



# THE SCHOOL OF PUBLIC POLICY

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## MASTER OF PUBLIC POLICY CAPSTONE PROJECT

Paying for Outcomes

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# THE SCHOOL OF PUBLIC POLICY

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## **Capstone Executive Summary**

This paper explores the feasibility of funding community rehabilitation services based on the outcomes that interventions produce. Community rehabilitation services are most often paid for by the number of client visits or the specific services delivered. Neither of these two methods incent interventions that help to keep patients from accessing more costly upstream acute services such as acute and emergency care.

Preventing patients from unnecessarily accessing costly acute services and shortening the length of stay in care are of principal concern to Alberta Health Services (AHS) and the provincial government. As the cost of health services continues to rise, administrators and health policy planners need to look at alternative ways of funding services in order to gain efficiencies and invest in services that prevent a more costly alternative of care.

The Social Impact Bond (SIB) is a promising newly piloted type of funding contract that is based on payment for specific outcomes that negate the utilization of more costly care. One of the main benefits of the SIB is that the capital needed for funding services is provided by private investors who have an interest in the population that the program is targeting. However, like any type of funding mechanism that is contingent on outcomes, paying for outcomes in health is challenging due to the complexity of identifying clear performance measures, accessing proper data, and meaningfully measuring change.

Despite some of the challenges that exist with this concept, a comprehensive specialized early concussion rehabilitation pathway and service that could produce outcomes that translate to system level cost savings, holds promise for this type of funding because it meets the foremost optimal conditions for paying for outcomes through a Social Impact Bond contract.

## Introduction

As health care costs in Alberta continue to rise and a cash strapped provincial government struggles to balance the budget, Alberta Health Service (AHS) is focusing its attention on programs based in the community that can prevent patients from accessing more costly acute services.<sup>1</sup> These programs are meant to target populations that typically re-visit acute and emergency services often and for long periods of time.

Concussion is one such condition that has a high emergency care re-visit rate in the Calgary Zone of AHS.<sup>2</sup> Sports related concussions are most often the focus for prevention and rehabilitative programs. However, concussion continues to be a very common injury for the general public caused by falls, motor vehicle accidents, and assaults. According to *Carroll et al* (2004) the incidence of hospital-treated (reported) concussion is high, at 100 to 300 per 100,000 people per year.<sup>3</sup> The author goes on to conclude that it's likely that the actual number of total (reported and unreported) concussions per year is much greater than that.<sup>4</sup>

The majority of individuals will completely recover from the symptoms of a concussion, however, for approximately 15% of the population symptoms will persist and progress to post concussion syndrome.<sup>5</sup> Post concussion symptoms can include “*headaches, balance problems, dizziness, fatigue, depression, anxiety, irritability, and memory and attention difficulties, which*

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<sup>1</sup> Alberta Health Services “Alberta Health Services Health Plan and Business Plan 2013-2016”. Accessed July 10, 2013. <http://www.albertahealthservices.ca/Publications/ahs-2013-16-health-business-plan.pdf>.

<sup>2</sup> Congram J., Patel, L. “Calgary Brain Injury Program: Concussion Summit 2013”, *Alberta Health Services, Calgary Zone*.

<sup>3</sup> Cassidy J.D., Carroll L.J., Peloso P.M, Borg J., von Holst H., Holm L., Kraus J., Coronado V.G., “Review Incidence, Risk Factors and Prevention of Mild Traumatic Brain Injury: Results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury.” *Journal of Rehabilitation Medicine*. February 2004: 28-60.

<sup>4</sup> Ibid.

<sup>5</sup> Ontario Neurotrauma Foundation “Guidelines for Mild Traumatic Brain Injury and Persistent Symptoms” 2010.

can have a considerable negative effect on the patient's ability to return to pre-injury function, work, and/or school.”<sup>6</sup> The negative effects of these symptoms can translate into economic and social costs to society because post concussion syndrome can cause dysfunction in regular activities such as work, relationships and household responsibilities, patients often can no longer fulfill these life roles as they did prior their injury.<sup>7</sup> Economic costs such as disability payments, income support, health services utilization and inability to contribute to society in the way that they did prior to injury all add up for this population.

In an systematic review by *Cancelliere et al.* (2012) the authors discuss the economic cost of mild traumatic brain injury<sup>8</sup> as being substantial and refer to an article by *Truman et al* (2001) where the author reports the economic cost of mild traumatic brain injury accounting for approximately 44% of the total \$60 billion dollar annual cost of all traumatic brain injuries in the United States.<sup>9</sup>

The Ontario Neurotrauma Foundation Guidelines for Mild Traumatic Brain Injury and Persistent Symptoms conclude that early symptom education and appropriate follow up instructions on

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<sup>6</sup> Cancelliere C., Cassidy J.D., Côté P., Hincapié C.A., Hartvigsen J., Carroll L.J., Marras C., Boyle E., Kristman V., Hung R., Stålnacke B.M., Rumney P., Coronado V., Holm L.W., Borg J., Nygren-de Boussard C., af Geijerstam J.L., Keightley M., “Protocol for a systematic review of prognosis after mild traumatic brain injury: an update of the WHO Collaborating Centre Task Force findings” Systematic Rev. 2012: 1-17. Background Section. Published online February 23, 2012. doi: 10.1186/2046-4053-1-17.

<sup>7</sup> Torrence, C. B., DeCristofaro, C. and Elliott, L. “Empowering the Primary Care Provider to Optimally Manage Mild Traumatic Brain Injury,” *Journal of the American Academy of Nurse Practitioners*, 2011: 638–647. doi: 10.1111/j.1745-7599.2011.00658.x.

<sup>8</sup> Mild traumatic brain injury and concussion are used interchangeably in the literature; however, concussion is most often used in the sports literature whereas mild traumatic brain injury is used more frequently in scientific literature.

<sup>9</sup> Thurman DJ. “The Epidemiology and Economics of Head Trauma”. *Head trauma: Basic, Preclinical, and Clinical directions*. Miller L, Hayes R, editor. New York: John Wiley & Sons. 2001: 327–348.

rehabilitative intervention can help to prevent the progression from a concussion injury to post concussion syndrome.<sup>10</sup>

AHS needs to explore alternative funding models for rehabilitative programs for populations such as the concussion population. Models that incent a more efficient delivery of services where cost savings via preventing patients from accessing more costly upstream services or having longer lengths of stay in downstream services is the focus of the intervention. Currently, AHS pays for services by the type of intervention rendered or the number of patient visits. For new programs, funding is often based on the costs of starting up the program, including human resources, equipment and administration. Paying for outcomes is an alternative that could offer greater clarity about outcomes for the types of services provided in relation to the cost of the service.

One promising alternative funding model is a Social Impact Bond (SIB) contract. Under the SIB model, the funders pay for pre-identified, mutually agreed upon performance outcomes. Because of the focus on social outcomes, SIBs are only used for programs aimed at social issues. The SIB concept has been trialed for various social issues including preventative health,<sup>11</sup> but there has been no such application of the SIB model to community rehabilitation.<sup>12</sup>

The slow adoption of paying for outcomes in health is largely a result of the difficulty that arises when trying to identify outcomes for health programs. However, despite this challenge some community rehabilitation programs hold promise for paying for outcomes through a contract such as the Social Impact Bond. Paying for outcomes will work for community rehabilitation

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<sup>10</sup> Ontario Neurotrauma Foundation “Guidelines for Mild Traumatic Brain Injury and Persistent Symptoms” 2010. p. 15.

<sup>11</sup>Jensen, R. “Social Impact Bond” Buzz Heads West,” *Bond Buyer*. January 11, 2013. Accessed June 10, 2013 <http://ezproxy.lib.ucalgary.ca/login?url=http://search.proquest.com/docview/1270767199?accountid=9838>.

<sup>12</sup> To the best of the author’s knowledge and literature search to date.

programs when specific conditions are met. These conditions include: defined outcomes, defined intervention, and a well defined population, potential for enough return on investment, and upfront costs requiring upfront capital.

A comprehensive, specialized early concussion rehabilitation care pathway and service that could produce outcomes that translate to system level cost savings, holds promise for this type of funding. This program proposal has potential for this type of funding because it meets the foremost optimal conditions for paying for outcomes through a Social Impact Bond contract.

### **Background**

The healthcare system across Canada faces steady cost increases due to an aging population, increased chronic illnesses and increasing pressure on the acute services.<sup>13</sup> Fiscal responsibility on the part of government and health services administration is extremely important to the electorate and to the future of health services.

Alberta is no exception. Evidence of this is in the Alberta government's 2013 - 2014 budget, which contained only a three percent increase in funds to health care services. Despite this being a relatively small increase it still equals half a billion dollars towards health care - the provincial government's largest expenditure that accounts for almost 45% of its operational budget.<sup>14</sup> In order to keep up with the increase in demand put on the health system, the provincial

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<sup>13</sup> Alberta Health Services "Alberta Health Services Health Plan and Business Plan 2013-2016". Accessed July 10, 2013. <http://www.albertahealthservices.ca/Publications/ahs-2013-16-health-business-plan.pdf>.

<sup>14</sup> Government of Alberta. "Building Alberta: Health A Priority in 2013". May 7, 2013. Accessed June 10, 2013. <http://alberta.ca/acn/201303/3377946A8CD70-C069-7894-1D9786D5EBBD7C8E.html>.

government has had to increase the health budget by approximately nine percent over each fiscal year.<sup>15</sup>

This year, with a much smaller increase in budget dollars, AHS administration needs to look for opportunities to gain efficiencies and save on costs within current and new programs. Moreover, the focus should shift away from financing acute services and instead to financing community and preventative health services in order to save dollars spent on emergency care visits and hospital admissions.<sup>16</sup>

**Current State:**

Currently in Calgary, most adult community rehabilitation programs, which provide a wide range of rehabilitation and preventative services, are paid for by AHS. These rehabilitation services are either provided in-house by an AHS program or through a competitive bidding process open to private for-profit and not-for-profit providers.

**Bill by Visit or Fee for Service:**

In-house rehabilitation programs bill Alberta Health, the Worker's Compensation Board or another third party funder based on the number of client visits. Alberta Health and Wellness reimburses the particular AHS program for these services and the funds are put into the operational budget of the program.

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<sup>15</sup> Government of Alberta. "Building Alberta: Health A Priority in 2013". May 7, 2013. Accessed June 10, 2013. <http://alberta.ca/acn/201303/3377946A8CD70-C069-7894-1D9786D5EBBD7C8E.html>.

<sup>16</sup> Social Finance. "*Health and Social Care*" Accessed July 27, 2013. <http://www.socialfinance.org.uk/work/sibs/health>.

Contracted providers are procured through an AHS request for proposal. The successful proponent is awarded the contract based on the competitive pricing and the service packages that they propose to provide to meet needs of the target patient population.

The main limitation with both of these avenues for acquiring services is that neither is based on meeting important performance measures, therefore the outcomes of the services are not clear, nor are they assigned a value. At times, benchmarks from similar programs will be considered,<sup>17</sup> however, this still does not equate to understanding the outcomes of the intervention within a specific context and more importantly understanding the costs of the program versus the benefits.

Being able to use performance measures to weigh the success of programs against their costs is vital for making informed administrative decisions regarding which healthcare programs should be prioritized. In a climate of increasing financial pressure, targeted and informed cuts will serve the system better than flat cuts across the system.

## **Methodology**

The methodological approach to this paper was a review of the literature on Social Impact Bonds, paying for outcomes in health care and in community rehabilitation and of the early concussion rehabilitation literature. This was followed by a critical analysis of the literature and synthesis of the results in order to delineate the characteristics of rehabilitation services that are conducive to ‘paying for outcomes’ funding models, such as the SIB.

A review of the current literature available on paying for outcomes, social impact bonds, and paying for outcomes in community rehabilitation was completed using the following databases

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<sup>17</sup> This is from the author’s experience with health services procurement.

accessed through the University of Calgary library website: PubMed, Medline (OVID), EconLit, PsychINFO and CINAHL. Additionally, Google Scholar was also utilized in this research in order to obtain primary and secondary resources.

## **Paying for Outcomes**

Another option for health funding that has been discussed in the literature is the concept of paying for outcomes, particularly for physician services. According to *Mullen, Frank and Rosenthal* (2010) a study of paying for outcomes in a physician group showed a positive impact on some clinical measures, however, they also concluded that it was not enough of a significant improvement to prove the concepts absolute efficacy in health care.<sup>18</sup> Nonetheless, paying for outcomes does hold potential and there is evidence that providers respond to incentives.

Therefore the key to the success of pay for outcomes is structuring the contract in such a way that the incentives produce the desired outcome.<sup>19</sup>

One specific type of paying for outcomes funding, which will be used in the case example further on in this paper, is the SIB. The application of this type of funding mechanism has most often been to social issues such as prevention of prison recidivism, decreasing homelessness, and increasing health prevention. It is a concept that was developed and researched by *Social Finance* in the United Kingdom and is now gaining popularity in Britain and in the United States as a viable option for contracting social services.<sup>20</sup>

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<sup>18</sup> Mullen, K.J., Frank, R.G., Rosenthal, M.B., "Can you get what you pay for? Pay-for-performance and the quality of healthcare providers," *RAND Journal of Economics*. RAND Corporation, 2010: 64-91.

<sup>19</sup> Petersen, L.A., Woodard, L.D., Urech, T., Daw, C., Sookanan, S., "Does Pay-for-Performance Improve the Quality of Health Care?" *Annals of Internal Medicine*, September 2006 :268.

<sup>20</sup> Runnalls, J., "Social Impact Bonds Go to Prison" *Responsible Investing. Corporate Knights*. February 1, 2013. Accessed on June 10, 2013. <http://web.ebscohost.com.ezproxy.lib.ucalgary.ca/ehost/pdfviewer/pdfviewer?sid=c989b4a9-15ed-4713-bc71-3930cec56e78%40sessionmgr13&vid=2&hid=20>.

## **Social Impact Bonds:**

The concept of Social Impact Bonds (SIB), also referred to in the literature as Development Bonds or Pay for Success Bonds, was first introduced in 2000 by Roonie Horesh, an Economist from New Zealand.<sup>21</sup> However it wasn't until 2010 that the first SIB was piloted. It was piloted in Britain for a program designed to decrease prison recidivism at a Peterborough prison<sup>22</sup>.

Despite this being a relatively new concept with very little evidence of either success or failure, the SIB is gaining popularity internationally. With growing interest in this concept it is worth exploring the transferability of this model to other areas under the government's purview, such as health rehabilitation.

The theory behind SIBs is that the private sector funds social programs based on their potential social impact. Social impact is measured in terms of the dollars that the program saves the government by preventing a more costly alternative. The government agrees to pay back the private investors if specific, agreed upon performance measures are met. Not only does the government pay them back for the original amount but they also pay a pre-determined rate of return on their investment, the idea being that the government still saves money when the program meets its target outcomes.

The main objectives and the potential benefits of the SIB<sup>23</sup> are: first, they can help to align the publicly funded programs with preferred social outcomes.<sup>24</sup> Second, they can infuse capital into

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<sup>21</sup> Horesh, R., "Injecting Incentives into the Solution of Social Problems: Social Policy Bonds," *Economic Affairs*. September 2000. Accessed on February 9, 2013. <http://onlinelibrary.wiley.com.ezproxy.lib.ucalgary.ca/doi/10.1111/1468-0270.00237/pdf>.

<sup>22</sup> Disley, E., Rubin, J., Scruggs, E., Burrows, N., Culley, D., "Lessons Learned from the Planning and Early Implementation of the Social Impact Bond at HMP Peterborough." *Social Finance*. May 2011. Accessed on February 1, 2013. [http://www.socialfinance.org.uk/sites/default/files/social-impact-bond-hmp-peterborough\[1\].pdf](http://www.socialfinance.org.uk/sites/default/files/social-impact-bond-hmp-peterborough[1].pdf).

<sup>23</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

cash poor public budgets to give increased opportunities to invest in prevention and early interventions.<sup>25</sup> Third, they allow for greater collaboration on social issues between the private and public sectors.<sup>26</sup> Fourth, they provide stability of funds to continue to with successful programs.<sup>27</sup> Fifth, they promote thoughtful performance measurement targets and collection of outcome data. Finally, this type of funding transfers the financial risk to the investor rather than the government taking on all the risk as they do currently.<sup>28</sup>

### **Optimal conditions for Paying for Outcomes**

*Social Finance* (UK), the organization behind the development and piloting of the Social Impact Bond concept, published a technical guide to designing SIBs that includes the many steps involved in assessing the issue to ensure a SIB is a fitting way to funding the program in question. The following section describes these steps and applies them to the context of health care.<sup>29</sup>

According to *Social Finance* (2013), the process begins by assessing the area that requires re-shaping, and describing and understanding the social issue. This step is important in providing the information necessary to properly engage stakeholders and potential investors whose social ideologies align with the social issue at hand. By naming the issue and the population that is

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<sup>24</sup> Ibid.

<sup>25</sup> Corrigan, P. "Social Impact Bonds: A New Way to Invest in Better Health Care." *Social Finance*. September 2011: 3. Accessed on June 15, 2013. [http://www.socialfinance.org.uk/sites/default/files/a\\_new\\_way\\_to\\_invest\\_in\\_better\\_healthcare.pdf](http://www.socialfinance.org.uk/sites/default/files/a_new_way_to_invest_in_better_healthcare.pdf).

<sup>26</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

<sup>27</sup> Ibid.

<sup>28</sup> Liebman, J.B., "Social Impact Bonds: A Promising New Financing Model to Accelerate Social Innovation and Improve Government Performance," *Center for American Progress*. February 2011.

<sup>29</sup> The primary source for the discussion of the optimal conditions for paying for outcomes is Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

impacted, the target population can be defined, and the process of designing an intervention with desired outcomes can begin.

**Defined Intervention and Outcome:**<sup>30</sup>

By discussing the social issue of concern, the population, intervention and outcomes are identified. This involves defining an outcome that would result in an improvement to the described social issue. This is of paramount importance to the entire process because without a clear outcome that can add value through cost savings at a system level, there is no basis for paying for outcomes. The target population and the intervention required to achieve the outcomes must also be described thoroughly. Through this process all stakeholders understand the social issue and the need for, and the goal of, the program.

**Financial Model:**<sup>31</sup>

Next, the programs objectives must result in actual cost savings on a system level in addition to the desired social outcomes that it proposes to accomplish. This can be proven by building a business case based on the current costs of the social issue compared with the costs of the proposed intervention including economic depreciation of capital and a rate of return greater than the investor's opportunity cost of capital. The financial model should reveal a need for upfront capital to fund the program with a potential for returns on that initial investment over time.

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<sup>30</sup> The primary source for the discussion of Defined Intervention and Outcome sections is Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

<sup>31</sup> The primary source for the discussion of Financial Model is Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

## Health Care Conditions:<sup>32</sup>

Finally, in order to structure a SIB in health care additional conditions have been derived from various sources. First, funds for early intervention and preventative programs that realize returns over a longer time horizon are difficult for AHS to fund because services operate on an annual operational budget. Therefore these are the types of programs that are likely to be optimal for an SIB scenario.<sup>33</sup> Second, patients respond to interventions that they buy into and believe will make their life better.<sup>34</sup> For that reason, the degree of patient engagement in their treatment is very important to consider when designing a SIB in health care. Moreover, according to *Julia James* (2013) client groups that are invested in their health are even more likely to be successful if they are directly involved in the leading or design some aspect of the program.<sup>35</sup> Furthermore, early experiences with SIBs from *Social Finance* show that “*social investors are looking to enable the capacity of the voluntary and community sector to deliver interventions...*”<sup>36</sup>, this could be achieved by incorporating patient lead self-management education groups into the program design<sup>37</sup>.

The final three steps are reliant upon the first three previous steps being completed successfully.

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<sup>32</sup> Health Specific Conditions to consider where derived from the literature and are not part of the Technical Guide to Designing a Social Impact Bond.

<sup>33</sup> Corrigan., P. “Social Impact Bonds: A New Way to Invest in Better Health Care.” *Social Finance*. September 2011: 3. Accessed on June 15, 2013. [http://www.socialfinance.org.uk/sites/default/files/a\\_new\\_way\\_to\\_invest\\_in\\_better\\_healthcare.pdf](http://www.socialfinance.org.uk/sites/default/files/a_new_way_to_invest_in_better_healthcare.pdf).

<sup>34</sup> Corrigan., P. “Social Impact Bonds: A New Way to Invest in Better Health Care.” *Social Finance*. September 2011: 3. Accessed on June 15, 2013. [http://www.socialfinance.org.uk/sites/default/files/a\\_new\\_way\\_to\\_invest\\_in\\_better\\_healthcare.pdf](http://www.socialfinance.org.uk/sites/default/files/a_new_way_to_invest_in_better_healthcare.pdf).

<sup>35</sup> James, J., “Health Policy Brief: Patient Engagement,” *Health Affairs*, February 14, 2013.

<sup>36</sup> Barclay, L., Symons, T. “A Technical Guide to Developing Social Impact Bonds.” *Social Finance*. January 2013: 9.

<sup>37</sup> Corrigan., P. “Social Impact Bonds: A New Way to Invest in Better Health Care.” *Social Finance*. September 2011: 3. Accessed on June 15, 2013. [http://www.socialfinance.org.uk/sites/default/files/a\\_new\\_way\\_to\\_invest\\_in\\_better\\_healthcare.pdf](http://www.socialfinance.org.uk/sites/default/files/a_new_way_to_invest_in_better_healthcare.pdf).

**Program Design:**<sup>38</sup>

The next step in the process of developing an SIB is the design of the actual program. This is where details of how the services will be structured, processes for service entry and exit, and how the service connects with existing programs are explained.<sup>39</sup>

**Procurement:**<sup>40</sup>

This is the step in the process where prospective health professionals and service providers compete for the service contract. The process for awarding the professional or existing service provider can be done through one of many procurement methods.<sup>41</sup>

**Contracting:**<sup>42</sup>

Once the service provider is identified, the contract for funding services between the investor, service provider, government and contract manager is drawn up based on all of the pertinent information derived from the previous steps.<sup>43</sup>

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<sup>38</sup> The primary source for the discussion of Program Design is Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

<sup>39</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 9.

<sup>40</sup> The primary source for the discussion of Procurement is Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 6.

<sup>41</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 9.

<sup>42</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 9.

<sup>43</sup> Ibid.

Table 1.0 is a summary of the optimal conditions extracted from *Social Finance's* "Technical Guide to Developing Social Impact Bonds" (2013).

<b>Design Steps</b>	<b>Optimal Conditions</b>	
<b>Process:</b>	<b>Conditions:</b>	
Describe the Issue	Defined Outcomes	<ul style="list-style-type: none"> <li>▪ Clear outcomes that define the success of the program and translate into cost savings.<sup>44</sup></li> <li>▪ Meaningful system level performance targets that can be quantified.</li> </ul>
	Defined Population and Intervention	<ul style="list-style-type: none"> <li>▪ The intervention must be targeted to a specific sub-set of the population, if the target population is too general it becomes difficult to capture the direct outcomes of intervention and delineate from external factors.<sup>45</sup></li> <li>▪ The intervention can be directly connected to the outcome.<sup>46</sup></li> <li>▪ Opportunity to learn about the effectiveness of the intervention in order to continually make improvements and adjust interventions in the future.<sup>47</sup></li> </ul>
Develop the Financial Model	Potential for Return on Investment	<ul style="list-style-type: none"> <li>▪ The program provides a good opportunity for return on investment.</li> <li>▪ The investor is agreeable to a longer time horizon for return on their investment.</li> </ul>
	Upfront Capital Required	<ul style="list-style-type: none"> <li>▪ The program requires a significant amount of investment capital not readily available through public funds.</li> </ul>
Consider Health Specific Conditions	Long-term Funding Required	<ul style="list-style-type: none"> <li>▪ The program is focused on prevention as early interventions can avert a more costly alternative.</li> </ul>
	Patient Engagement	<ul style="list-style-type: none"> <li>▪ Opportunity for patients to engage in program design.</li> <li>▪ Patients can engage in treatment (i.e. a lay-lead self-management program).</li> </ul>
<b>Next Steps:</b>		
Program Design		
Procurement		
Contracting		

<sup>44</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 9.

<sup>45</sup> Liebman, J.B., "Social Impact Bonds: A Promising New Financing Model to Accelerate Social Innovation and Improve Government Performance," *Center for American Progress*. February 2011.

<sup>46</sup> Ibid.

<sup>47</sup> Liebman, J.B., "Social Impact Bonds: A Promising New Financing Model to Accelerate Social Innovation and Improve Government Performance," *Center for American Progress*. February 2011.

## Gaming and Potential Downfalls of Paying for Outcomes

### Gaming:

Pay for outcomes mechanisms create an environment where better outcomes equate to a better rate of return. This feature of the can provide incentive for the service provider to take only the ‘best’ or least medically, mentally or psycho-socially complex patients. Consequently, patients who are likely to need the program the most are barred from accessing it.<sup>48</sup> *Petersen et al.* (2006) discuss this avoidance of sicker patients in performance-based contracting settings in their review of the current literature on paying for outcomes in health care. They go on to discuss that the key to preventing this gaming behaviour is structuring the contract in such a way that the incentive produces the desired outcome.<sup>49</sup>

Moreover, another type of gaming that has been shown to occur in paying for outcomes contracts is an improvement in documentation of outcomes verses a marked improvement in the actual outcomes of the intervention.<sup>50</sup> The providers are incented to produce documentation of the process steps but the actual use of the intervention by the patient in order to improve health and increase prevention doesn’t necessarily take place.

In designing a pay for outcomes contract the outcomes of interest must be well defined and limited to a few. Gaming behaviour can emerge when the service provider focuses only on the outcomes of interest and avoid the outcomes that are not being measured for the purposes of on-

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<sup>48</sup> Petersen, L.A., Woodard, L.D., Urech, T., Daw, C., Sookanan, S., “Does Pay-for-Performance Improve the Quality of Health Care?” *Annals of Internal Medicine*, September 2006: 268.

<sup>49</sup> Petersen, L.A., Woodard, L.D., Urech, T., Daw, C., Sookanan, S., “Does Pay-for-Performance Improve the Quality of Health Care?” *Annals of Internal Medicine*, September 2006: 268.

<sup>50</sup> Ibid.

going funding or research.<sup>51</sup> Mullen *et al.* (2010) provides “*economic theory*” as a basis for this gaming behaviour, where despite the quality indicators for the program being achieved the overall quality of care for the patient may suffer as outcomes of quality that are not being measured are neglected by the providers.<sup>52</sup>

### **Downfalls:**

Paying for outcomes in health care comes with no shortage of challenges, and one such challenge is the issue of being able to sufficiently specify the proposed services. Treating all patients as individuals with a unique medical history, psycho-social situation, support network and goal for treatment is a defining characteristic of a health provider’s occupation. Therefore, the task of defining a service so specifically for a sub-population with endless permutations of the above mentioned factors is challenging.<sup>53</sup> Furthermore, because of the uniqueness of each patient and their situation it can be difficult to ensure that any change in outcomes is due to the impact of the new program rather than external factors.

When the opportunity to gain a greater rate of return directly correlates with the quantitative outcomes, qualitative outcomes can be considered irrelevant. Dranove *et al.* (2009) explain that “*Attaching financial incentives to particular quality metrics also might have the undesirable consequence of encouraging providers to treat patients or perform particular procedures because they are likely to generate higher measured quality, even if these are not the optimal*

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<sup>51</sup> Dranove D., Capps C., and Dafny L., “A Competitive Process for Procuring Health Services: A Review of Principles with an Application to Cataract Services.” *The School of Public Policy, University of Calgary*. December 2009.

<sup>52</sup> Mullen, K.J., Frank, R.G., Rosenthal, M.B., “Can you get what you pay for? Pay-for-performance and the quality of healthcare providers,” *RAND Journal of Economics*, RAND Corporation, 2010: 65.

<sup>53</sup> Dranove D., Capps C., and Dafny L., “A Competitive Process for Procuring Health Services: A Review of Principles with an Application to Cataract Services.” *The School of Public Policy, University of Calgary*. December 2009.

*medical decisions.*”<sup>54</sup> Many programs provide a service to patients that can’t necessarily be measured by quantifiable outcomes because the positive outcome is based more on the patient’s experience impacting their perception of the treatment. Instilling hope and changing negative attitudes towards health is arguably an important element of the skill sets of health providers and an important part of the health care experience. When dealing with limited resources for health care it is important to fund the most effective programs however, there is a danger that a strictly all or nothing attitude for quantifiable outcome measures could destroy the quality side of health services.

Finally, the concept of paying for outcomes in community rehabilitation through SIBs or a similar type of funding mechanism is quite practical in theory. However, despite the anticipated benefits there are some challenges that exist in the actual implementation of such a model. First, the defining of the all the variables involved in the actual contract would take a lot of close work between the private investor and health services, this process would require a lot of time and effort and complete understanding and agreement in the end.<sup>55</sup> Second, the investor must truly be compelled by the social and health issues and population that the service is targeting or there could be times when their “*altruistic and financial goals may come into conflict during program implementation.*”<sup>56</sup>

Despite these pitfalls the potential benefits of this type of model warrant exploring its application to community rehabilitation.

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<sup>54</sup> Dranove D., Capps C., and Dafny L., “A Competitive Process for Procuring Health Services: A Review of Principles with an Application to Cataract Services.” *The School of Public Policy, University of Calgary*. December 2009: 9.

<sup>55</sup> O’Connor, J.C., Gutelius, B.J., Girard, K.E., Hastings, D.D., Longoria, L., Kohn, M.A., “Paying for Prevention: A Critical Opportunity for Public Health” *The Journal of Law, Medicine & Ethics Special Issue: SYMPOSIUM: 2012 Public Health Law Conference: Practical Approaches to Critical Challenges*. Spring 2013: 69-72.

<sup>56</sup> Pauly, M., Swanson, A. "Social Impact Bonds in Nonprofit Health Care: New Product or New Package?" *National Bureau of Economic Research*. April 2013.

## Case Study: Adult Post-Concussion Rehabilitation

The following case study will examine the characteristics of a proposed early concussion rehabilitation program for the Calgary Zone of AHS and compare those with the optimal conditions for paying for outcomes through an SIB contract.<sup>57</sup>

### The Issue:

Concussion has become increasingly recognized as a serious medical condition that is important to identify and treat early in order to prevent the progression of symptoms of concussion to post concussion syndrome. High profile cases of athletes from the National Hockey League and National Football League suffering very publicly from the negative effects of persisting post concussion symptoms have contributed to the increased awareness about the potential long-term consequences of concussion injury.

Along with increased public awareness about the seriousness of concussion injury, healthcare providers have begun exploring ways to better treat the concussed. Currently in Calgary, patients with post concussion symptoms are treated more or less ad hoc depending on their care provider's knowledge about post concussion symptom. This is because the complexity of concussion symptoms, which can include anything from vestibular disturbances, insomnia, fatigue, irritability, light sensitivity, to cognitive changes and more,<sup>58</sup> make it difficult for care providers to make a referral to an appropriate rehabilitation service. With an injury such as

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<sup>57</sup> The primary source for the discussion of optimal conditions for an SIB contract applied to this case study is Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013.

<sup>58</sup> World Health Organization, *International Statistical Classification of Diseases and Related Health Problems 10<sup>th</sup> Revision* defines Postconcussional syndrome as "A syndrome that occurs following head trauma (usually sufficiently severe to result in loss of consciousness) and includes a number of disparate symptoms such as headache, dizziness, fatigue, irritability, difficulty in concentration and performing mental tasks, impairment of memory, insomnia, and reduced tolerance to stress, emotional excitement, or alcohol." Accessed August 20, 2013 <http://apps.who.int/classifications/icd10/browse/2010/en>.

concussion, medical and mental health history, location of impact, presence of post-traumatic amnesia and a confirmed loss of consciousness can all influence what is the best course of treatment for the patient.

Further complicating the issue is the behaviour of the patients themselves. Because of the complexity involved in treating concussions, patients all too often become frustrated and feel like they have fallen through the cracks of the health system due to the lack of a clear pathway of care.<sup>59</sup> They also become frustrated with their inability to perform daily activities as they did prior to their concussion, and this can often contribute to feelings of hopelessness. Frequently, the response of patients to these feelings and frustrations is to re-access emergency and urgent care services - often within days and weeks and of their injury. A report released by the *Calgary Brain Injury Program* on the current state of concussion services (2013), discussed a high emergency re-visit rate within 30 days of the patient initially being seen in emergency for the mild traumatic brain injury (mTBI) population.<sup>60</sup> The report goes on to discuss that “*the re-visit rate for patients discharged from emergency departments/urgent care within 30 days with a diagnosis of mTBI is almost 20%, which is double the standard 10% re-visit rate to ED for all diagnoses*”.<sup>61</sup>

With such a high rate of emergency and urgent care re-visits the Calgary Brain Injury Program has begun work on a proposal for a better pathway of services for this population across the continuum of care. Included in this proposal is a telephone follow-up call for all adult, non-

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<sup>59</sup> Torrence, C. B., DeCristofaro, C. and Elliott, L. “Empowering the primary care provider to optimally manage mild traumatic brain injury,” *Journal of the American Academy of Nurse Practitioners*, 2011 23: 638–647. doi: 10.1111/j.1745-7599.2011.00658.x

<sup>60</sup> Congram J., Patel, L. “Calgary Brain Injury Program : Concussion Summit 2013”, Alberta Health Services, Calgary Zone.

<sup>61</sup> Congram J., Patel, L. “Calgary Brain Injury Program : Concussion Summit 2013”, Alberta Health Services, Calgary Zone: 8.

sports related concussion patients that present to emergency within 1 to 2 weeks post injury. Second, is using that phone call to triage any high risk patients that exhibit any signs or symptoms of ongoing concern (according to an algorithm based on the Ontario Neurotrauma Foundation's guidelines for the management of mTBI) to a specialized concussion clinic and to provide them with clear instructions on what that clinic follow-up appointment will entail. In this way, the program hopes to offer a better alternative for care that could help to prevent patients who are seeking reassurance and are unsure of their symptoms from unnecessarily re-visiting busy emergency departments.

### **Defined Intervention and Outcome**

#### **Population:**

This proposal is specific to the adult, non-sports related concussion population with persisting symptoms that typically re-access emergency and urgent care services within 30 days of originally being treated.<sup>62</sup> In Calgary, there is already a pathway and rehabilitation clinic for non-complex sports related concussion, similarly, the pediatric population has a unique care pathway due to the separation of adult and pediatric services in Calgary.

#### **Intervention:**

The intervention that is being proposed is evidence-informed and based on current relevant guidelines.<sup>63</sup> These guidelines conclude that early telephone follow-up and education is effective in preventing the progression of symptoms to post concussion syndrome.<sup>64</sup> In addition, the guidelines detail best practice for early interventions for various health professionals treating

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<sup>62</sup> Motor vehicle related concussions are included in this population, however, at times the patient will have an insurance provider that uses a privately funded rehabilitation provider outside of AHS that has a specific concussion rehabilitation protocol.

<sup>63</sup> Ontario Neurotrauma Foundation "Guidelines for Mild Traumatic Brain Injury and Persistent Symptoms" 2010.

<sup>64</sup> Ibid: 15

those with persisting symptoms.<sup>65</sup> Therefore the intervention is comprised of early education on symptoms, expectation of timelines of recovery, pacing of activities, prevention of further injury and reassurance that most people recover from concussion. The phone call is also used to screen for patients that are exhibiting symptoms of on-going concern that should be referred to a specialized clinic. This clinic would be comprised of professionals with expertise in managing post concussion patients. The proposal for a specialized clinic includes occupational therapy, social work services, nursing, and physiatry consultation as required.<sup>66</sup> This proposed clinic would move patients on to other already existing services when further specific treatment is required, for example, referring patients with vestibular symptoms to the vestibular rehabilitation clinic.

The mechanism by which the Calgary Brain Injury Program proposes to decrease the likelihood of patients re-visiting emergency departments is through the introduction of the early telephone concussion education and an early specialized concussion rehabilitation clinic. This intervention program will offer a better alternative for care that could help to prevent patients who are seeking reassurance and are unsure of their symptoms from unnecessarily re-visiting busy emergency departments.

### **Outcomes:**

The performance measures that the Calgary Brain Injury Program have proposed for this early concussion rehabilitation service are: emergency and urgent cares re-visit rates, vocational cost (loss of days worked by the patient), and increased patient satisfaction.<sup>67</sup> At a health system level

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<sup>65</sup> Ontario Neurotrauma Foundation “Guidelines for Mild Traumatic Brain Injury and Persistent Symptoms” 2010.

<sup>66</sup> Congram J., Patel, L. “Calgary Brain Injury Program : Concussion Summit 2013”, Alberta Health Services, Calgary Zone.

<sup>67</sup> Congram J., Patel, L. “Calgary Brain Injury Program : Concussion Summit 2013”, Alberta Health Services, Calgary Zone: 13.

the outcome of main concern when considering paying for performance is the number of re-visits to emergency and urgent care services. This is where the cost savings can be realized.

The program has not yet set a target for the decrease in re-visit rates to emergency because they have not found a similar program or study that reports typical target rates for this indicator.<sup>68</sup>

## **Financial Model**

### **Business Case:**

The annual cost of re-visitation rate by this population should be calculated by  $n$  (number of re-visit to ER/UC by this population)  $\times$   $c$  (average cost for emergency visits in Alberta) =  $TC$  (total costs for re-visit to emergency by the target population annually).

According to the *Center for Disease Control* 75% of total traumatic brain injuries reported each year are concussions.<sup>69</sup> In Calgary, 8765 visits to urban and rural emergency and urgent care centres during the 2011-2012 fiscal year were due to traumatic brain injury.<sup>70</sup> Given these numbers, approximately 6574 of those visits were due to concussion, applying the estimated 20% re-visit rate for concussion in Calgary results in approximately 1315 re-visits per year for this population. The average cost for an emergency department visit in Alberta is approximately \$630.<sup>71</sup> Therefore the estimated cost for the re-visits by this population would be \$828,324 per year.

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<sup>68</sup> According to discussion with the current Brain Injury Program Coordinator on September 11, 2013 and the author's own literature search.

<sup>69</sup> Centres for Disease Control and Prevention. Last updated on March 27, 2013. <http://www.cdc.gov/traumaticbraininjury/statistics.html>

<sup>70</sup> Congram, J., Knox, J, Patel, L. "Calgary Brain Injury Program: Annual Report 2011-2012". Alberta Health Services.

<sup>71</sup> Figure obtained from research conducted on Emergency Department visits by homeless individuals. Source: e-mail correspondence to Dr. J.C. Herbert Emery from Alberta Health, Michael Sanderson.

Upfront investment ( $TU$ ) would be required for the cost of professional staff ( $p$ ) and equipment ( $e$ ) (sunk costs) estimated according to the program design (next steps). The location of the proposed program could be within one of the current Calgary zone buildings. However, the investment cost should include economic depreciation of capital ( $d$ ).

Finally, the total savings by the proposed service must be calculated over an agreed upon time frame ( $t$ ).

According to the *Health Sciences Association of Alberta* contract for 2011-2014 the average cost for an Occupation Therapist I would be approximately \$83,159.05, the average cost for a Social Worker III (able to do more active counselling with patients verses a level I or II) is \$92,770.60, the cost for a registered nurse per year would be approximately \$81,003.00.<sup>72 73</sup> Based on a recent statistic released by the Calgary Brain Injury Program, of all concussion referrals 10% are requiring a physiatry consultation.<sup>74</sup> Given this statistic at a cost of \$100 dollars per hour for a physiatry consultation, the physiatrist would cost approximately \$19,721.25.<sup>75</sup> This results in an estimated total human resource cost of \$276,653.90.<sup>76</sup>

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<sup>72</sup> Government of Alberta Albert Learning Information Service. OccInfo. [http://alis.alberta.ca/occinfo/Content/RequestAction.asp?aspAction=GetHTMLProfile&format=html&occPro\\_ID=71002748](http://alis.alberta.ca/occinfo/Content/RequestAction.asp?aspAction=GetHTMLProfile&format=html&occPro_ID=71002748).

<sup>73</sup> The costs associated with these professional listed here does not included cost of employee benefits.

<sup>74</sup> Patel, L. "Calgary Brain Injury Program: Concussion Education". Alberta Health Services. 2013.

<sup>75</sup> This rate per hour is estimated based on Government of Alberta Albert Learning Information Service OccInfo website physician information. Government of Alberta Albert Learning Information Service. OccInfo. [http://alis.alberta.ca/occinfo/Content/RequestAction.asp?aspAction=GetHTMLProfile&format=html&occPro\\_ID=71002748](http://alis.alberta.ca/occinfo/Content/RequestAction.asp?aspAction=GetHTMLProfile&format=html&occPro_ID=71002748).

<sup>76</sup> This total amount does not include economic depreciation of capital as the space has not yet been proposed, nor does it include cost of supplies for the services.

**Potential for return on investment:**

There must be a large enough margin of savings in order to justify using a SIB to fund the program. After paying back the investors principal investment and an agreed upon rate of return (*r*), the government must still save money (*TS*) compared with the current cost of services.

The estimated costs for resources for the proposed service is \$276,653.90<sup>77</sup> which is 33.4% of the total cost for emergency and urgent care re-visits for concussions in urban and rural Calgary.

In order for the program to break even on the initial capital required the intervention must decrease the rate of re-visits by at least 33.4%. If the new concussion services decrease the re-visit rate by 50% to match the approximate standard 10% re-visit rate for other diagnosis in Calgary, then the rate of return on their invested capital would be \$137,508.10 which is a 49.7% return. This program certainly provides opportunity for return on capital investment and potential for cost savings for the government after an agreed upon rate of return is paid out.

Table 1.2

This table shows examples of returns and savings realized on various decreases in the percentage of emergency re-visits.

<b>Re-visit Rate:</b>	<b>Return on Invested Capital:</b>	<b>AHS Savings after Capital re-paid:</b>
50% decrease	49.7% return	or 16.6% in cost savings
40% decrease	19.8% return	or 6.6% in cost savings
37.5% decrease	12.3% return	or 4.1% in cost savings
35% decrease	4.8% return	or 1.6% in cost savings

As discussed above, there aren't any comparable programs in the literature that report a required percentage of decrease in re-visit rates in order to show efficacy for the intervention rather than just a change that could be due to normal variation. However, AHS and a potential investor could use the approximate standard 10% rate of re-visits for all diagnosis in Calgary as a target rate for

this population as that would provide room for the investor to gain a high return on their investment and AHS to achieve cost savings to justify the implementation of the program.

For the investor, the target return on investment for this program should be greater than the opportunity cost of principal investment.

### **Health Care specific Conditions**

#### **Sustainable Program:**

This proposed program will have a lasting impact as it will allow for the opportunity to learn about the injury and the treatment and adjust interventions and processes to be more cost effective and efficient. Furthermore, the early treatment of this group of patients might lead to collaboration with prevention programs, prevention the most cost efficient alternative to early intervention. The key to this program being able to accomplish these benefits is the availability of long term funding. In this case, long term funding would be contingent upon the service being able to produce the outcomes that negate a more costly service.

#### **Patient Engagement:**

The Calgary Brain Injury Program began the work of service improvement in the Calgary zone through a brain injury strategy launch in 2010 that brought together over 100 stakeholders in brain injury care including patient and family representatives. One of the goals of the strategy was to incorporate patients and families impacted by brain injury on every level of decision making and service planning including at the advisory level.<sup>78</sup> Patients are able to inform the program design work from a different perspective than health care providers.

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<sup>78</sup> Calgary Brain Injury Program “Third Annual Brain Injury Strategy Event: Strengthening Synapses”. Alberta Health Services. Accessed August 23, 2013. <http://www.albertahealthservices.ca/hp/if-hp-cbi-cbis-report.pdf>.

Individuals who experience post concussion syndrome are often frustrated by the fact that they cannot participate in their daily activities in the way that they did prior to the injury. This frustration can motivate the population to be engaged in their treatment because they desire to resume life as before.

Table 1.3 The early concussion program holds promise as a rehabilitation program that could be funded by outcomes through a SIB bond contract because it meets the foremost optimal conditions.

<b>Design Steps</b>	<b>Optimal Conditions</b>	
<b>Process:</b>	<b>Conditions:</b>	
Describe the Issue	Defined Outcomes <i>Met</i>	<ul style="list-style-type: none"> <li>▪ Clear outcomes that define the success of the program and translate into cost savings.<sup>79</sup></li> <li>▪ Meaningful system level performance targets that can be quantified.</li> </ul>
	Defined Population and Intervention <i>Met</i>	<ul style="list-style-type: none"> <li>▪ The intervention must be targeted to a specific sub-set of the population, if the target population is too general it becomes difficult to capture the direct outcomes of intervention and delineate from external factors.<sup>80</sup></li> <li>▪ The intervention can be directly connected to the outcome.<sup>81</sup></li> <li>▪ Opportunity to learn about the effectiveness of the intervention in order to continually make improvements and adjust interventions in the future.<sup>82</sup></li> </ul>
Develop the Financial Model	Potential for Return on Investment <i>Met</i>	<ul style="list-style-type: none"> <li>▪ The program provides a good opportunity for return on investment.</li> <li>▪ The investor is agreeable to a longer time horizon for return on their investment.</li> </ul>
	Upfront Capital Required <i>Met</i>	<ul style="list-style-type: none"> <li>▪ The program requires a significant amount of investment capital not readily available through public funds.</li> </ul>
	Long-term	<ul style="list-style-type: none"> <li>▪ The program is focused on prevention as early</li> </ul>

<sup>79</sup> Barclay, L., Symons, T. "A Technical Guide to Developing Social Impact Bonds." *Social Finance*. January 2013: 9.

<sup>80</sup> Liebman, J.B., "Social Impact Bonds: A Promising New Financing Model to Accelerate Social Innovation and Improve Government Performance," *Center for American Progress*. February 2011.

<sup>81</sup> Ibid.

<sup>82</sup> Liebman, J.B., "Social Impact Bonds: A Promising New Financing Model to Accelerate Social Innovation and Improve Government Performance," *Center for American Progress*. February 2011.

Consider Health Specific Conditions	Funding Required <i>Met</i>	interventions can avert a more costly alternative.
	Patient Engagement <i>Met</i>	<ul style="list-style-type: none"> <li>▪ Opportunity for patients to engage in program design.</li> <li>▪ Patients can engage in treatment (i.e. a lay-lead self-management program).</li> </ul>
<b>Next Steps:</b>		
Program Design		
Procurement		
Contracting		

**Next Steps**

**Program Design:**

The next steps for the Calgary Brain Injury Program are to look to engage private investors in the care of this population and present them with a business case. If they can succeed at engaging an investor than they will need to design the program with the specifics including: staff mix, equipment needs and processes for patient entry to and exit from the program. Alternatively, they could seek out a not-for-profit or for-profit service provider in the community who has already succeeded in engaging a private investor and enter a contract with the investor via the services of the community organization.

**Procurement:**

AHS uses various methods for finding services providers, one of these methods could be utilized for procuring the early concussion rehabilitation services to a non-profit or for-profit provider in the community, or alternatively, they could chose to hire care providers in-house to deliver the proposed services.

## **Contracting:**

Finally, once the program design is complete and the health professionals and infrastructure in place for the program, the contract for paying for outcomes should be drawn up so that the performance requirements and funding allotments are transparent and the program can begin.

## **Further Research and Analysis**

The research on the effect of early concussion education and intervention in connection to a specific decrease in emergency and urgent care re-visits is very limited and accordingly, this is a potential direction for future research.

Additionally, because there are no appropriate, well-researched target re-visit rates for this population, potentially private investors could perceive this investment as being too risky and would instead consider a mixed payment scenario. In this scenario AHS could still fund the new services, but the investor would provide a smaller amount of capital to be put into a ‘risk pool’<sup>83</sup> where reward payments could be awarded to the program based on the number of patients in the program that do not re-visit emergency or urgent care services for the initial injury. This model would be similar to that of the primary care networks in Alberta, where they seek to be the first point of contact for the patient and are rewarded for negating the use of more costly emergency services.<sup>84</sup> For example, the risk pool could be \$100,000 of invested capital, if the re-visit rate is decreased by over 50% the bonus per patient would be \$152, if a predetermined rate of 9% return was paid to the investor that would leave 3.5% in cost savings for AHS. This is a much smaller percentage of cost savings for AHS, but in a time where any and all cost decreases count this

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<sup>83</sup> Terminology from the Primary Care Initiative. <http://www.albertapci.ca>.

<sup>84</sup> Primary Care Initiative “Guidelines to per Capita Funding” 2013. Accessed September 12, 2013. <http://www.albertapci.ca/DevelopingPCN/PCNFunding/Pages/default.aspx>.

scenario may be worthwhile to investigate further and consider in order to offload a portion of the risk of implementing a new program.

## **Conclusion**

Healthcare has become increasingly costly in the Alberta, and review of the value and performance of health programs is crucial. In seeking ways to make health care more sustainable over the long run, health administrations face two main issues. First, health care services are at the mercy of an annual budget cycle and second, when investment in specific health services does not show returns during the current government's term, they are unlikely to be continued even if they are good policy.

One policy alternative to consider in health care is funding services by the outcomes that they produce. Specifically, the Social Impact Bond concept of funding by outcomes is worthwhile to consider because of the benefits it can provide to the health system, most appositely, infusing capital into a cash poor system.

The concept of paying for outcomes through a SIB has been recently applied to some preventative health programs, but not yet to community rehabilitation services. This paper concludes that paying for outcomes is feasible for not all, but certainly some community rehabilitation services. The concept of paying for outcomes is important to consider if health authorities are looking for ways to access private funds for public health while at the same time gain efficiencies in the services they provide.

The proposed early adult concussion rehabilitation pathway of care and program is an example of a service that could be funded through a Social Impact Bond or another type of paying for outcomes funding structure. This is because it fulfills the foremost conditions necessary for

paying for outcomes through a SIB contract. Most importantly, successful outcomes from a comprehensive, specialized program could translate into system level cost savings by decreasing the number of re-visits to emergency and urgent care departments by this population.

In order for this funding scenario to be applied to this program, the Calgary Brain Injury Program would need to follow through on the 'next steps' discussed at the close of the findings section of this paper, communicate this concept to their advisory group and obtain the support necessary to proceed in engaging private investors. Although the potential is clear, as with any new initiatives the actual implementation of the outcomes based payment structure may be more challenging in practice than it is in theory. Consequently, a pilot project with regular review and adjustment by the advisory group and investor is likely the most appropriate route of implementation.

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