

NCCEH - HBE Forum - November 22<sup>nd</sup>, 2023

# INTerventions, Equity, Research and Action in Cities Team (INTERACT)

Research and knowledge translation for scaling our  
understanding of health and  
the built environment

Daniel Fuller, PhD University of Saskatchewan



**INTERACT**

**SFU**

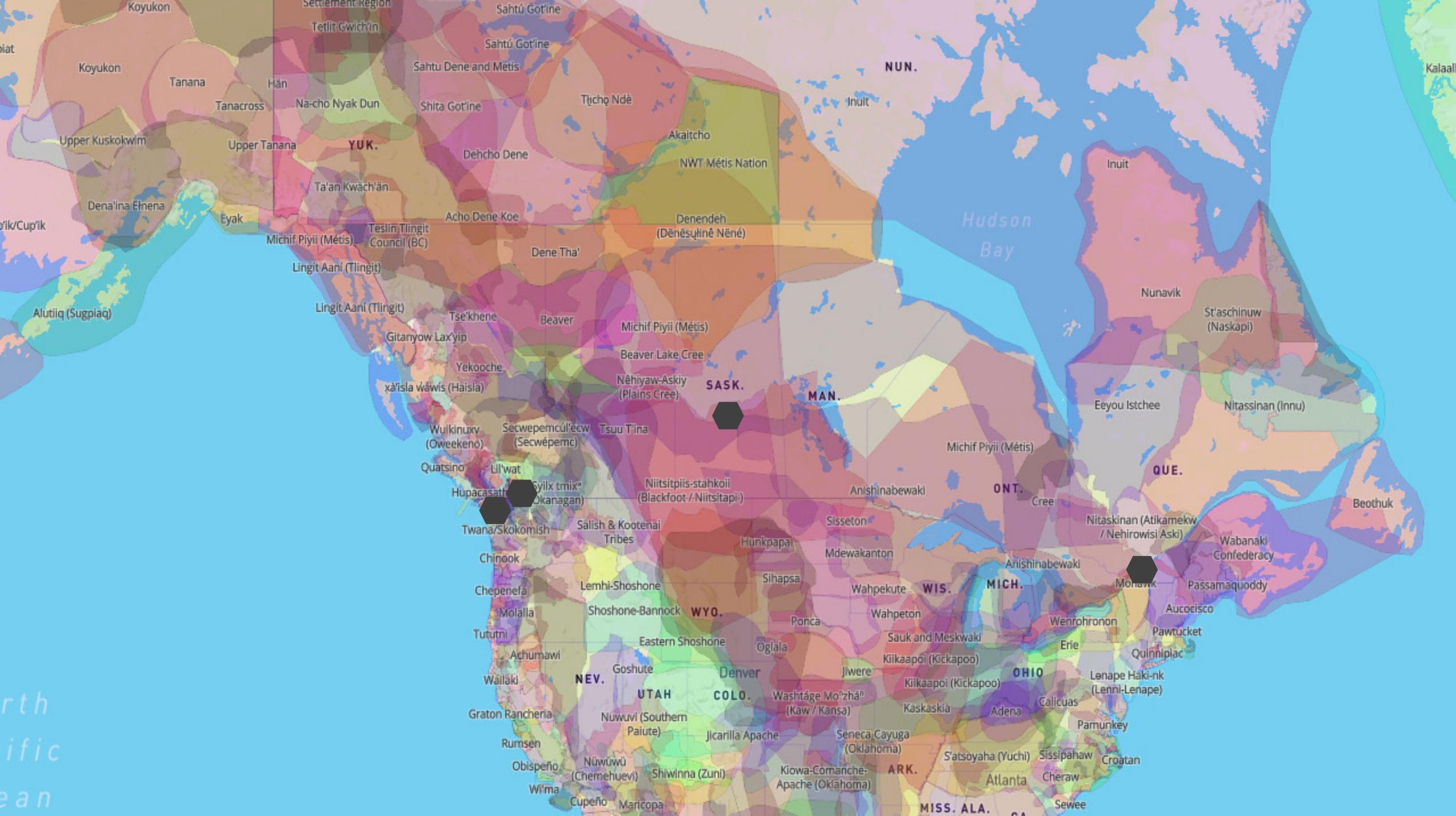
Université   
de Montréal

 UNIVERSITY OF  
SASKATCHEWAN

  
**CIHR IRSC**  
Canadian Institutes of Health Research /  
Instituts de recherche en santé du Canada

I acknowledge our shared connection to the land and recognize that Indigenous and Métis peoples on Treaty 6 Territory and all Indigenous peoples have been and continue to be stewards for social justice, equity, and land-based education. In the spirit of reconciliation may we all strive to learn and support the work of Indigenous communities as allies and return their land.





Join at [menti.com](https://www.menti.com) use code 6615 743

▶ Start Menti

# Why are you interested in healthy built environments?



GO TO  
**menti.com**  
ENTER THE CODE  
**6615 743**





**Investments in sustainable transportation have the potential to boost urban health and equity.**



**The Canadian government is promising \$400 M for active transportation infrastructure and \$14.9 B for public transit. What impact will these investments have on **population health** and **health equity**?**

# INTERACT

**In partnership with cities and communities, we harness big data to deliver timely public health intelligence on the influence of real-world built environment interventions on health, well-being, and equity—generating local evidence and action to advance the design of smart, sustainable, and healthier cities for all.**

# INTERACT is...

**4 CITIES**

**3000+ PEOPLE JOINED COHORT**

**50+ LOCAL PARTNERS**

**34 TRAINEES**

**22 PUBLISHED PAPERS**

**5 OFFSHOOT RESEARCH PROJECTS**

**1 NATIONAL KNOWLEDGE HUB**

# FOUR STUDIES. FOUR CITIES.

1

All ages and abilities (AAA) Cycling Network  
Victoria, BC

2

City Greenways  
Vancouver, BC

3

Bus Rapid Transit  
Saskatoon, SK

4

Réseau Express Vélo  
Montreal, QC

- 1. Understand context of urban interventions.**
- 2. Measure change in urban form and in population health.**
- 3. Analyze impact of interventions on health, well-being, and related inequalities.**
- 4. Mobilize knowledge to guide future decision-making.**



## **1 | POLICY**

How are **health** and **equity** considered in the policy documents guiding the implementation of sustainable transportation interventions?

## **2 | RECRUITMENT**

What are the most effective ways to **recruit** and **retain** large cohorts for population health research?

## **3 | PHYSICAL ACTIVITY**

How are **urban environments** influencing our physical activity?

# 1 | POLICY

How are **health** and **equity** considered in the policy documents guiding the implementation of sustainable transportation interventions?



**The impact of built environment interventions depends on the policy context.**

# INTERACT Interventions

		PRIMARY	KEY INFORMANTS
1	<b>AAA Cycling Network</b> Victoria, BC	Go Victoria (2020)	Planning Delivery Comms & Engagement Advocacy Group
2	<b>City Greenways</b> Vancouver, BC	Greenways Plan (1995)	Planning Delivery
3	<b>Bus Rapid Transit</b> Saskatoon, SK	Corridor Transformation Plan (2020)	Planning Delivery Comms & Engagement Councillor
4	<b>Réseau Express Vélo</b> Montréal, QC	Montréal, ville cyclable (2017)	Planning Delivery Councillor

# How is **health** considered?

**Broadly, as part of the policy's vision and high-level goals**

"People [goal]: We envision healthy citizens in **a safe, accessible, and vibrant city**. Our goals to support this social vision are to:

- Facilitate and encourage **active lifestyles** while improving air quality
- Support vibrant public spaces that encourage **a culture of walking, cycling, and social interaction**

**Vancouver | Transportation 2040 | Section A. Setting the stage, Goals p.8**

"Our job is to make **healthy, sustainable, and accessible transportation choices easy** – through simple, practical, and affordable solutions for Victoria."

**Victoria | Go Victoria | Introduction p. 5**

# How is **health** considered?

Specifically, in terms of safety and personal security

Road safety in particular had specific targets

“Our goal is to **move toward zero traffic-related fatalities.**”

Vancouver | Transportation 2040 | Safety Goal, p.13

“Reach and maintain **zero annual traffic fatalities and injuries.**”

Victoria | Go Victoria | Key Initiatives, p. 51

## TARGET

Reach and maintain zero annual traffic fatalities and injuries

## GOALS

- 1 A culture of safety for all road users is embraced by the City and general public
- 2 The road network design and operations prioritize the protection of human life over all else
- 3 Emergency response planning and operations are prioritized on our road networks



# How did staff consider **health**?

**Planners viewed health through safety and accessibility, interventions impact health** though health is not a mandate

“ [Health is] something that is more tangential to what our express mandate is [...] we all have a kind of a built-in, or learned through our planning education, **purpose to build healthy, vibrant, happy communities.**”

Saskatoon

“if we made it **safe and accessible**, then ... the physical and social benefits, **health benefits would flow** from that. But if we didn't make it accessible, and we didn't make it safe, then we couldn't fulfill those other objectives.”

Vancouver

# How is **equity** considered?

Rarely. Among the 9 policy documents reviewed:

3

defined equity

4

had actions targeting  
specific populations

0

plans referenced equity  
principles in selecting the  
location of interventions

# How is **equity** considered?

## 3

defined equity

**None used terms such as ‘recognitional, procedural, distributional, distributive, etc’ but some had wording that related to this.**

“Equity is treating everyone fairly by acknowledging their unique situation and addressing systemic barriers. **The aim of equity is to ensure that everyone has access to equal benefits and outcomes – whether through participation in project and policy planning initiatives or the use of city investments in infrastructure and services.”**

# How is **equity** considered?

## 4

had actions targeting specific populations

Most plans emphasized universal accessibility and benefits for everyone, rather than specific groups, e.g., “all ages and abilities, all ages and incomes, all ages and mobilities”.

Hard to have indicators when there are no specific groups.

Vancouver used “inclusiveness, encouraging **all those concerned and interested** to participate in the process of detailed route identification” as a guiding principle for the Greenways Plan

Vancouver | Greenways Plan | Building Greenways, p. 27

“Support universal accessibility. Everyone is a pedestrian during part or all of their journey. As such, the design of sidewalks, crossings and connections with private properties can create barriers for people with physical and/or cognitive disabilities. **Universal accessibility is essential to support not only people with mobility challenges, but will make public space comfortable for everyone.**”

Saskatoon | Corridor Transformation Plan | Complete Streets, p. 59

# How is **equity** considered?

**Policies varied in the stated approach to allocate resources.**

“We should address disparities and increase access to opportunity for vulnerable, underserved populations by **focusing improvements in areas with the greatest need** and where people rely on walking, bicycling, and transit the most.”

Victoria | Go Victoria | Our Mobility Values, p. 31

“Providing higher quality service for **larger potential transit markets**, and managing the amount of service in lower demand areas is essential for transit to be successful. (...) This will result in **some areas of the city seeing more attractive service while other areas with limited ridership may see less service.**”

Saskatoon | Plan for Growth | Vision and Possibilities for Transit, p. 78

# How did staff consider **equity**?

**Equity was an area of increasing focus for staff.**

“... I think traditionally, we've been trying to provide facilities to kind of manage growth and development patterns, but I think **increasingly, we're recognizing that more equitable provision elsewhere, is [just] as important.**”

**- Vancouver**

## **Different approaches in cities**

In Victoria, spatial equity was a key consideration, whereas Saskatoon focused on features and did not consider equity in the planning of BRT locations.



**Safety and accessibility are key for achieving health and equity**

**Equity policy is a fast moving area**

**City staff have questions around balancing needs from different groups and operationalizing equity into transportation planning**



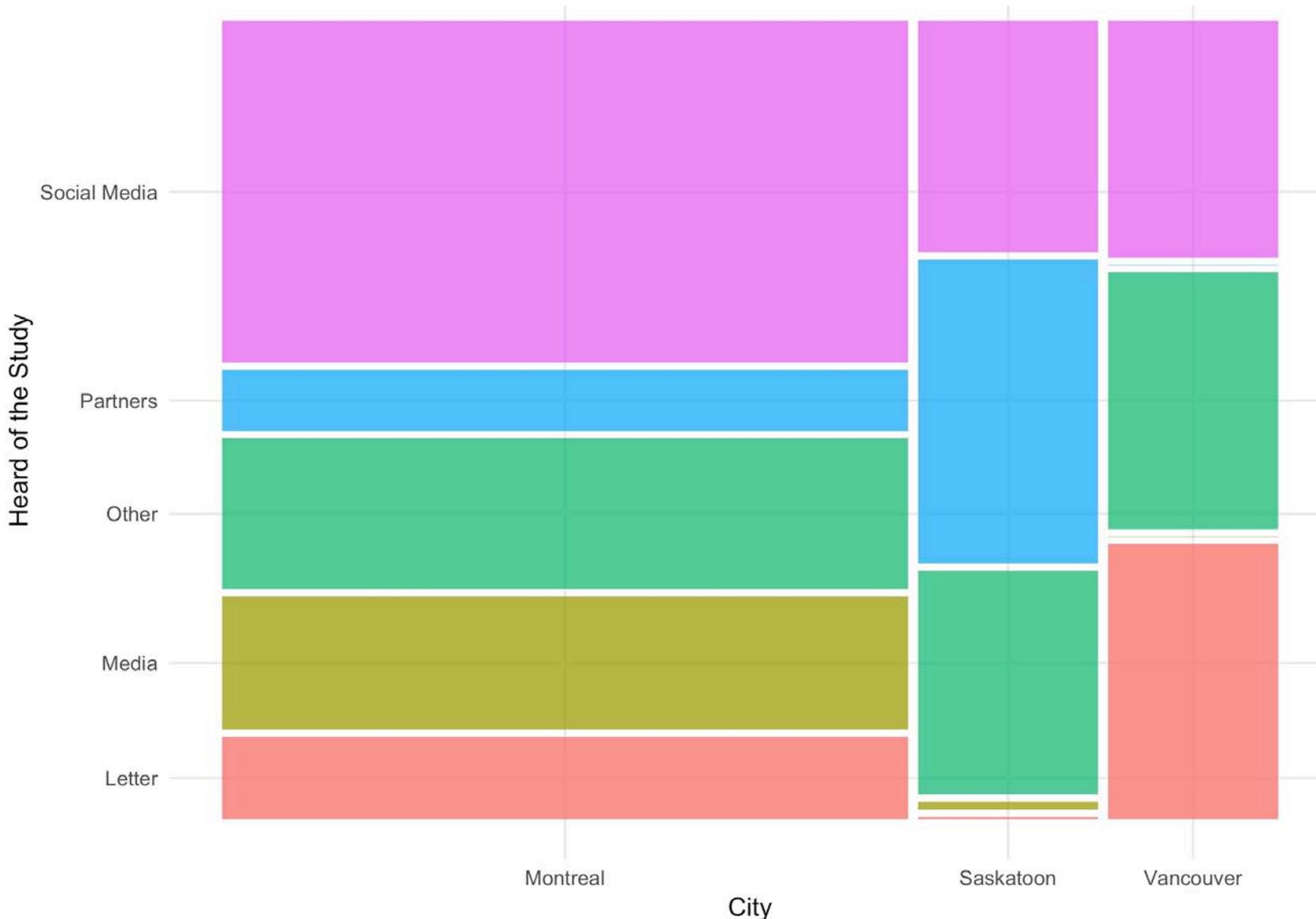
## 2 | RECRUITMENT

How to **recruit** and **retain** large cohorts for population health research?



**Data on recruitment effectiveness, cost, and retention for cohort studies is lacking.**

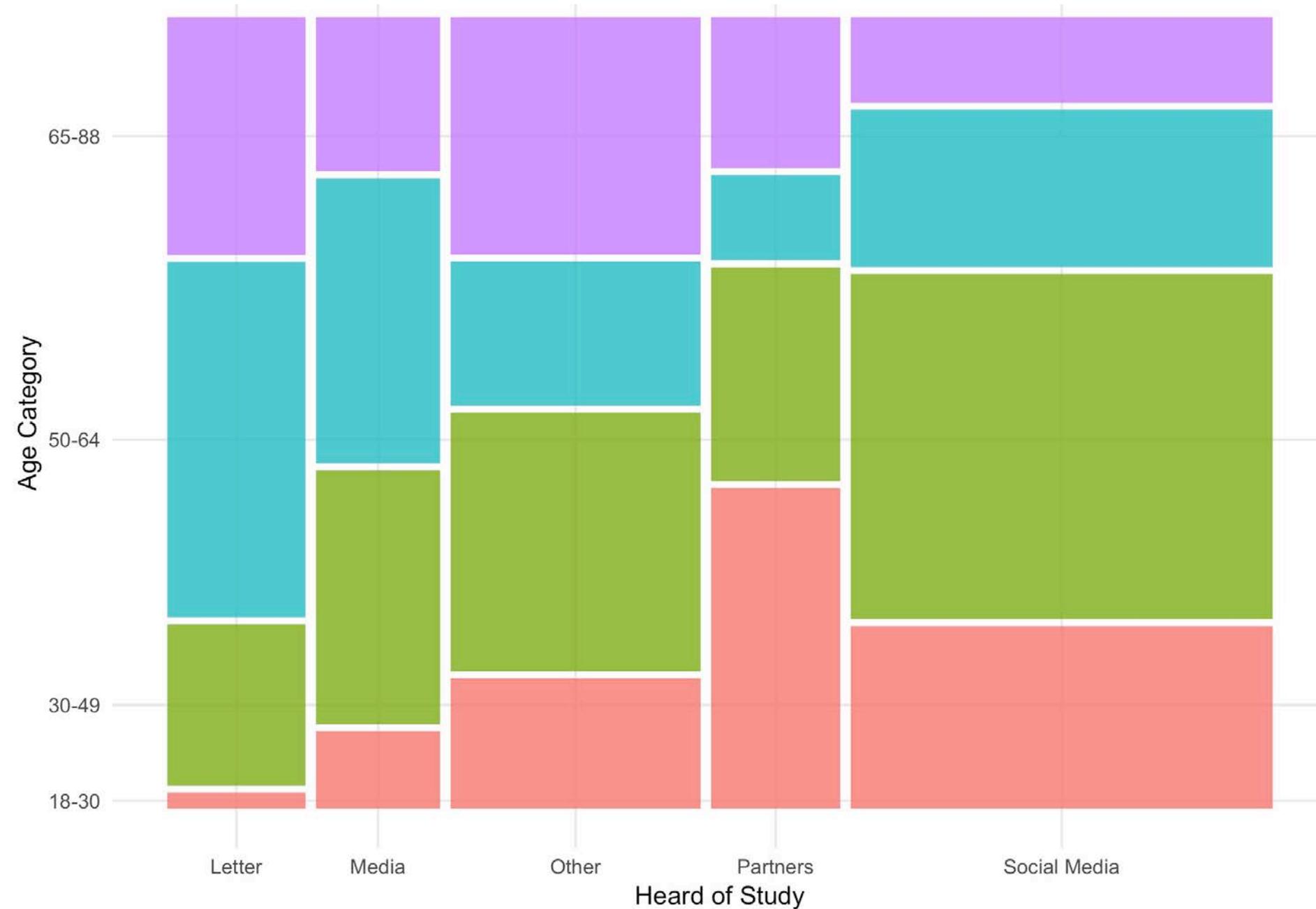
# The most effective approaches?



Majority of participants recruited via social media, partnerships, other methods. Varies by city.

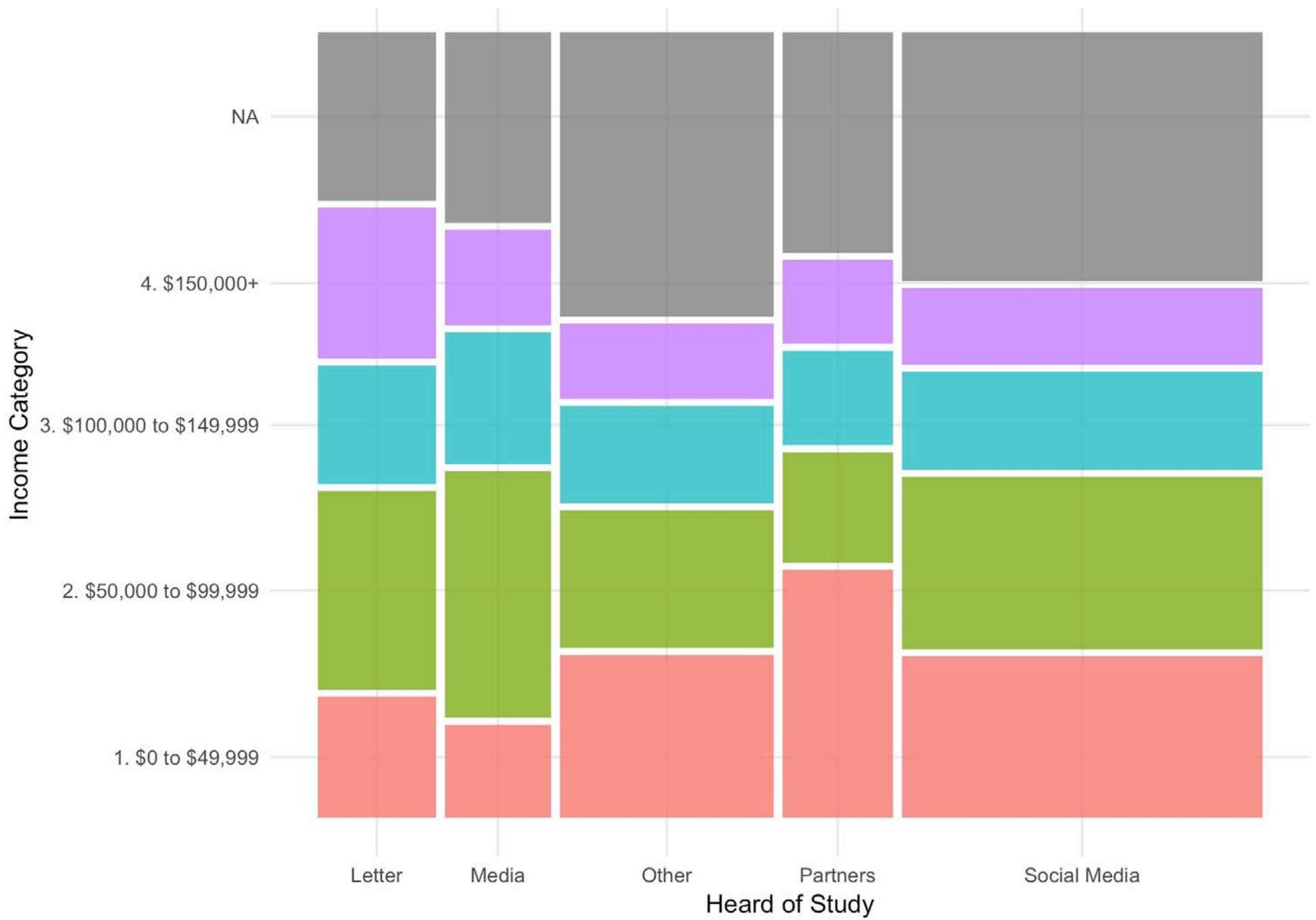
# What does recruitment **cost**?

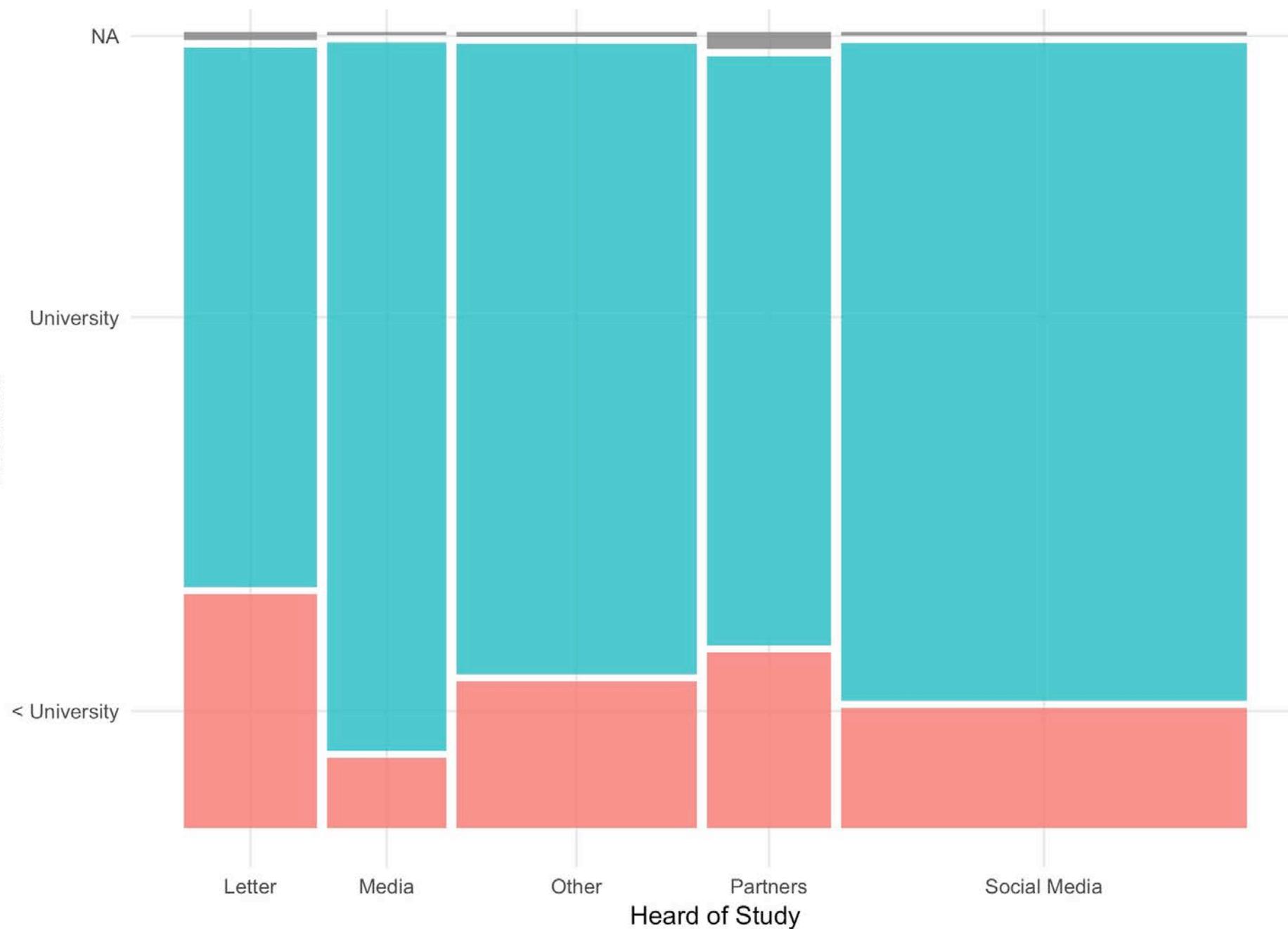
	Social Media	Letter	Partners	Other (In person)
Montréal	<b>\$13.35</b> (503)	<b>\$130.80</b> (148)	<b>\$7.3</b> (91)	<b>\$18.05</b> (109)
Saskatoon	<b>\$16.13</b> (88)	N/A (0)	<b>\$1</b> (126)	<b>\$21.60</b> (79)
Vancouver	<b>\$22.91</b> (96)	<b>\$83.56</b> (134)	<b>\$347</b> (1)	<b>\$72.70</b> (65)



Partners and social media matter for recruiting younger ages. Letters and other methods work for older adults.

Partners matter  
for recruiting  
low income  
individuals.





There was a higher proportion of people without a university degree that were recruited by letter than other means.



**Social media is cost-effective.** Use it and spend money.

**Recruitment context matters.** Strive to balance many recruitment strategies.

**Partnerships matter** for recruiting specific population groups.

Cities need evidence to better plan and implement interventions that will effectively enhance population health and reduce inequities.



## 3 | PHYSICAL ACTIVITY

How are **urban environments** influencing our physical activity?

A paved road with white dashed lines and circular markings, bordered by green foliage and purple flowers.

**Cities are looking for evidence  
to inform decisions that will  
have the greatest impact on  
physical activity**

# Built Environment and PA

## Preaching to the choir **but...**

- Need to understand **correlated** environment data
- High frequency **location data** : Few studies combine GPS and accelerometry
- **Multiple cities...** generalizability



# Our questions

- 1) Where are people spending time being active?
- 2) What are these environments like?
- 3) Are these different environments correlated?

# Measures

## Outcome measures

For each participant:

### **Daily sum of minutes**

spent in either, sedentary, light, moderate, or vigorous physical activity in each dissemination area (DA)

Calculated based on data from INTERACT participants who wore the SenseDoc for 10 days

## Neighborhood built environment and gentrification exposures

- Active living space exposure – Can-ALE
- Proximity to amenities measures – Statistics Canada
- Urban Sprawl
- Gentrification

## Covariates

- Participant demographics (age, gender, race)
- Weather

# Data

- **Participants**

- Montreal 157, Saskatoon 78, Vancouver 150, Victoria 152

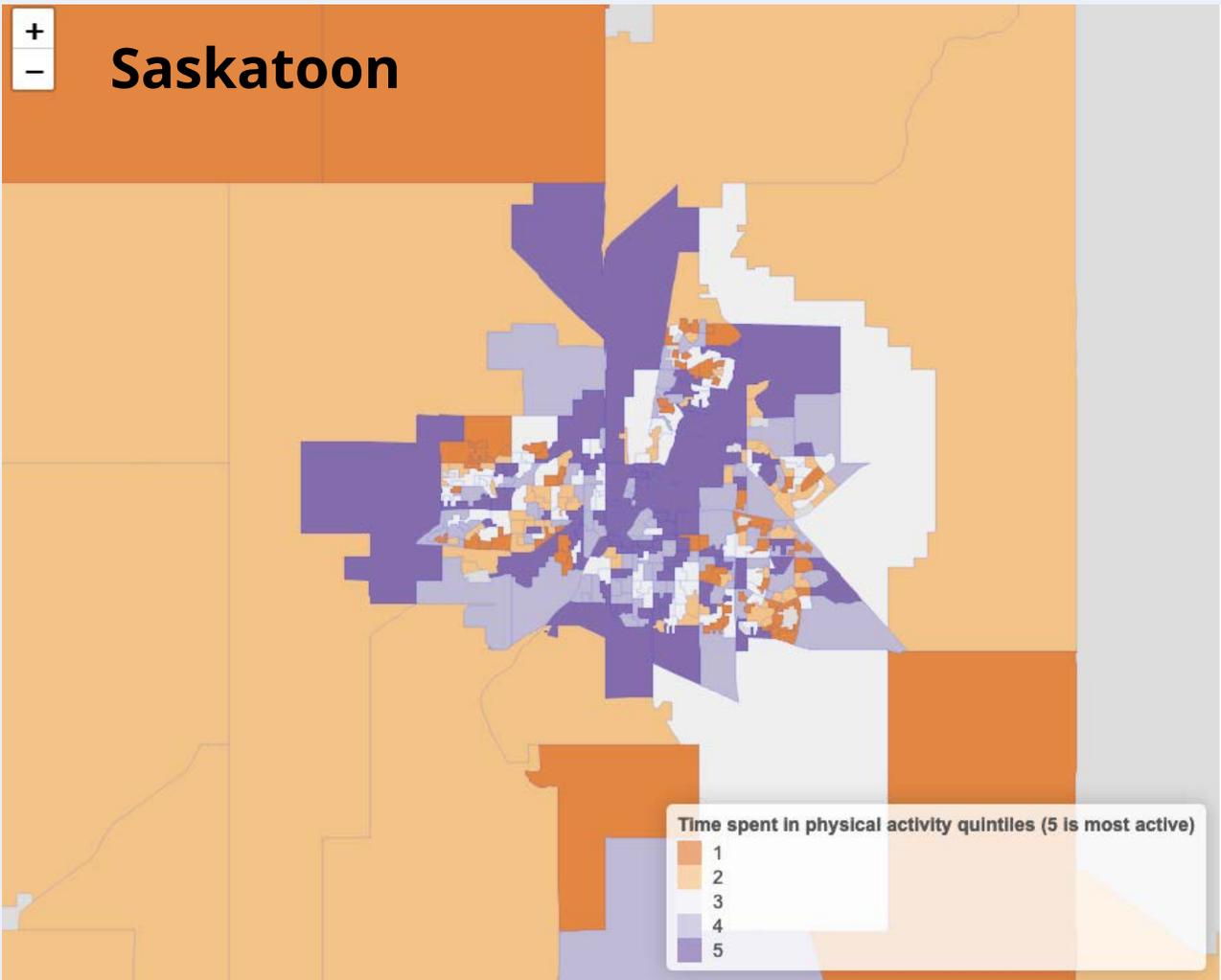
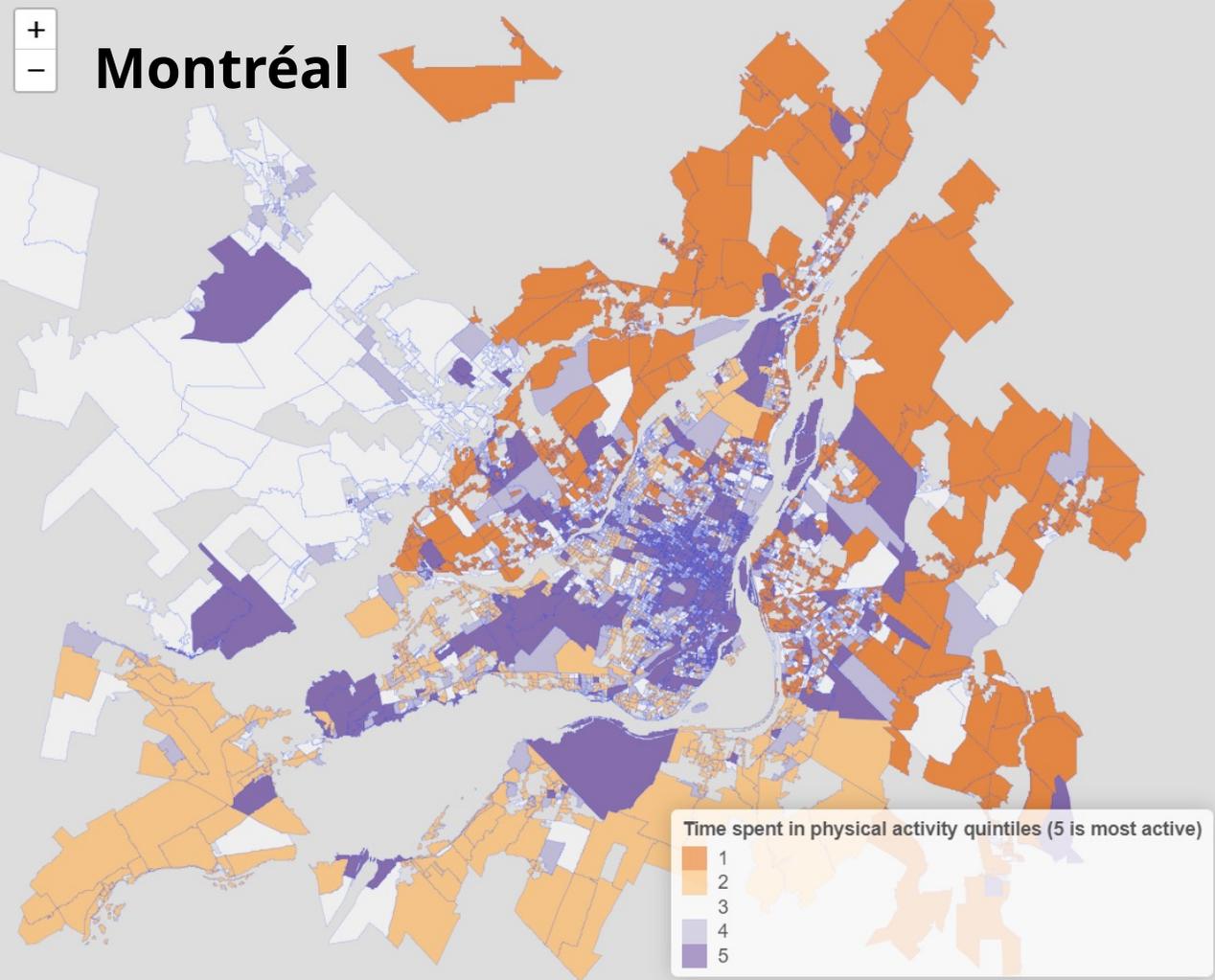
- **The initial dataset**

- 2,493,887 min of matched accelerometer and GPS data
- 177,104 observations aggregated at the person, day, and DA level

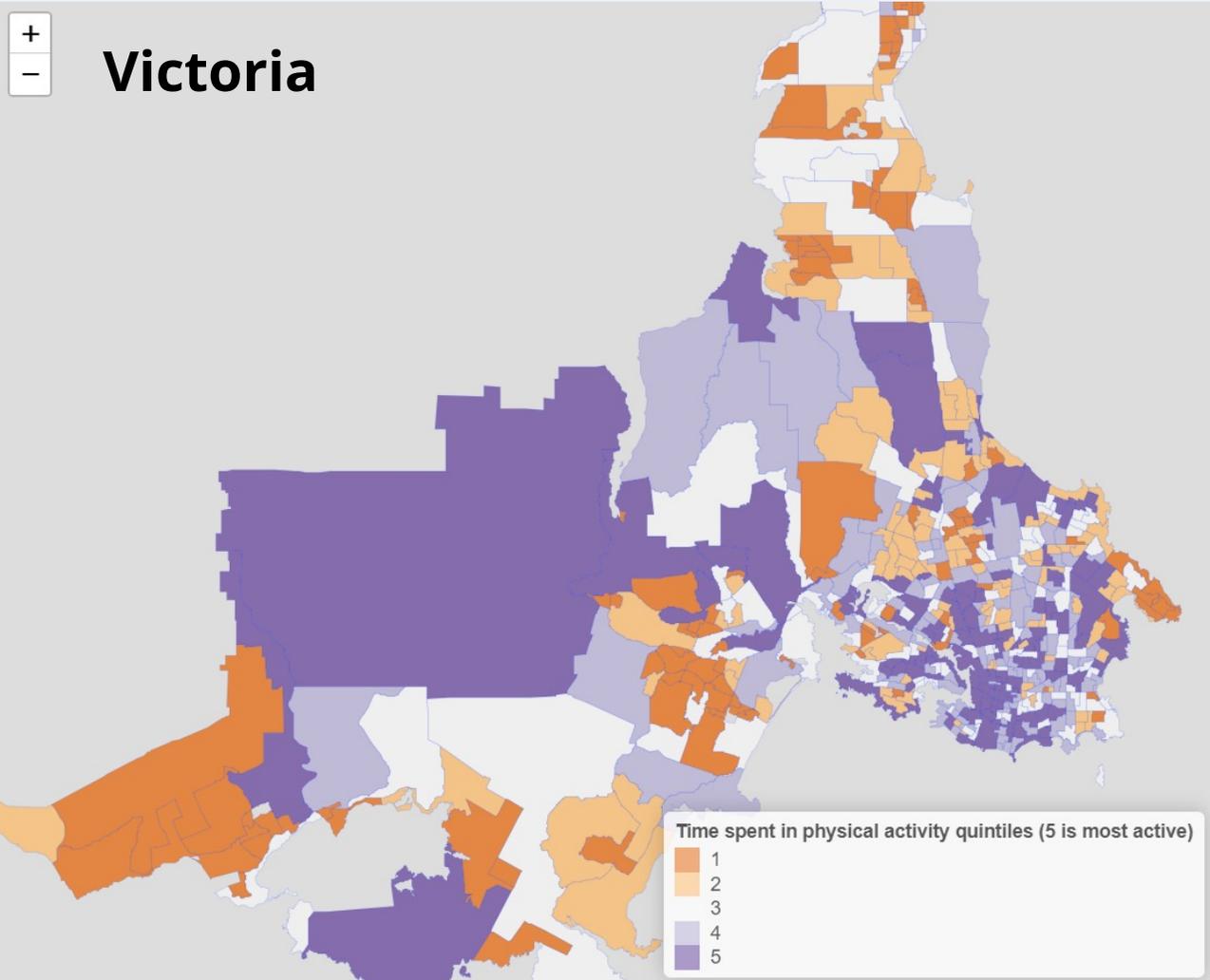
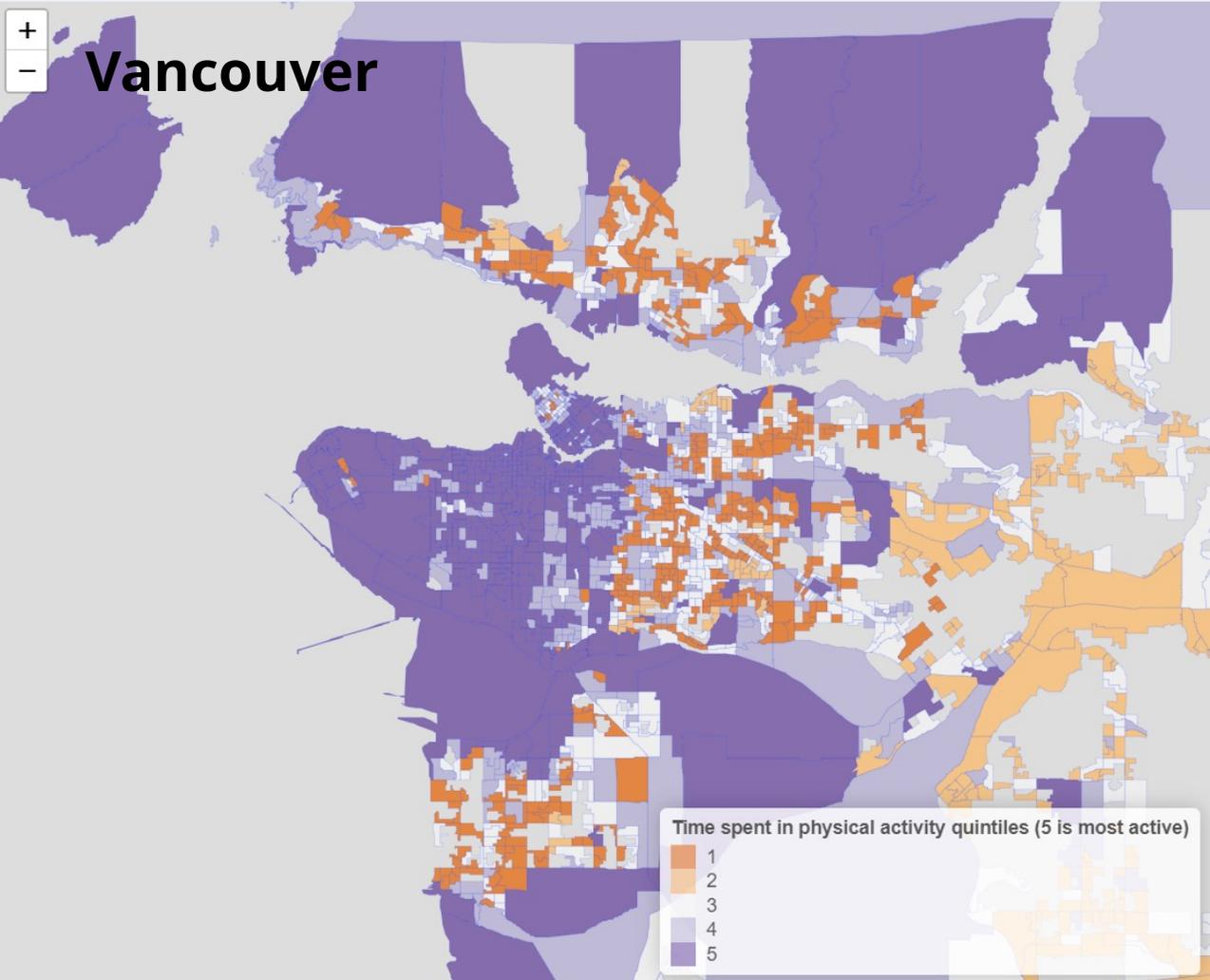
- The average minutes in a DA in each city was

- Victoria (19 min, range = 1min to 3h46min)
- Vancouver (8 min, range = 1min to 4h28min)
- Saskatoon (27 min, range = 1min to 5h23min)
- Montreal (10 min, range = 1min to 8h2min)

# Where are people spending time being active?



# Where are people spending time being active?



# What are those environments like?

## They are **close to home**

- Home DA had by far the strongest association with physical activity
- 45% of time spent being physically active happened in home DA

## They are **walkable**

- High walkability associated with more physical activity
- Each quintile increase in the Can-ALE score, active minutes per DA per day increased by 15-35%

# What are those environments like?

Less physical activity happened in areas that were **highly compact and close to transit**

Urban compactness was associated with less physical activity across all four cities

In Montreal, Vancouver, Victoria, proximity to public transit was negatively associated with time spent being physically active

# What are those environments like?

Participants spent less time being physically active in **low socio-economic neighbourhoods** that had not gentrified

**Patterns within gentrified neighbourhoods were mixed:**

- In Montreal, adults spent less time being physically active in gentrified neighbourhoods
- In Vancouver, adults spent more time being physically active in gentrified neighbourhoods





**Home location matters – a lot**

**Multi-city comparative studies are crucial**

**Local context is central**

**Large population cohorts are opportunities to test impacts of built environment**

**INTERACT has the largest cohort of GPS and Accelerometer in the world**

**Answering city needs, but opportunities for more multi-city studies**

Join at [menti.com](https://menti.com) use code 6615 743

# What did you learn today?

Waiting for responses ...



GO TO  
**menti.com**

ENTER THE CODE  
**6615 743**



LET'S REIMAGINE OUR CITIES TO BE  
HEALTHIER PLACES FOR EVERYONE.

#LETSINTERACT



[WWW.TEAMINTERACT.CA](http://WWW.TEAMINTERACT.CA)



[@INTERACT.CA](https://www.facebook.com/INTERACT.CA)



[@TEAMINTERACTCA](https://twitter.com/TEAMINTERACTCA)