



The COMPASS System:

Evaluating how changing contexts shape youth health

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Acknowledgements

Funding

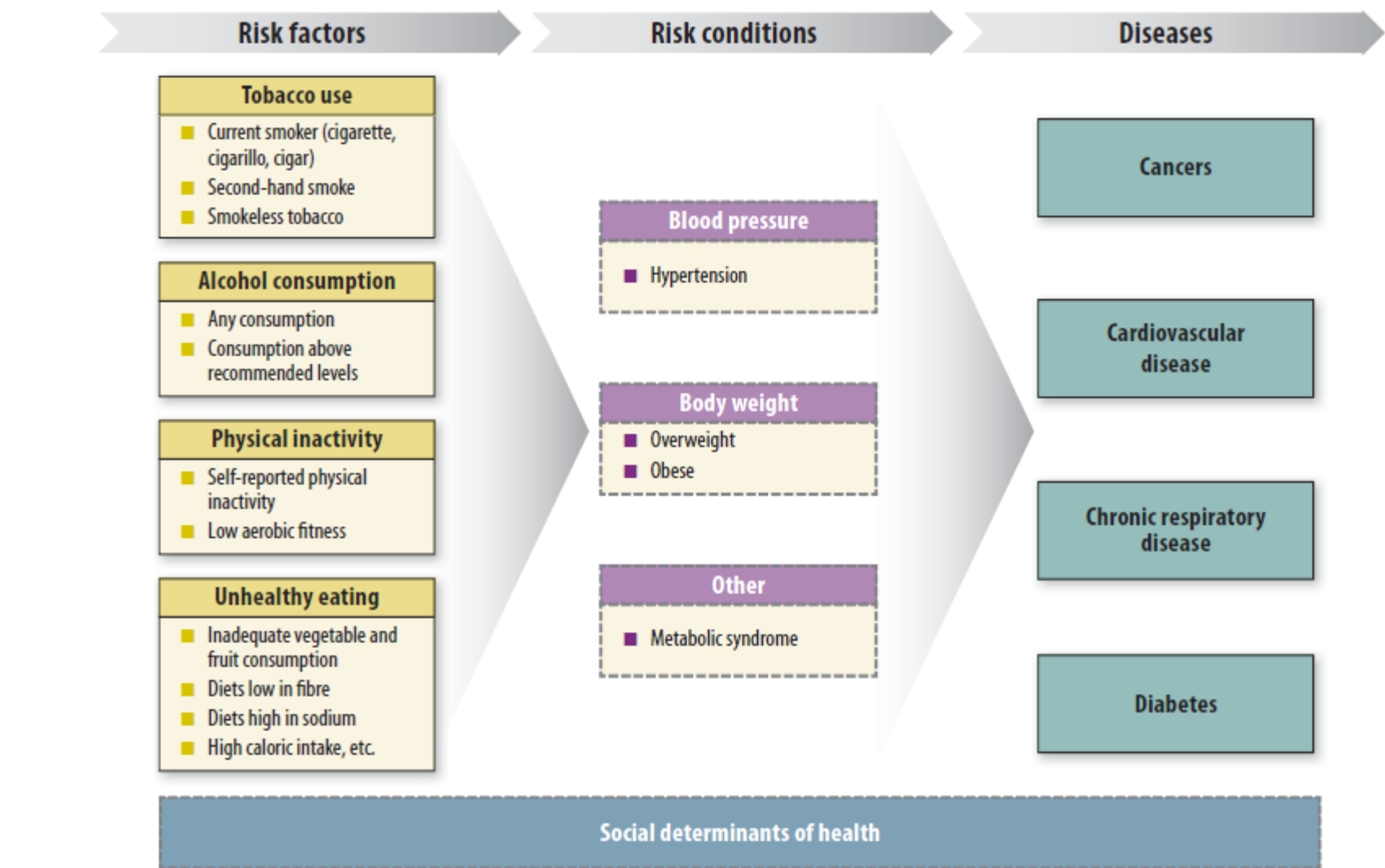
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Staff

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Figure 3: Causal links between selected risk factors and chronic diseases



Adapted from: Cecchini M, Sassi F, Lauer JA, Lee YY, Guajardo-Barron V, Chisholm D. Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. Lancet. 2010 Nov 20;376(9754):1775–84.

Background

- Within the Canadian context, characteristics of the school a student attends are independently associated with multiple behavioural outcomes among youth:
 - obesity [Leatherdale & Papadakis, 2011]
 - physical activity [Hobin, Leatherdale, Manske et al., 2013],
 - sedentary behaviour [Leatherdale, Faulkner & Arbour-Nicitopoulos, 2010],
 - alcohol and marijuana use [Costello, Leatherdale, Ahmed et al., 2012],
 - smoking [Leatherdale, McDonald, Cameron et al., 2005].

- However, comprehensive inventories of important school characteristics:

1. *Programs*
2. *Policies*
3. *Built environment resources*

within or surrounding schools are not systematically collected or examined in school-based prevention research.

Leatherdale, 2012

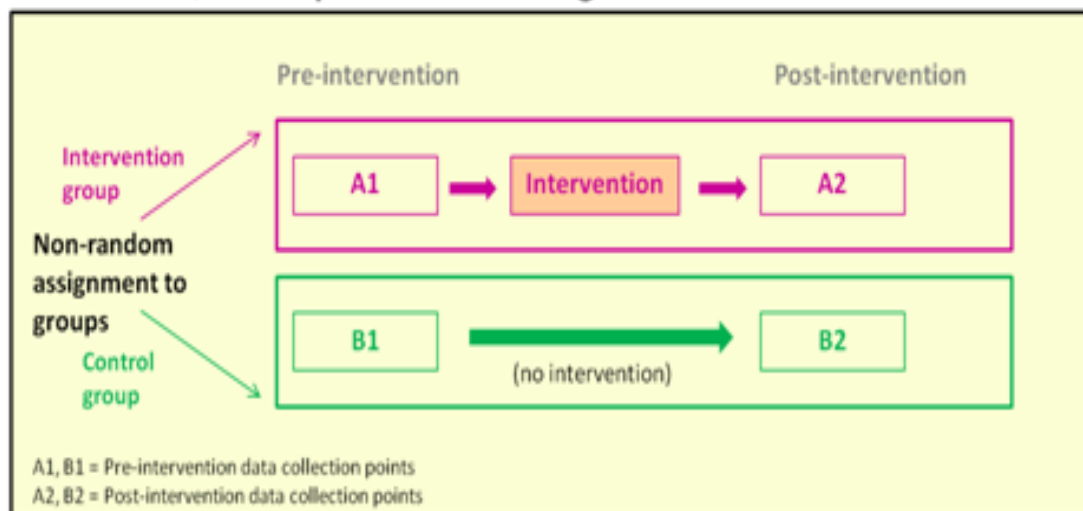
The Vision for COMPASS

- To create a longitudinal school-based data collection and knowledge exchange system designed to inform and guide the
 1. development,
 2. evaluation, and
 3. targetingof programs, policies and resources designed to reduce risk behaviours and promote healthy behaviours among youth.

Design

- COMPASS uses longitudinal quasi-experimental designs to evaluate ongoing real-world **natural experiments** that occur within or surrounding schools over time.

Classical Quasi-Experimental Design



Measures / Data

- Longitudinal data are collected annually at both:

1. School-level

- COMPASS School Programs and Policies Questionnaire (SPP),
- COMPASS School Environment Application (Co-SEA),
- COMPASS Built Environment Data (C-BED)

2. Student-level

- COMPASS Student Questionnaire (Cq)

COMPASS School Programs & Policies Questionnaire (SPP)

- Survey completed annually by the administrator(s) most knowledgeable about the school program and policy environment.
- For each COMPASS outcome, the SPP measures:
 - the presence or absence of relevant programs and/or policies, and
 - changes to school policies, practices, or within school resources.

COMPASS School Programs & Policies Questionnaire (SPP)



School Policies and Practices Questionnaire

General School Health Questions:

1. What financial resources are available annually from your school board to support students at your school?

	Yes	No
a. Budget		
i. Annual budget less than \$100	☐	☐
ii. Annual budget \$100 - \$499	☐	☐
iii. Annual budget \$500 - \$999	☐	☐
iv. Annual budget greater than \$1000	☐	☐
b. Staff time (e.g., for professional development, monitoring of policy compliance, etc.)	☐	☐
c. Space	☐	☐

2. Does your school use formal or standardized student health assessments to detect knowledge, beliefs, and behaviours on the following topics?

Examples of formal or standardized student assessments are: SHAPES student survey, Student Drug Use and Health Survey (OSDUHS)

	At least every 2 years	Less than every 2 years
a. Healthy Eating	☐	☐
b. Physical Activity	☐	☐
c. Tobacco Use	☐	☐
d. Alcohol & Drug Use	☐	☐
e. Obesity	☐	☐
f. Sedentary Behaviour	☐	☐

3. Has your school used data from a student health assessment at least once in the planning actions that will improve your school's environment and/or to help determine that you have made on student attitudes and behaviours?

- a. Yes
b. No

4. Has your school made any health policy or practice changes in the past year (e.g. beverages containing sugar in school vending machines)?

- a. We have not made any policy changes in the past year
b. Yes we have made policy changes in the past year

5. How are your school's written health policies (e.g., smoking rules, healthy eating requirements, drug policies) communicated throughout the school community (i.e., staff, parents/families and students)? (Check all that apply)

	Yes	No
a. Written in a school/board/division/district handbook	☐	☐
b. Written in a school/board/division/district newsletter	☐	☐
c. Written in a student agenda provided by the school/board/division/district	☐	☐
d. Discussed at meetings (e.g., staff meetings, professional development days, assemblies, school council)	☐	☐
e. Posted on school/board/division/district website(s)	☐	☐
f. Posted at school	☐	☐
g. Email distribution	☐	☐
h. Written in a school/board/division/district handbook	☐	☐
i. Written in a school/board/division/district newsletter	☐	☐
j. Written in a student agenda provided by the school/board/division/district	☐	☐

6. During the past 12 months, what role did your regional health authority/local public health unit play in working with your school on health promotion and/or activities for students? (Circle all that apply)

- a. No contact with regional health authority/local health unit/department regionally
b. Provide information/resources/programs (e.g., posters, toolkits)
c. Solved problems jointly
d. Developed/implemented program activities jointly

7. In which fields does your school receive support from your school's local Public Health unit? (Circle all that apply)

- a. We do not receive any resources from Public Health
b. Healthy eating
c. Physical activity
d. Tobacco use
e. Alcohol and drug use
f. Sedentary behaviour
g. Obesity

8. During the past 12 months, has your school worked on health promotion and/or activities for students? (Circle all that apply)

- a. Health organization (e.g., Canadian Cancer Society, Heart and Stroke Foundation, etc.)
b. Parks or Recreation department
c. Youth organization (e.g., YMCA/YWCA, Boys/Girls Clubs, Boy Scouts/Girl Scouts, etc.)
d. Health or fitness club
e. Board/division/district itinerant teacher (e.g., consultant, specialist)

9. How does your school update policies and practices annually to improve school health?

- a. We use existing external information to inform policy changes (e.g., national health surveys)
b. We use internal evidence to inform policy changes (e.g., school survey)
c. We use a mix of both existing external information and internal evidence to inform policy changes
d. We have not updated our policies in the past year

Tobacco Questions:

42. Is tobacco use a problem at your school?

- a. Yes
b. No
c. I don't know

43. Does your school prohibit smoking tobacco (e.g. cigarettes, cigars, cigarillos) in each of the following locations for each of the following groups? (Check all that apply)

	Students	Teachers/ staff	Parents/ Guardians	Other Visitors
a. School buildings during school hours	☐	☐	☐	☐
b. School buildings outside of school hours	☐	☐	☐	☐
c. School grounds during school hours	☐	☐	☐	☐
d. School grounds outside of school hours	☐	☐	☐	☐
e. Within a specified distance of school grounds	☐	☐	☐	☐
f. School buses or other vehicles used to transport students	☐	☐	☐	☐
g. Private vehicles parked on school grounds	☐	☐	☐	☐
h. Sponsored events off of school grounds	☐	☐	☐	☐

44. Does your school prohibit student use of smokeless tobacco (e.g. chewing tobacco, pinch, snuff, or snus)?

	Yes	No
a. On school property during school hours	☐	☐
b. On school property outside school hours	☐	☐
c. During school activities off school property (e.g. field trips, school sport tournaments)	☐	☐

45. Does your school prohibit the possession of any of the following types of tobacco for students on school property? (Check all that apply)

	Yes	No
a. Cigarettes	☐	☐
b. Cigars	☐	☐
c. Cigarillos (little cigars)	☐	☐
d. Smokeless tobacco (e.g., chewing tobacco, pinch, snuff, or snus)	☐	☐

46. Does your school have a designated spot on school grounds where students are allowed to smoke?

- a. Yes
b. No
c. No, but there is an area off of school grounds within view of the school

COMPASS School Environment Application (Co-SEA)

- An direct observation tool completed on a mobile device used to measure the built environment within a school.

Leatherdale, Bredin & Blashill, 2014

- Co-SEA is an automated computer-based version of the previously validated audit measures from:

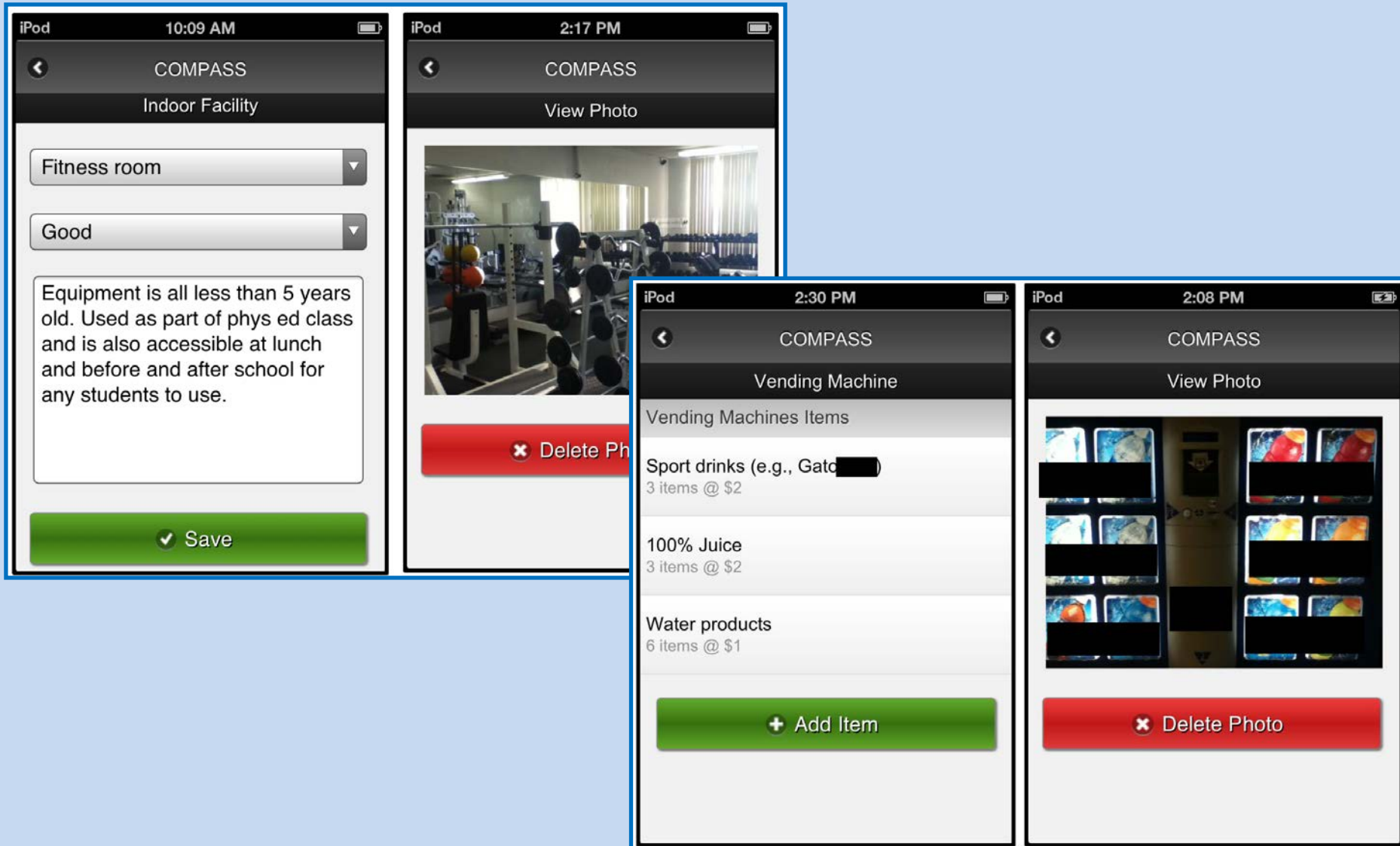
- the ENDORSE study (measuring the school food environment)
- the SPEEDY study (measuring the school physical activity environment)

Van der Horst et al., (2008)

Jones et al., (2010)

- Also has the functionality to take photos and archive photos of the different observations being measured in the audit.

COMPASS School Environment Application (Co-SEA)

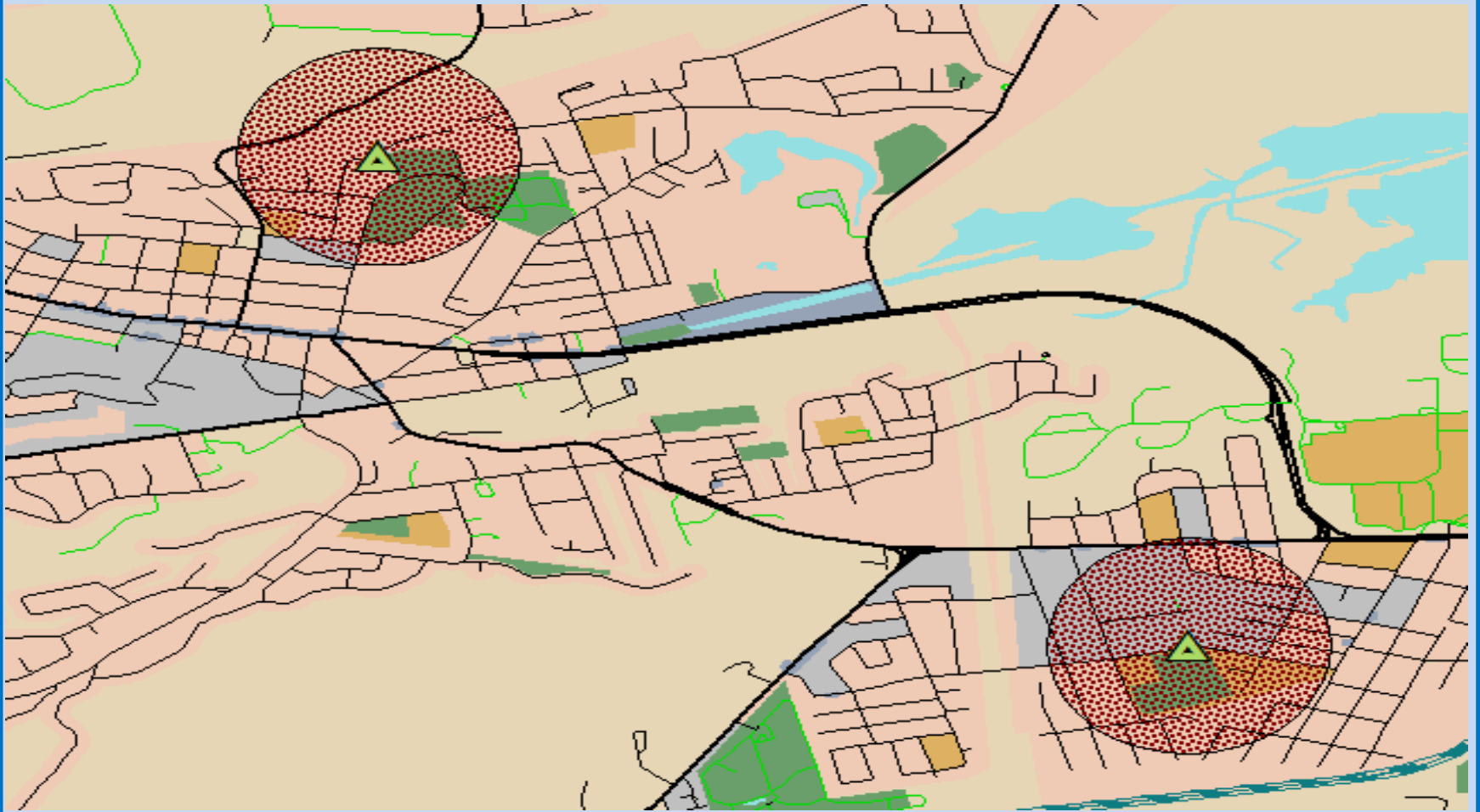


COMPASS Built Environment Data (C-BED)

- Data on the built environment surrounding each school are provided by Desktop Mapping Technologies Inc. (DMTI)
 - CanMap RouteLogistics (CMRL) spatial information database
 - data layers surrounding each school
e.g. land use, boundary files, and street networks
 - Enhanced Points of Interest (EPOI) data resource
 - type and location of different opportunity structures surrounding each school
e.g. tobacco retailers, beer stores and LCBO outlets, bars, fast-food restaurants, and fitness centres.
- Desktop Mapping Technologies Inc. (DMTI) [www.dmtispatial.com]
- Arcview 3.3 software is used to geocode the school addresses and to create the 500m and 1-km buffers.

COMPASS Built Environment Data (C-BED)

Sample of COMPASS built environment data linkage for 500m buffers examining land use and street network connectivity surrounding two schools



COMPASS Student Questionnaire (Cq)

- The Cq is designed to facilitate multiple large-scale school-based data collections.
- The Cq collects individual student data pertaining to:
 - tobacco use (including e-cigarettes),
 - alcohol and marijuana use
 - obesity (height and weight to calculate body mass index [BMI]),
 - sedentary behaviours and amount of sleep,
 - physical activity and evidence-based correlates of physical activity,
 - healthy eating and diet,
 - correlates (e.g., bullying, academic outcomes, school connectedness)
 - demographic characteristics (e.g., age, gender, income, ethnicity).

COMPASS Student Questionnaire (Cq)



- This is **NOT** a test. All of your answers No one, not even your parents or teachers, will see your answers. So, please be honest when you answer.
- Mark only **one** option per question unless told otherwise.
- Choose the option that is the **closest** to you.

Please, use an



●○○○
Proper Mark

START HERE

Please read each sentence below carefully and write your answer on the line and then fill in the corresponding circle.

The first letter of your middle name (if you have more than one middle name use your first middle name. If you don't have a middle name use "Z");	The first letter of the month in which you were born;	The last letter of your full first name;
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	1 2 3 4 5 6 7 8 9 10 11 12	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

7. How tall are you without your shoes on? (Please write your height in feet and inches OR in centimetres, and then fill in the appropriate numbers for your height.)

☐ I do not know how tall I am

"My height is _____ feet _____ inches"

OR

"My height is _____ centimetres"

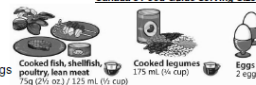
Height	Feet	Inches
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

Height	Centimetres
1	100
2	110
3	120
4	130
5	140
6	150
7	160
8	170
9	180

Example:
My height is 5 ft 7 in

26. YESTERDAY, from the time you woke up until the time you went to bed, how many servings of meats and alternatives did you have? One 'Food Guide' serving of meat and alternatives includes cooked fish, chicken, beef, pork, or game meat, eggs, nuts or seeds, peanut butter or nut butters, legumes (beans), and tofu.

- ☐ None
☐ 1 serving
☐ 2 servings
☐ 3 servings
☐ 4 servings
☐ 5 or more servings



27. YESTERDAY, from the time you woke up until the time you went to bed, how many servings of vegetables and fruits did you have? One 'Food Guide' serving includes pieces of fresh vegetable or fruit, salad or raw leafy greens, vegetables, dried or canned or frozen fruit, and 100% fruit or vegetable juice.

- ☐ None
☐ 1 serving
☐ 2 servings
☐ 3 servings
☐ 4 servings
☐ 5 servings
☐ 6 servings
☐ 7 servings
☐ 8 servings
☐ 9 or more servings



8. How much do you weigh without your shoes on? (Please write your weight in pounds OR in kilograms, and then fill in the appropriate numbers for your weight.)

☐ I do not know how much I weigh

"My weight is _____ pounds"

OR

"My weight is _____ kilograms"

Weight	Pounds
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90

Weight	Kilograms
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90

9. How much time per day do you usually spend doing the following activities? (For example: If you spend about 3 hours watching TV each day, you would circle the 3 in the minutes column as shown below.)

a) Watching/streaming TV shows or movies

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

a) Watching/streaming TV shows or movies

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

b) Playing video/computer games

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

c) Doing homework

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

d) Talking on the phone

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

e) Surfing the internet

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

f) Texting, messaging, emailing (note: 50 texts = 30 minutes)

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

g) Sleeping

Hours	Minutes
1	10
2	20
3	30
4	40
5	50

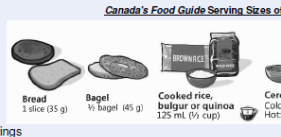
28. YESTERDAY, from the time you woke up until the time you went to bed, how many servings of milk and alternatives did you have? One 'Food Guide' serving includes milk, fortified soy beverage, reconstituted powdered milk, yogurt or kefir (another type of cultured milk product), and cheese.

- ☐ None
☐ 1 serving
☐ 2 servings
☐ 3 servings
☐ 4 servings
☐ 5 servings
☐ 6 or more servings



29. YESTERDAY, from the time you woke up until the time you went to bed, how many servings of grain products did you have? One 'Food Guide' serving of grain products includes bread, flatbread such as tortilla, pita, cooked rice or pasta, and cereal.

- ☐ None
☐ 1 serving
☐ 2 servings
☐ 3 servings
☐ 4 servings
☐ 5 servings
☐ 6 servings
☐ 7 servings
☐ 8 servings
☐ 9 or more servings



Alcohol and Marijuana Use

Please remember that we will keep your answers **completely confidential**.

A **DRINK** means: 1 regular sized bottle, can, or draft of beer; 1 glass of wine; 1 bottle of cooler; 1 shot of liquor (rum, whiskey, etc); or 1 mixed drink (1 shot of liquor with pop, juice, energy drink).

44. In the last 12 months, how often did you have a drink of alcohol that was more than just a sip?

- ☐ I have never drunk alcohol
☐ I did not drink alcohol in the last 12 months
☐ I have only had a sip of alcohol
☐ Less than once a month
☐ Once a month
☐ 2 or 3 times a month
☐ Once a week
☐ 2 or 3 times a week
☐ 4 to 6 times a week
☐ Every day

45. How old were you when you first had a drink of alcohol that was more than just a sip?

- ☐ I have never drunk alcohol
☐ I have only had a sip of alcohol
☐ I do not know
☐ 8 years or younger
☐ 9 years
☐ 10 years
☐ 11 years
☐ 12 years
☐ 13 years
☐ 14 years
☐ 15 years
☐ 16 years
☐ 17 years
☐ 18 years or older

46. In the last 12 months, how often did you have 5 drinks of alcohol or more on one occasion?

- ☐ I have never done this
☐ I did not have 5 or more drinks on one occasion in the last 12 months
☐ Less than once a month
☐ Once a month
☐ 2 to 3 times a month
☐ Once a week
☐ 2 to 5 times a week
☐ Daily or almost daily

47. In the last 12 months, have you had alcohol mixed or pre-mixed with an energy drink such as Red Bull, Rock Star, Monster, or another brand?

- ☐ I have never done this
☐ I did not do this in the last 12 months
☐ Yes
☐ I do not know

48. In the last 12 months, how often did you use marijuana or cannabis? (a joint, pot, weed, hash)

- ☐ I have never used marijuana
☐ I have used marijuana but not in the last 12 months
☐ Less than once a month
☐ Once a month
☐ 2 or 3 times a month
☐ Once a week
☐ 2 or 3 times a week
☐ 4 to 6 times a week
☐ Every day

49. How old were you when you first used marijuana or cannabis?

- ☐ I have never used marijuana
☐ I do not know
☐ 8 years or younger
☐ 9 years
☐ 10 years
☐ 11 years
☐ 12 years
☐ 13 years
☐ 14 years
☐ 15 years
☐ 16 years
☐ 17 years
☐ 18 years or older

50. Do you think it would be difficult or easy for you to get marijuana if you wanted some?

- ☐ Difficult
☐ Easy
☐ I do not know

Example in Practice:

The COMPASS Study

- The CIHR-funded COMPASS study (MOP-114875) is the world's largest and most comprehensive longitudinal school-based primary prevention project.
- COMPASS is a prospective cohort study collecting hierarchical longitudinal data from a convenience sample of 89 secondary schools in Ontario (n=79) and Alberta (n=10) and the 45,000+ grade 9 to 12 students attending those schools for 4 years.
 - Year 1 (2012-2013) to Year 4 (2015-2016)

Is there anything to evaluate?

- 100's of programs and policies are changing in schools annually
- Some provincial programs and policies have also changed
 - Healthy Kids Community Challenge (Ontario)
 - Alcohol sales in some grocery stores (Ontario)
 - Smoke-free Ontario strategy (Ontario)
 - Ontario's School Food and Beverage Policy (P/PM 150)
- Only longitudinal data available to explore how changes to certain federal policies impact youth behaviour over time
 - the potential legalization of marijuana in Canada
 - changes to e-cigarette product regulations

Opportunities to Collaborate

- COMPASS has already engaged a pan-Canadian team of 25+ researchers (18 new investigators) and 100+ local, provincial and national stakeholders currently using COMPASS data to inform their prevention practices
- We make all of our data available to other researchers and/or stakeholders willing to collaborate
- Student projects are prioritized

Anything that helps advance research and promote youth health.

Motivation: my boys



Thank you

Questions?

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