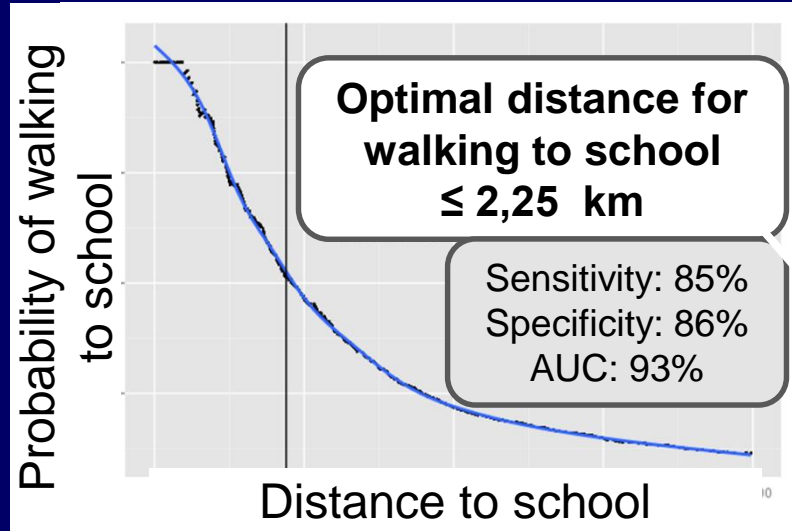
89.9% liked how they travel to school

Active transport to school

Among adolescents ineligible for subsidised school bus (living within 4.8 km from school)



Transport to School Habits across Otago



89.1%



11.8%

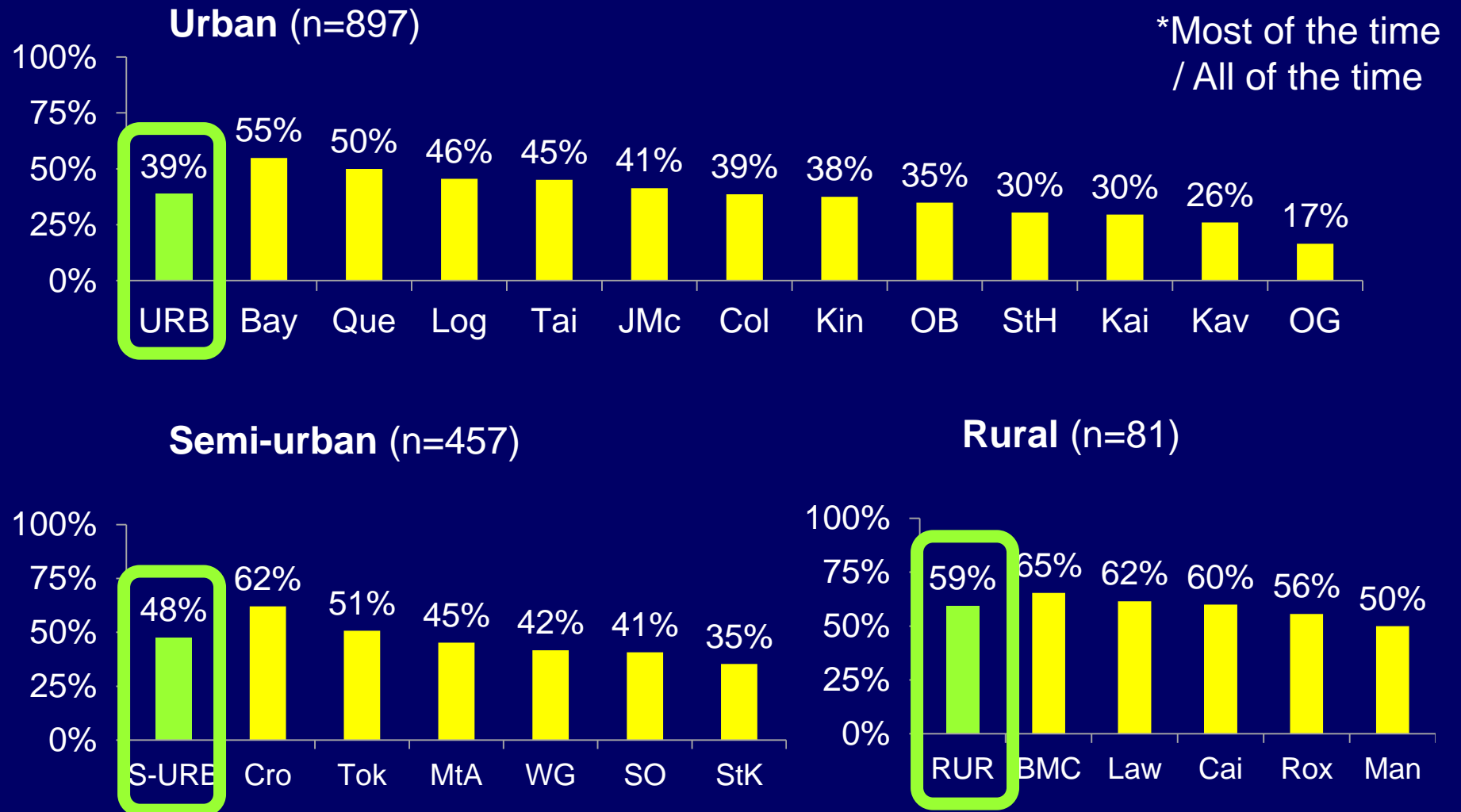
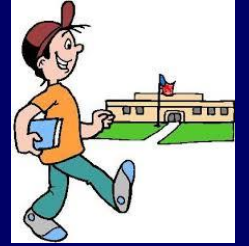
Source: BEATS Study and BEATS Rural Study (n=2,656)

Pocock et al. Health and Place (in press)

Significant difference across urbanisation settings

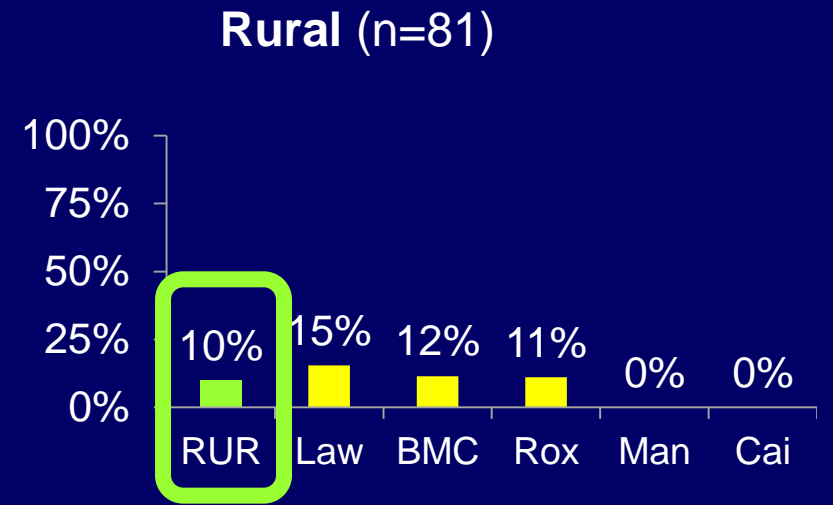
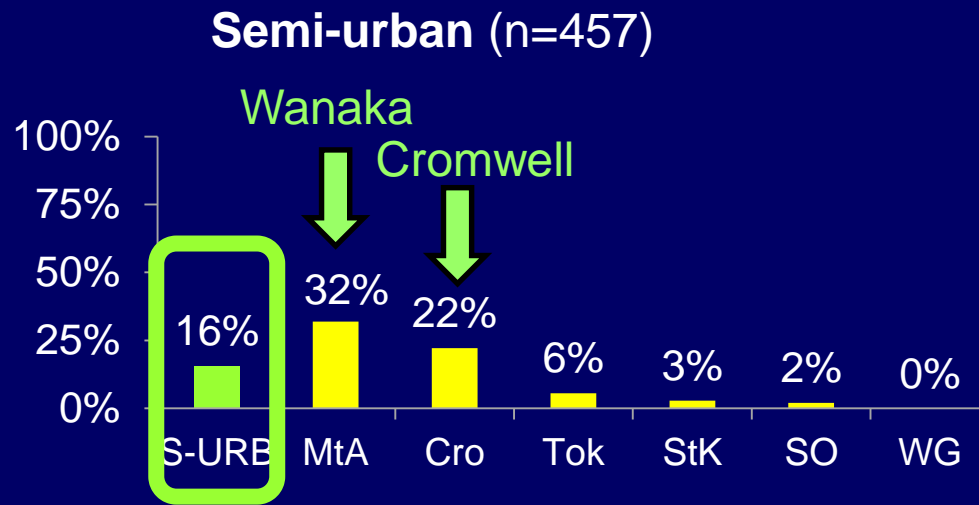
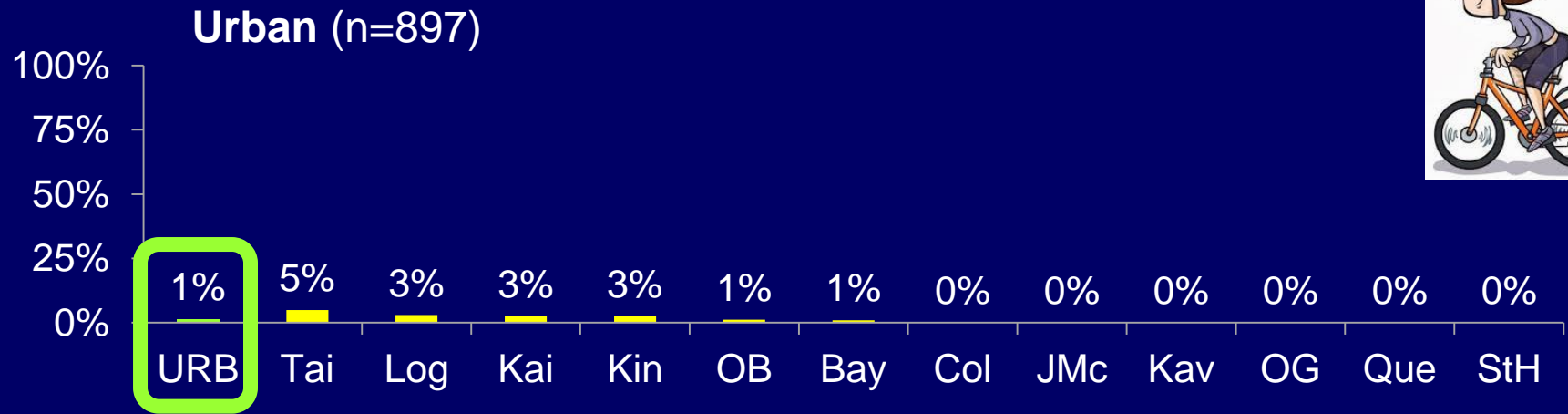


Rates of Active Transport to School (Living ≤ 4.8 from school; boarders excluded)



Rates of Cycling to School

(living ≤ 4.8 from school; boarders and mixed modes excluded)



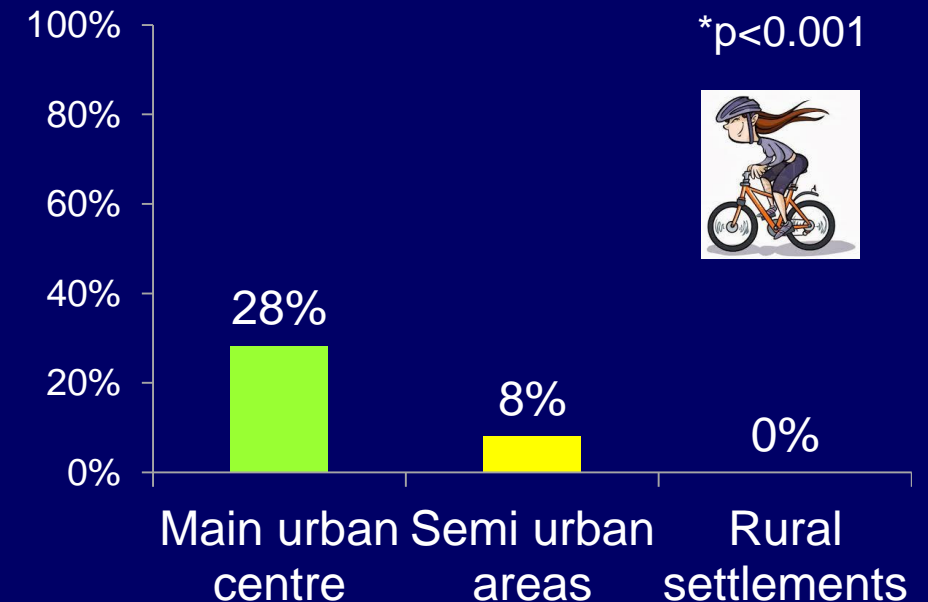
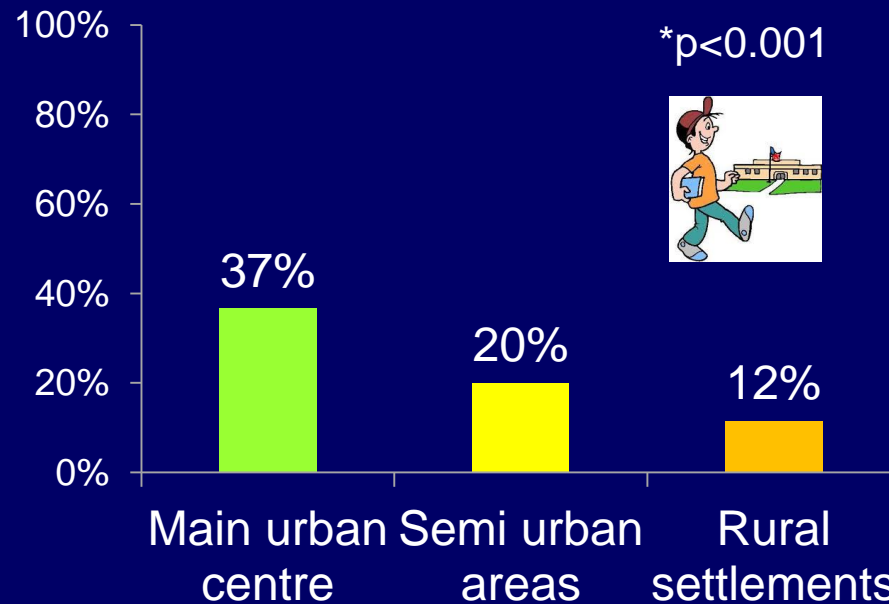


Perceptions of Distance to School

(among adolescents living ≤ 4.8 km from school)

It is too far to walk to school.

It is too far to cycle to school.



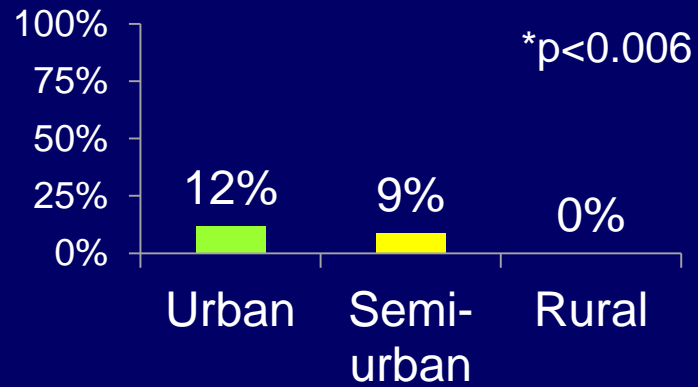


Perceptions of Safety

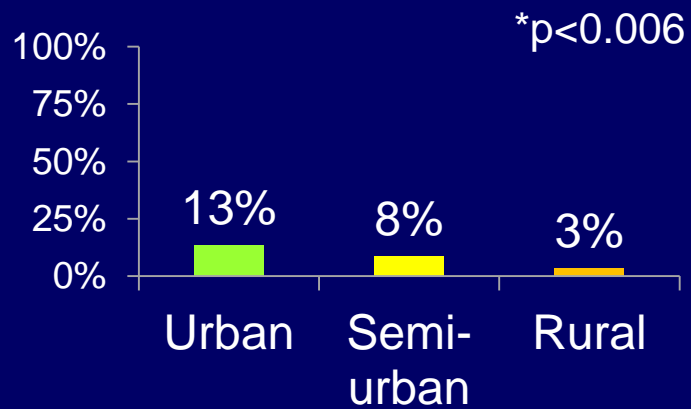
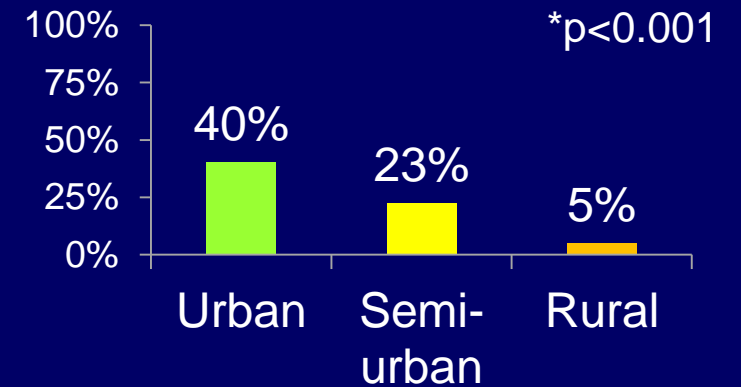
(among adolescents living ≤ 4.8 km from school)



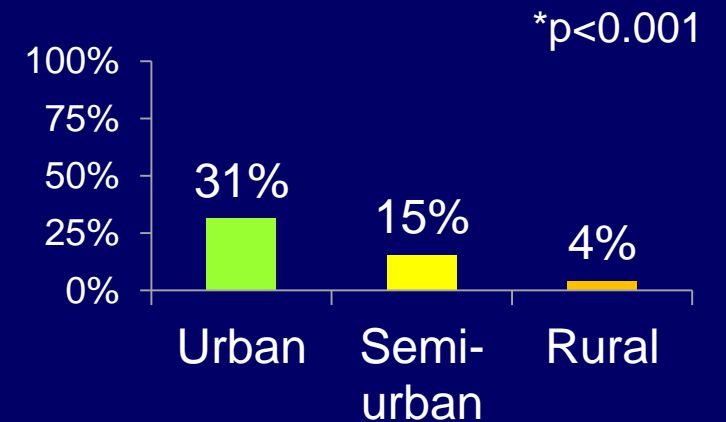
It is unsafe to walk to school.



It is unsafe to cycle to school.



Parental concerns (reported by adolescents)



Transport to School across Otago: Conclusions



Although less urbanised areas had higher rates of active transport if adolescents resided ≤ 4.8 km from school, motorised transport dominated adolescents' travel to school across Otago.



Distance and safety concerns were less common in rural and less urbanised areas compared to urban settings




Different interventions and approaches to address context-specific barriers will be required to encourage active transport to school in both urbanised and rural areas.


BEATS Research Programme Significance



Generating important information for key stakeholders for planning future school-, neighbourhood- and city/town-wide built environment changes to encourage active transport to school.



Understanding influences of multiple factors will **enable the scientific community, policy makers, regional planners, and health promoters to address barriers to active transport to school.**



Involvement of the key stakeholders will facilitate the generation of **usable data**, relevant to the **local context** and **generalisable** to other areas, and the **incorporation of new knowledge** into policy and future initiatives.



Thank you!

www.otago.ac.nz/beats
www.otago.ac.nz/active-living

