

# How much do homeless mentally ill people cost in Canada?



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# At Home / Chez Soi project team & funding

- Funding from Health Canada via Mental Health Commission of Canada
- Cameron Keller, M.C., Vice-President, Programs and Priorities, Mental Health Commission of Canada (formerly Jayne Barker)
- Paula Goering, Ph.D., Center for Addictions and Mental Health and University of Toronto, National Research Lead
- Approximately 40 investigators from across Canada
- 5 site coordinators (Sonia Côté in Montreal), research coordinators
- (Cécile Leclercq & Véronique Denis in Montreal)
- and numerous research staff, persons with lived experience, service and housing providers.
  
- Eric Latimer is lead investigator for the Montreal site.
- Angela Ly is a M.Sc. Health administration student.
- Daniel Rabouin is a senior research associate & Zhirong Cao is a statistical analyst

# CANADA



# Objectives

Using the At Home/ Chez Soi control group sample:

- 1) To estimate the costs that homeless people with mental illness incur in 5 Canadian cities (Vancouver, Winnipeg, Toronto, Montreal and Moncton).
- 2) Identify factors associated with higher costs.

# Background

- “Million Dollar Murray” the New Yorker, 2006.
- In the U.S. , more than 40 (almost all unpublished) studies undertaken by local communities as part of their “Ten Year Plans to End Chronic Homelessness”. (Culhane, 2008).
- Mental health, shelter and jail service use and costs for chronic homeless people in Philadelphia (Poulin et al. 2010): 7 455\$.

# Background: Canadian studies part 1

Study	Results	Method
<b>Eberle et al. 2001</b> British Columbia	30 000\$ - 40 000\$	Case histories and service. n = 15 Service use over the past year
<b>Patterson et al. 2008.</b> British Columbia.	55 000\$	Modeling based on past research (Culhane, 2002)

# Background: Canadian studies part 2

Study	Results	Method
<b>Pomeroy, 2005</b> Vancouver, Toronto, Montreal, Halifax	Institutional: 66 000\$ to 120 000\$ Supportive and Transitional housing: 13 000\$ to 18 000\$. Emergency shelter: 13 000\$ to 42 000\$.	Cost of specific housing settings ≠ cost of service use by homeless.
<b>RSM Richter, 2007</b> for Calgary Homeless Foundation	94 202\$	Based on more than 74 organizations' records, many of which could not identify homeless clients.

# Background

- In sum: Great variety of research methods and results.

*All research agrees that there is a high cost associated with homelessness and that current services provided to homeless people are inadequate (Culhane, 2008).*



# Objectives

- 1) To estimate the costs that homeless people with mental illness incur in 5 Canadian cities (Vancouver, Winnipeg, Toronto, Montreal and Moncton).
- 2) Identify factors associated with higher costs.

# Methods

- Use of At Home / Chez Soi participant data (n=865):
  - Study entry
  - Control group (treatment as usual) from 0 to 12 months
- General linear regression model data to identify factors associated with high costs.

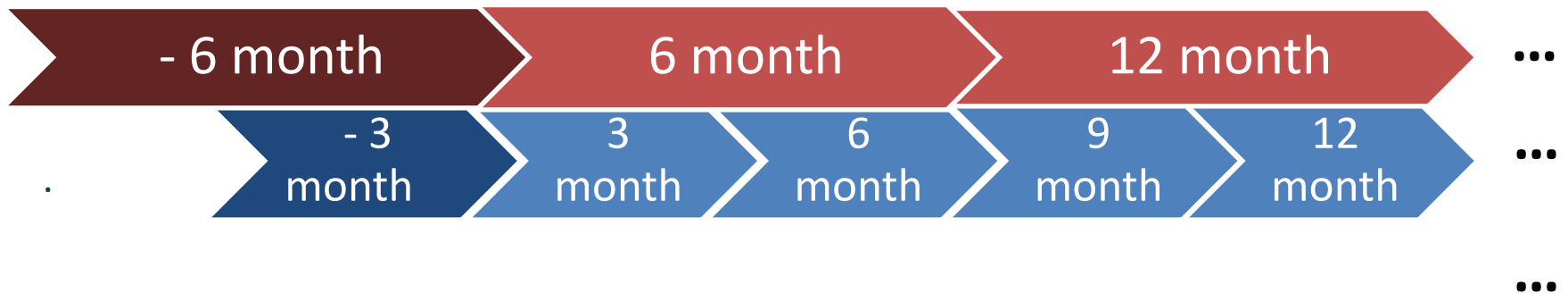
# At Home / Chez Soi participants

- **Inclusion criteria:** Homeless people with at least one of the main psychiatric diagnoses (psychotic disorder, mania/hypomania, mood disorder, major depression, post-traumatic stress disorder or panic disorder).
- **Exclusion:** People already housed and/or receiving intensive community treatment.

# RESULTS BASED ON 2 QUESTIONNAIRES

**Health Social and Justice Service Use:** visits to health & social service provider, crisis center, police contacts, court appearance, etc.

**Residential Timeline Follow-Back:** Overnight stays in street, shelter, apartment, hospital, prison, etc.



# ECONOMIC ANALYSIS

- (Partial) societal perspective.
- Cost data presented on annualized basis.
- Unit costs estimated using a *top-down* approach with annual reports and/or a *bottom-up* approach using interviews.
- 2010-2011 data.
- Overhead, indirect costs and capital cost included.
- Hospitalization costs adjusted for homelessness (Hwang et al. 2011).

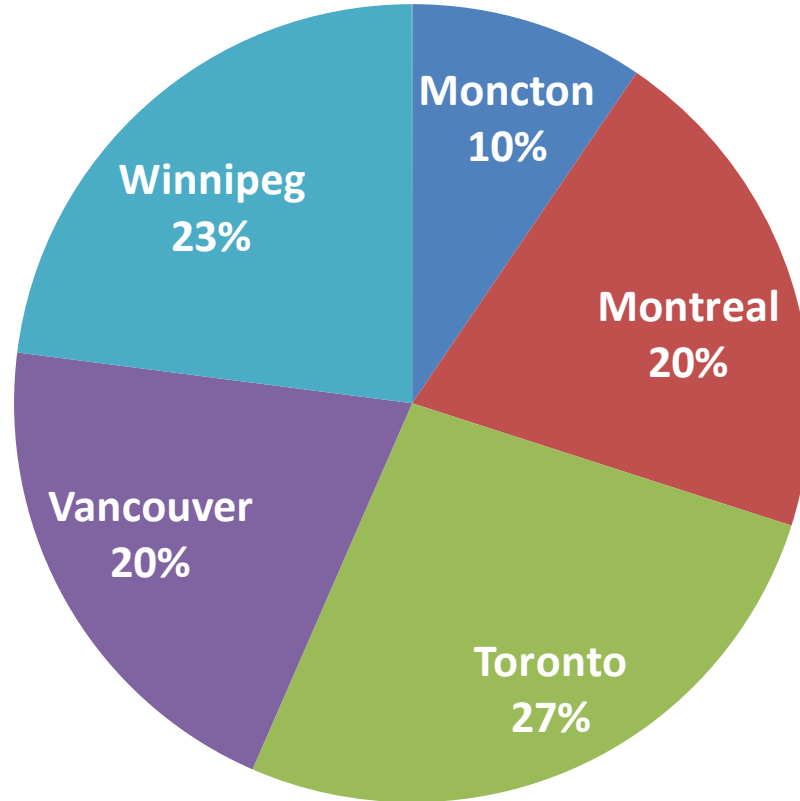
# Analysis of cost data

- Very skewed data with long tail – not normal
- Use GLM (*Generalized Linear Models*) with gamma distribution function
- Model includes city, sex, diagnosis, current alcohol dependence or abuse, current other substance dependence or abuse, age, MCAS (functioning) score, and lifetime duration homeless (in months).

# RESULTS

# Proportion of respondents from each city (n=865)

Proportion of sample by city (n=865)

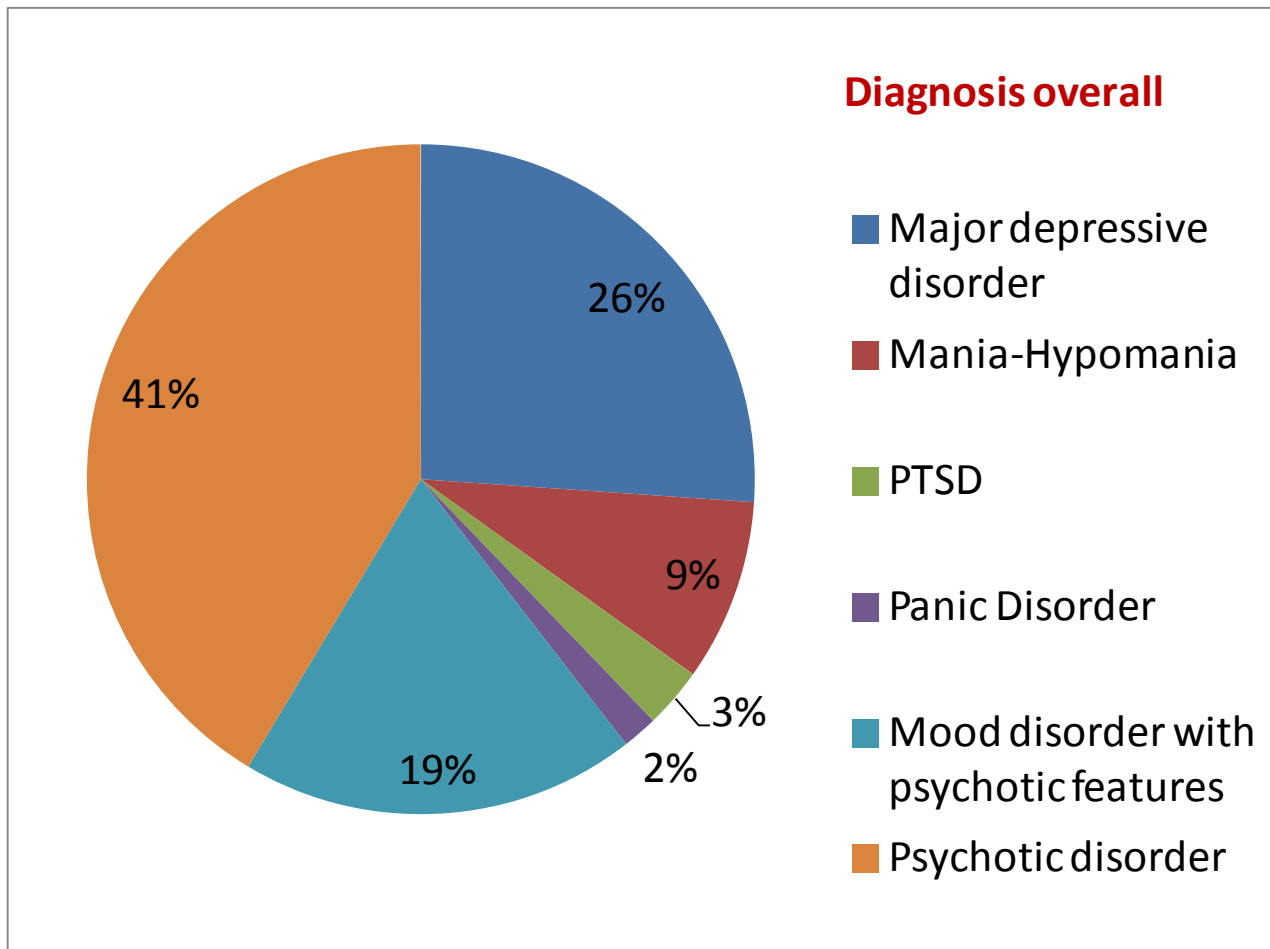




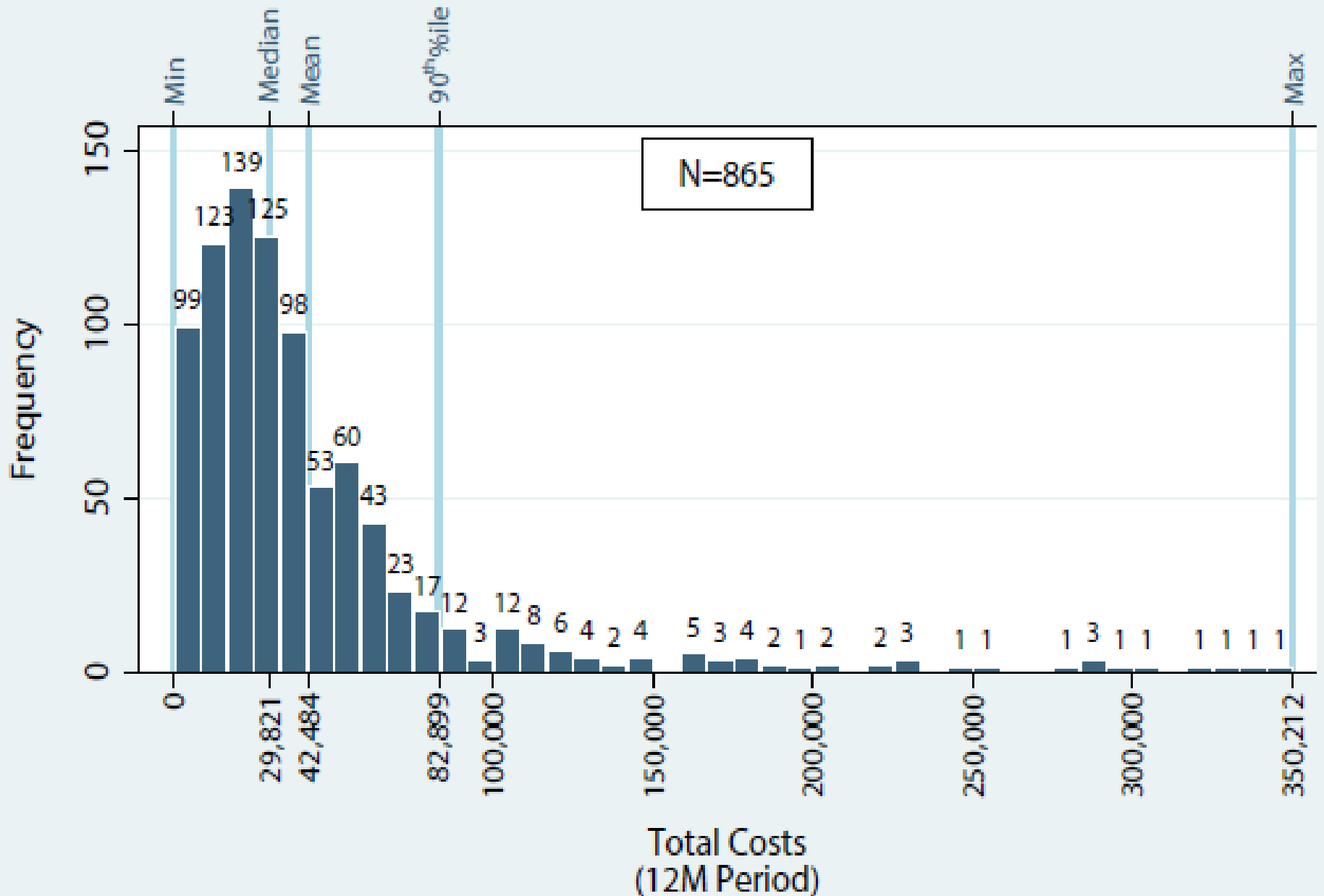
# Demographics

<b>Characteristics</b>	<b>Mean or %</b>	<b>SD</b>
<b>Age</b>	<b>41.1</b>	<b>11.3</b>
<b>Male</b>	<b>68.7%</b>	
<b>Current substance dependence</b>	<b>53.6%</b>	
<b>Current alcohol dependence</b>	<b>45.1%</b>	
<b>MCAS score</b>	<b>59.8</b>	<b>8.4</b>
<b>Lifetime duration homeless (months)</b>	<b>56.9</b>	<b>65.1</b>

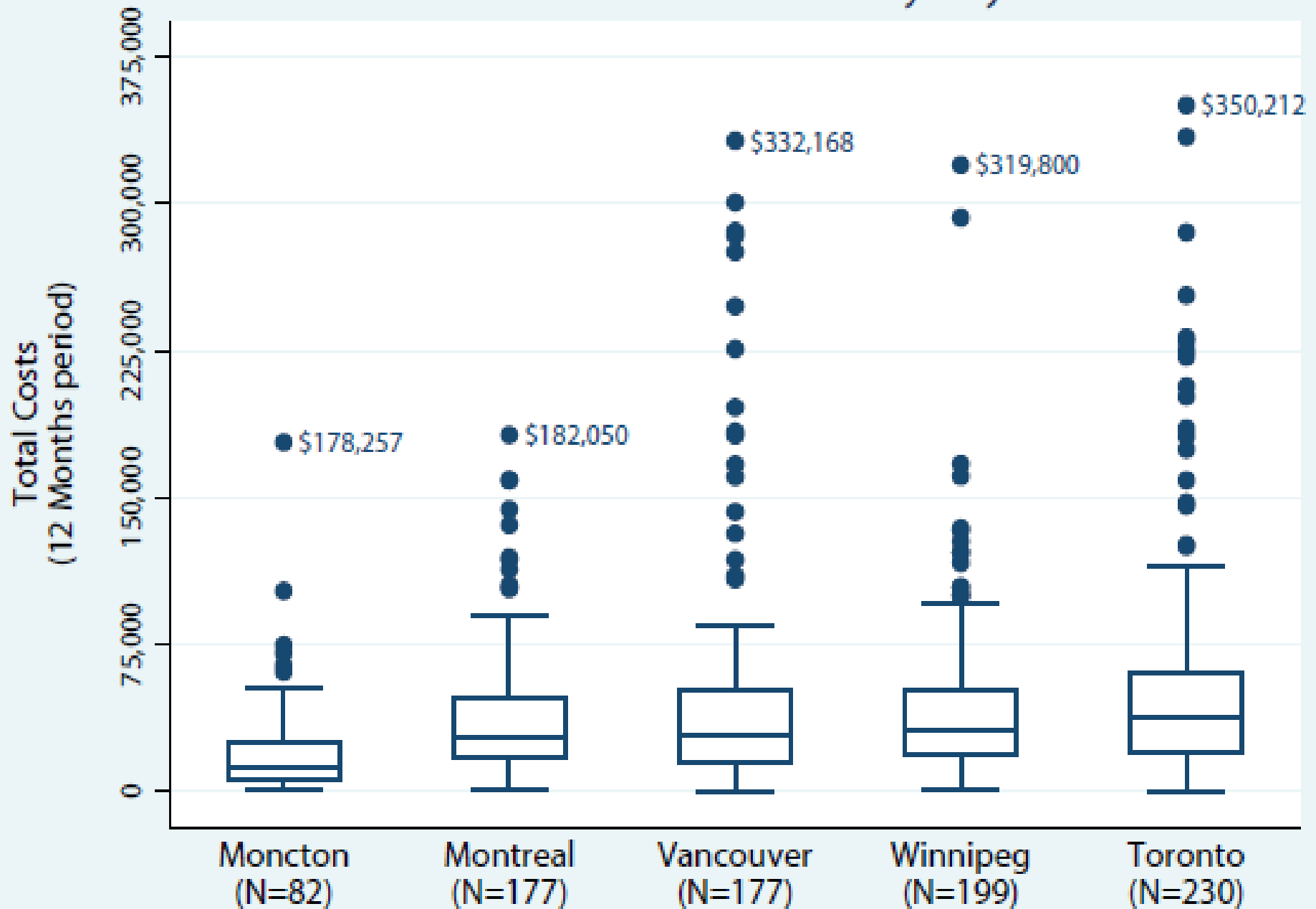
# Distribution of diagnoses



# Skewed cost distribution with long tail



# Distribution of costs by city

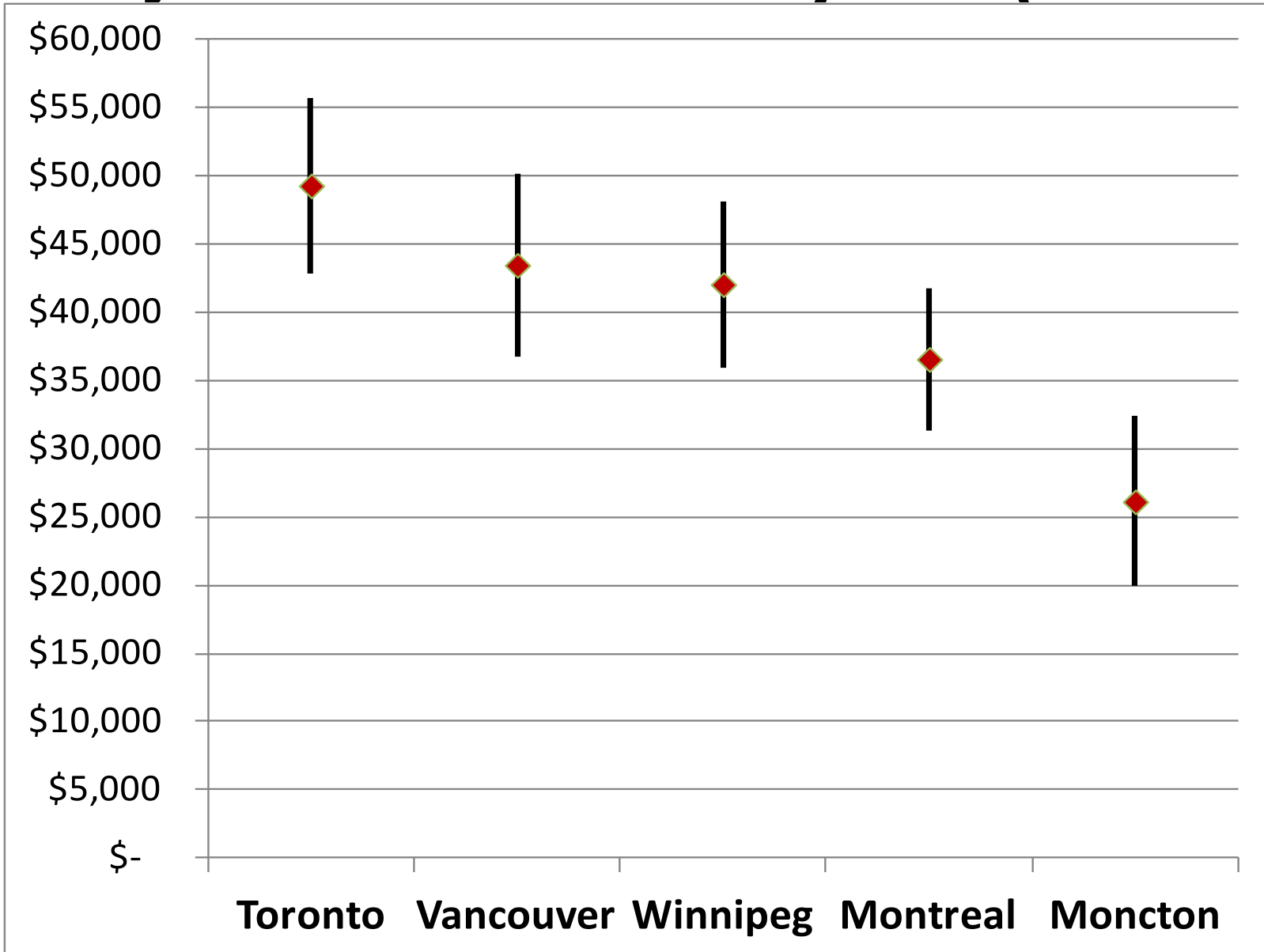


# Adjusted associations of Dx with costs

(Major depressive disorder is reference)

	Coef.	Std. Err.	P>z	95% CI low	95% CI high
<b>Panic Disorder</b>	-7,102	4,761	0.136	-16,433	2,230
<b>PTSD</b>	5,456	6,965	0.433	-8,195	19,107
<b>Mania-Hypomania</b>	5,989	4,367	0.170	-2,571	14,549
<b>Psychotic disorder</b>	7,163	3,630	0.048	49	14,278
<b>Mood disorder with psychotic features</b>	7,808	3,993	0.051	-18	15,634

# Adjusted mean cost by site (95% CI)



# MCAS score and time spent homeless

	Coef.	Std. Err.	P>z	95% CI low	95% CI high
<b>MCAS score</b>	-569.8	182.8	0.002	-928.1	-211.6
<b>Total amount of homeless time (month)</b>	58.5	29.5	0.048	0.6	116.4

# Characteristics not associated with higher costs

	Coef.	Std. Err.	P>z	95% CI low	95% CI high
<b>Male</b>	-440.4	2,824.7	0.876	-5,976.6	5,095.8
<b>Age</b>	-73.6	126.8	0.562	-322.2	174.9
<b>Current substance dependence or abuse</b>	393.1	3,191.1	0.902	-5,861.4	6,647.6
<b>Current alcohol dependence or abuse</b>	1,881.3	2,822.6	0.505	-3,650.8	7,413.4



# Discussion

## **Strengths:**

- Much larger sample than previous homeless cost studies
- Data based on detailed description of service use
- Unit costs estimated using consistent methods across sites
- One-year window of observation

## **Limitations:**

- Not random sample of homeless population
- Medication and welfare costs, income not included
- Based on self-reported data

# Conclusions

1. Our estimated average annual cost is **42 484\$**, but this varies considerably by city.
2. Factors associated with higher costs include :  
psychotic disorders, lower MCAS scores and having spent more time homeless.
3. Costs vary a lot from individual to individual (0\$ to 350 212\$)

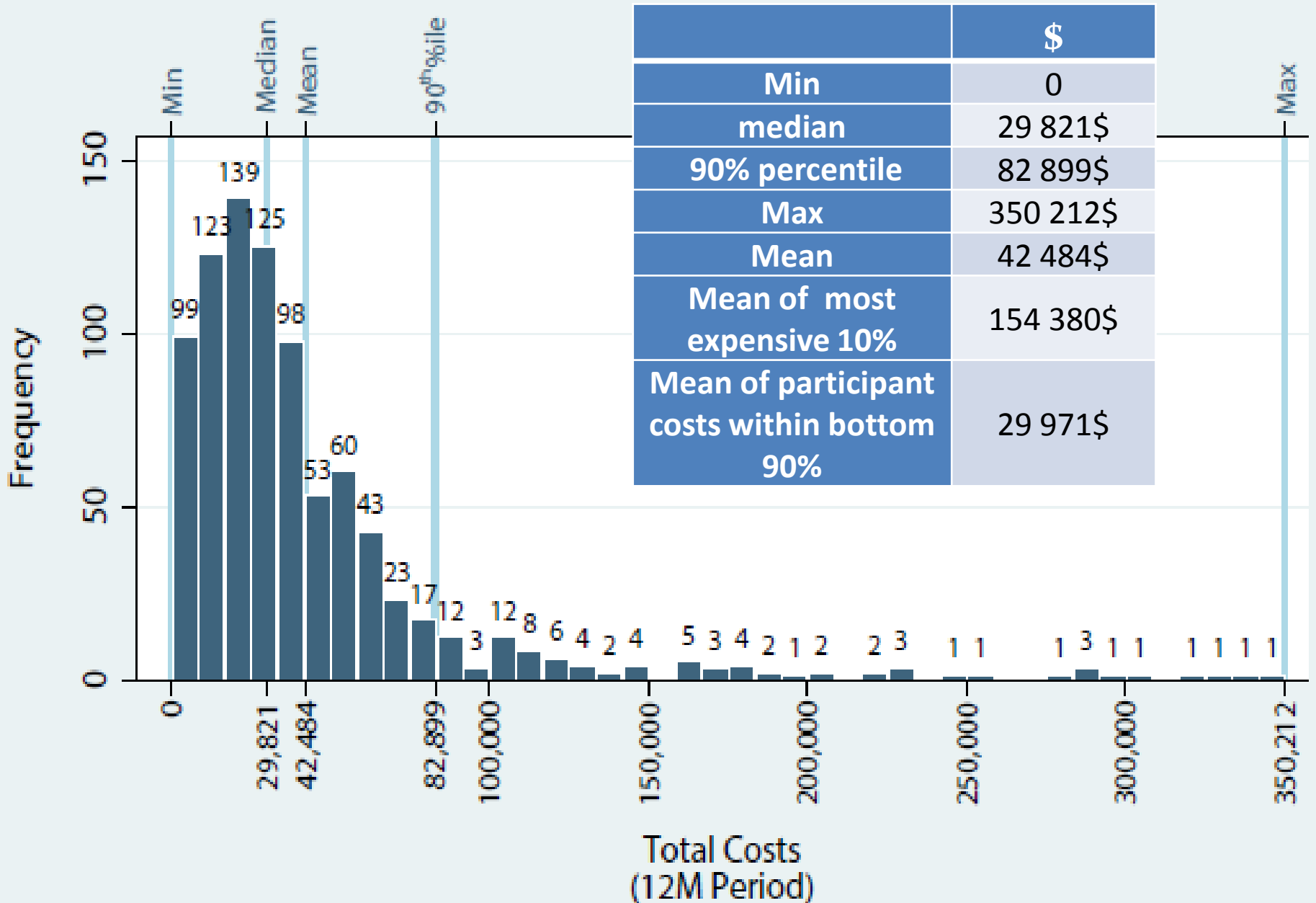
# Policy implications

- Current service expenditure to the homeless is expensive for what we get: people living in our streets.
- With interventions targeting homelessness, we may better achieve our triple aim. For example, with Housing First type of interventions, we may decrease time spent in hospital and prisons and house people.

Thank you !

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# Skewed cost distribution with long tail



Contrasts of Predictive Margins of studycentre with 95% CIs

