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Glossary of terms and abbreviations

Physical activity: any bodily movement produced by skeletal muscles that result in energy expenditure

Physical inactivity: failure to meet current physical activity guidelines/recommendations

Sedentary behaviour: activities that do not increase energy expenditure significantly above resting levels, and thus includes activities such as sitting, watching television, playing video games, and read ing a book. For this report, the focus was on screen-based sedentary behaviours.

Organised sport: refers to any sports, games, or activities (ie. aerobics) that are structured in nature.

Active play: anytime playing sport and games for fun and not in an organised or structured way.

Active transportation: walking, biking, in-line skating, scootering, and/or skateboarding to get to and from places such as school.

School sport: meaningful representation of their school in organised sport (ie. not a one-of event).

Built environment: the availability and safety of facilities, programmes, parks, playgrounds, and/or nature and outdoor spaces.

Accelerometer: movement device used to measure physical activity.

Children and youth: refers to children and young people aged 5 to 19.

NCD: noncommunicable disease

SES: socio-economic status

NZ: New Zealand

MVPA: moderate-to-vigorous physical activity

NZDep: New Zealand Deprivation Index, an area-based index of deprivation that measures levels (or quintiles) of socio-economic deprivation.

NZDepl: least deprived quintile or 20% of geographic areas in New Zealand

NZDepV: most deprived quintile or 20% of geographic areas in New Zealand

NZEO: New Zealand European and Other ethnic group

Māori: Indigenous New Zealander

Whānau: Family or extended family group

Target Audience for the New Zealand Report Card

This publication is for people with an interest in child and youth health and wellness, particularly for:

- * Those interested in childhood physical activity and sedentary behaviour
- * Community providers or organisations who are interested in, or who implement programmes for, increasing physical activity
- * Schools and education providers
- * Health care providers
- * Those who develop and implement public health policies
- * Those who are responsible for ensuring the built environment supports safe opportunities for physical activity participation
- * Parents, children, and youth



Introduction

Noncommunicable diseases (NCDs) such as cardiovascular disease and diabetes are the leading causes of death globally [1], and the leading causes of death and disability in New Zealand [2, 3]. Physical inactivity and sedentary behaviour are both independent risk factors for NCDs. Children and young people in New Zealand currently live in an environment that has increasing options for sedentary leisure activities and increasing barriers to physical activity participation [4, 5].

New Zealand's physical activity guidelines for children and youth were created in December 2007 [6]. The guidelines state that children and youth (aged 5-18 years) should accumulate 60 minutes or more of moderate- to vigorous-intensity physical activity daily. Moderate-intensity physical activity is defined as the equivalent of a brisk walk, and vigorous-intensity physical activity as those activities that cause people to huff and puff. The guidelines also recommend that children and youth spend less than two hours per day (out of school time) in front of television, computers, and gaming consoles, and that they should be active in as many ways as possible, including being active with friends and whānau/family at home, school, and in the community.

There is a need to gather and review the research on physical activity in New Zealand to translate research for advocacy, promotion, policy, and programme development purposes. The New Zealand Report Card on Physical Activity for Children and Youth has been prepared and modelled on similar international report cards, in particular, the Canadian Report Card released by Active Healthy Kids Canada [7]. The 2014 New Zealand Report Card used available evidence obtained from surveys over the past eight years on physical activity (including organised sport and free play), lifestyle behaviours (including screentime and active transport), and community and government initiatives promoting physical activity to assign grades to nine unique health indicators for children and youth aged 5-18 years.

Data sources

Data to inform the grades for each indicator were limited to the past eight years and were drawn primarily from the following major sources:

Data Source	Description
A National Survey of Children and Young People's Physical Activity and Dietary Behaviours in New Zealand: 2008/2009 [8]	A national survey commissioned by Sport and Recreation New Zealand (now Sport New Zealand) and the Ministries of Health, Education, and Youth Development. Conducted to assess physical activity, sedentary behaviours, and dietary habits of New Zealand children and youth.
Sport and Recreation in the Lives of Young New Zealanders: NZ Young People's Survey Series (2012) [9,10]	Conducted by Sport New Zealand, the survey provides information on time spent by children and youth participating in sport and recreation while at school, while training with a coach or participating in a competition, and while "mucking around" with friends, family, or alone. Unpublished findings from the survey were also used to assist with grading the family and peer influence, school, and community indicators.
KiwiSport Regional Partnership Fund: Activity Report 2009-2013 [11]	KiwiSport is a joint Government funding initiative between the Ministry of Education and Sport New Zealand. KiwiSport aims to: * increase the number of school-aged children participating in organised sport * increase the availability and accessibility of sport opportunities for all school-aged children * support children to develop skills that allow them to participate actively in sport later in life.
Ministry of Transport's NZ Household Travel Survey [12] 2008-2012	Data were collected on the modes of transport used for everyday journeys including to work and school (walking, car passenger/driver, bicycle, public transport, and other).
New Zealand Secondary School Sport Census [13] 2013	Conducted by the New Zealand Secondary School Sports Council to collect information on the number of students representing their school in sport. The involvement of staff and students in support roles (e.g., coach, manager) was also measured.
New Zealand Health Survey: Annual Update of Key Findings 2012/13 [14]	Conducted by the Ministry of Health, the purpose was to identify key issues and monitor trends on the health and wellbeing of New Zealanders. National results were presented according to age, sex, ethnic group, and level of deprivation.
Youth'12 Prevalence Tables: The Health and Wellbeing of NewZealand Secondary School Students in 2012 [15]	This survey examined a wide range of health and well-being topics among high-school students in New Zealand. In particular, the percentage of high school students experiencing risk/protective factors and engagement in health behaviours.

Data sources

Data to inform the grades for each indicator were limited to the past eight years and were drawn primarily from the following major sources:

Measures	Participants
Data were collected through an in-home, face-to-face, self-report personal interview, a follow-up self-report phone interview, and accelerometers.	Self-report activity data: 2,493 participants aged 5-24 years. Objectively-measured daily activity data: collected from 1,812 of these participants. Where possible, data for 19-24 year olds were excluded from the report card.
Information was collected through a self-completed survey for Year 3-to-13 students, while parents completed survey forms on behalf of their Year 1-2 children.	17,000 children and youth took part. Most findings were presented for three age groups: 5-10 year olds, 11-14 year olds, and 15-18 year olds.
Report described KiwiSport funding allocation across New Zealand.	2,285 approved initiatives were delivered to 1,805,790 individuals from 2009-2013. Individuals may have been counted more than once if they participated in more than one activity.
A trained interviewer visited randomly selected households. Participants recorded all trips made over two days and were later interviewed. Parents reported travel information for children aged 5-14.	Data were collected on 3108 children aged 5-17 years in five main regions of New Zealand. A representative sample of 4600 households was included.
Measured using a census approach. Both number of participations and individual participant numbers were calculated.	Collected data on 275,069 secondary school students.
A continuous survey of face-to-face interviews with results reported annually.	13,000 adults including parents/caregivers of over 4000 children aged 5-14 years.
Self-report survey, conducted on hand held Internet tablets.	The surveys were conducted in schools, to over 8500 secondary school students (aged 13-17).

The Grading System

Consistent with report cards provided by other countries, nine key indicators related to physical activity in children and youth were included. The indicators used were: physical activity levels, sedentary behaviour, organised sport, active play, active transportation, whānau/family and peer influence, school environment, community and the built environment, and government.

Once information was collected, a Research Work Group met to evaluate the evidence, determine the gaps in the literature, and propose grades for each indicator. Letter grades were assigned based on the percentage of children and young people who were achieving a defined guideline or recommendation:

A is 81% to 100%; B is 61% to 80%; C is 41% to 60%, D is 21% to 40%; F is 0% to 20%; INC is incomplete data.

Criteria for assigning grades was based on the Canadian Report Card and a comprehensive explanation for report card development has been previously published [7]. Considerations in assigning the grades included quality of available data (e.g., subjective versus objective assessment), representativeness of the information (e.g., study sample size, geographic region included), trends over time, and presence of disparities across subgroups (e.g., differences between age groups, socio-economic status [SES], ethnicity, and sex). When assigning the grades, nationally representative data took precedence; further, objectively measured data were considered in preference to self-reported information. Disparities

included, but were not limited to, sex, age, ethnicity, and SES. Where differences existed, separate grades were provided. Each indicator was discussed by the research team until a consensus was reached for an appropriate letter grade.



Overall Physical Activity



The grade of "B" for the physical activity levels indicator was determined using data from primarily one data set [8]. The National Survey of Children and Physical Activity study [8] showed that irrespective of the physical activity measure used (i.e. self-report or accelerometer), approximately two-thirds of children and young people (62% of females, 72% of males) complied with the physical activity guidelines and participated in at least 60 minutes of daily moderate-to vigorous-intensity physical activity (MVPA) on most days of the week [6].

Age:

Age 5-9: A

Age 10-14: B

Age 15-18: D

Almost all children aged 5-9 years met physical activity guidelines, but there was a significant age-related decline (with 78% of 10-14 year olds and 32% of 15-19 year olds meeting guidelines). Youth aged 10-14 years spent 102 minutes/day in MVPA, which declined to 46 minutes/day for youth aged 15-19 years [8].

Another data source revealed only 10% of secondary school students (aged 13-17 years) met PA guidelines [15].

Ethnicity:

The percentage of Māori (74%) and Pacific (79%) children/youth aged 5-24 years meeting the physical activity guidelines was higher than the percentage of Asian (63%) and New Zealand European/other (67%) [8].

Sex:

Females aged 5-19 years spent less time in MVPA than males across all age groups. For youth aged 15-19 years, females spent 36 min in MVPA per day and males spent 55 min/day [8].

Socio-economic status:

The percentage of children/youth aged 5-24 years in NZDep-V (most deprived) meeting the physical activity guidelines was slightly higher (69%) than NZDep-1 (least deprived) (65%) [8].

Sedentary behaviour



For sedentary behaviour the grade "C" was allocated, which was determined using data from two surveys [8, 14]. The New Zealand physical activity guidelines include a recommendation that children and youth should spend less than 2 hours per day watching screens (television, computer, video game, etc.) outside of school hours [6]. Grading for this indicator was based on screen time as a marker of sedentary behaviour.

Age:

Age 5-9: C

Age 10-18: D

In New Zealand, 49% of children aged 5-9 years exceeded the recommended screen time guideline and watched TV for >2 hours/day, with the greatest prevalence (59%) observed among 10-14 year olds [14].

Over half (60%) of children aged 5-9 years met the recommended screen-time guideline of 2 hours or less/day, whereas 33% of young people aged 10-14 years and 30% aged 15-19 years met this guideline [8].

For secondary school students (aged 13-17 years), 28%, 20%, 29%, and 35% reported spending ≥3 hours/day watching TV, playing computer games, texting, and using the Internet, respectively [15].

Socio-economic status:

Children (2-14 years) in the most deprived areas (NZDepV; 60%) were 1.3 times more likely to watch 2 hours or more per day of TV compared with children in the least deprived areas (NZDepl; 46%), after adjusting for age, ethnicity, and sex [14].

Ethnicity:

Māori: D

Non Māori: C

Māori (62%) and Pacific children (59%) aged 2-14 years exceeded screen time guidelines more often (watched 2 or more hours per day of TV) than children of New Zealand European/other ethnicities (52%) [14].

Sex:

Males and females aged 15-19 years spent a similar amount of time watching TV (139 and 131 minutes per day, respectively), but males spent more time at the computer (45 vs 29 minutes/day) and playing video games (29 vs 13 minutes/day) than females [8].

Organised sport



A grade of "B" was allocated for the organised sport indicator, which was determined predominantly from two surveys [8, 9]. Approximately 60% of New Zealand children participated in organised sport [9]. The prevalence of participation was lower across most age groups for females compared with males, except for 5-9 year olds [8]. The duration of sports participation also declined with age [8]. It is important to note that the term participation does not necessarily reflect the intensity of the activity undertaken. For example, a child may participate in a sport at an intensity below that recommended by the physical activity guidelines.

Age:

Age 5-14: B

Age 10-18: C

62% of males and 57% of females aged 7-10 years, and 68% of males and 63% of females aged 11-14 years, spent 3 hours or more per week participating in organised sport. For 15 to 18 year olds, 55% of males and 43% of females spent 3 hours or more per week participating in organised sport [9]. Over half (59%) of secondary school students participated in organised sport outside of school [15].

Children aged 5-9 years spent on average of 23 minutes per day in organised sport, while those aged 10 -14 years spent an average of 42 minutes per day, reducing to 29 minutes per day in 15-19 year olds [8]. Days measured included two week days and one weekend day.

Sex:

Females aged 15-19 years spent less time in organised sport (16 min/day) than males (40 min/day) [8].

Active play

В

Active play received a grade of "B", based on data predominantly from two surveys [8, 9]. The 2011 Young People's Survey provided two indicators of active play [9]: 1) the proportion of all young people who participated in 3 or more hours of sport and recreation while 'mucking around', and 2) the proportion of all young people who participated in active games or play at least once this year. 'Mucking around' referred to taking part in informal sport like shooting hoops or playing cricket in the backyard.

Less than 10% of young people spent no time participating in sport and recreation activities when "mucking around" [9]. Most children (78% of males and 82% of females) reported participating in active games or play at least "once this year" [9]. There were no clear differences according to sex, but there was an expected age-related decline in active play [8, 9].

Age:

Age 5-9: B

Age 10-18: C

The time spent in active play decreased from 140 minutes per day (for 5-9 year olds) to 87 minutes per day (for 10-14 year olds), followed by 29 minutes per day among 15 to 19 year olds [8]. Children age 5-10 years were more likely to participate in active games or play at least once "this year" (males 84% and females 87%) than those aged 15-18 (males 61% and females 68%) [9].

Ethnicity:

Pacific males (72%) and Asian males (74%) were less likely to play games and activities "this year" than the total rate for all males (78%). Asian females (77%) were less likely to play games than females overall (82%) [9].

Socio-economic status:

Time spent in free play was inversely related to level of deprivation, with those in the most deprived areas (NZDepV) participating in significantly less free play compared with those in the least deprived areas (NZDepl) (67 versus 86 min) [8].

Sex:

Males: 79% (aged 5-10 years) and 59% (aged 15-18 years) spent >3hours a week on sport and recreation when "mucking around". Females: 73% (aged 5-10 years) and 42% (aged 15 to 18 years) spent >3 hours a week on sport and recreation when "mucking around" [9].

Active transportation



A grade of "C-" was allocated for the active transportation indicator. The final grade was determined from three surveys [8, 12, 15]. Key findings to inform the grade were that 33% of secondary school students used active transport to or from school 6 or more times in the previous week [15]. On average, children and young people spent 43 min/day in active transport [8]. The prevalence for active transport was higher for children aged 5-14 years than those aged 15-19 [8]. Those who lived in more deprived areas were more likely to actively commute compared to those from least deprived regions [8]. The grade for this indicator was based on active transport to and from school.

Socio-economic status:

Children aged 5-24 years in the most deprived areas (NZDepV) spent an average of 50 minutes per day in active transport, compared to children in the least deprived areas (NZDepI) who spent 34 minutes per day [8].

Age:

For children aged 5-12 years, 23% walked, 4% cycled, 8% used public transport, and 57% travelled to school in a car most days. A small number combined car passenger plus walking (2%), public transport and walking (4%), and car passenger plus public transport (3%). Overall 68% used passive transport only (car and/or public transport only) and 27% used only active transport to get to and from school [12].

For children aged 13-18 years, 28% walked, 4% cycled, 9% used public transport, 27% travelled as a car passenger, and 7% drove themselves. Some combined car passenger plus walking (1%), public transport and walking (17%), and car passenger plus public transport (3%). Overall, 37% used passive transport only and 32% used only active transport to get to and from school [12].

Whānau/family support



Peer and parental support for child and youth physical activity participation received a grade of "C", which was derived from two surveys [10, 15]. Children aged 10 to 15-years old reported that people who influenced them the most to participate in physical activities were their parents/caregivers (57% females, 49% males) and their peers (54% of females and 41% of males) [10].

Whānau/family support:

A national survey found that for children aged 10-15 years, 47% of males and 50% of females had a parent or caregiver that encouraged them to take part in physical activity almost daily or more often during a normal week [10]. The same survey found 19% of males and 18% of females aged 10-15 years reported having a parent or caregiver take part in physical activity with them almost daily or more often during a normal week.

Overall, 39% of parents and caregivers of males aged 5-8 years (36% for females) reported they or another adult who looks after their child took part in sport or active things with their child almost daily or more often [10]. Most parents and caregivers of males (70%) and females (62%) aged 5-8 years said they or another adult who looks after their child encouraged their child to do sport or active things almost daily or more often [10].

A non-representative, cross sectional study of 3,471 students at 7 low socio-economic status (decile rating of 1 or 2) schools in South Auckland found that, in families with two parents, 70% of children (aged 12 -18 years) were active if they had two highly supportive parents, 55% if they had one highly supportive parent, and 44% if they had no highly support parents. In families with one parent, 63% of children with a highly supportive parent were active and 41% were active with a low supportive parent [16].

Only a few (5%) secondary school students reported not participating in organised sport because their parents wouldn't let them [15].

Peer support

C

Peer support:

51% of males and 40% of females aged 10-15 years reported doing sport or active things with their friends almost daily [10].

In South Auckland students (not a national data set – see above), 70% of junior students (Years 9-11) who reported receiving high peer support and encouragement were physically active during the after school time period compared with 49% of junior students who reported receiving low peer support and encouragement [16]. The same pattern was found for senior students (Years 12 & 13). Peer support and encouragement was also found to be related to participation in lunchtime physical activity for both junior and senior students [16].

Few (9%) secondary school students reported not participating because none of their friends were in sports [15].

School environment

B-

The school environment has been recognised as an important setting for physical activity participation. The schools indicator received a grade of "B-", which reflects a composite of sub-grades for physical education (PE) (B) and school sport (C). Grading was derived predominantly from four surveys [9, 10, 13, 15]. There was evidence of Government funding initiatives (primarily KiwiSport) within schools [11]. Most projects (84%) were delivered primarily in the school setting. They were mostly held during school (in class) time (43%) and before/after school (25%) [11].

PE:

Active in Physical Education : B

Almost two-thirds (65%) of secondary school students reported attending PE class in the last 7 days (95% for youth aged 13 years; 26% for youth aged >17 years) [15].

PE was rated the favourite school subject for year 8 students. Most PE skills improved with age. Males averaged slightly higher than females on PE tasks. Māori students scored slightly higher on PE tasks than NZEO [17].

School environment

School sports:

Active in school sport: C

Data indicated that 53% of high school students had meaningful engagement in school sports (ie. not a one-off activity), with higher rates among males (56%) than females (49%) [13].

The majority (86%) of males and females aged 10-14 years reported taking part in one or more sport and recreation activity organised by their school 'this year'. This included participation in school sports teams, school competitions, and lunchtime or after school activities that the school organised. This decreased slightly for males and females aged 15-18 years (81% and 82%) [9]. 51% of males and females aged 5-18 years participated in a school sports team 'this year'[9].

Almost a third of teachers and support staff (29%) were involved in sport, and 16% of teachers coached a school sport team [13].

Out of 84 school sports, the most popular sports where students represented their school in a meaningful way were outdoor netball (11%), rugby union (11%), football/soccer (9%), basketball (7%), touch rugby (6%), volleyball (6%), field hockey (5%), and athletics (4%) [13]. Outdoor netball was the most popular sport among females, whereas rugby union was the most popular among males.

Males (63%) and females (60%) aged 10-15 years reported having sports facilities at school (e.g. playing fields and/or courts) and used these [10].

Community and built environment

C

The community and built environment received a grade of "C", which was determined using data from two surveys [10, 15].

Access to places to be active:

Approximately half of all children aged 10-15 years reported having access to neighbourhood locations in which they could be active [10]. Specifically, children and youth reported having places in their local neighbourhood to: walk (56% of females and 46% of males), run or jog (51% of females and 48% of males), and ride a bike (49% of females and 58% of males), and used these [10]. 48% of males and 39% of females aged 10-15 years report having sports facilities in the local neighbourhood (e.g. playing fields or courts) and used them [10].

Among secondary school students, 15% reported not participating in organised sport outside of school because there were no sports facilities in their area, 14% reported it cost too much, and 12% reported not being able to get to sports facilities [15].

Just over three-quarters of parents/ caregivers of the males (79%) and females (76%) aged 5-8 years old reported there were enough facilities in their local neighbourhood for their child to do sport and active things [10].

Access to sports equipment:

Over half of adolescents aged 10-15 years said they have a bicycle available (55% of males and 54% of females), and other sports equipment available at home (69% of both males and females), and used them [10]. Among children aged 5-13 years, 80% of males and 79% of females had a bike and used it [10].

Government initiatives

INC

An inconclusive grade "INC" was given for government initiatives. This indicator was the most challenging to grade due to lack of agreed international criteria for assessment. For our first report card, we focussed on obtaining evidence of national level policies, strategies, and allocation of funding, as well as selected regional and local initiatives. There were a number of government-led, sector-based policies, strategies, and funding programmes that related to, and impacted on, child and youth physical activity levels. These include but are not limited to activities in:

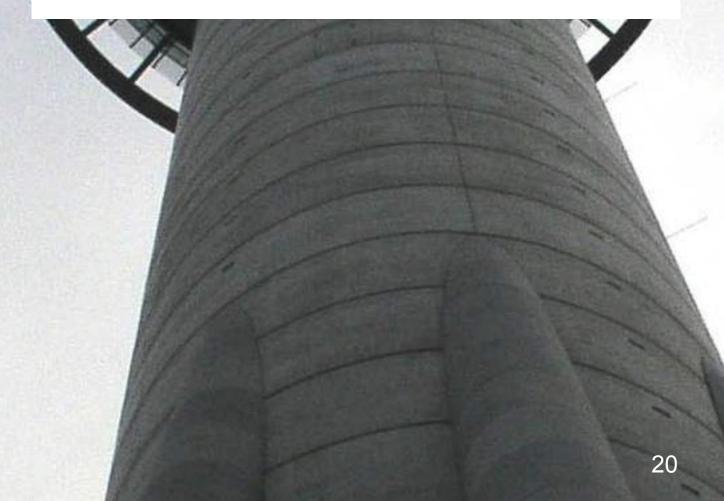
Settings	Examples of initiatives
Health and Injury Prevention	Development of physical activity guidelines Health Promoting Schools ActiveSmart
Sport and recreation	KiwiSport Partnership Fund Good Practice Principles for the Provision of Sport and Recreation for Young People
School	Health and PE curriculum KiwiSport school funding Guidelines for Sustainable Physical Activity in School Communities Sport in Education
Transportation	Model communities [Model communities are urban environments where walking or cycling is offered] BikeWise

Government initiatives

INC

There were also initiatives that focussed on volunteers and coaches fundamental to facilitating child and youth sport and recreation participation across New Zealand. At a regional and local level there were subsidised children's activities (e.g. lower cost swimming pool entry, events and community programmes) and many physical activity initiatives (e.g. SportStart). Sport New Zealand has listed 'young people (0-18yrs) developing a love of sport and recreation that leads to lifelong participation' as one of its 5 priority areas of investment [18]. Funding for children's PA is mainly through KiwiSport. Currently, \$12 million per year is administered by the Ministry of Education and is delivered through operating grants to schools on a per capita basis (the Direct Fund).

In total, \$8.5 million per year is administered by Sport NZ and delivered to Regional Sports Trusts to distribute to community organisations (the Regional Partnership Fund) [11]. The main types of KiwiSport project were skills programmes (37%), followed by sport opportunities/competitions (27%) and coaching courses (11%). From 2009-2013, 28% of the funding (\$13,128,528) was directed invested in Sport NZ's 14 targeted sports[11]. In sum, there was evidence of government, regional, and local initiatives to promote physical activity, sport and recreation; however our INC rating reflects the lack of agreed international criteria for assessment.



Recommendations for Action

The first New Zealand Physical Activity Report Card for Children and Youth provided a synthesis of available evidence on children and youth physical activity levels. The process was important to translate research for advocacy, policy, and programme development purposes.

The main findings can be summarised as follows. Generally, New Zealand children and youth's participation in physical activity was satisfactory (but could improve) however levels of sedentary behaviour were high. There is a clear age-related decline in physical activity participation and increase in sedentary behaviour, with very low levels of physical activity among adolescent females. Grades for active transportation and the built environment were lower than other indicators.

There are limitations associated with this report card. Some of the data extracted were 8 years old and therefore do not necessarily reflect the most current situation in New Zealand. Where possible, primacy was given to nationally representative data, which may have excluded some important data sources.

It is likely that further reviews will be undertaken at regular intervals (possibly every 2-3 years). In the future, it is hoped that the Report Card can evolve to highlight community success stories, and be tailored to better reflect the diverse New Zealand population (ethnicity, geography, age). The establishment of clear international criteria for grading the government indicator would enable assessment of the role of local, regional and national government action to address physical activity and sedentary behaviour. In terms of research gaps, future surveys in New Zealand should ideally include more objective assessment of physical activity and sedentary behaviours (currently being considered as part of a future New Zealand Health Survey module). Such measures should be repeated periodically to permit comparison over time. Additional research is required to identify successful sustainable programmes or approaches that increase physical activity levels amongst adolescent girls.

From our findings, it is apparent that initiatives to support active transportation are needed to promote both an increase in physical activity and a decrease in sedentary behaviour. While encouraging active transport can be difficult in a country with diverse geography, including large rural areas and small towns, the C- score highlights an area in which New Zealand has room to improve. The high levels of screen time were concerning and suggest the need to identify and implement effective strategies to reduce screen time in children and youth in New Zealand. Finally, we were unable to grade the government indicator. Further work is required to develop internationally agreed criteria to enable assessment, together with a more comprehensive review of existing policies and their evaluations to support physical activity in children and youth within New Zealand.

References

- 1. World Health Organisation: Global status report on noncommunicable diseases 2010. In. Geneva, Switzerland: World Health Organisation; 2011: World Health Organisation.
- 2. Hay DR: Cardiovascular Disease In New Zealand, 2004. In. Auckland: The National Heart Foundation of New Zealand; 2004.
- 3. Ministry of Health: Mortality and Demographic Data 2007. In. Wellington: Ministry of Health; 2010.
- 4. Maddison R, Jiang Y, Vander Hoorn S, Exeter D, Ni Mhurchu C, Dorey E: Describing Patterns of Physical Activity in Adolescents using Global Positioning Systems and Accelerometry. Pediatric Exercise Science 2010, 22:392-407.
- 5. Maddison R, Jiang Y, Vander Hoorn S, Ni Mhurchu C, Exeter D, Bullen C, Utter J, Schaaf D, Rodgers A: Environment and physical activity: Is it a matter of perception? In: International Society of Behavioural Nutrition and Physical Activity: 2008; Banff, Canada; 2008.
- 6. Physical Activity [http://www.health.govt.nz/our-work/preventative-health-wellness/physical-activity]
- 7. Colley RC, Brownrigg M, Tremblay MS: A model of knowledge translation in health: the Active Healthy Kids Canada Report Card on physical activity for children and youth. Health Promot Pract 2012, 13(3):320-330.
- 8. Maddison R, Turley M, Legge N, Mitchelhill G: A national survey of children and young people's physical activity and dietary behaviours in New Zealand: 2008/09. In. Auckland, New Zealand: Clinical Trials Research Unit, The University of Auckland; 2010.
- 9. Sport New Zealand: Sport and recreation in the lives of young New Zealanders. In. Wellington: Sport New Zealand; 2012.
- 10. Sport New Zealand: Unpublished findings from Sport New Zealand's 2011 Young People's Survey. In. Wellington, New Zealand: Sport New Zealand; 2012.
- 11. Sport New Zealand: Kiwisport Regional Partnership Fund: Activity Report 2009-2013. In. Wellington: Sport New Zealand; 2013.
- 12. Ministry of Transport: New Zealand Household Travel Survey. In.: Ministry of Transport; 2013.
- 13. New Zealand Secondary School Sport Census [http://www.nzsssc.org.nz/]
- 14. Ministry of Health: New Zealand Health Survey: Annual update of key findings 2012/13. In. Wellington: Ministry of Health; 2013.
- 15. Clark TC, Fleming T, Bullen P, Crengle S, Denny S, Dyson B, Fortune S, Peiris-John R, Robinson E, Rossen F et al: Youth'12 Prevalence Tables: The health and wellbeing of New Zealand secondary school students in 2012. In. Auckland: The University of Auckland: 2013.
- **16**. Hohepa M, Scragg R, Schofield G, Kolt GS, Schaaf D: Social support for youth physical activity: Importance of siblings, parents, friends and school support across a segmented school day. Int J Behav Nutr Phys Act 2007, 4:54.
- 17. Flockton L, Crooks T: National Education Monitoring Project: Health and Physical Education Assessment Results 2006. In. Dunedin: Ministry of Education, New Zealand; 2007.
- 18. About Sport NZ [http://www.sportnz.org.nz/en-nz/About-SportNZ/]