

BRIEF

Impact Investing in Preventive Healthcare

A brief on Canadian healthcare and the opportunities for
impact investment

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LEAD AUTHORS

Bruno Lam
Dr. James Tansey

CONTRIBUTING RESEARCHERS

Colton Kasteel

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EXECUTIVE SUMMARY

This paper provides a landscape overview of the healthcare system in Canada, and outlines a role for impact investors.

Healthcare costs are rising in Canada. There are five general factors that drive healthcare costs in Canada, listed below. The core drivers of healthcare costs are: (1) health sector expenditures (hospitals and physician costs) and (2) the prevalence of long-term conditions.

1. **Demographics and long-term conditions:** Although older seniors (aged 80 or older) incur the most health care costs, survey data do not show a strong correlation between age and utilization. Rather, researchers have found a strong relationship between having multiple chronic diseases and higher utilization of healthcare resources. In short, this means the more individuals experience chronic, long-term diseases, the more Canada will have to spend on healthcare in the future.
2. **Health-sector price inflation:** Hospital and physician costs are a driver of health-sector inflation. As a result, there is increasing interest in exploring whether other health professionals (nurses, pharmacists) can substitute for the services physicians provide.
3. **Drugs:** Spending on drugs to treat relatively common conditions (hypertension, high cholesterol, heart burn, depression) have decreased, while spending on less common but more serious conditions have increased. It is expected that drugs treating serious diseases will continue to be a major driver in pharmaceutical spending.
4. **Technology:** Technology in healthcare refers to products such as medical devices and equipment, surgical improvements, information and communications technology, and prescription drugs. Technologies that are aimed at prevention of diseases will trigger greater cost reductions than technologies that merely treat symptoms.
5. **Increased Utilization:** The slight decrease in available beds, coupled with a slight increase in average length of stay and amount of resources consumed by patients, has led to an increase in hospital care utilization.

The financial burden on the healthcare system can be lessened if the population becomes healthier, and if long-term conditions such as diabetes, cancer, and cardiovascular diseases become less prevalent. Impact investors can play a role in reducing the prevalence of long-term, chronic conditions by focusing capital allocation on preventive health practices. We highlight three programs that can link private capital and positive health outcomes together.

Social Impact Bonds (SIBs): Healthcare SIBs are a good fit for prevention of long-term conditions (LTCs). LTCs like asthma, diabetes, coronary heart problems, breathing problems, muscular skeletal problems, and depression are well suited for the SIB model due to several reasons, including a clear economic case and financial return on investment: The current usage of health resources by LTC patients is very high. Healthcare SIBs focus on providing better organized patient care for those with chronic illnesses, thereby leading to reductions in significant expenditure in health services.

Health Credit Markets: In essence, Health Credit Markets is a modified version of the Social Impact Bond in which the financial risk is shifted towards the Program Partner (or service provider), and the investment is structured as a donation. If they cannot achieve specified outcomes, they do not receive any payments. If partial results are achieved, they will then receive a partial payment. On the other hand, the investor/ donor will receive the tax deduction and have the opportunity to shift the unsuccessful and unused credits towards other Program Partners.

Private Sector Partnerships: Some healthcare providers and insurance companies in the US have started to offer coverage for preventive healthcare interventions. In response to increasing cases of musculoskeletal and neuromuscular pain, Beaumont Health established an Integrative Medicine (IM) department in 2004, offering services ranging from yoga therapy to acupuncture. This project has yielded have seen positive health outcomes and financial returns.

Our key insights are as follows:

To reduce financial burden, increase investment in preventive healthcare practices. In order to reduce the prevalence of long-term conditions, a preventive model (instead of a diagnostic model) must be implemented. This means that we're focusing on preventing diseases instead of fighting the symptoms.

Preventive practices, such as Integrative Medicine, are underfunded. There is a wide array of preventive healthcare practices, including simple health awareness campaigns, to more established practices such as Integrative Medicine. Surprisingly, in 2013, the British Columbia provincial government spent less than 5% of its annual \$15.5 billion healthcare budget on population wellness and disease prevention.

There is an opportunity for impact investors. There is a clear need to fund initiatives that prove the effectiveness of preventive healthcare methods. Once the evidence is concrete, healthcare policy makers and private insurance companies can make a case for shifting resources towards covering methods like Integrative Medicine. Impact investors may be able to fill this gap through using emerging investment tools, such as Social Impact Bonds, Health Credit Markets, or supporting pilot projects with private insurance companies.

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1.0 RISING CANADIAN HEALTHCARE COSTS

Canada's healthcare costs have been steadily rising in both real and nominal terms since the 1970s. As the Canadian Institute for Health Information has documented, these costs amounted to 11.5% of GDP in 2017. As both a public and private sector cost, there are strong reasons for exploring new and innovative ways to address this as a public health issue and economic opportunity.

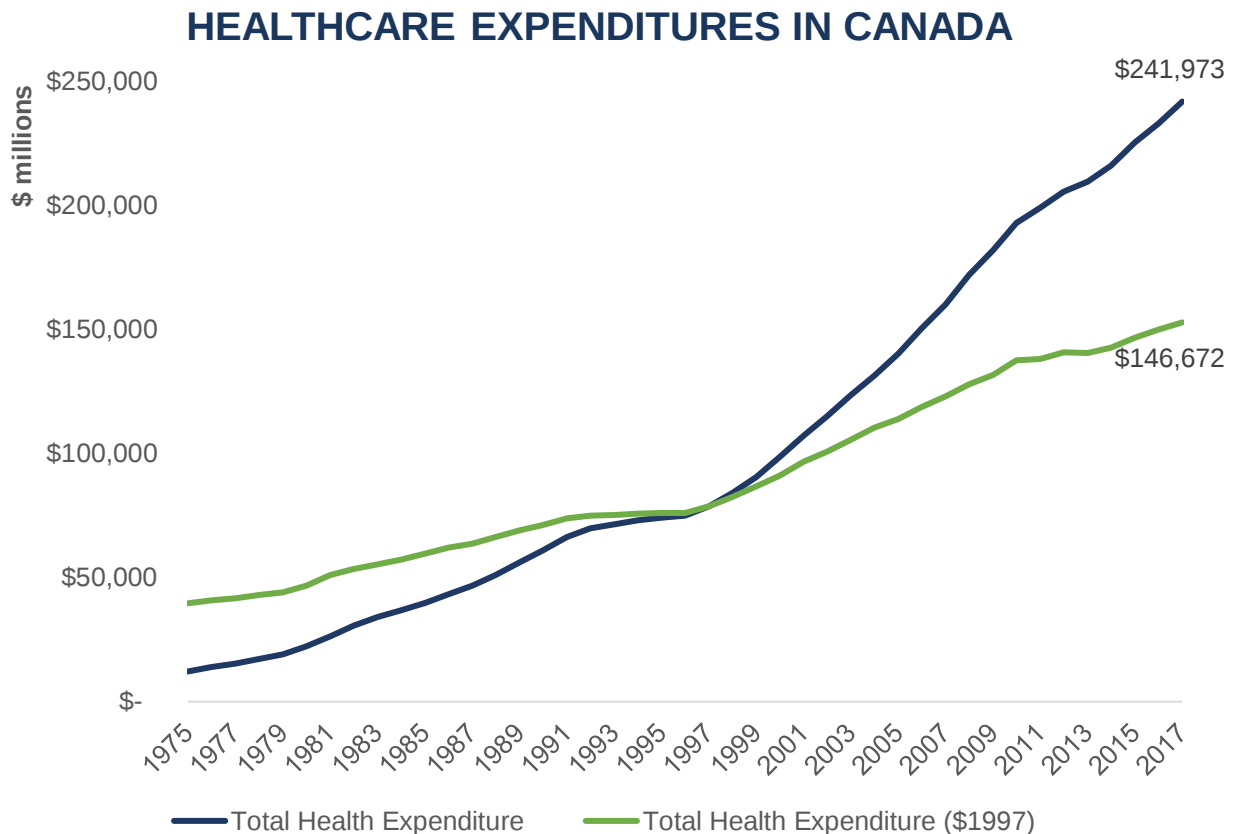


Figure 1. Canadian Healthcare Expenditure Growth, 1975-2017 (\$ millions)¹

In order to explain the healthcare cost drivers in Canada, it is valuable to summarize how the Canadian healthcare system works:

1. In Canada, the population receives basic healthcare (e.g. doctor visits) and extended healthcare (e.g. vision and dental services) from providers such as pharmacies, hospitals, and physicians.
2. Basic healthcare providers receive compensation through a single payer: The Government of Canada.
3. The government is able to pay the healthcare providers through a “series of thirteen interlocking provincial and territorial health insurance plans”², for which the Canadians pay monthly premiums.
4. For extended services such as dental and vision care, individuals may have to pay out of pocket or through their employers’ health benefits.

¹ Adapted from: Canadian Institute for Health Information (CIHI) <https://www.cihi.ca/en/how-much-does-canada-spend-on-health-care-2017>

² Government of Canada. (n.d.) Canada Health Act – Frequently Asked Questions. <https://www.canada.ca/en/health-canada/services/health-care-system/canada-health-care-system-medicare/canada-health-act-frequently-asked-questions.html#a3>

In Canada, public expenditure on health consistently constitutes 70% of health spending, while private expenditure – dollars spent out-of-pocket and through private insurance – make up 30% of health spending.³

The ultimate driver of costs in any healthcare system is the patients' health and wellbeing. This is not a surprise. To dive deeper, in a study documenting the key cost drivers of the Canadian healthcare system⁴, five factors driving costs were identified: (1) Population aging, (2) Health-sector price inflation, (3) Drugs, (4) Technology, and (5) Increased utilization. We outline each of these factors in-depth.

1.1 DEMOGRAPHICS

Canada is undergoing a demographic shift. Canada's largest cohort – the baby-boomers – is turning 65 and as a consequence, many forecast increased demands for health-care services in the coming years.

Although older seniors (aged 80 or older) incur the most health care costs, survey data do not show a strong correlation between age and utilization. Rather, research finds a stronger relationship between having multiple chronic diseases and higher utilization of healthcare resources.⁵ In short, this means the more individuals experience chronic, long-term diseases, the more Canada will have to spend on healthcare in the future.

1.2 HEALTH-SECTOR PRICE INFLATION

Labour costs has historically been the biggest driver of health-sector inflation. Average annual growth in spending on physician services was 6.8% between 1998-2008. More recent data from the Canadian Institute for Health Information (CIHI) suggests physician spending has grown 3.4% between 2016-17, making up 15.4% of health spending in Canada. Hospital spending accounts for 28.3% of Canadian health expenditure, amounting to \$1,871 per Canadian. The majority (>60%) of this spending category is associated with compensation for hospital personnel.⁶

Physician compensation grew faster than all other types of government goods and services during 1998-2008, including their colleagues' compensation (health and social service workers). In 2017, physician services accounted for 15.4% of all Canadian health expenditure.⁷ As a result, there is increasing interest in exploring whether other health professionals (nurses, pharmacists) can additionally provide similar physician services. For example, Physician Assistants (PAs) have been recognized in U.S. states and Alberta as health professionals who are "qualified to do physical examinations, take medical histories, order tests, prescribe certain medications, and assist surgeons before, during and after surgeries."⁸

1.3 DRUGS

In the early 21st century, the effect of spending on drugs is ambiguous on the Canadian healthcare system as drug price inflation has been kept in check. A combination of several factors has contributed to this: the price regulation of patented drugs, the lapsing of several major patents, and the substitution of lower-price generic drugs in place of brand-name drugs. Since 2010, most provincial governments' policies have capped the maximum allowable prices of generic drugs at 25%-56% of brand-name drugs. CIHI, however, projects drugs to be the fastest growing category health expenditure per capita in the

³ Canadian Institute for Health Information (2017). National Health Expenditure Trends, 1975 to 2017. Retrieved from: https://secure.cihi.ca/free_products/nhex2017-trends-report-en.pdf p. 12

⁴ Canadian Institute for Health Information (2011). Health Care Cost Drivers: The Facts. Retrieved from: https://secure.cihi.ca/free_products/health_care_cost_drivers_the_facts_en.pdf

⁵ Ibid., p. 16

⁶ Canadian Institute for Health Information (2017). National Health Expenditure Trends, 1975 to 2017. Retrieved from: https://secure.cihi.ca/free_products/nhex2017-trends-report-en.pdf p. 14

⁷ Ibid., p. 14

⁸ Fayerman, P. (2018). Pressure on government to recognize physician assistants. *Vancouver Sun*. Retrieved from: <https://vancouversun.com/news/local-news/pressure-on-government-to-recognize-physician-assistants>

coming years (4.2% growth annually in 2017, or \$1,086 per person) due to the increased use of high-cost patented drugs.⁹

Spending on drugs to treat relatively common conditions (hypertension, high cholesterol, heart burn, depression) have decreased, while spending on less common but more serious conditions have increased. It is expected that drugs treating serious diseases will continue to be a major driver in pharmaceutical spending.¹⁰

1.4 TECHNOLOGY

Technology in healthcare refers to products such as medical devices and equipment, surgical improvements, information and communications technology, and prescription drugs. The effect of technology on healthcare costs is hard to quantify. While in the short-term, they will increase healthcare expenditure, on the other hand, effective technologies can reduce costs in the long-term, rendering the effect of technology on healthcare costs as ambiguous. The report by CIHI suggests that technologies that are aimed at prevention of diseases will trigger greater cost reductions than technologies that merely treat symptoms.¹¹

1.5 INCREASED UTILIZATION

Individuals in need of long-term care have led to higher utilization of hospital resources. The slight decrease in available beds, coupled with a slight increase in average length of stay and amount of resources consumed by patients, has led to an increase in hospital care utilization. This is seen especially in long-term care homes, where those needing highly intensive (Type III) care (such as therapeutic care, medical management, and skilled nursing care) are placed. In 1998, 25% of long-term care residents required Type III care. In 2008, this proportion increased to 33%.

Given a brief overview of these five factors, two key issues are unambiguously driving the increase in Canadian healthcare costs: (1) health sector expenditures (hospitals and physician costs) and (2) the prevalence of long-term conditions. We suggest impact investors can play a role by targeting the latter factor: outcomes that reduce the prevalence of long-term conditions such as cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes.

⁹ Canadian Institute for Health Information (2017). National Health Expenditure Trends, 1975 to 2017. Retrieved from: https://secure.cihi.ca/free_products/nhex2017-trends-report-en.pdf, p. 15

¹⁰ Canadian Institute for Health Information (2011). Health Care Cost Drivers: The Facts. Retrieved from: https://secure.cihi.ca/free_products/health_care_cost_drivers_the_facts_en.pdf, p. 25

¹¹ Ibid.

2.0 PREVENTIVE VS. DIAGNOSTIC PRACTICES

It is no surprise that an improvement in the health of a population will reduce the use of healthcare resources, which in turn will lead to positive financial and social returns for healthcare systems. To achieve a healthy population, healthcare systems must not only treat those who are already sick, but prevent people from contracting diseases in the first place. There is a strong business and impact case for investing in preventive healthcare, rather than diagnostic healthcare alone.

To reduce the prevalence of long-term conditions, preventive healthcare practices must be more widely adopted. While there is a widespread belief that genetics is the primary predictor of individual health, there is also strong evidence major determinant of health is human behavior, as seen in the figure below. Preventive healthcare methods would seek to alter human behavior such that the disease is prevented before it ever occurs.

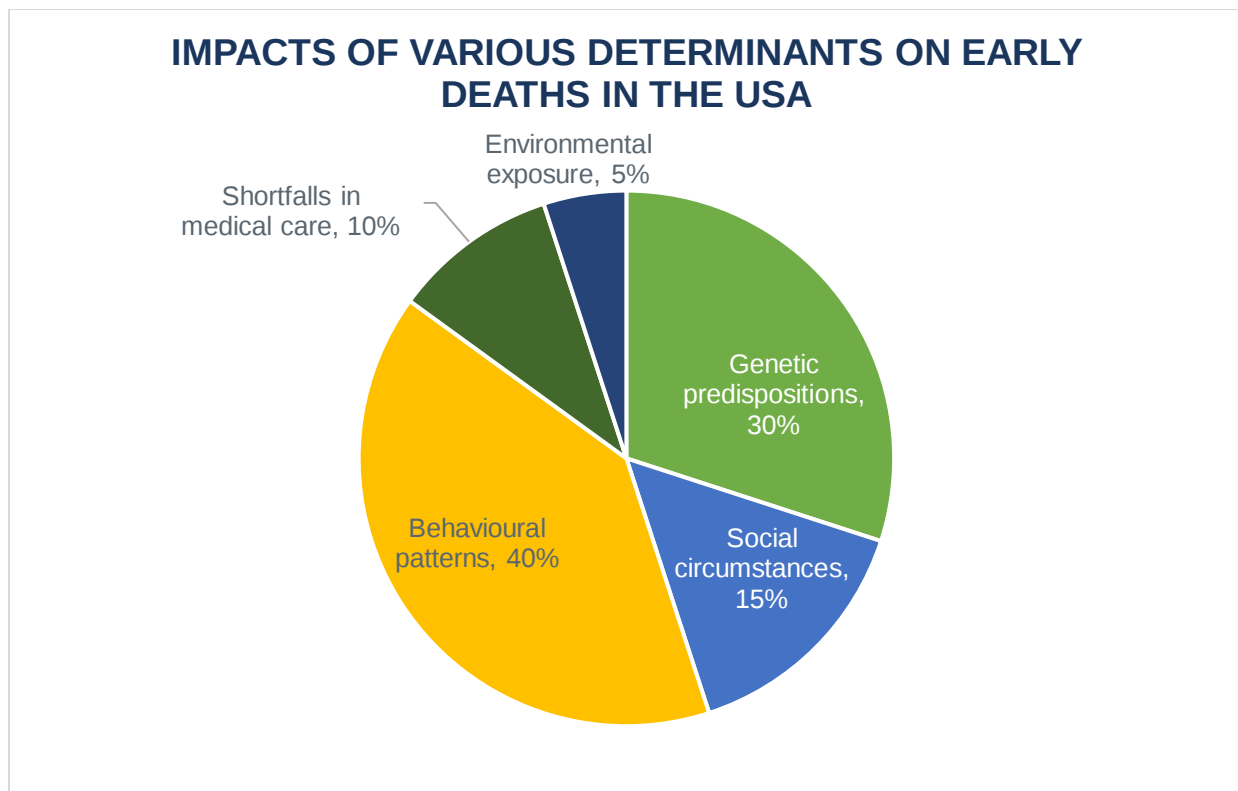


Figure 2. Determinants of Individual Health¹²

Studies also show that the four types of long-term conditions, cardiovascular disease, cancer, chronic respiratory disease, and diabetes, can be prevented by using preventive measures¹³ such as: reducing stress, maintaining a healthy diet, getting physical exercise, abstaining from tobacco use, and avoiding excessive alcohol consumption.

One body influencing preventive practices is the Canadian Task Force on Preventive Health Care; an independent group of experts which advocates for the increased adoption of evidence-based preventive primary care by Canadian health professionals.¹⁴ The taskforce, created and supported by the Public

¹² McGinnis, M.J., Williams-Russo, P., Knickman, J.R. (2002). The case for more active policy attention to health promotion. *Health Affairs* 2002; 21(78)-93.

¹³ Rajakulendran, N. (2015). Transforming Health: Ontario innovations for preventive care. <https://www.marsdd.com/news-and-insights/transforming-health-ontario-innovations-preventive-healthcare/>

¹⁴ See: <https://canadiantaskforce.ca/about/>

Health Agency of Canada, plays a key role in targeting nurses, physicians and practitioners to act pre-emptively on preventable diseases affecting Canadians. While the taskforce is an important voice pushing practitioners to promote preventive treatment, the supply of capital for these initiatives remains a barrier in the Canadian market, which cannot be solved through advocacy alone.

2.1 “HEALTH IN ALL POLICIES”

While this paper mainly focuses on preventive health practices, it is worth noting an emerging policy in considering the role of social programs in the context of healthcare. There is growing evidence that expenditure on programs that historically have not been perceived as direct health-related initiatives (for example, programs that address employment, education, housing and food systems) can have direct benefits to the health of Canadians. A study found that a “1-cent increase in social spending per dollar spent on health associated with a 0.1% decrease in potentially avoidable mortality and a 0.01% increase in life expectancy.”¹⁵ Since 1981, however, Canadian medical spending has increased 10 times compared to social spending on a per capita basis.¹⁶ Increasingly, health authorities and agencies such as the World Health Organization (WHO) are advocating for a policy approach called “Health in All Policies”, which recognizes the role of social services in improving health outcomes.

This is an interesting parallel for impact investors as we can translate this policy into a “Health in All Investment” approach. Investment capital directed towards other issues such as education, employment, food and climate can all have direct impact on health.

2.2 UNDERFUNDED PREVENTIVE HEALTH PRACTICES

There are serious gaps in funding for preventive health. In 2013, Canada spent only 5.1%¹⁷ of total healthcare expenditure on public health activities that promote healthy lifestyles and prevention of long-term conditions. The B.C. provincial government spent less than 5.0%¹⁸ of its \$15.5 billion annual healthcare budget on population wellness and disease prevention, whereas 40% of the budget was spent on acute care.

Preventive healthcare can be segmented into three types: primary, secondary, and tertiary.¹⁹

Primary prevention prevents disease or injury prior to its occurrence, by limiting exposure to hazardous conditions that could lead to disease or injury, or limiting poor health behaviors. For example:

- Dietary education, exercising, and resting
- Mandating safe behavior such as eliminating asbestos, and wearing seatbelts

Secondary prevention reduces the impact of disease or injury that has already occurred—in order to halt or slow down its effects. For example:

- Screening exams for signs of early stage cancer
- Community weight loss programs for high-risk diabetic populations

Tertiary prevention attempts to limit, or soften the impact of long-term health conditions. For example:

- Support groups for patients with similar conditions
- Supporting workplace adjustments for patients with long-term injuries

¹⁵ Dutton, D.J., Forest, P-G., Kneebone, R.D., Zwicker, J.D. (2018). Effect of provincial spending on social services and health care on health outcomes in Canada: an observational longitudinal study. *CMAJ*. 190(3). Retrieved from: <https://search.proquest.com/docview/2001336632/fulltextPDF/6450088433264E38PQ/1?accountid=14656> p. 66

¹⁶ Kershaw, P. (2018). The need for health in all policies in Canada. *CMAJ*. 190(3). Retrieved from: <http://www.cmaj.ca/content/190/3/E64>

¹⁷ Rajakulendran, N. (2015). Transforming Health: Ontario innovations for preventive care. <https://www.marsdd.com/news-and-insights/transforming-health-ontario-innovations-preventive-healthcare/>

¹⁸ CBC (2013). B.C. spends little on preventative medicine, AG finds. Retrieved from: www.cbc.ca/news/canada/british-columbia/b-c-spends-little-on-preventative-medicine-ag-finds-1.1357115

¹⁹ Institute for Work & Health (2015). What researchers mean by... Primary, secondary, and tertiary prevention. Retrieved from: <https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention>

Over time, Integrative Medicine has emerged as a prominent model for preventive healthcare. Integrative medicine is a “healing-oriented approach that focuses on the whole person (mind, body and spirit), [and] considers all aspects of lifestyle.”²⁰ It spans the three levels of preventive care, with services such as massage therapy, holistic nutrition, naturopathic medicine, and acupuncture.

A key problem is that preventive health practices are not supported by healthcare providers. Indeed, many patients still have to pay out-of-pocket for these services as they are not covered by insurance programs. In Canada, out-of-pocket health expenditure has increased 4.5% annually between 1988-2015, amounting to \$902 per person in 2015. Private health insurance expenditure has increased 6.5% annually, or \$756 per person in 2015. In the U.S., the 2012 National Health Interview Survey (NHIS) found that 33% of adults and 12% of children use complementary health services, including Integrative Medicine. About \$14.7 billion (USD)²¹ is spent on out-of-pocket visits to integrative health practitioners in the United States.

²⁰ Connect Health (n.d.). Integrative & Functional Medicine. Retrieved from: <http://connecthealthcare.ca/about/integrative-functional-medicine/>

²¹ National Center for Complementary and Integrative Health (n.d.). Paying for Complementary and Integrative Health Approaches. Retrieved from: <https://nccih.nih.gov/health/financial>

3.0 OPPORTUNITY FOR IMPACT INVESTORS

There is a growing body of evidence exploring the linkage between preventive practices targeting chronic illnesses and potential cost savings.

- The Public Health Agency of Canada estimates that “chronic diseases cost Canadians at least \$190 billion annually.”²²
- Ontario health agencies and related programs estimate \$12 billion annual expenditure on chronic diseases.²³

This section focuses on impact investing initiatives targeted at reducing certain health conditions through preventive health practices. We highlight three examples: social impact bonds, health credit markets, and private sector partnerships.

3.1 SOCIAL IMPACT BONDS

Social Impact Bonds (SIBs) – or perhaps better labelled Pay-for-Success (PFS) financing²⁴ – have seen a rise in popularity over the past ten years. Since 2010, there have been commitments from major Canadian think tanks, financial institutes, and governments to pursue impact bonds. In 2012, the BC Social Enterprise Advisory Committee formally recommended the government explore impact bonds in British Columbia. While there have been several major efforts in the areas of aboriginal welfare and mental illness, no impact bond has yet to materialize in BC. This section will look at how SIBs can be used to increase support for preventive medicine.

All types of impact bonds require the participation of five key players: a population in need, a service provider, an outcome funder, investors, and an intermediary. The general structure of an impact bond agreement is outlined below.

²² Public Health Agency of Canada (2011). Backgrounder: United Nations NCD Summit 2011. Retrieved from: http://www.phac-aspc.gc.ca/media/nrrp/2011/2011_0919-bg-di-eng.php

²³ The Ontario Association of Community Care Access Centres, The Ontario Federation of Community Mental Health and Addiction Programs, The Ontario Health Association (2010). Ideas and opportunities for bending the health care cost curve. Retrieved from: [https://hssontario.ca/Policy/Documents/papers%20and%20reports/Bending%20the%20Health%20Care%20Cost%20Curve%20\(Final%20Report%20-%20April%202013,%202010\).pdf](https://hssontario.ca/Policy/Documents/papers%20and%20reports/Bending%20the%20Health%20Care%20Cost%20Curve%20(Final%20Report%20-%20April%202013,%202010).pdf) p. 8

²⁴ It is worth noting the various labels for SIBs or SIB-like initiatives: “Payment by Results or Pay for Success describe models of outcomes-based commissioning where payment is made, in part or entirely, contingent on the achievement by the contracted agent of specified goals or targets.... In contrast, the terms ‘Social Impact Bonds’/‘Pay for Success financing’ describe Payment by Results funding models where the finance needed to make the contract work and to fund social outcomes is provided not by the service provider but by private investors.” – Albertson, K., Fox, C., O’Leary, C., Painter, G. (2018). Payment By Results and Social Impact Bonds: Outcome-based payment systems in the UK and US. *Policy Press.*, p. 2-3

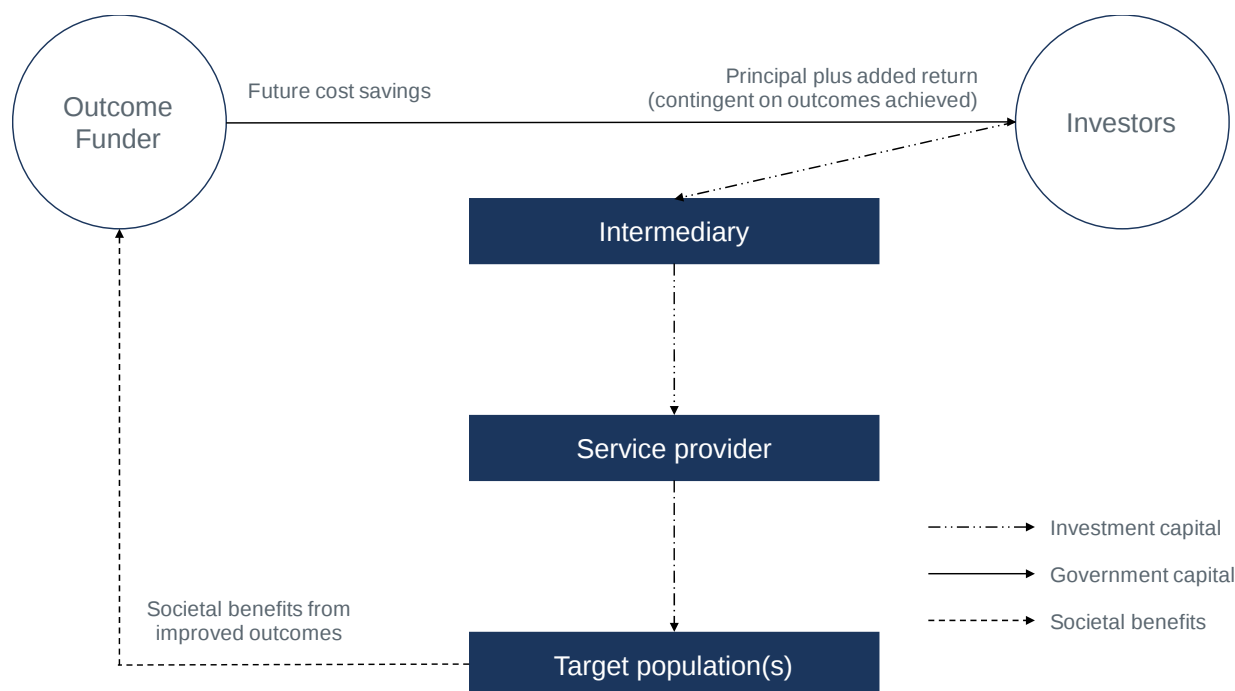


Figure 3. Impact Bond Concept

3.1.1 HOW SIBs CAN BE USED IN HEALTH

How would this model work in the context of healthcare? There are multiple real-life examples of Social Impact Bonds with health-oriented objectives (sometimes called Health Impact Bonds), including Ontario's program that addresses cardiovascular disease, Israel's SIB that tackles prevention of Type 2 Diabetes, Fresno's (California) SIB that aims to reduce asthma cases, and the United Kingdom's Ways to Wellness SIB that focuses on the general wellbeing of a vulnerable community in western Newcastle. We highlight a few of these examples in the Appendix.

A key point to remember, however, is that implementing SIBs is a highly-sophisticated process. Even if preventive care is a suitable candidate for SIBs, there is a great deal of work at the government level to build political support, as well as at the financial structuring level to help de-risk investments from investors willing to be pioneers.

3.1.2 OVERVIEW OF THE MODEL

As of October 2018, there are 119 Social Impact Bonds (SIBs) active worldwide, for a total investment of approximately \$401 million (USD). This represents a significant increase from 14 SIBs in 2012, 38 in 2014, and 60 in 2016. Of the active projects, 18 are targeting health outcomes.²⁵ In examining SIBs in the context of healthcare, we aim to answer the following questions:

1. Why create an impact bond?
2. What conditions are required for a successful health impact bond?
3. What are the existing health impact bonds, and which ones target long-term conditions?

²⁵ See: <https://sibdatabase.socialfinance.org.uk/>

3.1.3 WHY CREATE AN IMPACT BOND?

In a study by Brookings Institution²⁶ which surveyed over 30 impact bond projects, they found three fundamental reasons why impact bonds deliver value:

REASON	DESCRIPTION
To promote impact investment into the social services sector	Impact investment institutions have traditionally struggled to fund social services due to a lack of commercially viable models, which result in low profitability. In the context of healthcare, the lack of investment into preventive health practices could render certain preventive health programs appropriate for the impact bond model.
To craft more effective intervention methods through prevention, innovation and collaboration	In theory, impact bonds must target preventive, collaborative, and innovative services: • Preventive: Out of the 38 SIBs studied, 37 of them were structured around preventive methods. • Collaborative: All of them require the collaboration of multiple players. • Innovative: On the other hand, innovative practices are sometimes difficult to fund due to a lack of a base of evidence. Relatively novel, innovative practices like Integrated Medicine, non-Western medicinal systems such as Ayurvedic Medicine and Traditional Chinese Medicine could be supported through the impact bond model.
To de-risk the move towards experimental policy changes for government	It can be argued that the largest source of value of a SIB is the risk reduction mechanism. If the outcomes are not satisfactory, repayment is not triggered, effectively de-risking the move towards experimental policy changes. However, since reputations are at risk if the SIB does not perform, the political reality of implementing a SIB is complex. This factor is very relevant within healthcare. Some private insurance companies have shown a willingness to invest in exploring innovative healthcare methods.

Table 1. Key value-add sources of SIBs

No discussion of impact bonds will be complete without recognizing the downsides and ethical concerns of these instruments. Critics of these financial tools cite concerns around profit-making incentives in the context of social programs. The introduction of financial interests can lead to undesired incentives that can prove costly to vulnerable populations, increasing the risk of adverse effects. In some cases, private investors do not bare the risk of investing in impact bonds, as financial guarantees have been provided by foundations and governments to reduce the risk for private investors. Additionally, there are concerns that an inefficient amount of capital is spent on intermediary services and consultants – critics argue this money could be better spent on direct services to the population.

We wish to acknowledge these tangible and real risks, and recognize impact bonds are, in some cases, not suitable or appropriate. Our intention is to demonstrate how this model of financing *could* work in the context of healthcare, and what conditions are necessary to lead to positive health outcomes.

²⁶ Gustafsson-Wright, E., Gardiner, S., Putcha, V. (2013). The Potential and Limitations of Impact Bonds. *Brookings Institution*. Retrieved from: <https://www.brookings.edu/wp-content/uploads/2016/07/Impact-Bondswb.pdf>

3.1.4 WHAT CONDITIONS ARE NECESSARY FOR A SUCCESSFUL SIB?

While in theory, Social Impact Bonds provide an innovative solution to de-risking policy changes and encourages experimentation with different forms of healthcare, there are several necessary conditions for a health impact bond to be considered. In a study by Social Finance UK²⁷ exploring the suitability of SIBs in supporting the UK's National Health Service (NHS), the authors outlined two main factors that create an environment conducive to success:

1. A need for prevention of long-term conditions
2. Aligned policymaker incentives

Healthcare SIBs are well-suited for programs targeting the prevention of long-term conditions (LTCs). LTCs like asthma, diabetes, coronary heart problems, breathing problems, muscular skeletal problems, and depression are well suited for the SIB model due to several reasons:

1. **Involvement from patients:** People with LTCs will suffer from the condition for a long period of their life. This means interaction between the NHS and the patient is more than an “episodic, one-off” event. LTC patients will likely to very involved in their healthcare – investing fully in the improvement of their condition. SIBs realize value through more patient involvement.
2. **A clear economic case and ROI:** The current usage of health resources by LTC patients is very high.²⁸ A diabetic individual could collapse if their blood sugar is too high, and will be brought to the hospital. This means the patient will use intensive care beds and before being moved to normal acute care beds, which are both very expensive forms of care. If we are able to give individuals suffering from LTCs like diabetes better support, we can reduce the use of expensive forms of care. SIBs focus on providing better organized patient care for those with chronic illnesses – if successful, this will lead to reduction of emergency admissions.

SIBs will only be adopted if healthcare policy encourages decision-makers to be more evidence-based and financially prudent. The report's authors state that for many years, NHS has claimed that new services will save money – but these claims often do not hold.²⁹ In many cases, the actual amount of savings realized has been much lower than claimed. On the other hand, the author of the report argues there are two trends in the NHS system that are pressuring healthcare commissioners to strongly consider SIBs:

1. **An organizational culture shift towards economics-based decision making.** GPs have been leading local health commissions that are responsible for the wellbeing of their respective communities. Since the GP sector of the NHS has been organized as separate small businesses in which GPs are partners, GPs have “learnt to become small business people with an eye to the economics of investment and return.”³⁰
2. **Financial incentives are aligned.** Local health commissions are being asked to achieve greater healthcare outcomes for the same amount of resources. Those who fail to implement effective and efficient health practices will fail to break-even. Furthermore, many healthcare providers are owned by NHS Foundation Trusts (FTs). Unlike hospitals and NHS acute trusts that are owned by the Secretary of State, the autonomous NHS FTs are “owned” by independent boards. They are solely responsible for their success or failure. It is likely that they will have to make decisions “within the reality of real economics”.

²⁷ Corrigan, P. (2011). Prevention is not only better healthcare but better economics. Can Social Impact Bonds fund a shift to prevention? *Social Finance UK*. Retrieved from:

<https://yoursri.com/users/570478ce8443743bff8b7e51c4d7ba60/b8984d6a364dadf0ff6c5d869f8f0cb8/@download/fs>

²⁸ People with LTCs use health services the most. In the UK, they represent 50% of GP appointments, 68% of outpatient and Accident & Emergency attendances, and 70% of inpatient bed days. This population is a major driver of healthcare costs and has the potential to strongly influence NHS healthcare policy.

²⁹ Ibid., p. 6

³⁰ Ibid., p. 16

3.1.5 WHAT ARE THE EXISTING HEALTH IMPACT BONDS?

We identified at least thirteen projects under consideration for health-related social impact bonds.

PROJECT	DESCRIPTION
Sandwell	Integrated community-based end of life services.
Cornwall	Early interventions for a cohort of 1,000 frail seniors with long-term conditions at risk of emergency admission.
East Lancashire	Provision of patient-specific tailored health and social care interventions to reduce isolation, unemployment, and poor quality of life.
Leeds	Setting up a 75-bed nursing facility and creating a community of care to a mix of high-needs individuals.
Manchester	Multidimensional Treatment Foster Care for adolescents – behavioral interventions for 95 children aged 11-14 years.
Newcastle	Improve the self-management of long-term conditions through social prescribing (i.e. non-medical interventions in the local community to foster sustained healthy behaviors).
Shared Lives	Alternative to care homes for people in need of support: Care providers share their homes and live with those they support.
Thames Reach	Personalized service pathway for cohort of 415 entrenched rough sleepers.
Worcester	Early intervention and self-care programmes for isolated individuals.
Essex	Multi-Systemic Therapy (MST) which delivers family therapy in the home through highly qualified therapists delivered to 380 children on the edge of care or custody.
Fresno, California	Asthma Impact Model which combines home care, education, and reduction in negative environmental triggers for children with asthma.
Israel	Individuals at risk of Type 2 diabetes given intervention combining personal coaches, digital health monitors, fitness & nutrition plans, and incentives reward system.
Canada (Toronto and Vancouver)	Heart & Stroke Foundation will run a program to screen and enroll 7,000 pre-hypertensive individuals into a program focused on improving lifestyles to prevent hypertension and related cardiovascular diseases.

Table 2. List of Health SIBs

We identified four health impact bonds that specifically address long-term conditions, highlighted in grey in the table above. The following table summarizes how the Israeli Type 2 Diabetes SIB³¹ works:

STAGE	ISRAEL TYPE 2 DIABETES SIB EXAMPLE
1. Attention is required from a specific population.	There are currently more than 500,000 diabetics in Israel and over 340,000,000 diabetics worldwide accounting for over 10% of global health expenditure. Diabetes costs the Israeli economy over \$1.25 billion USD annually.
2. A new, innovative method of treating the issue is developed.	There will be four components to the intervention. 1. Lifestyle Coach/ Case Manager: Oversees and directs the individual's participation within the intervention program, with a personalized service. 2. Technology: Utilize fitness and activity trackers in conjunction with SMS and networking capabilities. 3. Motivation and Adherence: Sustain a high level of commitment through a psychological and incentive-based reward system. 4. Fitness and Nutrition: A personalized and culturally sensitive fitness and nutrition plan, targeting the entire family unit.
3. The financial and organizational terms of a SIB is agreed upon.	Social Finance Israel and UBS will sell the bonds to raise \$5.4 million for the intervention. HMOs (Kupot Holim & the National Institute of Insurance) will repay the investors for each successful case. The cost savings are derived from: 1. Reduction of direct diabetes-related medical expenses. 2. Reduction of direct diabetes-related disability and income allowances. 3. Increase in economic productivity from increased workforce participation.
4. Service provider operates and treats the population.	The program was launched July 2016, and will operate in 3 annual cohorts. The first results will be measured 2 years after the beginning of the first cohort (i.e. July 2018).
5. Payment is triggered based on the outcomes.	Payment will be triggered based on two metrics: (1) The number of type 2 diabetes cases <i>averted</i> relative to the control group, and (2) The number of healthy states <i>produced</i> relative to the control group. Two tests will be used to determine whether an individual is healthy: A1c blood test: Measures the percentage of your hemoglobin that is coated with sugar. The higher the measure, the poorer your blood sugar control and higher your risk of diabetes. • Healthy: $A1c < 5.7\%$ • Pre-diabetic: $5.7\% \leq A1c \leq 6.4\%$ • Overtly type 2 diabetic state: $A1c \geq 6.5\%$ • Target population (High risk pre-diabetic state): $6\% \leq A1c \leq 6.4\%$ Fasting plasma glucose (FPG) test: Measures the amount of primary sugar found in blood. The higher figure, the higher your risk of diabetes.

³¹ Social Finance Israel (n.d.). Preventing type 2 diabetes. Retrieved from: <http://www.social-finance.org.il/category/Preventing-Type-2-Diabetes>

- Healthy: FPG < 100 mg/dL
- Pre-diabetic: $100 \text{ mg/dL} \leq \text{FPG} \leq 125 \text{ mg/dL}$
- Overtly type 2 diabetic state: $\text{FPG} \leq 126 \text{ mg/dL}$
- Target population (High risk pre-diabetic state): $110 \text{ mg/dL} \leq \text{FPG} \leq 125 \text{ mg/dL}$

Table 3. Case study on Israel Type 2 Diabetes Health SIB

A possible outcome of Israel's SIB is the widespread adoption of the preventive healthcare method by healthcare providers. Canada currently has one health-focused SIB issued, the *Community Hypertension Prevention Initiative* (CHPI). CHPI was started as a \$2 million innovative partnership between the Public Health Agency of Canada, Heart & Stroke (formerly the 'Heart and Stroke Foundation of Canada'), and the MaRS Centre for Impact Investing, to support senior residents of British Columbia and Ontario who are risk of hypertension (otherwise known as high blood pressure).³²

3.2 HEALTH CREDIT MARKETS

Health Credit Markets are another innovative financing mechanism that stress evidence creation and outcomes-based payment. To our knowledge, there is only one organization operating such a mechanism: The Health Credit Exchange (HCX) Fund, operated by GBCHealth with partners Total Impact Advisers and MDG Health Alliance. The HCX Fund is a Donor-Advised Fund that aggregates small and large donations into a pool of resources that are held until outcomes are achieved.³³

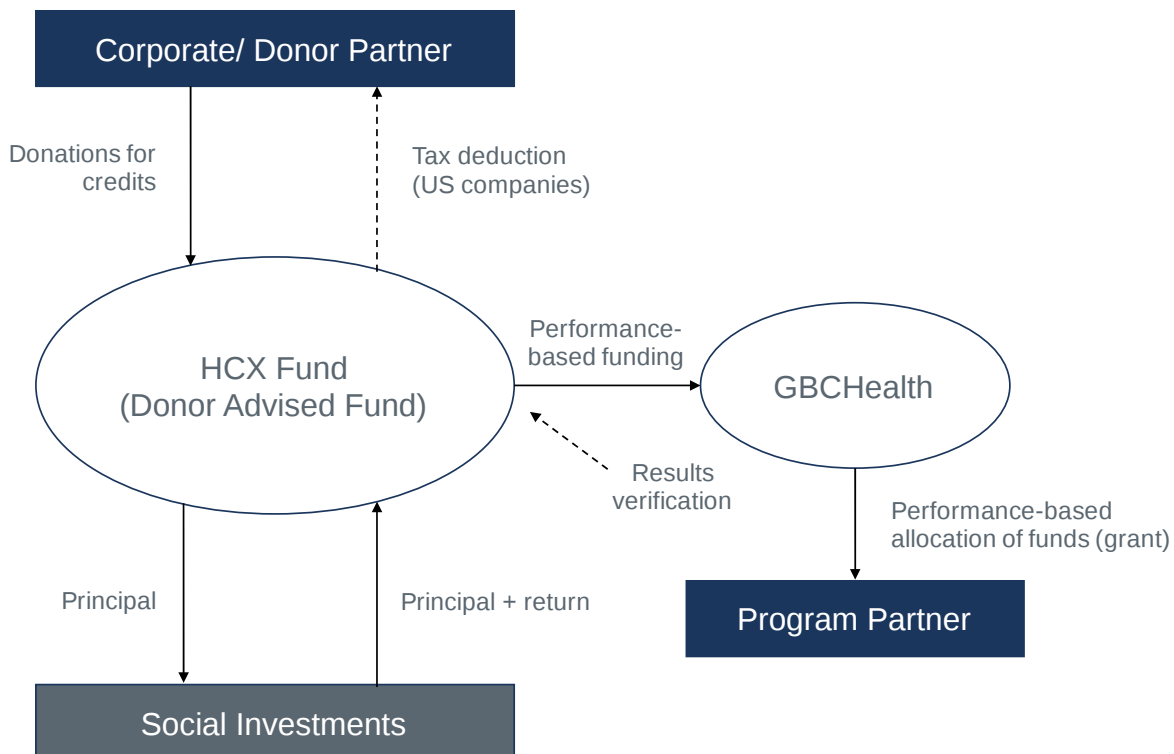


Figure 4. Health Credit Exchange Fund³⁴

³² See: <https://impactinvesting.marsdd.com/chpi/>

³³ GBCHealth (n.d.). Health Credit Exchange: Co-Invest for Better Health. Retrieved from: www.gbchealth.org/wp-content/uploads/2015/09/HCX-Executive-Summary_2016_02_24.pdf

³⁴ Adapted from: http://www.gbchealth.org/wp-content/uploads/2015/09/HCX-Executive-Summary_2016_02_24.pdf

1. Corporation/ donor invests in the HCX Fund by purchasing “health credits” (one credit costs \$1, with a minimum one-time contribution of \$10,000 USD), and the donor receives a tax deduction.
2. Program Partners (healthcare providers) will apply for the credits through GBCHealth. The funding from the credits are structured as grants.
3. The HCX Fund approves the credits for the partners, but holds onto the money until outcomes are produced. HCX invests the deposits in socially-responsible, publicly-listed securities. GBCHealth claims that every credit purchased will be doubled as a result of such investment.
4. Returns earned on the principal, along with 3% management fee will go to HCX management partners and cover the costs of running the program.
5. Upon validation of outcomes, the funds are given to the Program Partners.

In essence, the HCX is a modified version of the Social Impact Bond in which the financial risk is shifted towards the Program Partner, and the investment is structured as a donation. If they cannot achieve specified outcomes, they do not receive any payments. If partial results are achieved, they will then receive a partial payment. On the other hand, the investor/ donor will receive the tax deduction and have the opportunity to shift the unsuccessful and unused credits towards other Program Partners.

3.3 PRIVATE SECTOR PARTNERSHIPS

Our final opportunity involves partnerships with private insurance companies. We focus on how Beaumont Health’s adoption of Integrative Medicine led to increased savings and employee wellbeing.³⁵ Some healthcare providers and insurance companies in the US have started to offer coverage for preventive healthcare interventions. In response to increasing cases of musculoskeletal and neuromuscular pain, Beaumont Health (a non-profit health organization that offers physician services and operates hospitals in Michigan) established an Integrative Medicine (IM) department in 2004, offering services ranging from yoga therapy to acupuncture. Eventually, the medical director of Beaumont met with the director of Integrative Medicine and created a pilot to test extended coverage for Integrative Medicine with Beaumont Health’s own hospital personnel. They found that acupuncture and clinical massage sessions were very effective for employee wellbeing. It eventually made economic sense to fully offer Beaumont’s employer coverage for effective IM practices for full- and part-time employees.³⁶ As such, they implemented the following policy.³⁷

- Beaumont would cover massage and acupuncture sessions. Each massage session costs \$60, each acupuncture session costs \$112.
- This coverage led to positive clinical results and increased patient satisfaction in terms of health and quality of life.
- As a result of the effective results from this increased coverage, Beaumont was able to reduce chiropractic services coverage from 38 visits to 12 visits annually. This change in policy saved Beaumont \$1 million USD.

In 2013, Beaumont Health covered a wide array of preventive practices, including nutritional classes, exercise sessions, naturopathic medicine consults, and individual psychology sessions. There are two lessons to be highlighted from this case study:

1. **Monitoring of patient wellbeing.** Beaumont’s pilot was successful because they consistently measured the wellbeing of their patients. Once they found out that patient wellbeing increased,

³⁵ Anderson, M. M. et al. (2016). A unique partnership between a health system’s insurance plan and the Integrative Medicine Department benefits patients and helps control costs. *Journal of Hospital Administration*. 5(4). Retrieved from: <http://www.sciedu.ca/journal/index.php/jha/article/viewFile/8815/5744>

³⁶ Anderson, M., Sternburgh, L. (2015). An Integrative Approach to Employee Health & Wellness. *Michigan Wellness Council*. Retrieved from: <http://www.michiganwellnesscouncil.org/wp-content/uploads/2015/01/Beaumont-Integrative-Medicine-and-Employee-Wellness-MWC-13-January-2014.compressed.pdf>

³⁷ Anderson, M. M. et al. (2016). A unique partnership between a health system’s insurance plan and the Integrative Medicine Department benefits patients and helps control costs. *Journal of Hospital Administration*. 5(4). Retrieved from: <http://www.sciedu.ca/journal/index.php/jha/article/viewFile/8815/5744>, p. 62

they were able to continue to support effective healthcare practices (clinical massage therapy, acupuncture) and reduce support for services that were not as effective (chiropractic sessions).

2. **Financial and social returns.** There are clear financial and social returns to healthcare providers from investing in preventive healthcare practices. In 2014, Beaumont reported a 19.7% reduction in costs related to musculoskeletal conditions, and 19.5% reduction in costs related to lower back pain. Over 35,000 patients now have coverage and Beaumont has seen decreased cases of back and neck pain.³⁸

³⁸ Ibid., p. 64

4.0 CONCLUSION

Investment into preventive healthcare practices has often been cited as an effective method of improving health outcomes in a population. Historically, governments have underfunded preventive healthcare practices in favour of diagnostic practices. We do not suggest that solely one type of health expenditure should be prioritized, but we hope to provide a snapshot of how private capital from family offices, foundations and other investors could play a role in improving the health of Canadians, through investing in preventive health practices using tools like social impact bonds (SIBs), Health Credits Markets, and private sector partnerships.

4.1 IMPACT BONDS

It must be stressed that the overarching objective of using SIBs is to demonstrate the effectiveness of an innovative service. In the context of healthcare, these services are preventive methods for long-term health conditions. The logic here is that if a SIB can prove a causal link between the preventive intervention and a reduction in long-term health conditions, like diabetes, then policymakers can make better informed decisions and shift resources towards supporting preventive measures. If the SIB cannot prove such a link, the government still benefits from being shielded from a costly experiment with a new treatment method. However, proving the causal link can be very expensive and time consuming. It is estimated that running a Randomized Controlled Trial (a widely-accepted method of testing for causal relationships) costs upwards of \$1 million USD.

4.2 HEALTH CREDIT MARKETS

Health credits markets have not been widely used. GBCHealth's Health Credit Exchange Fund is structured to fund multiple types of services and those that do not perform do not receive payments. The benefit here is that multiple methods can be tested at the same time. On the other hand, the lack of focus can lead to less rigorous study of the causal relationship between a certain intervention method and improved health outcomes in a community receiving multiple types of treatments.

4.3 PRIVATE SECTOR PARTNERSHIPS

The final opportunity examined is working with pilot projects like Beaumont Health. With appropriate support from management and an organizational culture that is focused on evidence-based decisions, Beaumont was able to provide a clear financial and social case for extending coverage towards preventive healthcare methods. There is potential in creating in-house projects within health insurance plans to test the effectiveness of extended coverage for preventive medicine.

There is strong evidence to support an economic case for future healthcare savings by investing in preventive healthcare treatments. There is a body of evidence building for its effectiveness, and some work has been done to trace the relationship to economic savings. To advance the integration of performance-based financing and preventive health practices such as Integrative Medicine, practitioners must solidify this base of evidence and the business case.

5.0 APPENDIX

The next section will provide a brief overview of the health impact bonds in Newcastle, Fresno, and Israel.

5.1 NEWCASTLE, UNITED KINGDOM

The cause	Reduce the prevalence of all types of long-term conditions through social prescribing (non-medical interventions).
Procurement process	The Voluntary Organizations' Network North East (VONNE) found an appetite amongst social investors for addressing the long-term conditions (LTCs) in North East England. In response to a call for proposals regarding a SIB, £165,000 was raised for the technical and administrative assistance needed to develop the SIB.
Target population	Individuals with long-term health conditions living in West Newcastle
Service	Social prescribing ³⁹ "is a way of linking patients in primary care with sources of support within the community." This service was provided through hiring "Link workers".
Outcome metrics	1. Achieved improvement of the outcomes on the Wellbeing Star⁴⁰ (a framework for measuring general wellbeing). 2. Savings for secondary care acute usage.
Outcome funder	National Health Service (NHS)
Investors	Bridges Ventures: £1.65 million Newcastle Healthcare Charity: £50,000
Intermediary	No formal intermediary

³⁹ https://www.york.ac.uk/media/crd/Ev%20briefing_social_prescribing.pdf

⁴⁰ <http://www.outcomesstar.org.uk/using-the-star/see-the-stars/well-being-star/>

5.2 FRESNO, CALIFORNIA

The cause	Reduce the prevalence of asthma amongst 3,000 children living in Fresno, California. Fresno has one of US's highest asthma rates, with 20% prevalence amongst children. It costs an estimated \$30m USD annually.
Procurement process	The California Endowment awarded grant funding to Social Finance US and Collective Health to lead a collaborative project with asthma service providers in Fresno.
Target population	3,000 children
Service	The Asthma Impact Model is provided by an organization called AIM4Fresno, in collaboration with Central California Asthma Collaborative, Clinica Seirra Vista, and Regional Asthma Management and Prevention. It combines in-home care, education, and initiatives to reduce negative environmental triggers.
Outcome metrics	Collective Health uses Medicaid (Medi-Cal) insurance claims data to measure reductions in health care costs through a Randomized Control Trial.
Outcome funder	California Endowment
Investors	Unknown
Intermediary	Social Finance US, Collective Health

5.3 ISRAEL

The cause	There are currently more than 500,000 diabetics in Israel and over 340,000,000 diabetics worldwide accounting for over 10% of global health expenditure. Diabetes costs the Israeli economy over \$1.25 billion USD annually.
Procurement process	Social Finance Israel pitched a health impact bond to the G8 Impact Investment taskforce in 2013, and launched the bond in July 2016.
Target population	3 cohorts of 2,250 individuals at risk of Type 2 diabetes
Service	There will be four components to the intervention. 1. Lifestyle Coach/ Case Manager: Oversees and directs the individual's participation within the intervention program, with a personalized service. 2. Technology: Utilize fitness and activity trackers in conjunction with SMS and networking capabilities. 3. Motivation and Adherence: Sustain a high level of commitment through a psychological and incentive-based reward system. 4. Fitness and Nutrition: A personalized and culturally sensitive fitness and nutrition plan, targeting the entire family unit.
Outcome metrics	1. The number of type 2 diabetes cases <i>averted</i> relative to control group 2. The number of healthy states <i>produced</i> relative to control group
Outcome funder	HMOs in Israel (Kupot Holim, National Institute of Insurance)
Investors	Unknown
Intermediary	Social Finance Israel, UBS

UBC Sauder Centre for Social Innovation & Impact Investing
2260 West Mall, Vancouver, B.C., Canada
sauders3i.sauder.ubc.ca

Impact Investment Forum
800 Robson St., Vancouver, B.C., Canada
impactinvestmentforum.com

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