Stark County Social Information Exchange Network

Prospective SROI & Scan of the Field

Prepared by Ohio University's Voinovich School of Leadership and Public Service

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Introduction

A growing body of research demonstrates that the Social Determinants of Health (SDOH) significantly influence health, well-being, and quality of life.[1] In 2023, the U.S. Department of Health and Human Services issued a call to action: "In recognition of research findings that social determinants of health account for about half of the variation in health outcomes in the nation, the U.S. Department of Health and Human Services is moving with urgency…to address SDOH and unmet health-related social needs (HRSN) that have the potential to worsen health and well-being . . . Organizations from different sectors operating within the same community must come together to meet these needs with a shared vision and collaborate to improve care coordination."[2] Efforts to ensure equitable access to all SDOH can be frustrated by incomplete and inconsistent data and lack of coordination across the many sectors that impact SDOH. To tackle these problems, HHS included in its recommendations a focus on "closed loop" referrals and interoperability among referral systems. In response, many communities, states, and regions are turning to social information exchange networks (SIEN) to coordinate large-scale, complex efforts to address SDOH in a holistic, data-driven way. Stark County, Ohio, is one of those communities.

SIENs are systems of healthcare and SDOH service providers who use a common technology platform to share data and make efficient, closed loop referrals among participating providers. SIENs require the establishment of legal frameworks to facilitate data sharing and ensure compliance with regulatory requirements, technical assistance to support adoption and implementation by participating organizations, specialized technical infrastructure to create interoperable information technology systems, and financial support to purchase and maintain the platform, and to engage in work to secure community buy-in. SIENs typically have backbone organizations that help to mobilize community resources, convene stakeholders, and maintain a shared vision and commitment within the community.

Closed loop referral: A referral in which "all patient data and information that require action are communicated to the right individuals at the right time, through the right mode of communication to allow for review, action, acknowledgement, and documentation."[3]

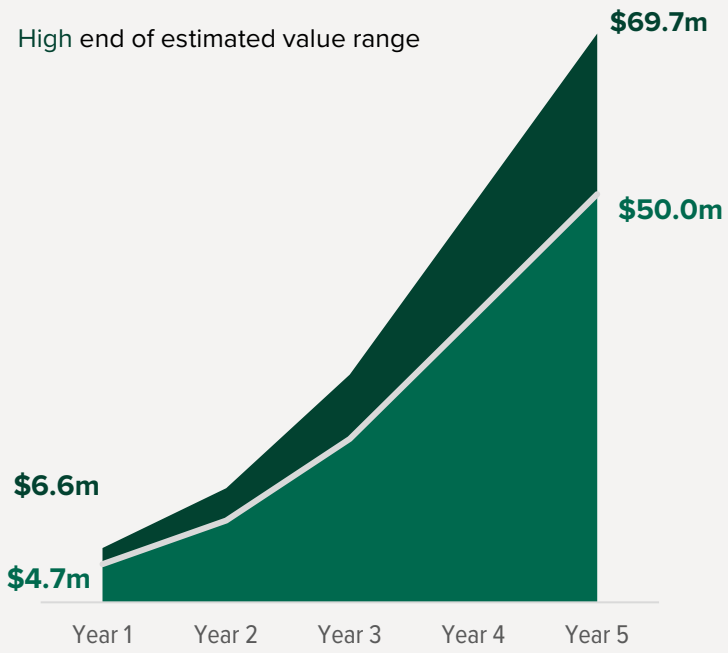
Interoperability: "The ability of different information systems, devices, and applications (systems) to access, exchange, integrate and cooperatively use data in a coordinated manner."[4]

Social Determinants of Health: "The conditions in the environments where people are born, live, work, play, worship, and age that affect a wide variety of health, functioning, and quality-of-life outcomes and risks."[5]

Among the main benefits of SIENs are their potential to increase efficiency in the provision of health and social services, to break down traditional silos and harness resources from multiple sectors, and to generate a wealth of comprehensive data that supports identification of needs, gaps, and emerging trends. In this way, SIENs aim to create more equitable access to the SDOH, which, in turn, paves the way for overall health equity.

The SROI carried out for this report is based on a set of assumptions about the likely trajectory of a Stark County SIEN. These assumptions are grounded in the informed projections of Stark County organizers and have been compared to the trajectories of other SIENs and found to be both reasonable and conservative. Based on these assumptions, which will be detailed in the data collection and analysis section of this report, researchers conclude that **for every $1 invested in a Stark County SIEN, between $0.91 and $1.38 worth of social value is likely to be created in the first year of implementation. By Year 5 this ratio will increase to $11.54–$16.72 worth of social value for every $1 invested.** By Year 5, a Stark County SIEN could create between $50 million and $69.7 million worth of social value.

The amount of social value created by a Stark County SIEN could exceed $69 million by Year 5.



Structure of the Report

This report provides findings from a prospective Social Return on Investment (SROI) analysis of a Stark County SIEN, as well as a review of lessons learned by existing SIENs across the country. The first section of the report provides a brief explanation of the data collection and the analysis methods used. The next section details the lessons learned from other SIENs, particularly with regard to funding and community engagement strategies. Following that, the report lays out the results of the SROI analysis and concludes with brief suggestions for using the SROI calculator and the SIEN is implemented.

Data Collection & Analysis

This report is based on data from interviews with 11 SIENs, a review of existing SDOH- and SIEN-related literature, an outcomes mapping session with 20 Stark County stakeholders, follow-up interviews with select Stark County organizations, and an extensive review of the academic and professional literature related to the potential SIEN outcomes identified by stakeholders as most important for Stark County.

Interviews with SIENs

With the assistance of Stark County Mental Health and Addiction Recovery, researchers identified 30 health-related exchanges to contact for information. Up to three attempts were made to contact each exchange, and researchers secured interviews with 11 of the contacted exchanges. Interviewers used standardized, open-ended interview guides to ask about funding strategies, community engagement methods, challenges to implementation, and suggestions for future exchanges. Interviews were conducted via Zoom, transcribed, and then analyzed using standard thematic analysis.

Social return on investment

SROI measures the social value created by a program or intervention. The approach is used to convey—in monetized form—the value of interventions whose outcomes may or may not traditionally be captured by financial metrics. SROI accomplishes this through the use of fiscal proxies, which translate the value of the outcomes under study into the more universal language of money. The process of selecting outcomes to value and assigning fiscal proxies is driven by stakeholders' views of the relative importance of these outcomes. An SROI analysis produces both a total estimate of social value created, and a ratio of the value created per dollar invested in the intervention. To arrive at these values, an SROI includes the following steps:

Outcomes articulation

Stakeholders identify the important outcomes they experienced as a result of the program or intervention being studied. In the case of this study, four members of the research team conducted an outcomes articulation session on February 20, 2024, with 20 Stark County representatives of social service agencies, philanthropy, physical healthcare providers, public health, behavioral health, and a healthcare payer. To supplement this information, researchers consulted with the Stark County Social Information Exchange Network steering committee, conducted a review of the professional literature related to SIEN outcomes, and drew on data from interviews with other SIENs to refine the list of outcomes to be valued through the SROI.

Fiscal proxy development

To develop a fiscal proxy, each outcome is given a quantifiable representation of value, typically

conceived of as the dollar value of costs avoided or benefits obtained. For this analysis, fiscal proxies were sourced from academic research, existing cost-benefit analyses conducted by the Washington State Institute for Public Policy, and the U.S. Social Value Bank, which was developed by Ohio University in conjunction with Social Value International. A detailed explanation of the proxies used in this analysis is available in the technical appendix that accompanies this report.

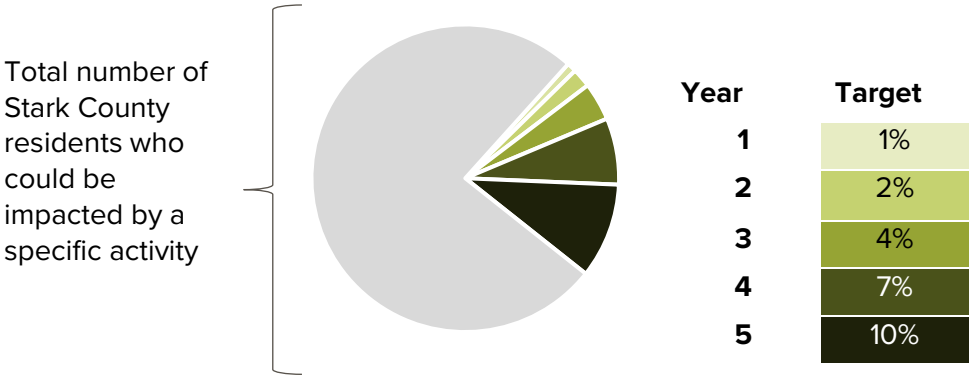
Discounting

Researchers then reduce the resulting values to account for other influences that may have contributed to the outcome (deadweight), the length of time the outcome persists (duration), the degree to which the outcome decreases over time (drop-off), the possibility that the outcome imposed a cost elsewhere (displacement) and the amount of the outcome that was caused by the program (attribution). For this analysis, researchers set a one-year limit for impact duration, due to uncertainties inherent in forecasting the results of a prospective activity.

Quantification

In this stage, the fiscal proxy for each outcome is multiplied by the number of people experiencing the outcome. This stage typically involves a survey of those impacted by the activity under study, or the use of existing program data. For this study, there was no existing program data and there are no current SIEN clients and stakeholders to survey. Researchers consulted with other SIENs to determine if there are typical patterns of growth across these exchanges but found that most of the SIENs in operation started close to and during the years of the pandemic. Because of the exceptional nature of this time, researchers decided against using SIEN trajectories from these years as a basis for quantification. Instead, researchers chose to use a target-based approach for quantification. For each outcome, researchers calculated the number of Stark County residents who could be affected. For example, for the outcome related to food assistance, researchers determined the number of individuals in Stark County who experience food insecurity and set targets for each of the first five years of implementation based on this number. For all outcomes, researchers assumed that one percent of the target population would be served by the SIEN. This target percentage increased to two percent in Year 2, four percent in Year 3, seven percent in Year 4, and 10 percent in Year 5.

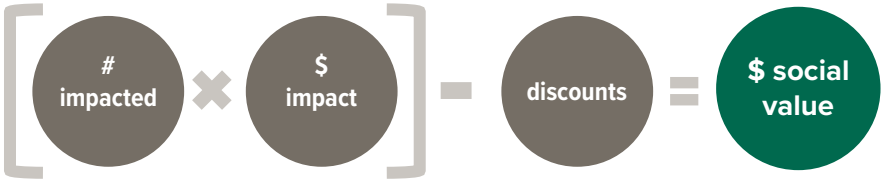
Quantification of impact was based on targets calibrated to the amount of need in Stark County.



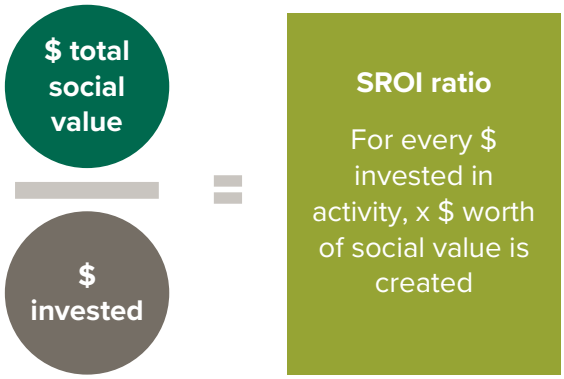
Calculation of impact and impact ratio

Combining the social value for all outcomes yields the total social value created by a program or activity. To calculate the SROI ratio, the total value is divided by the number of dollars invested in the program.

Social value calculations require quantifying the number impacted and reducing the resulting values to account for other influences on the outcome.



To arrive at the overall SROI ratio, researchers combine the social value produced by each outcome, and divide by the amount of investments in the activity or program.



Limitations

Information exchanges for the social determinants of health are a relatively new phenomenon. The oldest SIEN has been operating for 14 years, and most SIENs are at much earlier stages of development. Not all SIENs are willing to share internal data, and some data held by technology vendors is proprietary. A prospective SROI of an SIEN cannot account for all of the unknowns related to how SIENs develop over time and impact their communities. As a result, this SROI makes a number of assumptions.

Assumption 1: Successful referrals

The targets set for each year are for successful completion of referrals. Some SIENs report that their unresolved case rates are 40 percent or higher, largely due to inability to contact the individual being referred. This means that meeting the need of one percent of the population in Year 1 may require attempting to serve two percent of the population or more. This is one of the reasons that the target percentages for each year are set relatively low.

Assumption 2: Unlimited resources

The SROI model built for this analysis does not include a ceiling on available resources. Because the maximum percentage served in the model is five percent of the target population, researchers judged that the activities required to meet those targets would not likely exceed available resources in the county. Researchers also selected programs with larger pools of funding to express the value of addressing various SDOH. As the SIEN and its reach in the community grow, however, there may come a point at which a larger percentage of the population cannot be served unless more resources are obtained. One of the benefits of a SIEN is that it allows for the type of comprehensive data collection that can be used to advocate for increased resources.

Assumption 3: Linear rates of return

For the most part, the social value produced by each outcome grows in direct relationship to the number of people served. For individual-level outcomes this will likely remain an appropriate relationship, even as the SIEN serves a larger and larger percentage of the population. However, for the community-level outcomes this may change as some outcomes reach a point of diminishing returns. Outcomes such as reduced crime and increased trust may grow at a different pace once a certain percentage of the population has been reached. Researchers do not anticipate that a change in the 1:1 relationship between number served and increased return will happen within the five percent of population ceiling set for this model.

Assumption 5: High levels of attribution

The outcomes in the SROI model do not take into account the organizations outside the SIEN who might be linking Stark County residents to SDOH-related services. It is reasonable to assume that the five percent ceiling on population reach built into the model reduces the threat that other organizations are reaching the same individuals. As the SIEN grows, however, individuals who receive services must be asked whether they would be likely to receive the service elsewhere in order to ascertain whether the SIEN itself is the reason they are receiving the services.

Scan of the Field

This section of the report details the findings from a series of 11 interviews with health-related information exchanges across the country, as well as a review of the literature related to SIEN implementation.

Positive impacts

Interview respondents identified multiple ways in which their work was improved as a result of participating in the SIEN.

Resource allocation

One of the benefits of setting up an SIEN, according to the SIENs who participated in interviews, is the ability to expend organizational resources in order to maintain or increase future funding levels. According to one representative of an SIEN, "The platform creates a pipeline that didn't exist for us before, for people to get connected to our services." Because of closed loop referrals, "for organizations in our community who need to meet certain caseloads, the dollars come down based on the number of people they've served, they're able to capture those people and not have people falling through the cracks." This means increased allocations of resources in subsequent years.

New efficiencies

SIENs were largely pleased with the way in which the technology platforms allowed them to make quick, efficient referrals. They reported that they were able to stop using fax machines and relying on multiple phone calls to make referrals, and instead could quickly share data in a way that is convenient for all parties: "It really helps share patient data and social assessments a lot quicker to help with referrals and enrollments. The workflows are set up in way that most of the information can be sent directly via text or email."

New partnerships

As a result of the community convening that occurs with an SIEN, and the data that is generated through the SIEN, organizations can identify potential partners more easily: "We were able to look at the data and look at the co-occurring needs. So there are opportunities for new partnerships." In Florida, for example, this led to partnerships between food pantries and diaper banks.

Wraparound services

Real-time data and the ability to identify (and eventually predict) co-occurring needs increase communities' abilities to provide holistic care for individuals: "The social services environment can wrap services around those folks who need it in a timely manner, because now they have real-time information."

Timely identification of needs

The data generated by an SIEN allows for a more comprehensive view of community needs, which can enable quicker responses on the part of providers: “Looking at the data we noticed that there were huge capacity issues for mental health services, wait times of months. [People] were not able to access mental health services for months because of wait lists, and shortage of staff. As a result of that, the community came together and created what we’re calling the perinatal hub. We pulled together the larger behavioral health providers and we brainstormed about how we can increase access and streamline families getting into these types of services. We’ve developed a five-action step strategy and meet on a regular basis to monitor how we’re doing.”

Increased information for billing

One SIEN reported that participating organizations were better able to bill for the full array of services that they provide because of the SIEN: “What happens most of the time is the providers of the service don’t have all the data required to bill, [but the social information exchange] can enable those billing services, or we can enrich what you’re billing for, because we’re giving you greater granularity of information.”

Increased awareness of resources

One of the main features of an SIEN is a live resource directory that provides real-time information about service providers and their availability. This can save organizations the considerable time and effort that would otherwise be spent getting and staying up to date on the availability of area resources: “In the front-line staffing positions there’s such a great turnover, so keeping up to date on all the resources that are available is challenging. Through this platform, when you have a new team member, or even one that’s been around for a while but needs to keep updated, [the resource directory] is a great kind of resource. It’s a tool that you can use to find the resource that you’re looking for.”

More effective referrals

Another key feature of an SIEN is the closed loop referral. Closing the loop on a referral means that the individual who was referred to a new provider has successfully engaged with the new provider. Traditional methods of referrals can be prone to error and typically place the

> “The onus isn’t on the client, who is probably already struggling with myriad barriers and other issues that may prevent them from seeking assistance or following up.” -SIEN interview respondent

responsibility for follow up on the referred individual. With an SIEN, the receiving agency can proactively reach out to the potential client, while observing within the system whether its client has connected with the new provider.

Similarly, a live resource directory makes referrals more effective because they are informed by current provider availability: "As funds come and go, you're able to turn on and off referrals, so we're able to see who's at capacity or what organizations have dissolved or what programs are no longer serving clients. So, it's less runaround for the clients." One SIEN reported that these referral features reduced referral times from seven to 10 days to two to three days.

Funding[6]

SIENs reported a variety of funding strategies, both for the initial setup of the exchange and the subsequent maintenance/expansion phase.

Startup

The cost of a technology platform varies depending on the vendor and the modules included in the platform. According to the SIENs who participated in interviews, the price of the platform can range from $300,000 to $500,000. Other costs involved in initiating an SIEN include purchase of hardware, training and technical assistance for those adapting to new systems, community engagement (including compensation of community members who sit on advisory committees), and operating costs for the backbone organization.

To meet these funding needs, SIENs have drawn on a variety of funding types. SIENs who used a single source of funding for startup include the District of Columbia Community Resource Information Exchange Inventory, which was funded with HITECH funds through the DC Department of Healthcare Finance. The Summit County SIEN in Ohio was largely started with funding from an opioid settlement. These are not typical funding strategies, though: **most SIENs combine a variety of funding sources to get started.**

Philanthropy typically plays a big role in this stage. The Robert Wood Johnson Foundation supported startup efforts for the Healthier Here/Connect2Community SIEN in Washington state, and Healthy Alliance in New York. Foundations also played a large role in the startup of the First 1,000 Days initiative in Florida, Partners in Care in California, CIE San Diego in California, the Colorado Social Health Information Exchange, CommonSpirit Health (which spans multiple states), the United Way of Rhode Island, The GRACE Network in Michigan, Monroe County Systems Integration in New York, and 211 Tampa Bay in Florida. Philanthropic funding is almost always combined with state or federal grants.

The Center for Medicare and Medicaid Services provides funding through Section 1115 Waivers to fund tests of new approaches to further Medicaid's objectives, State Innovation Model grants, and Accountable Health Communities Model funding awards. These programs provide significant funding and are highly competitive. HealthierHere/Connect2Community, for example, received a State Innovation Model grant that it combined with philanthropic funding to initiate its SIEN. New Jersey Health Hubs combined an Accountable Health Communities grant with state funding in order to initiate its SIEN. Other large grants used to stand up SIENs include Substance Abuse and Mental Health Services Administration Emergency Funds, which were used to start the 211 Tampa

Bay SIEN, and the Health Resources and Services Administration Telehealth Resource Center Grant Program, which partially funded the startup of the 211 Broward SIEN, and Health Information Technology for Economic and Clinical Health funds, which were part of the American Recovery and Reinvestment Act. These funds were used by DC CORIE and Together Now New York.

Maintenance

Once SIENs have been established, the challenge becomes one of securing ongoing operational funding. Typically, at this phase, philanthropic funding continues in reduced amounts, and membership fees begin to take a more prominent role as the SIEN gets established. For example, the GRACE Network, which was initiated with funding from Community Rebuilders and the Bezos Day One grant program, transitioned to a model that included membership fees for healthcare organizations once it had successfully begun operations. The Healthy Alliance began with funding from the Robert Wood Johnson Foundation (combined with state and federal funding) and transitioned to a model in which a combination of membership fees and government grants supported ongoing operations. The Center for Medicare and Medicaid Services remains an important source of support for those SIENs that are able to win funding. In California, Health Information Exchanges have combined under California Advancing and Innovating Medi-Cal, which has received a Section 1115 Medicaid Waiver to support its operations. Healthier Here/Connect2Community maintained Medicaid funding through a Section 1115 Waiver as it phased out of the startup stage.

Absent significant federal funding, membership fees become an important funding vehicle. Most SIENs do not charge membership fees to smaller community-based organizations. If these organizations are charged, the charges are based on a sliding scale to reduce the economic burden of participation. Most SIENs

> "Yes, the startup cost is high, but the efficiency savings over time pay for the high startup. I think that we have to ask ourselves as public-facing agencies, what's the value of improved care?"
>
> -SIEN interview respondent

"You have to develop the relationships and the partnerships and not just build out technology."
-SIEN interview respondent

"My advice would be to really talk to the community about where they need efficiency with the current work that they do. It's not advisable to go in and say, 'You do all work on paper and via phone, and now you're going to use this system.' The best way to approach it is to say 'Where are you now? Where do things become cumbersome for you as far as getting people to services?' Start small, with a workflow that could address that particular problem."
-SIEN interview respondent

who use membership fees only charge healthcare organizations. Annual fees reported to researchers during interviews range from $125 to $2,000, depending on the size of the organization. Alternatively, some exchanges charge healthcare providers according to use of the platform, with set fees of $10–$25 per lookup or referral using the system. However, membership fees are not the sole source of ongoing operational support for SIENs. All the SIENs researched for this report accessed additional funding to supplement membership fees.

Community engagement

SIENs cautioned that community engagement is a critical component of SIEN startup, and that it can be easy to underestimate the challenges inherent in this process. Community engagement involves two distinct sets of activities: recruiting community organizations to participate in the SIEN and including community members in the planning and implementation of the SIEN.

Recruiting organizations

SIENs generally indicated that once organizations began participating in an SIEN, the benefits became clear and motivation to remain in the SIEN stayed high. However, convincing some organizations to join the SIEN can be difficult: "There was a little bit of pushback: 'Well, what's the incentive for us? We're already strapped for resources and time to do all of this kind of thing.'"

Concerns about data security and privacy create one of the main hurdles to overcome. To address this concern, some SIENs have involved potential partners in the development of procedures and legal frameworks to ensure data privacy and security. There are many resources available through the Office of the National Coordinator for Health Information Technology, CIE San Diego's CIE © Toolkit, and the Gravity Project to assist with this process.[7]

Another concern among potential participants is the duplication of effort that may be required as organizations fulfill funding requirements, follow

internal procedures, and utilize the SIEN platform. Concerns about double and triple data entry create barriers to buy-in. More experienced SIENs suggest starting small, and meeting organizations where they are in terms of technological capacity and workflows. Others suggest early convenings of potential participants in which concerns can be expressed and heard, and then incorporated into system design.

Most SIENs reported that reducing barriers to entry (by making participation free, providing funding for technology upgrades, and providing custom workflows for organizations) can help increase willingness to participate, but that buy-in comes when organizations see what the SIEN can do for their organization: "The first thing you're going to say to social services is, 'How can we better serve and support you?' and you'll find that as soon as you make that connection, another group will say 'We never had access to social services data, so how can you support us?' and it's like a ripple effect. It will start to build on itself."

To ensure continued buy-in, SIENs suggest offering a robust array of technical assistance. SIENs cautioned that there can be a steep learning curve for community-based organizations with low technological capacity. One coordinator reported, "I do a ton of troubleshooting and teaching other people [how to use the technology], and I don't even work for the platform." SIENS advised that sufficient funding and staff time be dedicated to ongoing technical assistance as new organizations join the SIEN, and as new staff members join the community organizations. New learning curves will appear as new workflows are designed and new modules are added to the platform.

Involving community members

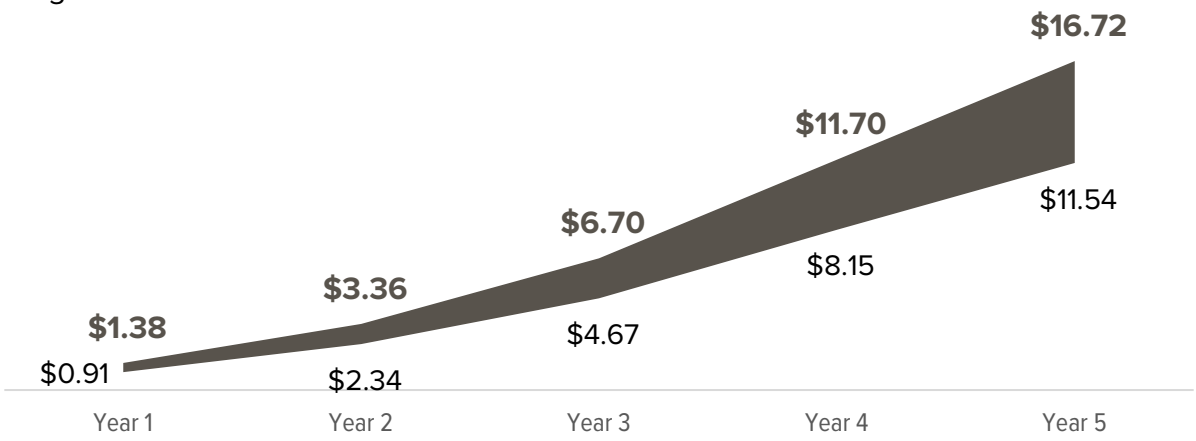
SIENs are intended to create broad, equitable access to the SDOH, which in turn supports equity in health outcomes and well-being. The early process of community engagement has a large influence on the SIEN's ability to move a community in the direction of health equity.

To ensure broad representation of the populations are served by the exchange, most SIENs report carrying out focus groups, listening sessions, and key informant interviews: "We've done a lot of community engagement in terms of focus groups and surveys to figure out what is needed to have people use the platform, to follow up on referrals, to share a platform with their friends and family members. HealthierHere worked with community partners to carry out focus groups and interviews with community members to learn which functionality and privacy measures were priorities for community members. CIE San Diego held exercises to learn about and share community member experiences, including asking individuals to draw their experiences navigating the social service and healthcare systems as a way to generate insight. Other SIENs recommend learning from the advocacy work already being done by community-based organizations in order to learn about current issues facing community members and effective outreach methods within their communities. SIENs also incorporate community members into advisory boards and/or stand-up specific community advisory boards. This may require providing technology to facilitate participation (such as Wi-Fi-enabled tablets), and most SIENs advocate for offering compensation such as stipends and travel reimbursement.

SROI Results

This analysis found that a Stark SIEN is likely to have increasingly positive social returns on investment over time. In the first year, researchers estimate that between $0.91 and $1.38 worth of social value will be created. This is the only year in which projections include a value that is less than one dollar. By Year 5, the SROI ratio for a Stark County SIEN could be as high as $11.54 to $16.72 for every dollar invested.

High and low SROI ratios



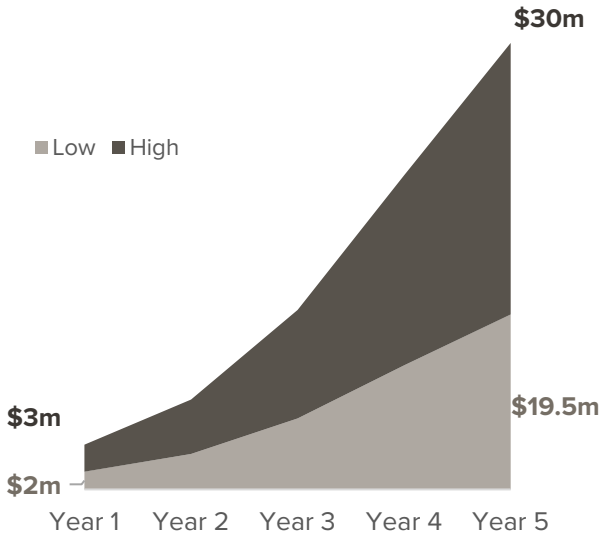
These growing ratios reflect the large impact that SDOH have on social value. A fully functional SIEN supports coordinated, comprehensive care and increased access to the SDOH. In so doing, an SIEN can move a community toward improved population health and health equity. There are many individual, organizational, systems, and community-level impacts that occur along the way toward these end goals. This section of the report lays out the outcomes that were valued for the SROI model. These outcomes are not an exhaustive list of outcomes that will be obtained on the way to the end goals of health equity and coordinated care and barrier removals. These outcomes are those that were identified as most material for stakeholders during the outcome articulation activities, data collection from SIENs, and a review of the literature on SIENs and their impact.

Note that some categories of outcomes, such as increased access to nutrition supports and increased access to mental healthcare services, have impact on multiple stakeholders. These outcomes will appear multiple times throughout this section with the total value created by these outcomes split across multiple stakeholders.

Outcomes for individuals

An SIEN would link community members to SDOH supports through programs such as Ohio Works First (OWF), Percentage of Income Payment Plan Plus (PIPP+), Supplemental Nutrition Assistance Program (SNAP), and other forms of assistance. Using the closed-loop referral system, the SIEN would identify eligible individuals and enable them to receive supports they had not previously accessed. Access to a comprehensive case history allows participating SIEN organizations to identify gaps in an individual's access to needs and connect them to essential resources.

A Stark County SIEN could produce as much as $30m worth of social value for individuals and households by the fifth year.



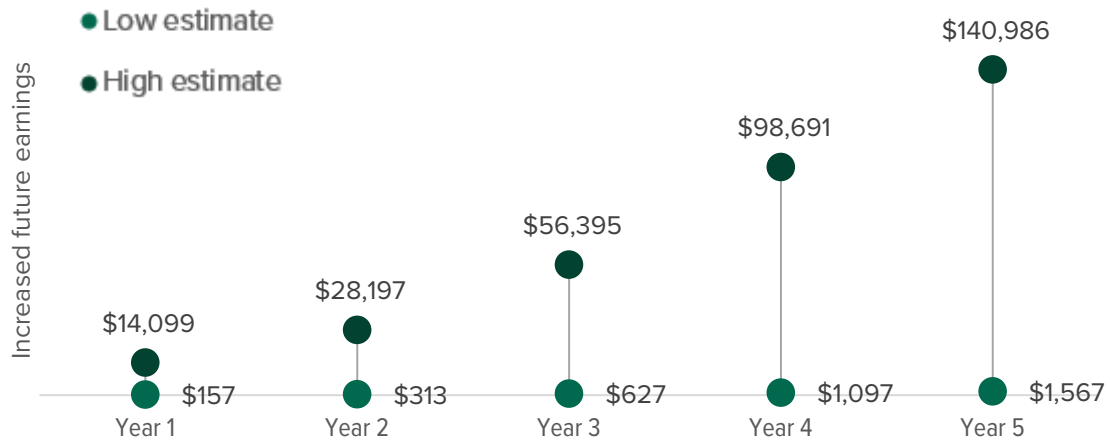
This section projects the social value that would be created for individuals as a result of these types of assistance. The projections are based on percentages of the target population in Stark County that could be reached by an SIEN. These projections specifically include as a target population those individuals in Stark County currently in need of various supports. That is, the percent of the population who need support services and programs but currently do not receive them. As the reach of the SIEN grows over time, and a larger percentage of those in need are reached, it will become more important to assess attribution for each outcome by asking the individual whether they would have accessed the support some other way if not for the SIEN.

The largest impacts are anticipated from the SIEN's ability to link rent-burdened individuals to housing assistance, to connect households with utility assistance, and to provide relief from worry about meeting basic needs.

Outcome 1: Improved food security

16,440 children in Stark County experience food insecurity, and roughly 2,280 of these children live in households that are likely to qualify for Supplemental Nutrition Assistance Program (SNAP) benefits but do not receive them. Research demonstrates that children whose households receive SNAP benefits have higher rates of educational attainment, which in turn leads to increased earnings. A SIEN that successfully links one percent of food-insecure children to SNAP would generate between $157 and $14,099 worth of social value over the course of one year. Successfully linking 10 percent of these children with SNAP would yield between $1,567 and $140,987 worth of social value in the next year.

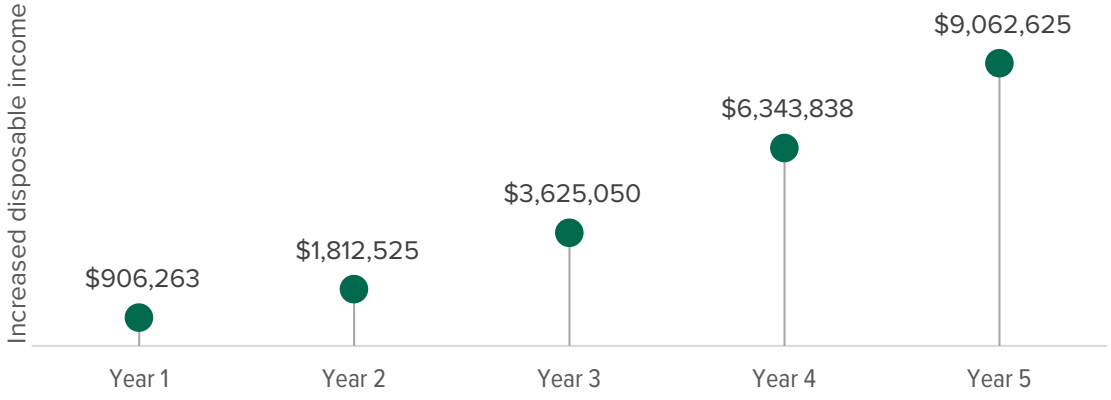
Social value created through improved food security



Outcome 2: Reduced rent burden

17,875 renters in Stark County are housing-cost burdened, meaning that they spend more than 30 percent of their income on rent. Housing-cost burdened individuals must make substantial sacrifices to afford housing including cutting back on other household costs such as food, childcare, medical care, transportation, and other necessities in order to afford the outsized cost of housing. Research demonstrates the alleviating rent burden provides, on average, a $5,070 increase in disposable income to the previously rent burdened household.[8] A SIEN that enrolled one percent of these renters into rental assistance programs, or assisted with affordable housing location, would generate $906,263 worth of social impact via increased disposable income, which could then be spent in the community or used to meet other basic needs. If 10 percent of renters were enrolled, the SIEN would generate $9,062,625 worth of social impact.

Social value created through reduced rent burden

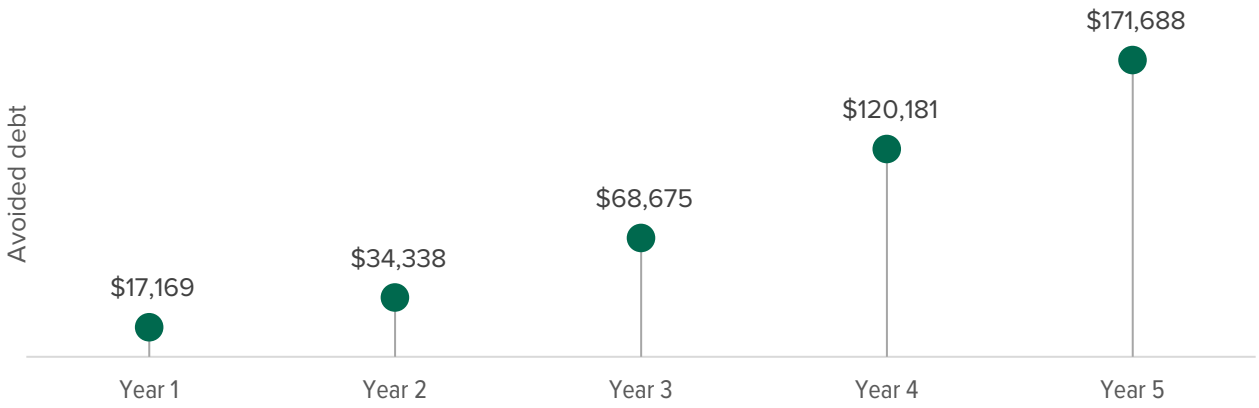


Outcome 3: Increased income supports

An estimated 6,800 households in Stark County are eligible for but do not receive benefits through OWF. By increasing household income, OWF increases the amount of cash on hand for households receiving the benefit, and increased cash on hand is linked to reduced likelihood of

debt, especially in the face of unexpected expenses. By strengthening families' resilience in the face of economic shocks, a Stark County SIEN that enrolled one percent of these households in OWF would generate $17,169 worth of social value over a one-year period. If the SIEN were to successfully link 10 percent of these households to OWF, it would produce $171,688 worth of social value for these individuals over the course of a year. There are additional benefits for the community that are included in the "Outcomes for the Community" section of this report.

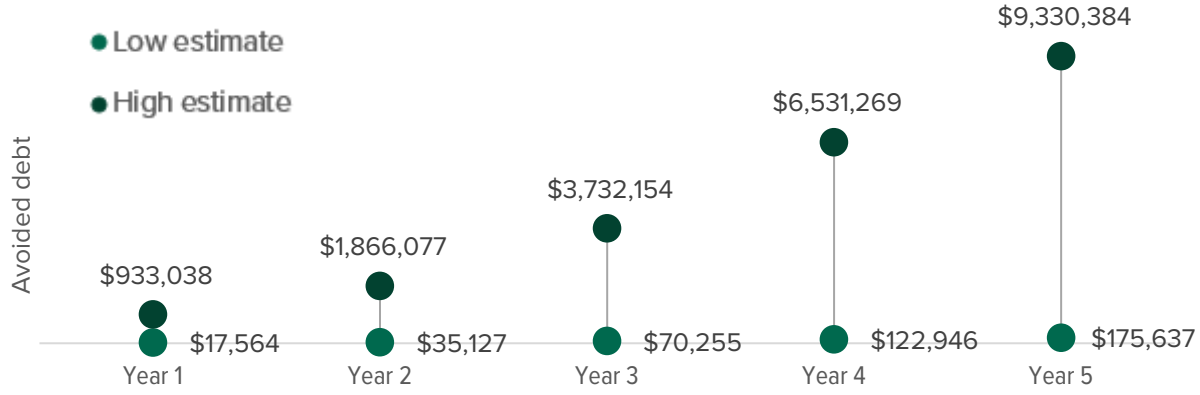
Social value created through increased income supports



Outcome 4: Increased utility assistance

Roughly 31,000 households in Stark County are eligible for but do not receive assistance with utility bills through the PIPP+ program. In the same way that OWF reduced the likelihood of accumulating debt, increased utility assistance increases available resources for families. Research demonstrates that when utility cost is eased for households with low incomes, households spend those saved dollars on other necessities, including housing, healthcare, and food. If one percent of the target population were reached by the SIEN, between $17,564 and $933,038 worth of social value would be produced over the next year. If 10 percent were reached, the SIEN would produce between $175,637 and $9,330,385 worth of social value over the next year. The large range is due to the wide range in incomes of the households that can be assisted with PIPP+.

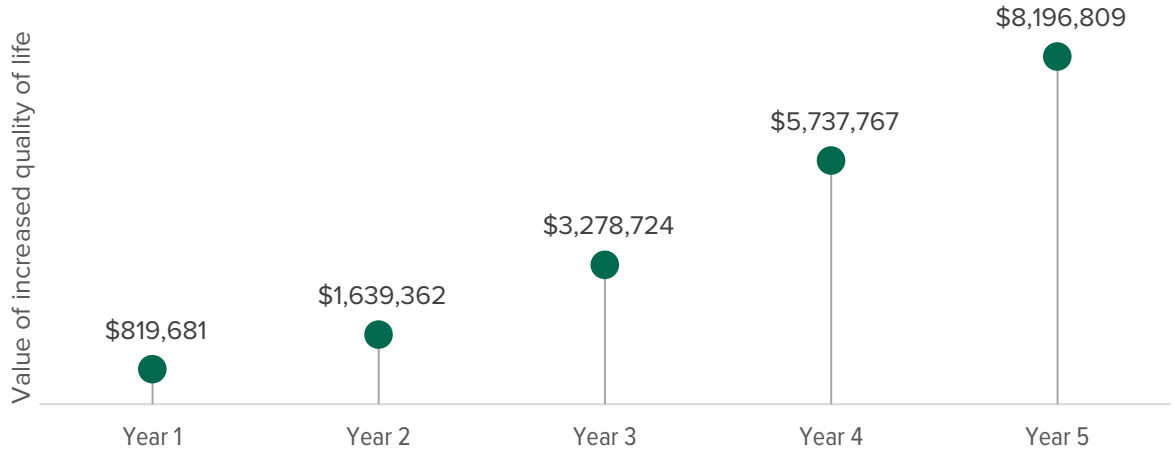
Social value created through utility assistance



Outcome 5: Relief from worrying

Over 24,000 Medicaid enrollees in Stark County reported 14 or more mentally distressed days in the past month. A Stark County SIEN that could provide relief from some of the mental distress associated with financial concerns and unmet basic needs would improve the quality of life for these individuals.[9] To translate this reduced worry into a monetary value, researchers used a wellbeing valuation from the U.S. Social Value Bank. The Well-being Valuation methodology uses statistical analysis to find the impact of non-market goods or services on life satisfaction, which is valued by using a monetary value taken from the healthcare industry. The value of one year of life at optimal health and quality, or total life satisfaction, is called a quality- adjusted life year and is estimated in the United States to be between $100,000 and $150,000.[10] Well-being valuations tell us how much the average person in the US would be willing to pay for an increase in their life satisfaction caused by a particular outcome. The value each individual would be willing to pay to decrease worry is $3,341. This increase in quality of life through relief from worrying would produce $819,681 worth of social value over the next year if one percent of those experiencing this worry were successfully provided relief. If 10 percent were provided relief, the activities would generate $8,196,809 worth of social value in the next year.

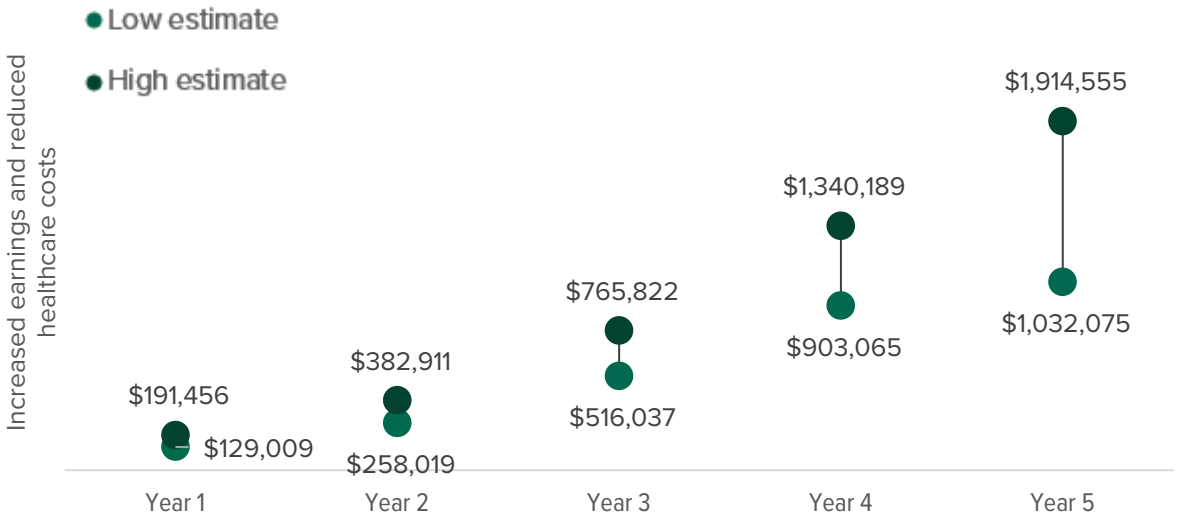
Social value created through relief from worrying



Outcome 6: Increased access to mental health treatment

Over 15,000 Stark County residents aged 19 years and older report an unmet need for mental healthcare.[11] Receiving sufficient amounts of needed mental healthcare is associated with increased income and decreased healthcare costs. If one percent of the population in need of mental healthcare were reached by the SIEN, it would produce between $129,009 and $191,456 worth of social value in the next year, depending on the treatment modality used.[12] If 10 percent were reached, the social value produced would range between $1,032,075 and $1,914,555 in the next year. This outcome is distinct from relief from worry, which describes a more general influence on quality of life. This proxy specifically captures the impact of treatment for clinical conditions such as Generalized Anxiety Disorder and Persistent Depressive Disorder.

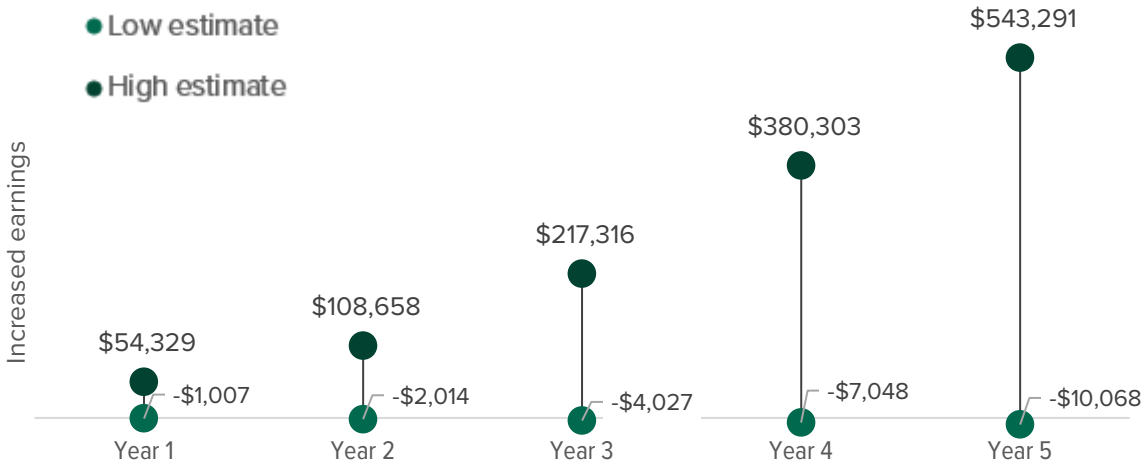
Social value created through mental health services



Outcome 7: Increased access to substance use treatment

Roughly 17 percent of Stark County residents have unmet needs for drug or alcohol use treatment.[13] Successfully receiving treatment of this type is associated with increased future earnings. Taking only one-year's worth of future earnings into account, reaching one percent of the target population with a Stark County SIEN would generate between $1,007 and $54,329 in the first year, depending on the treatment modality used.[14] If 10 percent were reached, the social value produced would range from $10,068 to $543,291.

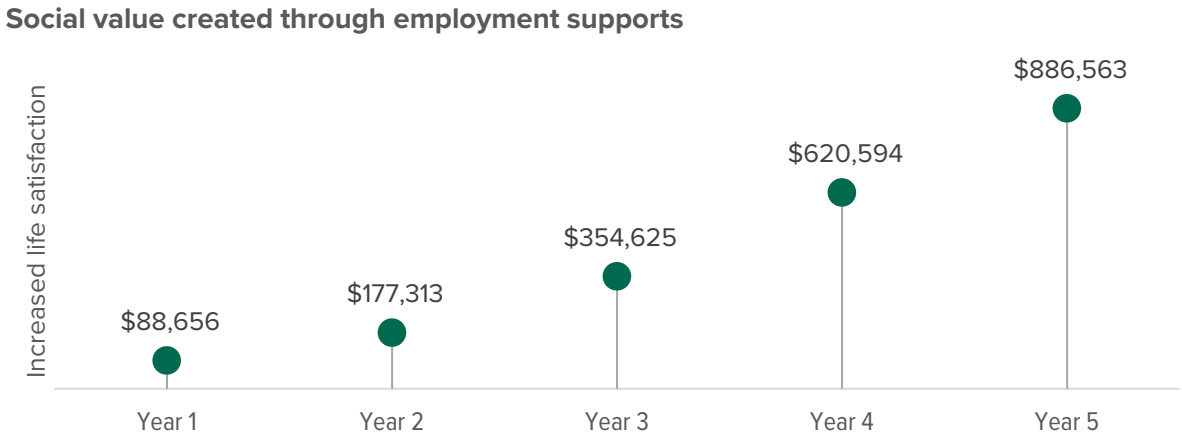
Social value created through substance use treatment



Outcome 8: Access to employment services

In Stark County, 4,761 individuals aged 20 to 64 years old are unemployed.[15] Obtaining employment is associated with increased life satisfaction valued at $1,898 in the U.S. Social Value Bank.[16] If one percent of the target population were to become employed, this would produce

$88,656 worth of increased life satisfaction. If 10 percent were employed, the amount of life satisfaction produced would total $886,563.

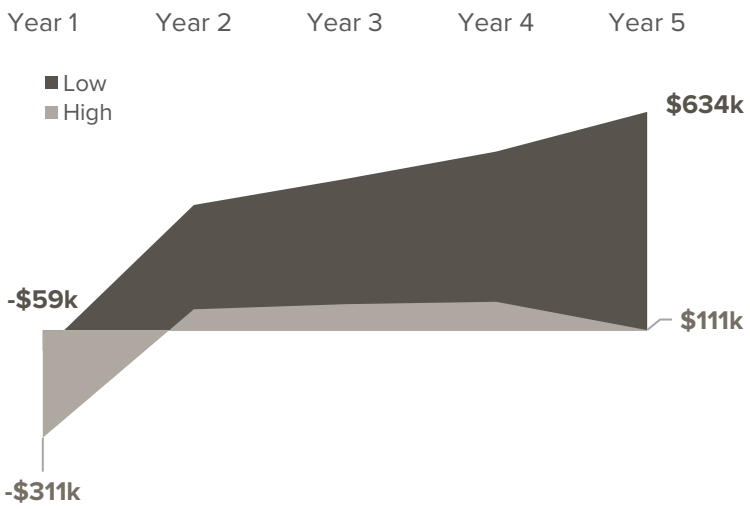


Outcomes for community-based organizations

Outcomes for community-based organizations are based on Stark County organizers' projections of the number of groups that will be participating in the SIEN over the first five years. Specifically, Stark County estimates that 20 community-based organizations will participate in Year 1, and that this number will increase by 20 percent in each of the next four years.

In the beginning, community-based organizations will face challenges as they adapt to new workflows and new technology. It is common for some organizations to require duplicate data entry during the startup period. As these challenges are addressed and worked through, social value for organizations grows as they become more efficient and more effective at linking their clients to needed services.

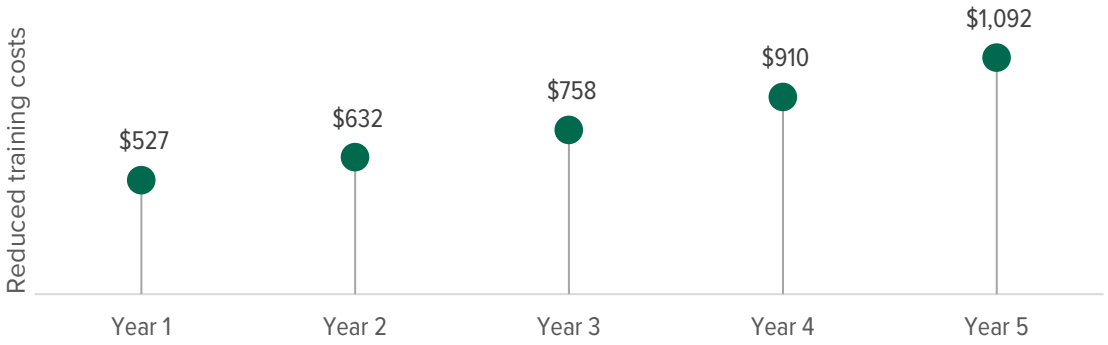
Community-based organizations participating in a Stark County SIEN will face startup costs, and then expected social value will grow to as much as $634k in the fifth year of operations.



Outcome 9: Increased ability to withstand staff turnover

Multiple SIENs noted to OU researchers that having a live resource directory reduces the burden placed on front-line workers: "Putting everybody in the platform gives every individual [front line worker], regardless of their experience or knowledge or background, access to the organizations, the resources in the community, the programs, the eligibility requirements, criteria to get services to people. Everybody has access to the knowledge and information as soon as they get their account." This easy access to comprehensive and up-to-date information reduced the portion of new employee training that focuses on teaching about area resources and establishing relationships for referrals. As a result, community-based organizations participating in the SIEN have increased resilience in the face of what is frequent staff turnover in the human services sector. This increased resilience will generate $527 of social value in the first year, and $1,092 of social value in the fifth year.

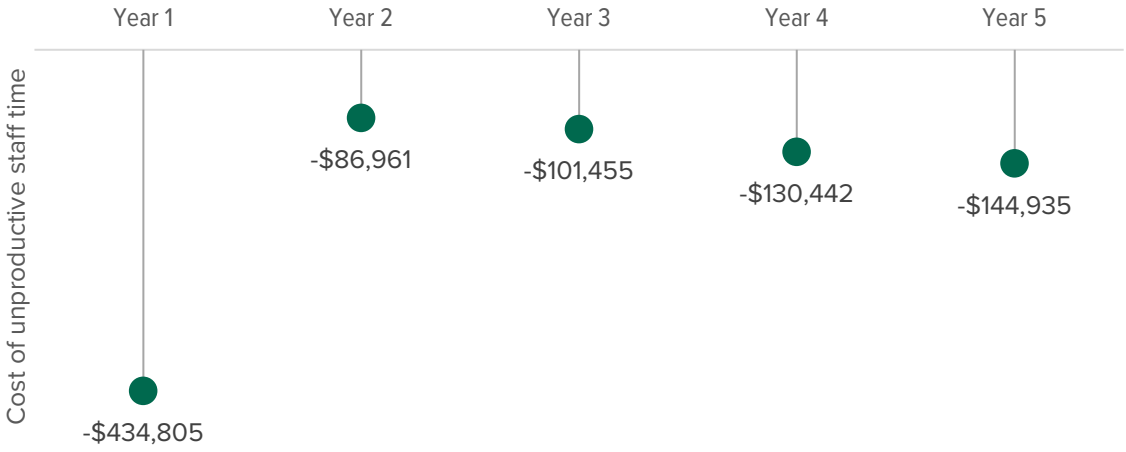
Social value created from increased resilience to turnover



Outcome 10: Lost productivity when adapting to new systems

Other SIENs report that as participating organizations begin using a new technology platform, there will be some lost productivity while employees are learning and adapting. In the first year, this will result in a loss of $434,805 worth of social value, and by the fifth year this cost will be $144,935. The rate at which this cost accrues depends on the number of new employees learning the system for the first time, which is a product of both engaging new organizations in the SIEN, and of the turnover rate among the participating organizations.

Social value lost from reduced productivity during adaptation to new systems

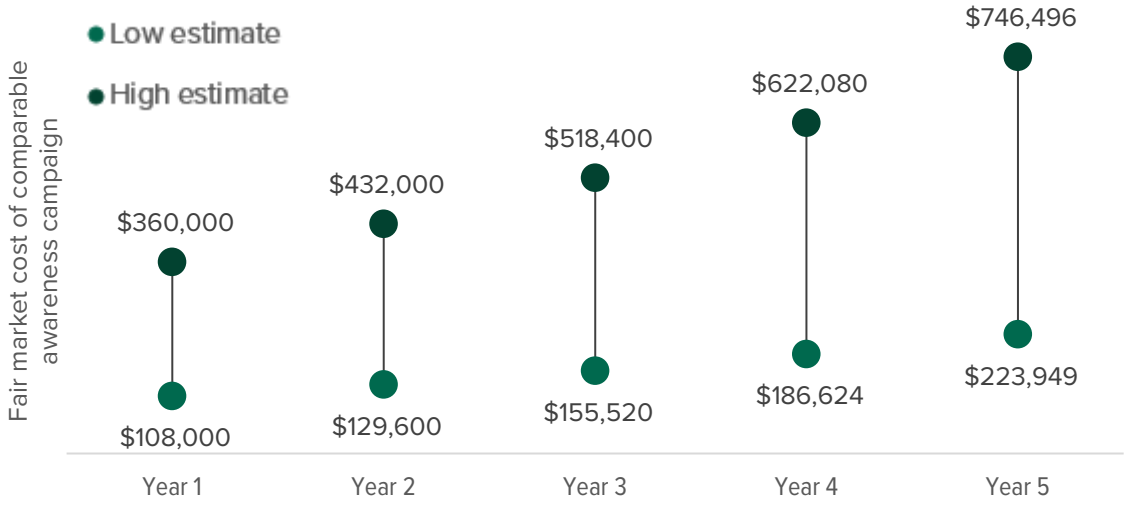


Outcome 11: Increased awareness of available services

As more organizations join the SIEN, there will be an overall increased awareness of the services that are available to those with health-related social needs. This is a valuable development due to the multisector nature of SDOH, which makes it challenging for providers to be aware of all the relevant services available to their clients or patients. This increased awareness of resources is a precondition of comprehensive care coordination. In the first year of operation, this increased

awareness is likely to generate between $108,000 and $360,000 of social value. By the fifth year, the amount of generated social value is likely to be between $223,949 and $746,496.

Social value created from increased awareness of available services



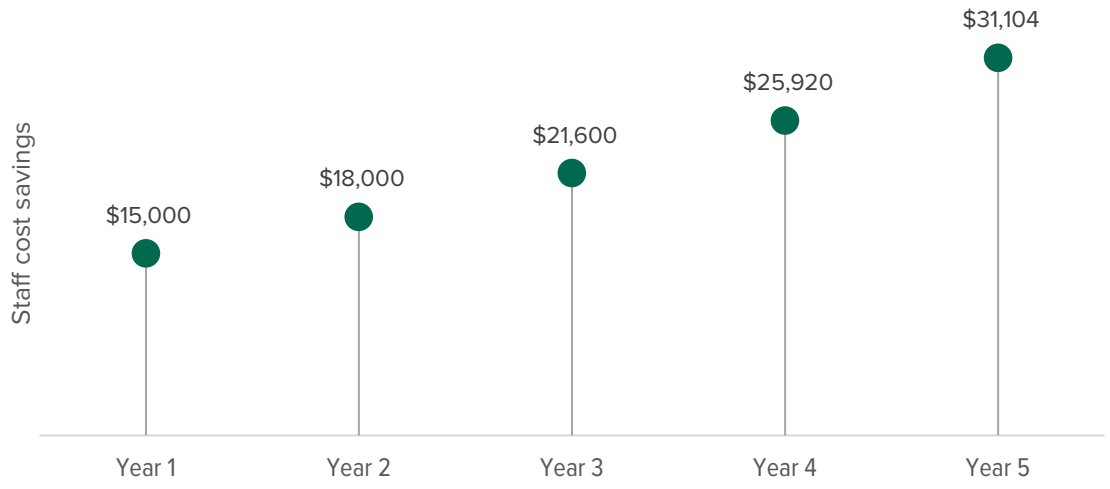
"I don't think most of us know what resources are available. If there was an exchange of information that crossed all of our paths, that's just going to strengthen our community."

-Stark County service provider

Outcome 12: Increased efficiency

Integrating workflows into one shared platform that allows for electronic referrals with automatic notifications can greatly increase efficiency. The referral process built into SIEN platforms allows referring providers to avoid sending faxes or otherwise transferring information in a non-digital way, and also reduces the need to follow up with organizations to whom clients have been referred. This increased efficiency will generate $15,000 worth of social value in the first year of the SIEN, and $31,104 in the fifth year.

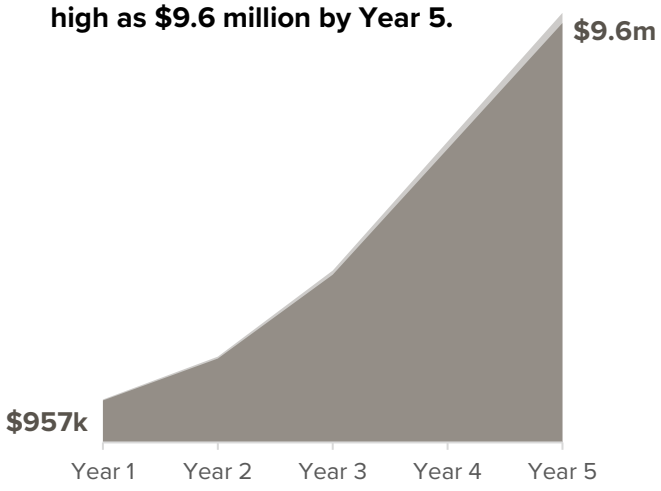
Social value created from increased efficiencies



Outcomes for healthcare providers and payers

A fully functioning SIEN can produce multiple benefits for healthcare providers and payers. By removing barriers to care, SIENs can help individuals become more adherent to treatment plans, reduce appointment no-shows, increase rates of preventative care, and identify emergent conditions in a timely way. Access to more patient information also increases providers' ability to target treatments effectively, avoid duplicative services, and reduce length of stay in the hospital. Increasing access to transportation, safe housing, and other SDOH also helps reduce the likelihood of hospital readmissions, which is a key area of concern for the Centers for Medicare and Medicaid Services.

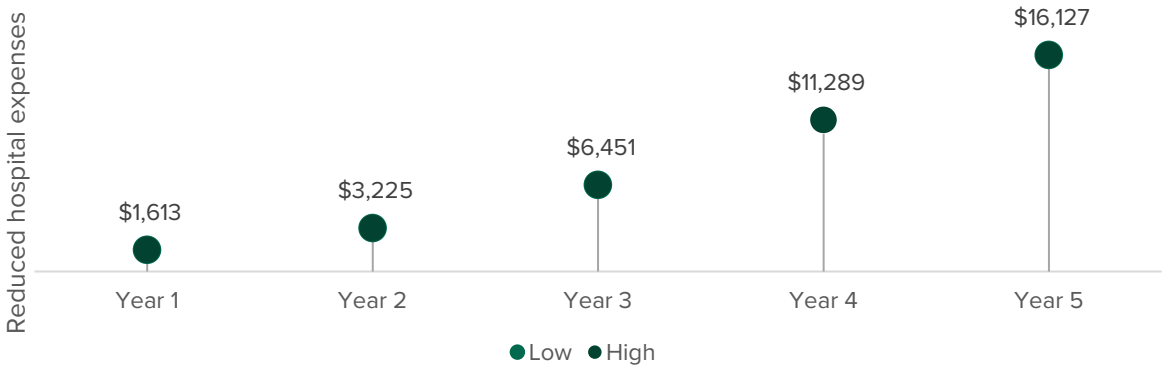
The amount of social value a Stark County SIEN produces for healthcare payers and providers could reach as high as $9.6 million by Year 5.



Outcome 13: Decreased costs from reduced length of stay among unhoused individuals

A total of 320 individuals were documented as unhoused in the last Stark County Point in Time count.[17] (It should be noted that Point in Time estimates are commonly viewed as underestimates due to the difficulties inherent in locating all unhoused individuals in a single night, and the hidden nature of some forms of houselessness.) Research has identified a connection between houselessness and increased length of stay when in the hospital. If the Stark County SIEN addressed one percent of this population's housing needs, the SIEN would produce $1,612 worth of social value. If 10 percent of the target population were served successfully, $16,127 worth of social value would be produced.

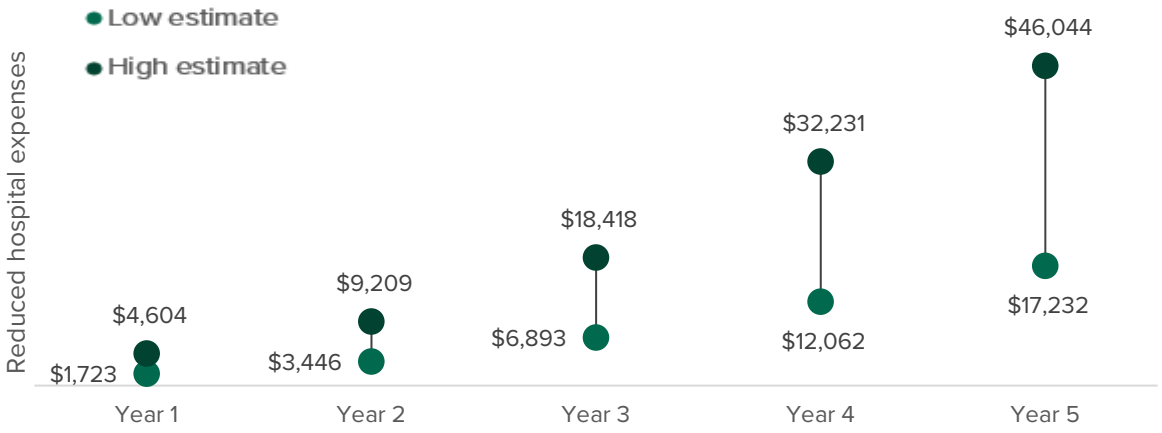
Social value created from reduced length of stay among unhoused individuals



Outcome 14: Decreased costs from reduced readmission rates among unhoused individuals

As mentioned above, 320 individuals were documented as unhoused in the last Stark County Point in Time count.[18] Research demonstrates that individuals who are unhoused have higher rates of all-cause readmissions within 30 days of release from the hospital. By addressing the housing situation of one percent of the target population, a Stark County SIEN could produce between $1,723 and $4,604 worth of social value in the first year. By addressing housing needs for 10 percent of this population, a SIEN could generate between $17,232 and $46,044 in a single year.

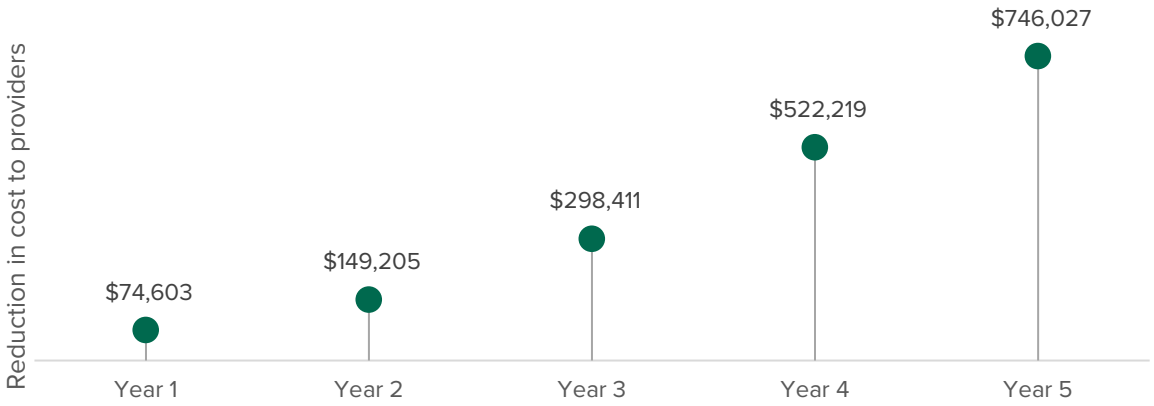
Social value created from reduced readmissions among unhoused individuals



Outcome 15: Decreased costs from reduced no-shows

Almost 98,000 individuals are enrolled in Medicaid in Stark County.[19] Medicaid clients have higher rates of missed appointments, which can be reduced through the use of non-emergency medical transportation. If one percent of the target population was connected to non-emergency medical transport providers, , the SIEN would generate $74,603 in avoided no-show costs for providers. If 10 percent of the target population was reached, the SIEN would produce $746,027 worth of social value.

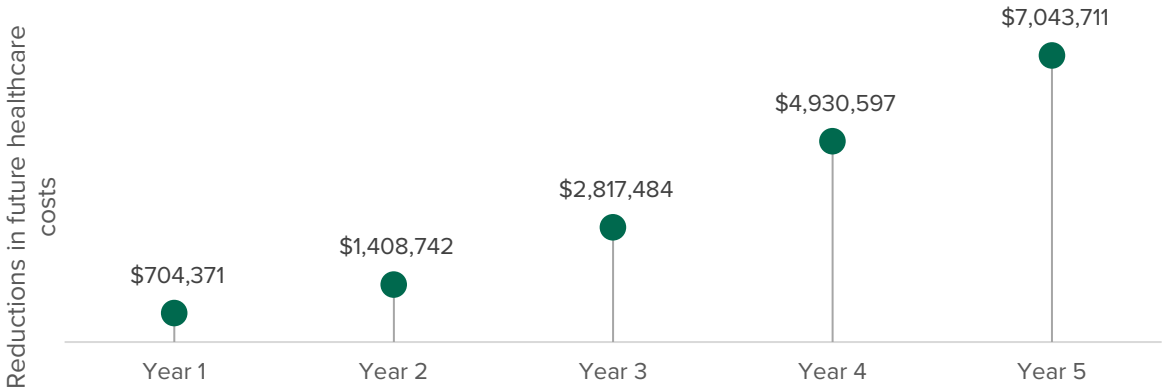
Avoided no-show costs due to non-emergency medical transportation



Outcome 16: Reduced healthcare costs from medical transportation

31 percent of Medicaid enrollees aged 19 and older reported that they have avoided or delayed healthcare due to transportation needs in the last year.[20] Avoiding or delaying care is associated with poorer health outcomes and increased healthcare costs. If one percent of this target population were served, the SIEN would produce $704,371 worth of social value in one year. If 10 percent were served, the SIEN would produce $7,043,711 worth of social value.

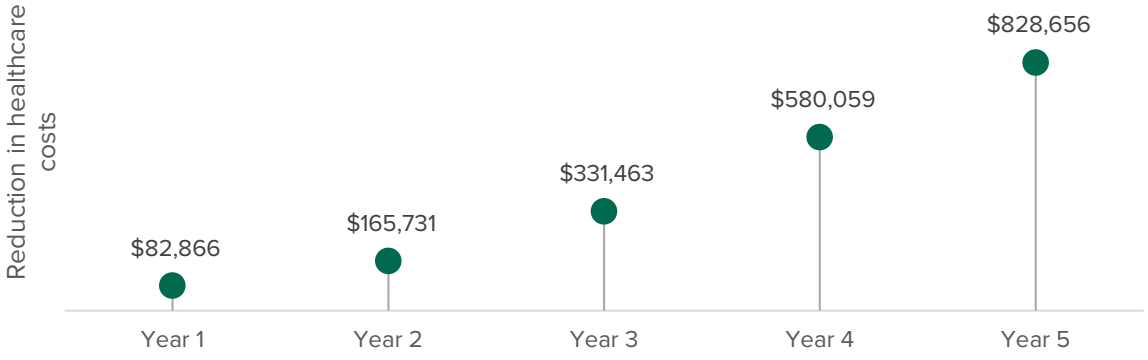
Reduced healthcare costs from timely care because of medical transportation



Outcome 17: Reduced healthcare costs from nutrition assistance

An estimated 4,637 individuals in Stark County experience food insecurity and would likely qualify for SNAP, but are not enrolled. As seen in an earlier outcome, receipt of SNAP is associated with positive outcomes for individuals, including increased future earnings and decreased healthcare costs. Receipt of SNAP is also associated with decreased healthcare costs for healthcare providers and payers. Researchers estimate that the cost to others of an individual's healthcare utilization decrease by $1,400 when an individual receives SNAP benefits.[21] If one percent of this target population were connected to SNAP benefits, $82,866 worth of social value would be created. If 10 percent were reached, the social value created by the SIEN would equal $828,656.

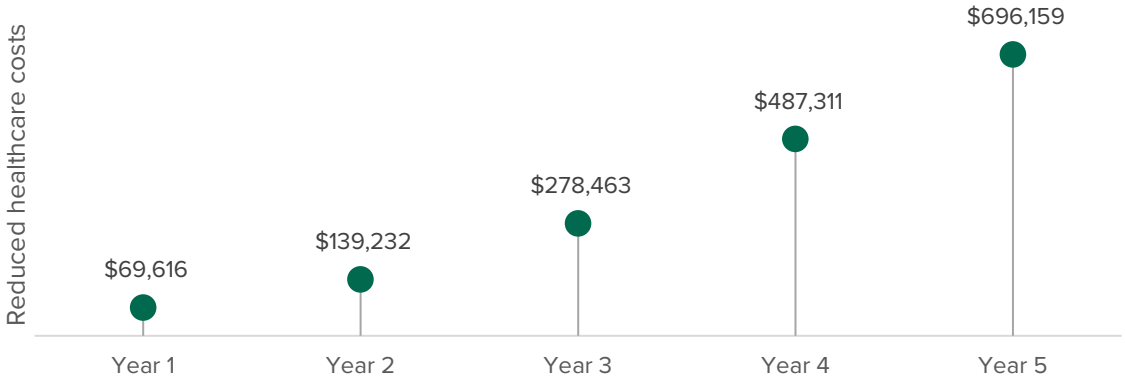
Social value created from healthcare savings resulting from nutrition assistance



Outcome 18: Reduced healthcare costs because of access to SDOH information

Over 72,000 Stark County residents visited the Emergency Department in the last year. Research demonstrates that increased access to patient information, such as that afforded through an SIEN, is associated with reduced all-cause readmission rates. If one percent of the target population was in the SIEN and emergency department providers had access to their information, the SIEN would generate $69,616 worth of social value in reduced readmission expenses. If 10 percent of this population were reached, the savings would amount to $696,159.

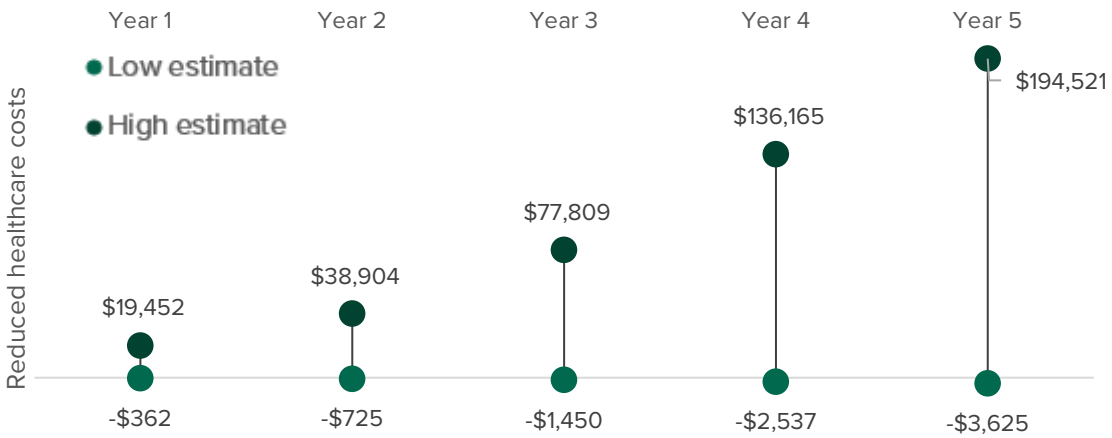
Social value created from healthcare savings due to provider access to SDOH information



Outcome 19: Reduced healthcare costs because of substance use treatment

Roughly 50,000 Stark County residents have unmet needs for drug- or alcohol-related treatment. Engaging in treatment for substance use disorders is associated with changes in healthcare costs, the amount of which depends on the treatment modality being used. If one percent of the target population were reached, the SIEN would produce between -$362 and $19,452 worth of social value in a year. If 10 percent of the population were reached, the resulting social value would be worth between -$3,625 and $194,521.

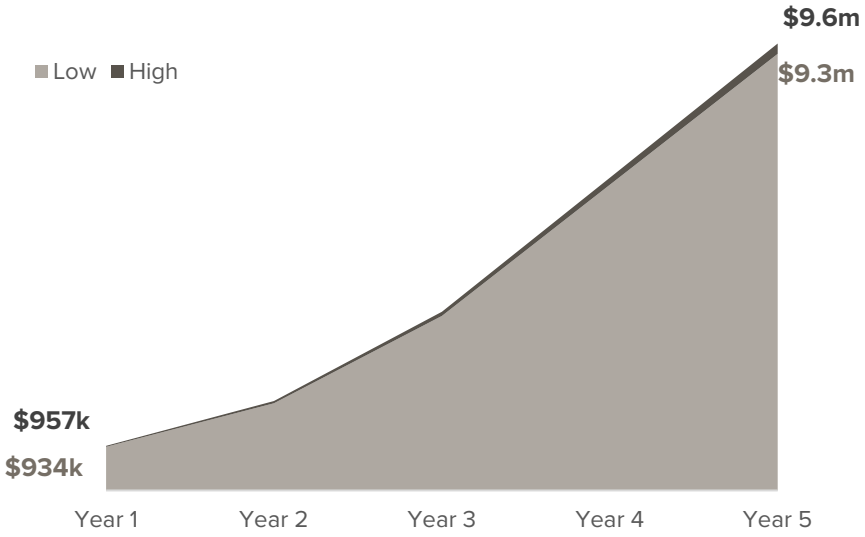
Social value created by healthcare savings associated with substance use treatment



Community-level outcomes

SIENs have the potential to address a variety of pressing socioeconomic problems, including chronic absenteeism in schools, crime, and unemployment. Addressing these problems generates increases in tax revenue, supports increases in state funding for public schools, and over time is expected to generate increased levels of trust in the community.

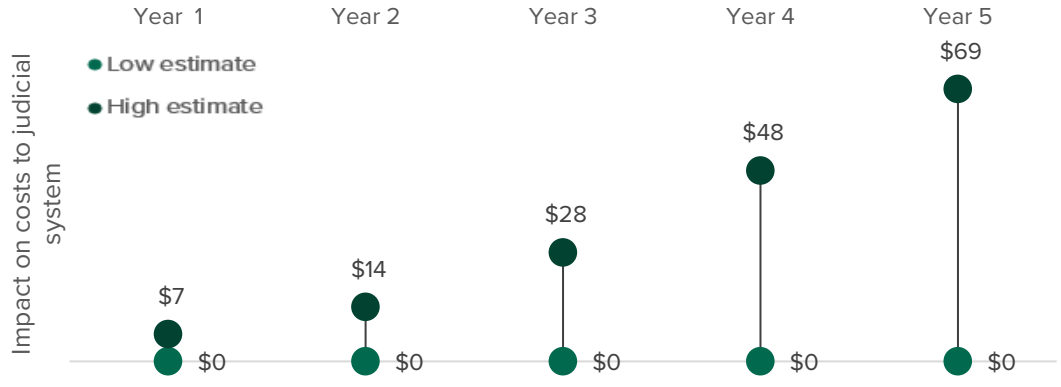
The amount of social value created for the community at large will grow to as much as $9.6m by the fifth year of a Stark County SIEN.



Outcome 20: Reduced crime

Over 17,000 Medicaid recipients in Stark County report misusing prescription pain medication. Substance use disorder treatment is associated with changes in levels of crime in the surrounding community. The amount of change varies depending on the treatment modality used. If one percent of the target population for this outcome were reached by the SIEN, this would generate between $0 and $6.88 in criminal justice system savings. If 10 percent were reached, this would generate $0 to $68.84 in savings.

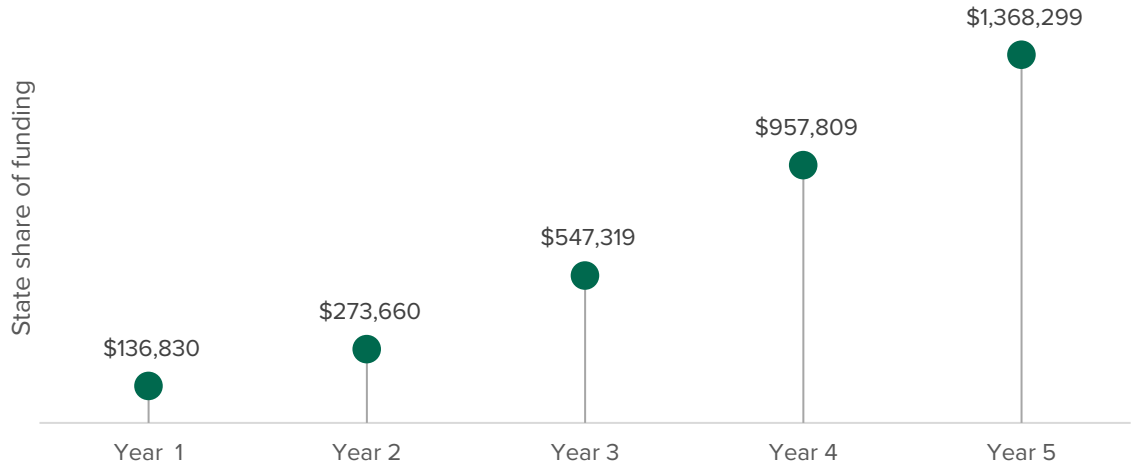
Social value produced through reduced crime



Outcome 21: Increased school funding

Over 7,800 students in Stark County public schools are both economically disadvantaged and chronically absent. Chronic absenteeism reduces school funding when students are not counted in a school's Average Daily Membership. School participation in an SIEN could reach families to enroll households in SNAP, which is associated with between 0.2% and 18% increases in graduation rates. Reaching one percent of these students would generate $136,830 in additional state funding. Reaching 10 percent would generate $1,368,299 in funding.

Social value produced through increased school funding



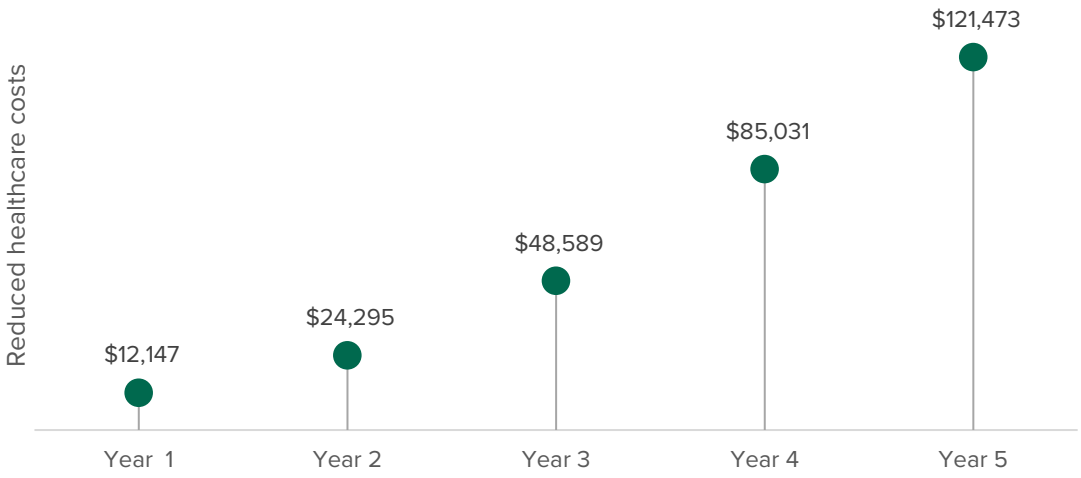
Outcome 22: Increased trust

Individuals who receive care navigation or coordinated care similar to care the SIEN could facilitate report increased trust as a result of having their needs met.[22] Increased trust is associated with increased likelihood of keeping follow up appointments with providers. If one

> Some local communities "have seen so much, especially in areas [in which people] have been displaced, and not had the tools that other areas had... [An SIEN would create] trust that there is someone that they can reach out to, that the community has their back, no matter whether you're on the north, east, south, or west side."
>
> -Stark County service provider

percent of the target population were reached, $12,147 worth of social value would be created. If 10 percent were reached, $121,473 would be generated.

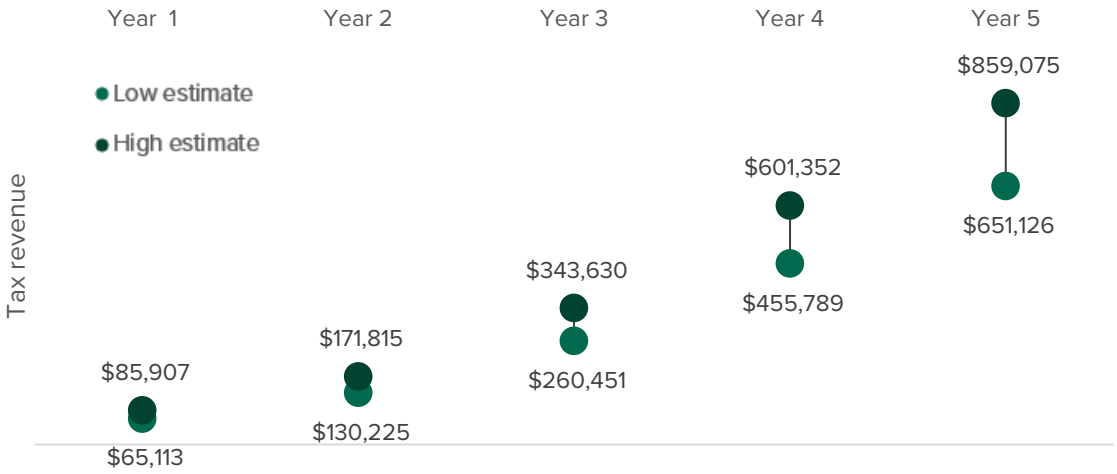
Social value produced through increased trust



Outcome 23: Increased tax revenue because of mental health treatment

Over 15,000 Stark County residents aged 19 years and older report unmet mental healthcare needs.[23] When individuals receive treatment for mental health needs, taxpayers benefit from reduced healthcare costs borne by the public, and increased tax revenue from increased earnings. If one percent of the target population were reached, the SIEN would generate between $65,113 and $85,9076 worth of social value, depending on the treatment modality used. If 10 percent were reached, this value would range from $651,126 to $859,075.

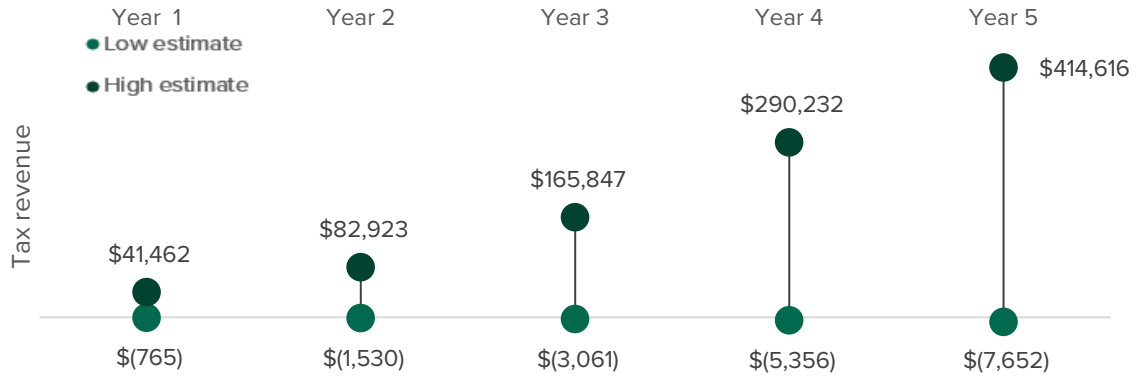
Social value produced for the community because of mental health treatment



Outcome 24: Increased tax revenue because of substance use treatment

Roughly 17 percent of Stark County residents have unmet needs for drug or alcohol use treatment.[24] Treating substance use disorders generates social value for the community by increasing the tax revenues from future earnings and reducing the publicly borne healthcare costs associated with substance use. If one percent of the target population were successfully linked to substance use treatment, this would generate between -$765 and $41,462 worth of social value. If 10 percent were reached, this would generate between -$7,652 and $414,616 worth of social value.

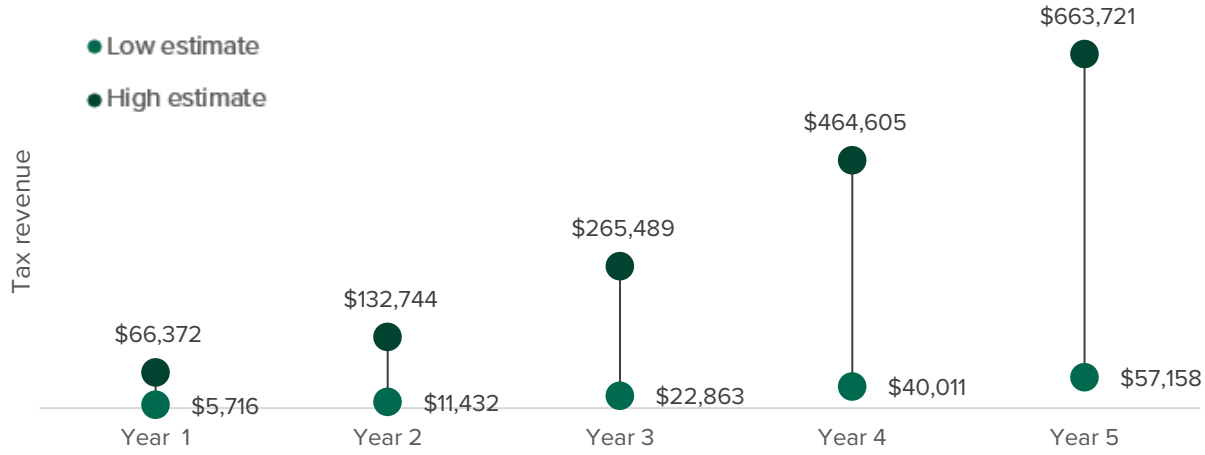
Social value produced for the community because of substance use treatment



Outcome 25: Increased tax revenue because of employment assistance

There are over 47,000 unemployed individuals in Stark County between the ages of 16 and 64. Linking individuals who are unemployed with employment supports increases the taxes paid by these individuals on future earnings. If one percent of the target population were successfully supported in this way, this would generate between $5,716 and $66,372 worth of social value, depending on the type of programming utilized. If 10 percent were reached, this would generate between $57,158 and $633,721 worth of social value.

Social value produced for the community because of employment assistance



Conclusion

Taken together, the scan of the field and the SROI model built for this analysis suggest that a Stark County SIEN has the potential to create significant social returns on investment. The largest impacts will likely be seen in the area of reduced healthcare costs for individuals and payers, decreased worry about meeting basic needs, and prevention of the illness cascade that can be triggered when individuals delay care because of financial, transportation, or other types of barrier.

As the SIEN expands, data measurement will need to become more specific in a few key ways:

(1) Attribution: Attribution is largely assumed in this model, but as the reach of the SIEN expands, it will become important to assess attribution when including an individual in the count of people impacted by the SIEN.
(2) Individual-level health data: Ultimately, true impact can be shown by joining SIEN data with Ohio Health Information Exchange Data related to specific health outcomes, in order to show the actual connections between SDOH and individual-level health outcomes.
(3) Recalibrating the duration of impact: The model used for this analysis limits the duration of impact from each outcome to one year. This is a shorter term of impact than is likely to be obtained for most outcomes. By generating longitudinal data sets for individuals and linking the SIEN data with clinical outcomes through the Ohio Health Information Exchange, the SIEN will be able to refine the anticipated duration of impact for each outcome area.

The research is clear that several types of activities can increase the likelihood of success for SIENs:

(1) A robust process of community engagement and organizational recruitment is a prerequisite for successful SIEN implementation. Increasing community engagement increases the percentage of the population that can be reached by the SIEN, which then impacts the SIEN's ability to support a move toward equity.
(2) Ongoing technical assistance not only increases participation in the SIEN, but also improves data quality and referral completion.
(3) Using a technology vendor that serves neighboring areas increases an SIEN's ability to connect clients to services that are geographically accessible to them. This in turn increases the likelihood that referrals will be successful, and that people's needs will be met. This also increases the pool of data to which an SIEN has access, which can then be used to design new and improved interventions to support equitable access to the social determinants of health.
(4) Technical assistance increases the quantity and quality of the data generated by the SIEN, which provides a sounder basis for needs identification and strategic planning. Technical assistance is an ongoing need that will increase in times of expansion, staff turnover, new program implementation, and incorporation of new modules into the platform.

Endnotes

[1]Trudy Millard Krause, Caroline Schaefer, and Linda Highfield, "The Association of Social Determinants of Health with Health Outcomes," *The American Journal of Managed Care* 27, no. 3 (March 9, 2021), https://doi.org/10.37765/ajmc.2021.88603.; Ace Vo et al., "The Association between Social Determinants of Health and Population Health Outcomes: Ecological Analysis," *JMIR Public Health and Surveillance* 9 (March 29, 2023), https://doi.org/10.2196/44070.; Machell Town et al., "Racial and Ethnic Differences in Social Determinants of Health and Health-Related Social Needs among Adults — Behavioral Risk Factor Surveillance System, United States, 2022," *MMWR. Morbidity and Mortality Weekly Report* 73, no. 9 (March 7, 2024): 204–8, https://doi.org/10.15585/mmwr.mm7309a3.

[2] "HHS Call to Action: Addressing Health-Related Social Needs in Communities across the United States," U.S. Department of Health and Human Services, November 2023, https://aspe.hhs.gov/sites/default/files/documents/3e2f6140d0087435cc6832bf8cf32618/hhs-call-to-action-health-related-social-needs.pdf.

[3] "Closing the Loop: A Guide to Safer Ambulatory Referrals in the HER Era," Institute for Healthcare Improvement. 2017, Institute for Healthcare Improvement, https://www.ihi.org/sites/default/files/IHI_NPSF_Closing_the_Loop_Referral_Management_in_EHR.pdf

[4] "Interoperability in Healthcare" Healthcare Information and Management Systems Society (n.d.), https://www.himss.org/resources/interoperability-healthcare

[5] "Social Determinants of Health," U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, Healthy People 2030 (n.d.), https://health.gov/healthypeople/priority-areas/social-determinants-health

[6] "G.R.A.C.E. Network," Community Rebuilders, 2023, https://communityrebuilders.org/creatingcommunity/gracenetwork/; Together Now NY, https://www.togethernowny.org/; 212 Broward, https://www.211-broward.org/; National Association of Community Health Centers. "Putting Health Center Funding on Top of Congress' To-Do List," National Association of Community Health Centers, https://www.nachc.org/putting-health-center-funding-on-the-top-of-congress-to-do-list/; 211 Tampa Bay, https://211tampabay.org/home/partners/supporters/ "Leveraging Community Information Exchanges for Equitable and Inclusive Data: CIE Community Profiles." CIE San Diego, Healthcare Innovation Group, December 22, 2022; "NJ Legislation Creates Four Regional Health Hubs," https://www.hcinnovationgroup.com/interoperability-hie/health-information-exchange-hie/news/21122244/nj-legislation-creates-four-regional-health-hubs; "Two Key Players in Ohio's HIE Announce New Partnership," HealthCollab.org, https://www.hcinnovationgroup.com/interoperability-hie/infrastructure/news/53029140/ohios-health-collaborative-to-transition-its-hie-customers-to-clinisync; "OhioHealth-CIN CliniSync Project Overview," CliniSync, December 2020, https://clinisync.org/wp-content/uploads/2020/12/OhioHealth-CIN_CliniSync-Project-Overview.pdf; Community Health Center Network (website), Public Benefits 101 Presentation, 2022, https://chcnetwork.org/careers/benefits-to-working-at-chcn/; "Evolving the D.C. Community Resource Information Exchange," Open Referral, https://openreferral.org/evolving-the-dc-community-resource-information-exchange/; Press Release: "First 1,000 Days Suncoast: Unite Us Support Services," Unite Us, https://uniteus.com/press/first-1000-days-suncoast-unite-us-support-services/; Interview with First 1,000 Days, Sarasota Memorial Hospital, March 21, 2024; "Grants Strategy: Partners in Care Foundation: Integrated Networks for Medical Care and Social Supports," The John A. Hartford Foundation, https://www.johnahartford.org/grants-strategy/partners-in-care-foundation-integrated-networks-for-medical-care-and-social; Interview with Partners in Care, California, April 17, 2024; Interview with Santa Fe County SIEN, March 21, 2014; Interview with Summit County-Unite Us, March 19, 2024; "Membership," CIE San Diego, https://ciesandiego.org/membership/; "OeHI SHIE Infographic," Colorado Office of eHealth Innovation, June 3, 2023, https://oehi.colorado.gov/sites/oehi/files/documents/OeHI-SHIE-infographic-060323.pdf; "OeHI SHIE Infographic," Colorado Office of eHealth Innovation, June 3, 2023,

https://oehi.colorado.gov/sites/oehi/files/documents/OeHI-SHIE-infographic-060323.pdf; “Strategic Plan 2018-2023,” New York State Department of Health, 2018, https://www.health.ny.gov/commissioner/docs/strategic_plan_2018-2023.pdf; “About Us: Our Mission,” United Way of Rhode Islan, https://www.unitedwayri.org/about-us/our-mission/; North Carolina General Assembly, General Statutes of North Carolina: Chapter 90, Article 4, Section 90-414.7, https://www.ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_90/GS_90-414.7.pdf.

[7] “CIE Toolkit,” Community Information Exchange 211 San Diego, November 2018, Retrieved from https://ciesandiego.org/toolkit/; “Social Determinants of Health Information Exchange Toolkit: Foundational Elements for Communities,” Office of the National Coordinator for Health Information Technology, February 2023, Retrieved from https://www.healthit.gov/sites/default/files/2023-02/Social%20Determinants%20of%20Health%20Information%20Exchange%20Toolkit%202023_508.pdf ; A. Dworkowitz and C. Mann, “Data Sharing and the Law: Overcoming Healthcare Sector Barriers to Sharing Data on Social Determinants,” *Social Interventions Research and Evaluation Network* (2020) Retrieved from https://sirenetwork.ucsf.edu/tools-resources/resources/data-sharing-and-law-overcoming-health-care-sector-barriers-sharing-data

8 National Equity Atlas. 2020. Eliminate rent burden: If renters weren't paying too much rent, they could spend more on family needs and in the community." Retrieved from https://nationalequityatlas.org/indicators/Eliminate-rent-burden?geo=02000000000039000&breakdown=average-gain&povlev02=1

[9] Soomin Ryu and Lu Fan, “The Relationship between Financial Worries and Psychological Distress among U.S. Adults,” *Journal of Family and Economic Issues* 44, no. 1 (February 1, 2022): 16–33, https://doi.org/10.1007/s10834-022-09820-9.

[10] Neumann, P. J., Cohen, J. T., & Weinstein, M. C. (2014). Updating cost-effectiveness - The curious resilience of the $50,000-per-QALY threshold. New England Journal of Medicine, 371(9), 796-797–797. https://doi-org. 10.1056/NEJMp1405158

[11] “The Estimated Percentage of Ohio Adults Who Are in the Did Not Receive Needed Care Unmet Mental Health Need in the Past 12 Month Group among Those Adults Ages 19 and Older, by County,” The Ohio Medicaid Assessment Survey Dashboard, 2021, https://grcapps.osu.edu/app/omas.

[12] “Cognitive Behavioral Therapy (CBT) for Adult Anxiety,” WSIPP Reports, 2021, https://www.wsipp.wa.gov/BenefitCost/Program/71; “Cognitive Behavioral Therapy (CBT) for Adult Depression,” WSIPP Reports, 2021, https://www.wsipp.wa.gov/BenefitCost/Program/87.

[13] National Survey on Drug Use and Health, Table 29. Classified as Needing Substance Use Treatment in the Past Year: Among People Aged 12 or Older; by Age Group and State, Percentages, 2022, Table 30. Did Not Receive Substance Use Treatment in the Past Year: Among People Aged 12 or Older Classified as Needing Substance Use Treatment; by Age Group and State, Percentages, 2022.

[14] “Cognitive-behavioral Coping-skills Therapy for Opioid Use Disorder,” WSIPP Reports, 2021, https://www.wsipp.wa.gov/BenefitCost/Program/676; “Methadone Maintenance for Opioid Use Disorder,” WSIPP Reports, 2021, https://www.wsipp.wa.gov/BenefitCost/Program/694

[15] "Employment Status," U.S. Census Bureau, 2022, American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2301, 2022, accessed on June 18, 2024, https://data.census.gov/table/ACSST1Y2022.S2301?q=stark county ohio&t=Employment and Labor Force Status.

[16] This value is derived by using a methodology called well-being valuation. In this methodology, researchers use statistical analysis to find the impact of non-market goods or services on life satisfaction. This impact is then translated by using a monetary value taken from the healthcare industry. Well-being valuations tell us how much value, relative to the value of a quality-adjusted life year, a certain quality of life outcome would have on an individual when that particular outcome is increased. For more information on well-being valuations, see Fujiwara, D. 2013. A general method for valuing non-market goods using well-being data: Three-stage well-being valuation. CEP Discussion Paper No 1233. Centre for Economic Performance.

[17] “2007–2023 Point-in-Time Estimates by CoC,” U.S. Department of Housing and Urban Development, Office Policy Development and Research. Retrieved from https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.huduser.gov%2Fportal%2Fsites%2Fdefault%2Ffiles%2Fxls%2F2007-2023-PIT-Counts-by-CoC.xlsb&wdOrigin=BROWSELINK

[18] "2007–2023 Point-in-Time Estimates by CoC," U.S. Department of Housing and Urban Development, Office Policy Development and Research. Retrieved from https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.huduser.gov%2Fportal%2Fsites%2Fdefault%2Ffiles%2Fxls%2F2007-2023-PIT-Counts-by-CoC.xlsb&wdOrigin=BROWSELINK

[19] "Enrolled Population for Month of April, 2024," Ohio Department of Medicaid, 2024, Retrieved from Workbook: Medicaid Demographic and Expenditure (ohio.gov)

[20] "The Estimated Percentage of Ohio Adults Who Avoided Getting Needed Care in Past 12 Months Because Did Not Have Transportation among those Adults Ages 19 and Older, with Household Incomes between 0% to 206% FPL, by County," OMAS Series: 2021 The Ohio Medicaid Assessment Survey Dashboard, grcapps.osu.edu/omas

[21] Berkowitz, Seth A., Hilary K. Seligman, Joseph Rigdon, James B. Meigs, and Sanjay Basu. "Supplemental Nutrition Assistance Program (SNAP) participation and healthcare expenditures among low-income adults." JAMA internal medicine 177, no. 11 (2017): 1642-1649.

[22] Bryant, Alex, Aria Walsh-Felz, Jill Jacklitz, and Sara Lindberg. "The Impact of a Community Resource Navigator Program on Patient Trust." *WMJ: Official Publication of the State Medical Society of Wisconsin* 119, no. 3 (2020): 190.

[23] "The Estimated Percentage of Ohio Adults Who Are in the Did Not Receive Needed Care Unmet Mental Health Need in the Past 12 Month Group among Those Adults Ages 19 and Older, by County," The Ohio Medicaid Assessment Survey Dashboard, 2021, https://grcapps.osu.edu/app/omas.

[24] National Survey on Drug Use and Health, Table 29. Classified as Needing Substance Use Treatment in the Past Year: Among People Aged 12 or Older; by Age Group and State, Percentages, 2022, Table 30. Did Not Receive Substance Use Treatment in the Past Year: Among People Aged 12 or Older Classified as Needing Substance Use Treatment; by Age Group and State, Percentages, 2022.

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