

# Body Count

*The human cost of financial barriers  
to prescription medications*

Ruth Lopert  
Elizabeth Docteur  
Steve Morgan



CANADIAN FEDERATION  
OF NURSES UNIONS  
LA FÉDÉRATION CANADIENNE  
DES SYNDICATS D'INFIRMIÈRES  
ET INFIRMIERS

May 2018

# Canadian Federation of Nurses Unions (CFNU)

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## We are Canada's nurses.

We represent close to 200,000 frontline care providers and nursing students working in hospitals, long-term care facilities, community health care and our homes. We speak to all levels of government, other health care stakeholders and the public about evidence-based policy options to improve patient care, working conditions and our public health care system.



Published by:

Canadian Federation of Nurses Unions  
www.nursesunions.ca  
2841 Riverside Drive  
Ottawa, ON K1V 8X7  
613-526-4661

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ISBN: 978-1-7753845-0-2

Printed in Canada by Imprimerie Plantagenet Printing

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# Message

FROM LINDA SILAS,  
CFNU PRESIDENT

*Up to 640 Canadians die each year from ischemic heart disease alone because of shortfalls in prescription drug coverage.*



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Stories of patient heartbreak due to the rising costs of prescription medications and patchy coverage are familiar to many Canadians. For decades, these stories have been exposed by journalists, health policy experts, patient advocates and health care workers. Known as cost-related non-adherence (CRNA), the financial barriers that prevent patients from properly following prescription regimens have a significant impact on both the health of individuals and our health care system. Emblematically, according to a 2011 report by the Canadian Diabetes Association, 57% of Canadians with diabetes reported failing to adhere to their prescribed therapies due to affordability issues related to medications, devices and supplies.<sup>1</sup> It is projected that by 2020 approximately 4.2 million Canadians will have diabetes.<sup>2</sup>

The Canadian Federation of Nurses Unions has advocated for nearly twenty years for the implementation of a universal pharmacare plan in Canada. Our pharmacare position stems from the compassionate grassroots activism of our nearly 200,000 frontline nurse and student nurse members. In Canada, it is a fundamental value that access to health care must be based on need and not ability to pay. Yet, day and night, Canada's nurses bear witness to the failing health of their patients who cannot afford the prescriptions they need to stay healthy. Similarly, nurses regularly describe discharging patients who, they know, will not be able to afford the prescriptions needed to stay out of the hospital.

Exasperated by this unnecessary suffering, and in the midst of a rising tide of support for meaningful change to Canada's current system of prescription drug coverage, the CFNU decided it was time to put numbers to the story of human suffering from CRNA.

To this end, our research team set out to calculate the body count, or yearly number of CRNA-related deaths in Canada, for specific age cohorts and conditions. Although data scarcity makes it impossible to estimate total mortality for the entire population, the figures in *Body Count* nevertheless provide a meaningful catalyst for discussion.

Our research found that CRNA contributes to the premature deaths of up to 640 Canadians with ischemic heart disease per year. Similarly, CRNA contributes to up to 420 premature deaths among working-age Canadians with diabetes. Further tens of thousands of Canadians, 55 years and older, suffer CRNA-related health deterioration each year.

This tragedy is entirely preventable. What's more, the aforementioned numbers represent just part of the picture, when factoring in CRNA-related mortality and morbidity across the entire population and for all conditions, from asthma to major depression. Indisputably,

*Body Count* further emphasizes the urgent need for law and policy makers to put an end to this preventable daily loss of Canadian lives.

As we turn our attention towards solutions to this preventable tragedy, we must be reminded that Canada remains the only country in the world with universal health care that does not provide universal prescription drug coverage to its people. It is time to fix this. According to myriad sources, CRNA-related mortality is greatly reduced in countries where universal pharmacare plans exist.

As the federal government launches the high-level Advisory Council on the Implementation of National Pharmacare, Canada's nurses believe that the policy discussion must remain firmly focused on those that matter most: our patients.

*Body Count* calls attention to the daily occurrence of Canadians who die or fall sick both from curable illnesses and a patchy pharmaceutical insurance system that can be fixed. These are people with families and loved ones in neighbourhoods and communities across our country. With a universal pharmacare plan, Canada can, once and for all, prevent these avoidable tragedies.

Let's not let the clock tick any longer, while thousands of Canadians suffer.

*Sincerely,*

A handwritten signature in white ink, appearing to read 'Linda Silas', with a stylized, flowing script.

**Linda Silas**

*President  
Canadian Federation of Nurses Unions*

# Summary

## **Canadians suffer avoidable loss of life because of difficulties paying for prescription medicines**

In this report – the first of its kind in Canada – we use existing research to assess the impact of inadequate drug coverage on the health and well-being of Canadians. The report finds that hundreds of lives end prematurely each and every year, resulting from the difficulties Canadians experience in paying for their prescription medicines.

To date, there have been no studies that have directly measured the population-level health impacts of Canada's lack of universal drug coverage. We aimed to bridge that knowledge gap with estimates of the potential scale of the health impacts of inadequate drug coverage in Canada.

We used a variety of indirect approaches, drawing on existing research and focusing on specific cohorts for whom the lack of adequate prescription drug coverage in Canada is likely to have the greatest impact, such as patients with ischemic heart disease and diabetes. Ischemic heart disease is both the leading cause of death and the leading cause of 'amenable mortality' – death considered avoidable with appropriate health care – in Canada, accounting for 55% of all such potentially avertable premature deaths.<sup>3</sup> And both ischemic heart disease and diabetes are in the top five conditions causing the most death and disability combined.<sup>4</sup>

In calculating premature deaths that may arise from Canada's lack of universal drug coverage, we also focused our analysis on working-age Canadians (20–64 years), who don't qualify for the age-based public drug coverage plans available to older residents in many provinces.





From our analyses, we estimate that hundreds of lives end prematurely each year because of the difficulties many Canadians experience in paying for their prescription medicines. Because there is some overlap among the population groups we studied, our estimates cannot simply be added together to arrive at the total number of lives lost. However, as we did not have the data needed to examine all the population sub-groups likely to be affected, the total number of Canadians suffering the adverse effects of shortfalls in prescription drug coverage is likely to be larger than the ranges we report.

Despite these limitations, the results are sobering, with our estimates indicating that inadequate drug coverage in Canada leads to hundreds of avoidable, premature deaths annually, specifically:

- Using population-level data on the number of deaths that are preventable with effective and timely health care, we estimate that shortfalls in Canadian prescription drug coverage are responsible for, in the range of, **370 to 640 premature deaths of Canadians with ischemic heart disease every year.**
- Using an Ontario study of diabetes-related mortality, we estimate that cost-related non-adherence to prescribed drug regimens in Canada contributes to,

in the range of, **270 to 420 premature deaths of working-age Canadians with diabetes every year.**

- Using US data on the effects of expanded drug coverage, we estimate that shortfalls in drug coverage in Canada lead to, in the range of, **550 to 670 premature deaths from all causes among older working-age (55–64) Canadians every year.**

But the body count is not limited to premature deaths, as shortfalls in prescription drug coverage undermine not only the length but also the quality of many Canadian lives. We also found that as many as **70,000 older Canadians (55+)** suffer avoidable deterioration in their health status every year, and as many as **12,000 Canadians with cardiovascular disease aged 40+ require overnight hospitalization.**

Given the pivotal role of medicines in modern health care – and their ever-increasing costs – the proportion of Canadians experiencing difficulties in affording necessary prescription medicines can only be expected to increase. As we have estimated, a policy that resolves Canada's patchy drug coverage system could avert the premature deaths of many hundreds of Canadians each year and improve the quality of the lives of many, many more.



# Introduction

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## How Many Canadians Lose Their Lives Without Pharmacare?

Over the half-century since the establishment of Canadian Medicare, medicines have become an increasingly important component of health care. Approximately half of all adult Canadians take at least one prescription medicine regularly, and possibly as many as two thirds of those aged 65 and over take five or more each day.<sup>5,6</sup> Today's medicines help patients with conditions such as heart disease, diabetes, HIV, cancer, depression and many other to live longer, healthier and more productive lives.

Recent surveys have found that as many as one in ten Canadians don't take their medications as prescribed because of the costs involved – a phenomenon known as cost-related non-adherence.<sup>7</sup> Some delay filling their prescriptions or don't fill them at all; others skip doses or cut their pills in half.



Overall, Canadians filled almost 600 million prescriptions in 2015–2016.<sup>8</sup> But ensuring that all patients get and take the medicines they need can be challenging, particularly when those medicines are used to manage long-term risk factors that are largely asymptomatic, such as high blood pressure or elevated cholesterol. Medicines for cardiovascular disease, for example, are among those drugs that Canadians frequently fail to take as prescribed because of costs.<sup>9</sup> Poor patient adherence to such preventative drug regimens can result not only in worsening health and functional ability but also increased risk of death.<sup>10</sup>

Various factors influence adherence to prescription medication regimens,<sup>11</sup> but considerable evidence points to out-of-pocket costs as among the most important in Canada.<sup>12</sup> These costs are a particular concern, because Canada is the only high-income country with a universal health care system that does not provide coverage for prescription drugs. Approximately one in five Canadians reports having no or inadequate coverage for their prescription costs.<sup>13</sup> Of these, about half are without coverage because they don't qualify for public drug coverage

in their province and do not have private insurance through their employment, and about half receive insufficient benefit from their public or private drug plans because of deductibles and user charges.<sup>14</sup>

Research shows that Canadian patients are more likely to experience CRNA than are residents of high-income countries with universal prescription drug coverage.<sup>15</sup> This is particularly true for working-age Canadians who don't qualify for the public drug plans that are available to older residents in many provinces. In fact, working-age Canadians are more than twice as likely to report CRNA as similarly-aged residents of countries like the UK, France, Norway and the Netherlands, which include drug coverage in their universal health systems.<sup>16</sup>

*Which leads to the urgent question, how many Canadian lives are lost as a result of falling through the cracks in prescription drug coverage?*

In this report we present an analysis of the impact of CRNA and estimate the body count – the number of Canadian lives lost without pharmacare.



# Lives Cut Short

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To date, no studies have measured the population-level health impacts of Canada's lack of universal drug coverage. We aimed to bridge that knowledge gap by estimating how inadequate drug coverage affects Canadians' health and cuts lives short.

To examine the impact of CRNA on the Canadian population, we drew on existing research, focusing on specific cohorts within the population for whom fragmented and inadequate prescription drug coverage in Canada is likely to have the greatest impact. We estimated the scale of health-related harms caused by Canada's lack of universal drug coverage, using a variety of different approaches, some drawing on population-level data for Canada and comparable countries, others drawing on research studies pertaining to specific sub-populations in Canada and other countries.

With limited data to inform our analyses, we focused on those conditions and age groups where fragmented and inadequate prescription drug coverage was likely to have significant repercussions: specifically, ischemic heart disease and diabetes. Both ischemic heart disease and diabetes are among the top five conditions causing the most death and disability combined across Canada.<sup>17</sup> We also focused on working-age Canadians (20–64 years) who do not qualify for the public drug coverage plans available to older residents in many provinces and, as a result, report higher rates of CRNA than those 65+.

Several approaches were used to estimate the impacts of Canada's lack of universal drug coverage, including drawing on the Commonwealth Fund's international surveys which show a higher rate of CRNA in Canada than in other wealthy countries that have universal health care systems that include prescription drug coverage (Table 1).

In no case did we anticipate that a system of universal drug coverage would eliminate CRNA in Canada altogether. Rather, we assumed that comprehensive, universal drug coverage on par with the international comparators would bring Canadian rates of CRNA in line with those comparators and, by inference, the health-related impacts as well.

**Table 1: Prevalence of cost-related non-adherence (CRNA) in Canada and comparable countries with universal health and pharmaceutical coverage**

	All adults aged 18+ (2016 data)	Adults aged 55+ (2014 data)	Adults aged 65+ (2014 data)
Australia	6.3%	6.8%	4.4%
<b>Canada</b>	<b>10.2%</b>	<b>8.3%</b>	<b>5.3%</b>
France	3.9%	1.6%	1.5%
Germany	3.2%	3.7%	4.2%
Netherlands	4.4%	4.0%	2.9%
New Zealand	5.7%	4.8%	3.4%
Norway	3.4%	2.4%	1.9%
Sweden	5.7%	2.4%	1.8%
Switzerland	8.9%	2.9%	2.5%
UK	2.1%	3.1%	2.4%

Sources<sup>18</sup>: 2014 and 2016 Commonwealth Fund International Health Policy Surveys

# Approach #1

## Comparing amenable mortality from ischemic heart disease



*370 to 640 premature deaths of Canadians with ischemic heart disease per year*

Our first estimate draws on the Institute for Health Metrics & Evaluation (IHME) Global Burden of Disease (GBD) data across a number of countries broadly comparable to Canada.<sup>19</sup> Each of the countries selected (see Table 2) has universal health coverage that includes medicines for all age groups, and we considered them similar in terms of economic development (less than 20% variation in per capita GDP). We focused this analysis on ischemic heart disease, the leading cause of both overall deaths and premature deaths in each of the countries in 2015. Ischemic heart disease accounts for about half of all deaths considered avoidable with appropriate health care –

so-called ‘amenable’ mortality.<sup>20</sup> Notably, Canada is the only country in the group in which amenable mortality due to ischemic heart disease has not declined over the last decade.

From Table 2 it can be seen that the UK and Canada are highly comparable in terms of the prevalence of key risk factors for ischemic heart disease – smoking and obesity. However, they differ significantly in the extent of CRNA as well as in amenable mortality due to ischemic heart disease,<sup>21</sup> with almost 39 premature deaths per 100,000 people annually in Canada, while the UK’s premature mortality is nearly 15% lower.



**Table 2: Key characteristics of countries used to compare amenable mortality rates at population level**

	<b>Australia</b>	<b>Canada</b>	<b>France</b>	<b>Sweden</b>	<b>United Kingdom</b>
<b>Population (millions) 2016</b>	24.1	36.3	64.9	9.9	65.4
<b>GDP per capita (US\$) 2016</b>	\$43,360	\$42,619	\$38,396	\$45,521	\$39,778
<b>Fertility rate 2016</b>	1.8	1.6	2.0	1.9	1.8
<b>Educational attainment (years) 2016</b>	13.6	14.1	13.7	12.8	12.9
<b>Smoking (% who smoke daily) 2015</b>	12.4	14.0	22.4	11.2	16.1
<b>Obesity (% with BMI &gt;30)</b>	27.9	25.8	17.0	12.3	26.9
<b>Alcohol consumption (litres per person/year) 2015</b>	9.7	8.1	11.9	7.2	9.5
<b>Life expectancy 2016</b>	84.6F 80.5M	83.9F 79.8M	85.4F 79.2M	84.0F 80.1M	82.9F 78.9M
<b>Leading cause of premature death<sup>a</sup> 2016</b>	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease
<b>Amenable mortality rate due to IHD 2015<sup>b</sup></b>	31.2 (28.6 – 34.2)	38.5 (35.2 – 42.1)	23.6 (21.6 – 25.9)	36.6 (33.2 – 40.4)	32.9 (31.1 – 35.0)

<sup>a</sup> No 1 cause of years of life lost (YLLs) in 2016

<sup>b</sup> Risk- and age-standardized ischemic heart disease amenable mortality rate per 100,000 population  
Sources<sup>22</sup>: OECD Health at a Glance 2017; IHME GBD 2016





## PATIENT VOICES

*My father stopped taking his Lipitor (without my knowledge) because it was too expensive. He didn't have a pension and was living with my mother. They only had CPP and OAS as income. He died of a heart attack at age 69.*

SANDI  
WINNIPEG, MANITOBA

There are several factors that could contribute to this difference – for example, variations in standard treatment protocols or quality of care, disparities in disease severity or other population risk factors, in addition to differences in patient adherence to prescribed medication regimens. Nevertheless, affordable access to medicines is particularly important to patients with ischemic heart disease. Such patients frequently require a number of medications that may include anti-hypertensives to control blood pressure and heart rate, statins to lower lipid levels, and anti-coagulants to prevent blood clots. They may also require medicines for angina and heart failure. Full adherence to prescribed treatments has been shown to be very effective, reducing the risk of death by 80%.<sup>23</sup>

There is evidence from the USA suggesting that drug coverage alone may explain approximately 25% of the differences in health outcomes between well-insured and underinsured populations.<sup>24</sup> We therefore assumed that 25% of the difference in amenable mortality from ischemic heart disease between Canada and the UK is driven by differences in access to medicines or, specifically, by lower CRNA in the UK with its system of universal coverage for prescription medicines with little or no direct costs to patients. Based on these assumptions, our first analytic approach results in estimates that inadequate drug coverage in Canada contributes to the premature deaths of between 370 and 640 Canadians with ischemic heart disease each year.

# Approach #2

## Assessing diabetes-related mortality



*270 to 420 premature deaths of working-age Canadians with diabetes every year*

Our second analytic approach drew on research that explored the relationship between income inequality and health outcomes among diabetic patients in Ontario who did, or did not, qualify for comprehensive public drug coverage in that province.<sup>25</sup> Dr. Gillian Booth and colleagues used linked health datasets for the entire province to compare income-related differences in health outcomes among diabetics aged 65 and over with those under the age of 65. Apart from the differences in age, a key distinction between the two groups was that those 65 and over were eligible for comprehensive public drug coverage, whereas the under 65s were not.

These researchers found smaller income-related differences in health outcomes sensitive to prescription drug treatment (death, heart attack and stroke) among the population 65 and over than among younger Ontarians with different incomes. In other words, differences in income had less impact on health outcomes for the older cohort than the younger cohort. They concluded that a likely driver of the income-related difference in health

outcomes between the groups was the difference in prescription drug coverage.

Booth and colleagues calculated that between 3,300 and 5,000 deaths over the six-year study period could have been avoided among the younger diabetics, if the differences in health outcomes between wealthy and poor diabetics under age 65 were similar to those between wealthy and poor diabetics aged 65 and over.<sup>26</sup>

If we again assume that 25% of the difference in income-related mortality across the two age groups in Ontario is attributable to the difference in access to affordable medicines, we find that between 130 and 210 diabetics in Ontario die prematurely each year due to the lack of universal drug coverage for people of that age. By scaling these numbers to the entire Canadian population (excluding Quebec, where drug insurance is mandatory for people of all ages), we estimate that inadequate drug coverage may explain between 270 and 420 premature deaths among working-age Canadians with diabetes every year.

## PATIENT VOICES

*I am a 31-year-old woman living with type 1 diabetes. I was diagnosed almost 10 years ago. I've lived in three different provinces since my diagnosis, and each has had unique challenges, barriers, and costs to accessing treatment, and none has been affordable by any measure. The cost of survival is astronomical. I was lucky enough to have been insured when I was diagnosed, but nevertheless I've spent over \$60,000 of my own money on insurance premiums, deductibles, insulin, prescribed test strips, ketone strip and pumps.*

*Best practices, such as using a continual glucose monitor or test strip, are simply not affordable, even with coverage. Ironically, with my disease, the more stressed you are, the more difficult it becomes to keep glucose in range. For people like myself, who struggle to pay for supplies, the financial burden literally makes a person sicker. I can't imagine the consequences these costs have on people who are uninsured.*

*I've reused needles and supplies, left infusion set in for longer than I should, all in an effort to decrease costs. The impacts on the health care system from avoidable complications due to cost are far greater than the cost of paying for preventative measures.*

*For people already adapting to the realities of chronic illness, agonizing over how to afford to pay for the medicine needed to stay alive should be last thing on one's mind. Nobody chooses chronic illness, disability or disease, and yet we are expected to bear the burden of disease and daily management, in addition to the burden of cost in an effort to simply survive.*

LILY  
VANCOUVER, BRITISH COLUMBIA

# Approach #3

Using U.S. data on the effects of expanded drug coverage



*550 to 670 premature deaths from all causes among older working-age (55–64) Canadians every year*

Our third analysis drew on research that measured the effects of adding prescription drug coverage to a U.S. population that had hitherto been without coverage. Before the passage of Medicare Part D, drug coverage for older Americans was similar to that currently available to working-age Canadians in most provinces, with a mix of public drug plans for the very poor (Medicaid) and voluntary private plans (either through employment, retirement benefits, or other voluntary insurance options).

Huh and colleagues<sup>27</sup> compared trends in death rates among Americans aged 64 and 66, following the introduction of the Medicare Part D prescription drug benefit. They were attempting to determine whether Medicare Part D saved lives, since the group of patients aged 66 would be eligible for the new benefit, whereas the group aged 64 would not.

They found that the implementation of Medicare Part D reduced all-cause mortality<sup>28</sup> among Americans aged 66 by 2.2%. This is the effect of merely increasing eligibility for a drug benefit among those without insurance, since enrolment in Medicare Part D is not mandatory, and some uninsured seniors chose not to

participate.<sup>29</sup> Huh and colleagues also estimated that the program reduced mortality among those who actually enrolled by a sizable 9.6%.

We assumed that the average decline in mortality seen among all people eligible for Medicare Part D could be achieved among working-age Canadians under a system of universal drug coverage in Canada (particularly if the Canadian system were universal and comprehensive in the way that seniors' drug plans are in some provinces, such as Ontario). We further assumed that the mortality benefits would affect only working-age Canadians aged 55 to 64, who are more comparable to the 66-year-olds, on which Huh and colleagues focused their study, than younger Canadians would be.

Thus, on the assumption that older working-age Canadians – those aged 55 to 64 – would experience similar reductions in mortality under a universal drug coverage program in Canada to those experienced by Americans with Medicare Part D, we estimate that the lack of universal drug coverage could be causing in the order of 550 to 670 premature deaths in older working-age Canadians each year.<sup>30</sup>



# Approach #4

## Using U.S. data on CRNA-related deterioration in health status



*Up to 70,000 older Canadians (55+) suffer avoidable deterioration in their health status every year*

In addition to estimating avoidable loss of life, we also examined the extent to which fragmented drug coverage in Canada could affect health outcomes other than death, using related studies from the United States. These studies were by Michele Heisler and colleagues, who used biennial, representative surveys that followed Americans aged 50 and older over time.<sup>31</sup> They used these surveys to identify people who experienced CRNA and those who did not, and to determine the effects of CRNA on people over time.

In their first study, Heisler and colleagues used mid-1990s surveys of older adults as baseline data and a 1998 follow-up survey to measure health outcomes. After adjusting for other factors that may have influenced health outcomes, they found that the adjusted probability of reporting a significant decline in health status in the follow-up period was 32.1% among the older Americans reporting CRNA, versus 21.2% among those reporting no CRNA, a 10.9% difference. We assumed that CRNA among older Canadians may have similar effects

and examined the impact of reducing CRNA levels in Canada to levels similar to those seen in comparable countries with universal health and pharmaceutical coverage. That would produce reductions in CRNA among Canadians aged 55 and older, ranging from 1.5%, if Canada only matched the CRNA rate reported in Australia, to 5.9%, if Canada matched the CRNA rates reported in Sweden and Norway.<sup>32</sup>

Thus, if older Canadians experiencing CRNA also have a similar increase in the likelihood of health deterioration, as Heisler and colleagues found among older Americans, then universal drug coverage could prevent between 0.164% and 0.643% of the older adult population in Canada from experiencing a decline in health status. As there are approximately 10.9 million Canadians aged 55 and older, this implies that from 18,000 to as many as 70,000 Canadians in that age group are experiencing preventable health deterioration per year as a consequence of fragmented drug coverage in Canada.





## PATIENT VOICES

*I was diagnosed with type 1 diabetes when I was fifteen years old. When I was seventeen, things weren't going well at home, and I decided to move out on my own. At that moment, I became responsible for all my expenses, including rent, food, clothes, you name it.*

*It was my OAC year (grade 13). I was working part time at a job, going to school during the day, and I was collecting social assistance. Social assistance was giving me some money every month to contribute to my living costs, and providing me with a drug card to get my prescriptions for free. As a diabetic, there are a lot of things I need every day: Insulin, needles, test strips, etc.*

*One week, I took a few extra shifts at my job – things were always tight and I needed the money. What I didn't know is that those extra shifts were going to disqualify me from social assistance. I was making too much to be on social assistance and I lost my free drug card. Diabetes supplies are expensive, about \$200 a month. I was making too much to be on social assistance, but not making enough to pay for all of my expenses, as well as my medication.*

*In that moment, I was forced to make a difficult decision. I dropped out of high school and started working full time, mostly to pay for my medications. I was two credits short of getting my high school diploma, but it took me another eight years after that to get it through a workplace program.*

*For several years, I rationed my diabetes supplies as much as I could. For a diabetic, that means I was eating as little as I could to avoid the need for insulin. I was also reusing things like syringes.*

*Honestly, I felt that things were over for me. The health complications I was experiencing due to poor management of my diabetes was wreaking havoc on my body, I had dropped out of school, and I couldn't see myself living beyond the next few weeks. I felt left behind by the system, a complete systematic exclusion to living my life.*

AMIR  
OTTAWA, ONTARIO

# Approach #5

## Using U.S. data on CRNA-related overnight hospitalizations



*Up to 12,000 Canadians with cardiovascular disease aged 40+ require overnight hospitalization*

In a related study, Heisler and colleagues studied the effects of CRNA in American adults aged 50 and older with, or at a high risk of, cardiovascular disease.<sup>33</sup> Using surveys repeated every two years, they found that subjects who reported CRNA in any two-year period from 1998 to 2004 were more likely to be hospitalized for at least one overnight stay in the subsequent two-year period. Controlling for differences in baseline health and socioeconomic characteristics between those who reported CRNA and those who did not, the predicted probability of being hospitalized in the subsequent two-year period was 37.8% among the survey respondents who reported no CRNA, compared with 47.0% among respondents who reported CRNA.

Again, we assumed that CRNA among older Canadians would have similar effects. We focused on older Canadians with high-risk cardiovascular disease. A recent Statistics Canada publication indicated that there were approximately 4.6 million Canadians aged 40 and older with significant cardiovascular disease

risk factors that are modifiable with drug treatment, but only about 50% of them are currently taking prescription medications to treat them.<sup>34</sup>

Again, we did not assume that universal drug coverage would completely address the problem of under-treatment for cardiovascular disease. Rather, we assumed that CRNA in Canada would fall to a level consistent with the CRNA prevalence in comparable countries with universal health and pharmaceutical coverage – declining by 1.5 percentage points, if CRNA among Canadians 55+ matched the level reported in Australia, or by as much as 5.9 percentage points, if it matched that of Sweden and Norway.<sup>35</sup>

Thus, if older Canadians with high-risk cardiovascular disease experiencing CRNA also have a similar increase in the probability of hospitalization as Heisler and colleagues found among older Americans with cardiovascular disease, then universal drug coverage could prevent at least 3,000, and up to as many as 12,000, overnight hospital admissions each year among that patient group.

# Body Count

*How many Canadians lose their lives without pharmacare?*



**370 to 640**

premature deaths of Canadians with ischemic heart disease every year



**270 to 420**

premature deaths of working-age Canadians with diabetes every year



**550 to 670**

premature deaths from all causes among older working-age (55–64) Canadians every year

+



**Up to 70,000**

older Canadians (55+) suffer avoidable deterioration in their health status every year



**Up to 12,000**

Canadians with cardiovascular disease aged 40+ require overnight hospitalization





# Conclusions



There is no question that the creation of Medicare was a tremendous milestone in Canadian public policy. But even at that time, the Royal Commission on Health Services, whose work led to Medicare's establishment, recommended that the new single-payer health insurance system be expanded to include prescription medicines, once universal coverage for medical services had been established.

Yet despite repeated opportunities and recommendations to implement a universal drug coverage program, it remains elusive. Instead, Canadians make do with an inefficient, expensive, fragmented and unfair patchwork of federal, provincial and private insurance arrangements that wastes precious health care dollars – to the tune of \$7.3 billion a year<sup>36</sup> – while leaving almost one in five Canadians still falling through the cracks.<sup>37</sup>

We used a range of sources and indirect approaches to estimate the premature loss of life due to cost-related non-adherence to prescription medicines in Canada. While it could not be measured directly, several sources of evidence allowed us to compile estimates of the numbers of Canadians whose premature deaths could be averted each year if they had access to universal, comprehensive prescription drug coverage.

From these analyses, we estimate that hundreds of lives end prematurely because of the difficulties many Canadians experience in paying for their prescription medicines, while thousands more suffer avoidable health deterioration as a result of inadequate coverage.

As we focused on specific cohorts, and did not consider every disease or condition, we could not derive a single figure for the

total number of lives lost due to CRNA. Further, as we did not have sufficient data to consider all conditions or sub-groups of the population likely to be affected by inadequate drug coverage, our results inevitably underestimate the total number of Canadians whose lives end prematurely as a result of cracks in the patchwork of existing prescription drug coverage.

Nevertheless, the results are sobering. Given the essential role of medicines in modern health care – and their ever-increasing costs – the proportion of Canadians experiencing difficulties in affording necessary prescription medicines can only be expected to increase. As we have estimated, comprehensive, universal drug coverage in Canada could avert the premature deaths of many hundreds of Canadians and improve the quality of the lives of many, many more.



# References

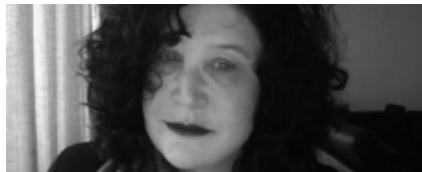
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# About the Authors

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## Ruth Lopert



Ruth Lopert, MD, MMedSc, FAFPHM, is a public health physician, pharmaco-epidemiologist and consultant in pharmaceutical policy and health technology assessment. She is a *chercheur associé principal* at the University of Strasbourg, France, and holds adjunct professorial appointments in the Department of Clinical Research & Leadership in the School of Medicine & Health Sciences and the Department of Health Policy & Management in the Milken Institute School of Public Health at George Washington University, where she was a Visiting Professor in 2011–2012 and a Harkness Fellow in Health Policy in 2006–2007. Ruth has worked in over 15 countries on assignments for the World Bank, IADB, PAHO, WHO, NICE-International, Oxford Policy Management and Management Sciences for Health, as well as for various national ministries of health. From 2008–2011 Ruth was the chief medical officer in the Australian therapeutics regulatory agency, the Therapeutic Goods Administration. Previous roles include establishing and directing the pharmaceutical policy unit in the Australian Department of Health, managing the operations of the national drug coverage program, and as a clinical and policy advisor to the national formulary committee. She is the author of more than 70 journal articles, monographs and book chapters, and is a Fellow of the Faculty of Public Health of the Royal Australasian College of Physicians, a foreign corresponding member of *l'Académie Nationale de Pharmacie* of France, and a former member of the WHO Expert Advisory Panel on Drug Policies & Management.

## Elizabeth Docteur



Elizabeth Docteur, MSc, has 25 years of experience improving health care systems and programs. She is an internationally recognized expert on the cost and quality performance of health systems, and in policies to promote efficiency in health care delivery. She has worked with international organizations and on assignments in 18 countries, and held positions in the U.S. federal government, the private sector and civil society. Consulting clients include the World Bank, the Swiss Federal Office of Public Health, Sweden's Dental and Pharmaceutical Benefits Agency, the Institute of the Americas, and Friends of Europe. Ms. Docteur worked at the OECD between 2001 and 2009, as part of the Health Policy Unit and as Deputy Chief of the Health Division.

## Steve Morgan



Steve Morgan, BA, MA, PhD, is a Professor of Health Policy in the School of Population & Public Health at the University of British Columbia. An expert in pharmaceutical policy, Dr. Morgan's research helps governments balance three goals, which are sometimes competing: providing equitable access to necessary medicines, managing health care spending responsibly, and providing incentives for valued innovation. Dr. Morgan has published over 100 peer-reviewed research papers on pharmaceutical policies. He has advised governments in Canada and abroad and has produced work for the World Health Organization and the Organization for Economic Cooperation and Development. Dr. Morgan earned degrees in economics from the University of Western Ontario, Queen's University, and the University of British Columbia. He received post-doctoral training in health care policy at McMaster University and UBC. He has received career awards from the Canadian Institutes of Health Research, the Michael Smith Foundation for Health Research, the Commonwealth Fund, McMaster University and the University of British Columbia.



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