

Using social impact bonds to fund type 2 diabetes prevention

How an innovative investment strategy can fund disease prevention programs

Christine M. Mytelka
Robert Richards
Diana Dodu
Doreen Acampora
Ida Bindea

Dan Mulhern
David Clove
Lauren Hodges
Jana Bourne (Ed.)



Executive summary

Diabetes prevention is a critical public health priority due to its significant impact on people's health and financial well-being.

When tackling diabetes, considering there are 38.4 million people with this condition (11.6% of the U.S. population¹), one should consider the resulting health benefits, including reduction of risk of severe health complications such as cardiovascular disease, kidney failure, nerve damage, and vision loss.

Diabetes prevention helps improve the quality of life by avoiding daily challenges of managing the disease, including frequent blood sugar monitoring, medication adherence, and dietary restrictions, as well as the potential stress, anxiety, and depression that can accompany this disease.

Additionally, the financial cost of managing diabetes is substantial, encompassing medical expenses, lost productivity, and long-term care challenges. The United States spent \$412.9 billion on Type 2 diabetes in 2022 according to the American Diabetes Association, making prevention an important pillar for combating this disease.

Preventing diabetes can significantly reduce financial burdens on the individual and healthcare systems. Diabetes is associated with a higher risk of premature death, and effective prevention strategies can contribute to a longer, healthier life expectancy.

At the same time, spending on all prevention, including for diabetes, is limited. In the United States, around 5% of healthcare costs were spent on prevention in 2021, according to the Organisation for Economic Co-operation and Development (OECD).² The U.S. lags in life expectancy and chronic disease prevention metrics, despite spending on preventive care that is in line with OECD countries. This indicates that a new approach to intervention is needed if society is to make material strides in this area.

Current barriers to effective prevention are driven by lack of a policy framework for prioritizing public health, a belief that lifestyle and behaviors are impossible to modify, and a lack of incentives for risk-bearing entities to invest in prevention.

This paper presents an innovative way to address prevention for diabetes. We demonstrate how a program such as a social impact bond (SIB) can be used in the United States to fund a diabetes intervention program that reduces the cost burden of the disease, improves health outcomes, and produces a favorable return to the investor.

1. Centers for Disease Control and Prevention (May 15, 2024). National Diabetes Statistics Report. Retrieved January 30, 2025, from <https://www.cdc.gov/diabetes/php/data-research/index.html>.

2. Organisation for Economic Co-operation and Development (2021). OECD Data Explorer. Retrieved February 2, 2025, from [https://data-explorer.oecd.org/vis?df\[ds\]=DisseminateFinalDMZ&df\[id\]=DSD_SHA%40DF_SHA&df\[ag\]=OECD.ELS.HD&dq=USA.A.EXP_HEALTH.PT_EXP_HLTH.HF1%2B_T..HC6%2B_T.._T...&pd=2021%2C2021&to\[TIME_PERIOD\]=false&vw=br](https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_SHA%40DF_SHA&df[ag]=OECD.ELS.HD&dq=USA.A.EXP_HEALTH.PT_EXP_HLTH.HF1%2B_T..HC6%2B_T.._T...&pd=2021%2C2021&to[TIME_PERIOD]=false&vw=br).

An SIB leverages a contract with the public sector or governing authority to pay for better social outcomes in certain areas. It passes on part of the savings achieved to investors and funds projects that create better health outcomes leading to cost savings. More specifically, the SIB is a form of outcomes-based funding, where investors provide up-front capital for social services, and are then repaid with a return by an outcome funder subject to a service provider achieving the agreed-upon results.

An SIB can add value by bringing expertise from different fields, investing in prevention, enabling greater flexibility and resilience in service delivery, and coupling private investing with public healthcare through a U.S. national diabetes prevention program.

In this paper, we analyzed how a national prevention program, such as the National Diabetes Prevention Program (National DPP) established by the Centers for Disease Control and Prevention (CDC) can reduce the number of patients who transition from prediabetes to diabetes and at the same time reduce costs, which can be split with the private sector due to its initial investment.

Introduction

The United States spends the most on healthcare of all developed nations despite relatively low and decreasing life expectancy. In 2022, the United States spent 17.3%³ of gross domestic product (GDP) on health expenditures and had a life expectancy of 76.4,⁴ the lowest of the nations in the OECD. This concerning trend is being driven in large part by the high prevalence of chronic conditions. According to a 2018 study,⁵ 52% of adult Americans had at least one chronic disease or condition, and 27% of all adults had multiple diseases and comorbidities.

More than one in four adults in the United States has at least one diagnosed chronic condition by their mid-40s, and two-thirds will have at least one chronic condition by the age of 65. While medical advances have led to improved life expectancy, the prevalence and growth of chronic conditions has not slowed. As the population ages, these costs are expected to increase.

An obvious response to rising costs from chronic conditions is prevention. In practice, however, this is difficult to implement. At the outset, funding of preventive programs is often difficult to obtain in the commercially driven U.S. healthcare system, in which long-term benefits from investments in prevention are often not realized by the investors bearing the up-front cost. Would-be investors need some assurance of a return on their investment. While some philanthropists would view improvements in health outcomes as sufficient return on investment (ROI), scalable solutions generally require a financial ROI, as well as positive outcomes.

In this paper, we present a funding model that applies the concept of an SIB to the prevention of chronic conditions. The main benefit SIBs provide is the ability to test new programs at scale in a manner that investors can expect a reasonable ROI to fund the pilot expansion. We focus on a single example of a prevention program for a single disease. Specifically, the CDC established the National Diabetes Prevention Program (National DPP),⁶ a public-private partnership that provides the framework for Type 2 diabetes prevention efforts in the United States through lifestyle changes. This model, however, is generalizable to other conditions and other programs with adjustments to model parameters.

3. Organisation for Economic Co-operation and Development (2021). OECD Data Explorer. Retrieved February 11, 2025, from [https://data-explorer.oecd.org/vis?df\[ds\]=DisseminateFinalDMZ&df\[id\]=DSD_SHA%40DF_SHA&df\[ag\]=OECD.ELS.HD&dq=.A.EXP_HEALTH.PT_B1GQ._T._T._T...&pd=2015%2C&to\[TIME_PERIOD\]=false](https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_SHA%40DF_SHA&df[ag]=OECD.ELS.HD&dq=.A.EXP_HEALTH.PT_B1GQ._T._T._T...&pd=2015%2C&to[TIME_PERIOD]=false).

4. Organisation for Economic Co-operation and Development. Life expectancy at birth. Retrieved February 11, 2025, from <https://www.oecd.org/en/data/indicators/life-expectancy-at-birth.html>.

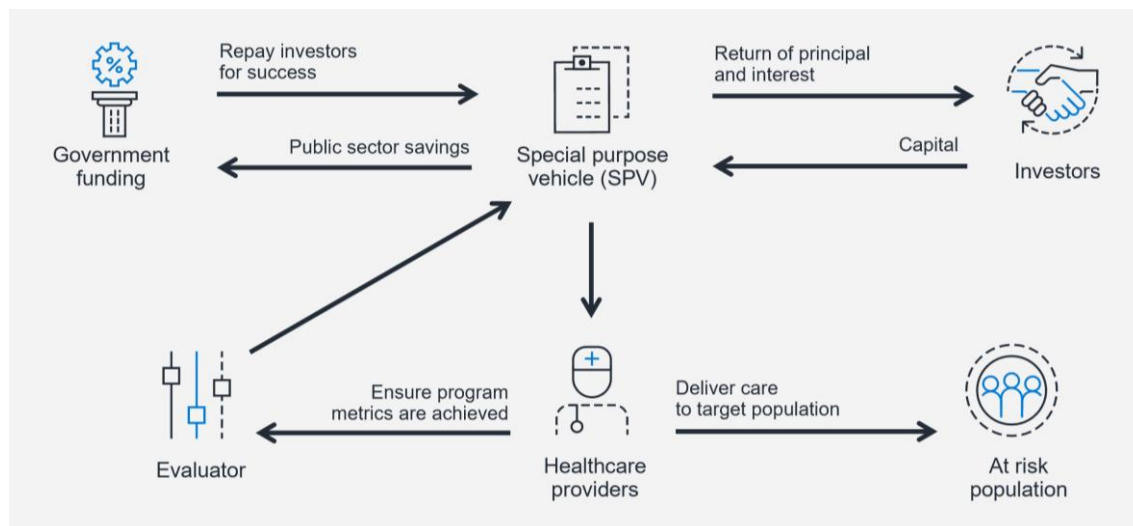
5. Boersma, P., Black, L.I., & Ward, B.W. (2018). Prevalence of Multiple Chronic Conditions Among US Adults. *Preventing Chronic Disease*, 2020 Sep 17;17:E106. doi: 10.5888/pcd17.200130.

6. Centers for Disease Control and Prevention. National Diabetes Prevention Program. Retrieved February 11, 2025, from <https://www.cdc.gov/diabetes-prevention/index.html>.

What is a Social Impact Bond?

An SIB is a specific type of bond that rewards investors if a certain outcome is achieved with the outcome funder—for example, a government realizing cost savings by supporting the bond. SIBs exist across many sectors, including health, in many countries like the United States, the UK, the Netherlands, India, Sweden, Portugal, Australia, Germany, Canada, and Belgium.

FIGURE 1: THE FRAMEWORK FOR A HEALTH-SPECIFIC SIB



A health impact bond can be issued by a public or private entity looking to drive some outcome, such as reduction in healthcare spending or lower prevalence of disease. The issuer pays principal plus profit to investors in the bond after a certain period if the healthcare provider improves the health metrics of the population receiving the funded intervention. Investors provide funding up front, promising to deliver the desired outcomes through the work of the healthcare providers involved. Outcomes are assessed by an independent evaluator, according to predetermined methodology.

In terms of benefits, SIBs provide governments and other issuers with access to new sources of capital to fund innovative new pilot programs that address identified challenges. This can result in public-sector savings, some of which can be returned to investors. SIBs also encourage flexibility on the part of those administering interventions or programs designed to yield the desired outcomes.

Rather than following existing patterns of care that have not yielded desired results, providers and other intervention program team members can provide whatever care is called for under the intervention being tested. SIBs may also encourage collaboration across government agencies; across silos within nonprofits; and among governments, nonprofits, and the private sector.

SIBs have been around for 14 years or more, with the first published example being an SIB to finance a prisoner rehabilitation project in Peterborough Prison in the UK.⁷ Often the results of impact studies are not disclosed, but some are. For example, the Kobe City SIB for Preventing Severe Diabetic Nephropathy in Japan, which began in 2017, was evaluated by the Institute for Future Engineering. The project had target rates, including 80% program completion, 75% lifestyle improvement, and 80% reduction of kidney function deterioration. The evaluators found the rate of program completion was 100%, the rate of lifestyle improvement was 95%, and an 80% reduction of kidney function deterioration was still under investigation at the time the evaluation was published.⁸ This and other SIBs show a growing amount of experience with this general framework.

7. Disley, E., Rubin, J., Scraggs, E., Burrowes, N., & Culley, D.M. (December 11, 2011). Evaluation of the Social Impact Bond. Cambridge: RAND Europe.

8. Hulse, E.S.G., Atun, R., McPake, B., & Lee, J.T. (2021 March 5). Use of social impact bonds in financing health systems responses to non-communicable diseases: scoping review. *BMJ Global Health*, 6(3):e004127. doi: 10.1136/bmjgh-2020-004127. Retrieved February 11, 2025, from <https://pmc.ncbi.nlm.nih.gov/articles/PMC7938989/>.

There are four major stages in the development process of an SIB.

1. A feasibility study, in which the proposed intervention is modeled and a potential path to success is presented. These feasibility studies will need to rely on assumed parameters, including expected program impacts based on scientific research as much as possible, as well as on financial parameters such as expected ROI to investors. Some points to consider in this process are:
 - a. Meaningful and measurable outcomes so the program is attractive to investors. This means the outcome metric should be a meaningful proxy for longer-term economic outcomes. One must have the tools with which to measure the outcomes, and systems must be in place to accurately and consistently measure them.
 - b. A reasonable time horizon to achieve outcomes that are measurable and therefore indicative of future lifelong opportunities for individuals. A reasonable time horizon will also be one in which investors and outcome funders are able and willing to make and receive payments.
 - c. Evidence of success in achieving outcomes. Rigorous evaluations, such as randomized control trials, are recommended. Ultimately, the extent to which evidence must be rigorous is very dependent on the risk appetite of the investors and the requirements of outcome funders.
 - d. Appropriate legal and political conditions that demonstrate support for the services delivered in an impact bond by relevant stakeholders, including local, state, and national governments, as well as investors. In addition, appropriate legal conditions will enable governments (in their role as outcome funders) to pay for outcomes beyond the fiscal year in which a contract is made and, for that matter, to pay for outcomes at all.
2. Deal structuring, where the various stakeholders clearly define and agree to terms, roles, and expectations for the bond performance period and evaluation.
3. Implementation of the agreed-upon intervention to be tested. Measurement of impacts should take place during and after this period as appropriate.
4. Evaluation and repayment, with effectiveness of the intervention determined by a competent evaluation team and based on previously agreed-upon measures and criteria from steps 1 and 2. Payouts to the various stakeholders then proceed as planned at the outset, depending on whether outcomes were achieved.

The typical time period for implementation of these transactions is three to five years, though in theory SIBs could be administered over longer time horizons if outcomes are not expected to manifest in a shorter time frame. Interest spreads have been under 10% for past bonds. For example, the maximum average annual return in Germany was the lowest at 3%. The SIB in Canada and the SIB for adult homelessness in the United States have maximum average annual returns of 5% and 5.33%, respectively. The four SIBs with a maximum average annual return over 7.5% are in Australia (which has two), the Netherlands, and the UK. The capital raised by each of these transactions was less than \$25 million (with a typical investment of less than \$15 million).⁹

One of the most critical and complex parts of the process of developing the bond is to determine the outcome metrics specific to the desired outcomes (e.g., reduced disease prevalence, reduced homelessness) and corresponding payments. For example, a possible outcome metric in the diabetes program could be transition probabilities from prediabetes to diabetes. The design of the outcome metrics will influence the design of the intervention, which in turn influences the funding needed. Finding a balance between these metrics can be a big challenge. This necessitates collaboration from all stakeholders because appropriate measurement strategies need to be in place before the intervention testing period begins. And agreement on these criteria is essential to adequately observe whether the program is successful. In our model, we have leveraged internal research to define transition probabilities from prediabetes to diabetes. For this we consider the status quo group (not benefiting from SIB intervention) and a group that does benefit for a period of time. A reduction in these probabilities can be seen for the group that benefits from the SIB.

9. Gustafsson-Wright, E., Gardiner, S., & Putcha, V. (July 2015). The potential and limitations of impact bonds: Lessons from the first five years of experience worldwide.

Care must be taken at the outset to ensure reliable measurement and evaluation of performance. More rigorous evaluations, including randomized control trials, especially when planned in advance, help reduce biased findings and enhance credibility of the SIB. For example, selection of the population needs to be carefully considered as a sample that is not representative of the population may result in non-generalizable outputs.

SIBs may provide a workable framework for testing interventions at scale. In the next section, we lay out an analytical model to predict outcomes of an SIB aimed at reducing onset of Type 2 diabetes in prediabetic populations. Our model would target a commercially insured population with prediabetes. Despite our specific focus on diabetes, the model can be adaptable to other chronic conditions or outcomes of interest as evidenced by many SIBs that focus on other outcomes (e.g., reducing re-offending rate for prior prisoners or tackling unemployment) if available and suitable data can be found.

The model

Our SIB model is intended as a prototype for a feasibility study for the SIB, which is the first stage of SIB development, as outlined in the prior section. Specifically, potential investors in this model could obtain the cost savings presented, as the cohort population, the prediabetic population, improves its risk for developing diabetes. The model lays out the parameters needed to measure success in reducing Type 2 diabetes incidence in prediabetics. We chose to focus on Type 2 diabetes because 1) it is a highly prevalent chronic condition in the United States, and 2) focusing on diabetes allows us to provide example results of our model using existing interventions and data. The intervention we model is the National DPP designed by the CDC, and is already being implemented in Medicare and other populations.¹⁰ We are modeling the application of the National DPP to commercially insured prediabetics.

MODEL CONSTRUCTION

The target group consists of prediabetic adults in the United States with commercial insurance. As a proof of concept for an SIB, our model compares the costs of delivering preventive care through the DPP netted against estimated savings from preventing or delaying the onset of diabetes. The model projects costs and savings separately during a settled five-year time horizon (in our example, 2024–2028). Costs are compared under two scenarios: a DPP group of prediabetics that participate in the intervention and a similar “status quo” group with no intervention. We emphasize that this paper is intended to show an approach to conducting a feasibility study and emphasizing this topic as a possible solution to tackling diabetes. We use already estimated parameters and are not offering an actual full effectiveness study of the National DPP or any other program.

Relevant parameters in our model are:

- Cost
 - Annual per-person healthcare costs for prediabetics
 - Annual per-person healthcare costs for diabetics
 - Annual program costs for the intervention
 - Inflation trend factors
- Probability of transitioning from prediabetes to diabetes, with and without the intervention

ASSUMPTIONS

Next, we present our assumed values of the cost and transition probability parameters of the model. For the purposes of this paper, we sought to provide realistic assumptions based on available data on diabetics and the DPP. Our results are therefore illustrative of the model’s performance. Further refinement of each parameter is warranted when designing a specific SIB. Inputs themselves may also be simulated using modeled distributions, as in Monte Carlo studies.

10. Centers for Disease Control and Prevention. National Diabetes Prevention Program. Retrieved February 11, 2025, from <https://www.cdc.gov/diabetes-prevention/eligible-lifestyle-change-program/index.html>

The cost of diabetes

We draw our per-person healthcare cost estimates from a Milliman research report entitled *Insights into cost patterns and actionable factors in newly diagnosed Type 2 diabetes* (Milliman research report), which studied changes in total healthcare costs in newly diagnosed Type 2 diabetes patients. The report draws on the Milliman Emerging Experience database, which contains comprehensive claims data from more than 33 million unique individuals from 2017 to 2021. It identified 16,458 commercially insured adults newly diagnosed with Type 2 diabetes who were also:

- Continuously enrolled for 12 months prior and 24 months following their diabetes diagnosis
- Had at least one BMI measurement in the year after diagnosis
- Had annual healthcare expenditures under \$15,000 before diagnosis

The last criterion was intended to exclude a small number of members with high-cost preexisting conditions. As illustrated in Figure 1, median costs increased by approximately \$4,500 dollars per year after diagnosis, while mean costs increased by almost \$12,000 per year.

FIGURE 2: ANNUAL MEDICAL COST BEFORE AND AFTER PROGRESSION TO DIABETES—COMMERCIAL ADULTS

	MEAN	MEDIAN
Year prior to diabetes diagnosis	\$2,079	\$588
First year of diabetes diagnosis	\$13,955	\$5,098

The increase in cost after progression to diabetes is higher with respect to the mean than the median, reflecting additional costs for those who experience complications from diabetes. Milliman’s research found that approximately one-third of those diagnosed with diabetes experience metabolic complications such as ketoacidosis, hyperosmolarity, lactic acidosis, and hypoglycemia. In addition, diabetes was correlated to an elevated risk of cardiovascular disease, neuropathy, kidney failure, blindness, and death. In our modeling, we used the more conservative median cost increase, representing diabetes-related costs incurred by most newly diagnosed individuals, such as insulin, blood testing supplies, and additional primary care support. Although the cost of diabetes may vary based on the parameters of individual studies, these costs are generally consistent with other similar studies, such as those listed as references for the CDC¹¹ or American Medical Association (AMA)¹² cost calculators on the CDC National DPP website.

The cost of the National DPP

The CDC launched the National DPP in 2010.¹³ Since then, it has built a nationwide delivery system of thousands of lifestyle intervention program providers. Based on the CDC curriculum, members learn about Type 2 diabetes, how to monitor blood sugar, and how to reduce their risk of disease progression. Individual lifestyle coaches and peer support groups help members set and maintain weight loss and physical activity goals. Many centers also provide access to exercise facilities.

The annual cost of the National DPP varies by center and whether the program is in person or online. For our modeling, we used \$500 for the first year,¹⁴ at 2021 valuation prior to trending, with assumed annual costs reduced by half for the second and subsequent years through elimination of initial educational delivery, goal-setting, and other first-year functions.

11. Centers for Disease Control and Prevention. Diabetes prevention impact toolkit. Retrieved February 11, 2025, from <https://nccd.cdc.gov/Toolkit/DiabetesImpact>.

12. Centers for Disease Control and Prevention. Calculate Benefits and Costs of Covering the Lifestyle Change Program. Retrieved February 11, 2025, from https://www.cdc.gov/diabetes-prevention/employers-insurers/cost-calculator-tools.html#cdc_generic_section_3-amas-dpp-cost-saving-calculator.

13. Centers for Disease Control and Prevention. National Diabetes Prevention Program. Retrieved February 11, 2025, from <https://www.cdc.gov/diabetes-prevention/programs/index.html>.

14. National DPP Coverage Toolkit. Retrieved February 11, 2025, from <https://coveragetoolkit.org/cost-value-elements/>.

Medical cost and DPP cost projection

Medical costs used in modeling are illustrated in Figure 2. Baseline annual costs for members with diabetes and prediabetes are median costs from the Milliman research report. These costs have been trended from 2021, using the medical consumer price index (CPI) from the Bureau of Labor Statistics.

The DPP cost has also been trended with the medical CPI, with costs reduced by 50% after the first year. All figures in the table below are in U.S. dollars.

FIGURE 2: HEALTH SERVICES ANNUAL COST PER PERSON

	2024	2025	2026	2027	2028
Annual cost for a member with diabetes	5,462	5,599	5,739	5,882	6,029
Annual cost prediabetes	630	646	662	678	695
DPP cost	536	275	281	288	296

Annual cost inflation is illustrated in Figure 3. The 2022 and 2023 values represent actual medical inflation from 2021 to 2022 and 2022 to 2023, respectively,¹⁵ with a 2.5% inflation value used for future years. The 2.5% value is the average medical CPI from 2018 to 2023.

FIGURE 3: MEDICAL CPI INFLATION, ACTUAL AND PROJECTED

TREND	MEDICAL CPI
2022	4.1%
2023	0.5%
2024 to 2028	2.5%

Probability of progression from prediabetes to diabetes

The aforementioned Milliman research report is also our source for probabilities of prediabetics being diagnosed with diabetes (i.e., transition probabilities). The study followed 23,488 commercially insured adults with prediabetes. The study group were also not pregnant, had no known history of gestational diabetes, and were enrolled for at least two years during the study period. Of this group, 2,873 also participated in the National DPP. Those who participated in the DPP had an approximately three- to tenfold lower chance of progression to diabetes than the overall cohort.

FIGURE 4: CUMULATIVE PROBABILITY OF PROGRESSION TO DIABETES

	COMMERCIAL	DPP (COMMERCIAL)
Count	23,488	2,873
After 11 months	11.0%	3.9%
After 23 months	15.0%	5.5%

We converted these reported findings to annual transition probabilities, illustrated in Figure 5. The top table illustrates projected progression for 100 members without a DPP (Status Quo), while the bottom illustrates progression for 100 members who engage with the lifestyle program (With DPP).

15. Using the medical care in U.S. city average CPI, all urban consumers, chained, not seasonally adjusted.

FIGURE 5: DIABETES PROGRESSION ASSUMPTIONS

STATUS QUO	2024	2025	2026	2027	2028
Members with diabetes	11	15	19	22	26
Remaining prediabetic	89	85	81	78	74

WITH DPP	2024	2025	2026	2027	2028
Members with diabetes	4	6	7	9	10
Remaining prediabetic	96	95	93	91	90

Model results

The modeling projected a 36% return on funding invested in DPP services or a 26% return after applying a 7% annual discount. Modeling assumes that, after crediting investors with a 7% annual rate of return, the remaining 26% in savings would be shared between the plan sponsor and investors.

FIGURE 6: ILLUSTRATIVE SAVINGS PROJECTIONS—NATIONAL DPP PROJECTED - CY 2024—CY 2028

	5-EAR COST— UNDISCOUNTED	5-YEAR COST IN 2028 DOLLARS
No DPP: Projected status quo cost		
Status quo medical care costs	\$679,579	\$811,257
DPP: Projected costs for high-risk members		
With DPP costs of medical care	\$461,188	\$557,054
With DPP: Cost to receive DPP services	\$160,377	\$201,904
Total cost with DPP interventions	\$621,564	\$758,957
Total net savings	\$58,015	\$52,300
As a percent of DPP investment	36%	26%

Projected savings are highly dependent on the assumptions set at outset. For example, higher costs to treat diabetes can result in more cost savings if the program is successful and cost-effective in delivering the required care and results in delayed and averted progression to Type 2 diabetes. Additionally, any changes in population selection can affect savings. This model assumes eligibility for members with prediabetes, but refined targeting to a higher risk subset could also result in higher savings.

Projected expenditures by year are illustrated in Appendix 1.

Discussion

In this paper, we present the potential opportunity to use SIBs to test new chronic disease prevention interventions or scale and apply existing interventions to new populations. The SIB context could provide a solution to the problem of underinvestment in tests of new interventions by paying an ROI to those funding the new program if it is successful. Our impact model can help expedite the identification and initiation of new SIBs by mocking up the parameters of the potential bond and highlighting the important parameters to consider in planning the bond.

In order to implement this concept in practice, the issuing organization and its partners will need to do the following:

- Identify a specific condition and population to target, as well as a potential program or intervention to test or scale.
- Identify the individuals or organizations who will provide the intervention. What is the nature of the intervention? What are the expected preventive outcomes and cost savings? Are these estimates believable enough to warrant the risk to the issuer and investors?
- Identify an investor in the program. This could be the program providers themselves or a third-party funder, such as a private investor or a nonprofit funding/granting agency. Health plans, insurers, and employers may also be interested in investing to improve the health of their enrolled populations.
- Ensure the parameters of the SIB are acceptable to all parties involved. This in part requires thorough vetting of the reasonableness of those parameters. Our impact model highlights the things that most need to be considered and researched prior to initiating the SIB.
- Determine how to evaluate the program impact. Measures and analytical strategies should be in place prior to the start of the SIB to provide clarity on terms and objectives.

Our impact model, combined with Milliman's deep experience in SIBs, as well as other bonds and healthcare data and analytics, can help stakeholders set up successful new interventions.

Programs targeting Type 2 diabetes prevention are timely, given the high incidence of this disease. However, SIBs and our impact model can easily be applied to other programs and interventions, even those targeting other conditions.

Acknowledgement section

The authors would like to express sincere gratitude to those who have contributed to the completion of this project.

Specifically, we wish to acknowledge Melody Craff, Austin Barrington, Thomas Pu, Dale Skinner, and Michael Hadfield as the authors of the research paper entitled *Insights into cost patterns and actionable factors in newly diagnosed Type 2 diabetes*, published on January 3, 2022, on Milliman Insight,¹⁶ which we relied on for our research.

16. Craff, M., Barrington, A., Pu, T., Skinner, D., & Hadfield, M. (December 2021). Insights into cost patterns and actionable factors in newly diagnosed Type 2 diabetes. Retrieved February 11, 2025, from https://edge.sitecorecloud.io/millimaninc5660-milliman6442-prod27d5-0001/media/Milliman/PDFs/2022-Articles/1-3-22-Insights_into_cost_patterns_and_actionable_factors_in_newly_diagnosed_Type_2_diabetes.pdf.

Appendix

ILLUSTRATIVE SAVINGS PROJECTIONS—NATIONAL DPP

	2024	2025	2026	2027	2028	5-YEAR COST— UNDISCOUNTED	5-YEAR COST IN 2028 DOLLARS	PERCENT OF STATUS QUO COST
NO DPP: PROJECTED STATUS QUO COST FOR MEMBERS IN THE INITIAL HIGH-RISK COHORT								
Status quo	\$63,002	\$119,061	\$142,345	\$165,783	\$189,389	\$679,579	\$811,257	100.0%
DPP: PROJECTED COSTS FOR HIGH-RISK MEMBERS WITH ACCESS TO THE DPP								
With DPP costs of medical care	\$63,002	\$83,894	\$94,114	\$104,655	\$115,523	\$461,188	\$557,054	
With DPP: Cost to receive DPP services	\$53,573	\$26,385	\$26,595	\$26,806	\$27,018	\$160,377	\$201,904	
Total cost with DPP interventions	\$116,575	\$110,279	\$120,709	\$131,460	\$142,542	\$621,564	\$758,957	93.6%
Total net savings	-\$53,573	\$8,782	\$21,636	\$34,323	\$46,847	\$58,015	\$52,300	6.4%
Investor share						\$23,206	\$20,920	10.4%
Employer/insurer share						\$34,809	\$31,380	

Solutions for a world at risk™

Milliman leverages deep expertise, actuarial rigor, and advanced technology to develop solutions for a world at risk. We help clients in the public and private sectors navigate urgent, complex challenges—from extreme weather and market volatility to financial insecurity and rising health costs—so they can meet their business, financial, and social objectives. Our solutions encompass insurance, financial services, healthcare, life sciences, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

milliman.com



CONTACT

Christine Mytelka
christine.mytelka@milliman.com

Robert Richards
robert.richards@milliman.com

Diana Dodu
diana.dodu@milliman.com

Dan Mulhern
dan.mulhern@milliman.com

David Clove
david.clove@milliman.com

Lauren Hodges
lauren.hodges@milliman.com

Jana Bourne (Ed.)
jana.bourne@milliman.com

© 2025 Milliman, Inc. All Rights Reserved. The materials in this document represent the opinion of the authors and are not representative of the views of Milliman, Inc. Milliman does not certify the information, nor does it guarantee the accuracy and completeness of such information. Use of such information is voluntary and should not be relied upon unless an independent review of its accuracy and completeness has been performed. Materials may not be reproduced without the express consent of Milliman.

This white paper was written as part of GUTSI—the Ground-Up Think Tank for Social Impact—an employee-led initiative that draws on Milliman's entrepreneurial culture to find innovative solutions to global challenges.