

The associations of prescription drug insurance and cost-sharing with drug use, health services use, and health – a systematic review of Canadian studies

GE. Guindon^{1,2,3}, E. Stone¹, R. Trivedi¹, S. Garasia^{1,2}, K. Khoe¹, A. Olaizoa⁴

1. Centre for Health Economics and Policy Analysis, McMaster University
2. Department of Health Research, Evidence, and Impact, McMaster University

3. Department of Economics, McMaster University
4. Department of Economics, Stanford University

Introduction

- Canada is the only high-income country with universal healthcare who also lacks universal drug insurance.
- Drug insurance programs across Canada have varying eligibility requirements and payment arrangements leading to important inequities in drug coverage.
- COVID-19 pandemic has exacerbated existing inequities.
- Many scholars, clinicians and advocacy groups have made the case for universal pharmacare in Canada.
- A prior umbrella review found that the provision of drug insurance and lower cost-sharing were associated with increased drug use and lower healthcare service utilization; however, the relationship between drug insurance and cost-sharing with health was unclear and there was little evidence that associations differed by age, sex, socioeconomic status (SES), or health status.

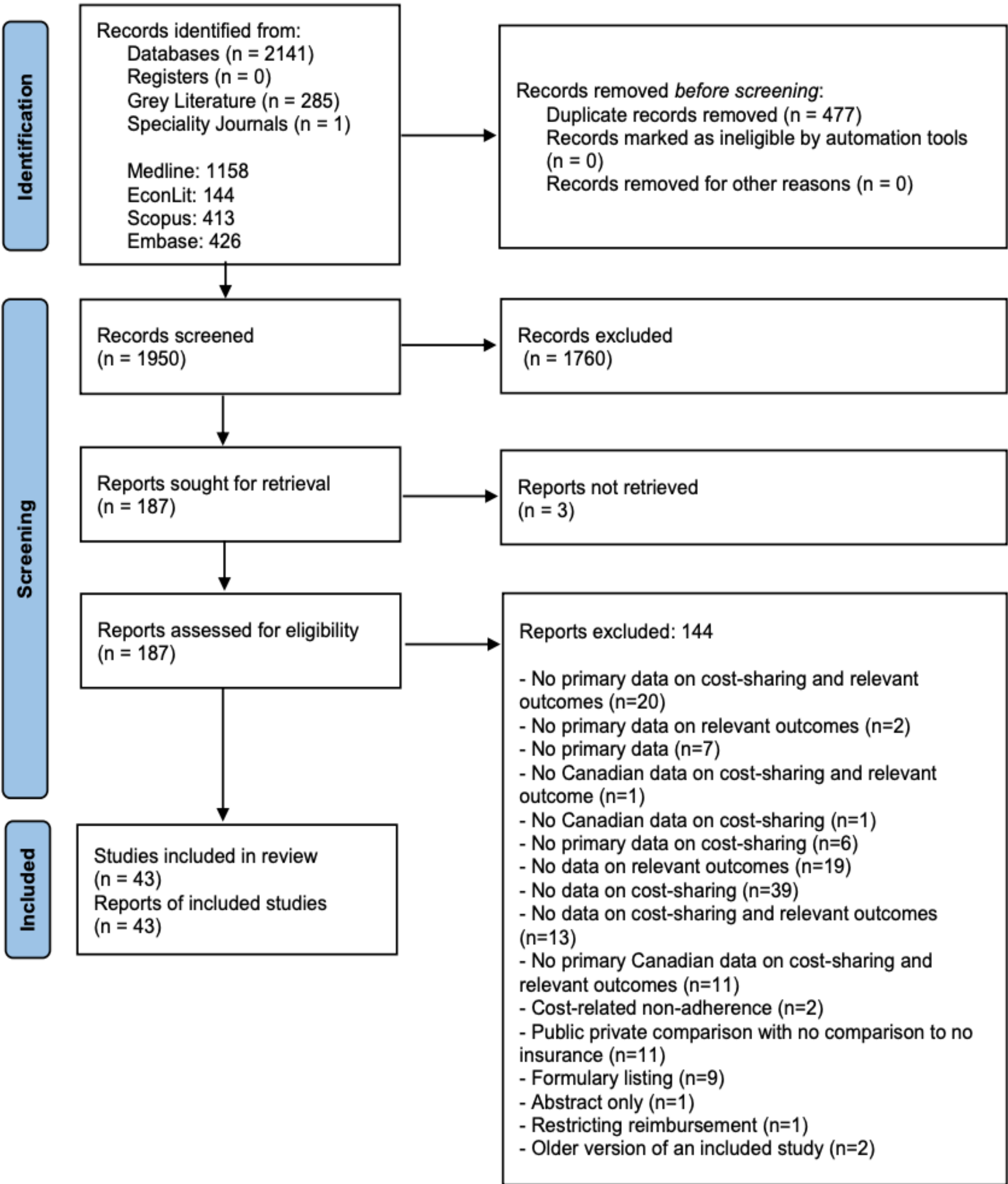
Objectives

- To conduct a systematic review of Canadian studies examining the association between drug insurance and/or cost-sharing and drug use, health services use, and health.
- To understand the degree to which the associations are modified by age, sex, SES or health status.

Methods

- Searched EMBASE, Ovid MEDLINE, Scopus, EconLit, as well as grey literature and hand-searched 5 specialty journals.
- Search updated in May 2021.
- Included studies in English or French and published in any year.
- Studies screened, data extracted, and risk of bias assessed by at least two independent reviewers.
- Borrowed critical appraisal criteria from the Cochrane Effective Practice and Organization Risk of Bias tools and Maryland Scientific Methods Scale for social and quasi-experiments.
- Due to heterogeneity between studies (e.g., policies, populations, outcomes), a meta-analysis was not possible.

Figure 1. PRISMA 2020 Flow Diagram



Results

Table 1. Association of drug insurance and cost-sharing with prescription drug use (n=37)

Policy (total # of studies; # of studies ranked as high, medium, and low risk of bias)	Findings
Expansion/restriction of drug insurance (n=5; 1, 2, 2)	- Expansion of drug insurance was generally associated with increased drug use in various populations. - Restricting public drug insurance without cost-sharing to children and youth in Ontario without private insurance was not associated with meaningful changes in drug use.
Discontinuity in drug insurance, turning 65 (n=1; 1, 0, 0)	Provision of drug insurance without cost sharing at 65 was associated with increased drug use.
Comparing individuals with/without drug insurance (n=6; 6, 0, 0)	The provision of drug insurance, among Ontario residents and the general Canadian population, was associated with increased drug use in all but one study.
Changes in cost-sharing – Québec (n=4; 0, 0, 4)	Increased cost-sharing was associated with decreased overall drug use among welfare recipients, as well as among the elderly overall, but not for particular drug classes (e.g., cardiac medications etc.).
Changes in cost-sharing – British Columbia (n=8; 3, 2, 2)	- The 2002 and 2003 British Columbia policies¹ were not associated with meaningful changes in drug use. - Removal of cost-sharing when a family member reached out-of-pocket maximum was associated with increased drug use.
Changes in cost-sharing – other (n=8; 4, 2, 2)	Increases (decreases) in cost-sharing were generally associated with lower (higher) drug use in some studies.
Comparing individuals with different levels of cost-sharing (n=5; 2, 3, 0)	- No meaningful associations among low-income adults and elderly in British Columbia. - High cost-sharing associated with lower drug adherence and use in children in Quebec.

Table 2. Association of drug insurance and cost-sharing with health services use (n=18)

Policy (total # of studies; # of studies ranked as high, medium, and low risk of bias)	Findings
Expansion/restriction of drug insurance (n=2; 0, 1, 1)	- The 1997 Québec expansion of drug insurance was generally associated with higher health services utilization. - In an RCT, provision of drug insurance with convenient access did not affect hospitalizations.
Discontinuity in drug insurance, turning 65 (n=2; 2, 0, 0)	Provision of drug insurance upon turning 65 in Ontario was not associated with changes in health services utilization.
Comparing individuals with/without drug insurance (n=4; 4, 0, 0)	- Individuals reporting drug coverage were more likely to report health services use. - Differences were small and unlikely to be clinically meaningful.
Changes in cost-sharing – Quebec (n=2; 0, 0, 2)	The 1997 Québec expansion of drug insurance was generally associated with higher health services utilization among welfare recipients and the elderly, but not elderly after an acute myocardial infarction.
Changes in cost-sharing – British Columbia (n=4; 3, 0, 1)	The 2002 and 2003 British Columbia policies¹ were associated with small increases in health services use that were unlikely to be meaningful.
Changes in cost-sharing – other (n=3; 2, 1, 0)	- Increased cost-sharing in British Columbia not associated with changes in health services use among adults or the elderly - Lower cost-sharing for low-income residents of Saskatchewan was associated with lower health services use.
Comparing individuals with different levels of cost-sharing (n=1; 0,1,0)	In British Columbia, higher cost-sharing was not associated with changes in health services use.

Table 3. Association of drug insurance and cost-sharing with health (n=5)

Policy (total # of studies; # of studies ranked as high, medium, and low risk of bias)	Findings
Expansion of drug insurance (n=3; 0, 2, 1)	Expansion of drug insurance was generally not associated with improved health outcomes.
Changes in cost-sharing (n=2; 0,0,2)	Increased cost-sharing was associated with increased adverse events among the low-income and elderly but not the elderly after myocardial infarctions.

1. The 2002 British Columbia change in policy involved changes in copayments. The policy change in 2003 involved switching to an income-based deductible/copayment model.

Subgroup Effects

- Socioeconomic status, age and sex did not modify the relationship between drug insurance/cost-sharing and drug use, health services use, and health, with one exception; the magnitude of effect varied between boys and girls with ADHD after the Québec expansion of drug insurance.
- Health status modified the association between drug insurance and drug use, but not health services use or health; individuals in poorer health were generally more responsive to changes in drug insurance/cost-sharing.

Conclusion

- Restricted drug insurance eligibility and increased cost-sharing will likely affect the use of essential and non-essential drugs.
- Universal pharmacare can reduce health inequities as it may increase drug use among lower-income populations compared to higher-income populations.

Emmanuel Guindon
emmanuel.guindon@mcmaster.ca
Erica Stone
stonee1@mcmaster.ca
Riya Trivedi
triver1@mcmaster.ca