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C SUITE 3

Operational Framework for Addressing Social Determinants of Health

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Generally, we attribute our health status to genetics and lifestyle choices. While these factors, combined with the availability and utilization of healthcare services, do influence our health and well being, we must consider another element that contributes to health status and health outcomes: social determinants of health (SDOH).

The impact of SDOH extends to most aspects of our lives, ranging from the ability to obtain an education to holding a steady job. According to the US Department of Health & Human Services' Healthy People 2030 initiative, SDOH are "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."[1]

SDOH DOMAINS THAT DETERMINE HEALTH OUTCOMES

Economic Stability | Education Access & Quality | Social & Community Context | Healthcare Access & Quality | Neighborhood & Built Environment

While much has been written about the importance of healthcare organizations addressing SDOH, this paper provides a framework for how to approach SDOH initiatives.

In addition to health outcomes, a key focus of addressing SDOH is achieving better health equity across populations. SDOH factors shed light on why people born a few miles away from one another can experience vast differences in life expectancy—in some cases, differences of up to 25 years.[2]

Addressing health inequities translates to reducing the gap in patients having differences in length of life or number of diseases due to their social position or other associated circumstances.[3] As a result, a population with poor socioeconomic status would potentially no longer be predisposed to adverse health outcomes.

For most healthcare organizations, serving in some capacity to mitigate SDOH is a logical step—it builds on a rich tradition of caring for the community. Healthcare organizations have varying reasons for investing in SDOH. While one reason may be a civic- or mission-based strategy founded on the needs of the community (e.g., helping reduce the area's unhoused population), another may be an emphasis on helping the community to become healthier (e.g., implementing a nutrition program) with the intent of reducing preventable healthcare utilization. Others might be focused on transportation as a means to aid access to medical appointments, education about self-care, or adherence to medications (e.g., mail order), any of which might lead to better health outcomes.

No matter the organizational motivation, our collective healthcare system has an obligation to improve the outcomes and quality of healthcare for patients. A 2011 study estimated that approximately 900,000 deaths per year were attributable to social factors in the United States.[4] Addressing SDOH would not only provide equitable outcomes for various populations—it could potentially prevent the loss of thousands of lives every year.

In addition, improving SDOH would dramatically reduce overall healthcare spending,[5] as there would be a decrease in hospital readmissions[6] and unnecessary utilization, preventing leakage in revenue and reimbursement.[7]

While much has been written about the importance of healthcare organizations addressing SDOH, this paper provides a framework for how to approach SDOH initiatives.

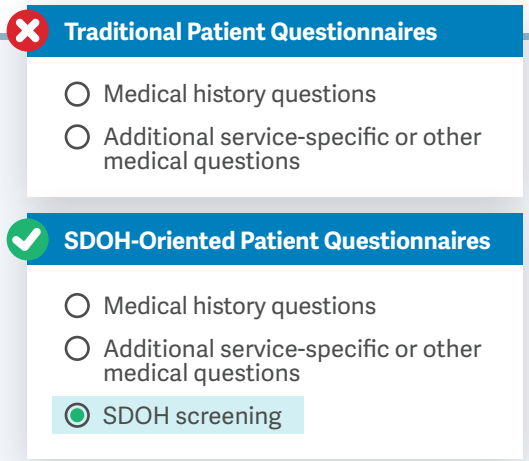
Screening for SDOH Provides Critical Information That Builds on Traditional Patient Questionnaires

Consider an elderly, low-income patient visiting their primary care provider for a wellness exam. In addition to the traditional questionnaire, the care team asks the patient several SDOH-oriented questions. In doing so, they learn the patient lives alone, has unreliable transportation, can't pick up their prescriptions, and suffers from food insecurity.

As a result, the care team connects the patient with internal services, social services, and/or community-based organizations equipped to assist with these issues, including:

- Rideshare program to minimize appointment cancellations and no-shows for future care.
- Prescription home delivery options to eliminate gaps in adhering to the medication regimen.
- Food assistance program to maintain a consistent and healthy diet.

In this instance, the additional screening paints a comprehensive picture of the patient's environment, bridging the gap between questions that aim to treat medical symptoms and ones that flag nonmedical, social determinants that may contribute to adverse health conditions. For reference, the American Academy of Family Physicians' The EveryONE Project developed a starter SDOH screening guide that can be tailored to your organization's needs and workflows.



Source: The EveryONE Project, American Academy of Family

Operational Framework for Successful Outcomes

The method by which an organization enacts its SDOH intervention will be specific to the needs of its population and the organization's capabilities to address these needs. This can be accomplished using a guideline that can be tailored to each organization. Accordingly, we have outlined a stepwise approach for leaders to begin by defining their organization's strategy for intervention—balancing patient population needs, operational goals, and financial goals—followed by a thoughtful process for implementation. Table 1 outlines the four steps to achieve successful outcomes.

SDOH STEPS FOR STRATEGY AND IMPLEMENTATION

	DESCRIPTION	EXAMPLE
STRATEGY		
STEP ONE Identify SDOH Opportunities	Listen to all internal and community stakeholders for the most impactful opportunities.	Meet with patients, internal staff, and community leaders.
STEP TWO Analyze Opportunities, and Select the Most Attainable Initiative	Perform data analysis, do research, develop needed partnerships, and conduct a return on investment (ROI) analysis.	Confirm the benefits of intervention through data analysis and literature reviews, assess the funding sources and expertise needed, determine ROI and intervention feasibility, and select the most feasible initiative.
IMPLEMENTATION		
STEP THREE Implement the Initiative	Focus on people, processes, and technology, and then develop a comprehensive plan of action.	Implement needed systems; processes; workflows; a data collection procedure; and reporting, training, and engagement plans.
STEP FOUR Monitor for Success	Ensure expected outcomes and operational and financial goals are met, and course-correct as needed.	Collect data prior to, during, and after the project. Implement intraproject checkpoints, and make changes to the initiative as needed.

Table 1: SDOH Steps for Strategy and Implementation

CASE STUDY

Using SDOH to Prepare for and Respond to COVID-19-Related Hospital Admissions

A large, not-for-profit health system in the Pacific Northwest entered the pandemic with a clear goal: be prepared for the quick spread of the virus. It became crucial to project the expected volume of COVID-19-related hospitalizations to be able to respond accordingly. Doing so would best prepare the organization for serving its community—a strategy etched in the organization's mission. In executing this goal, the system considered various variables that have historically impacted populations in the area—ones that segment populations—to arrive at projected hospitalization rates.

The organization started by analyzing historical flu vaccination rates broken down by zip code. By looking at transmission rates and associated hospitalizations of a well-documented virus, it was able to use the data to predict COVD-19's impact on its patients based on their area of residence. Several additional data points were analyzed, including patients' age, average number of comorbidities, and virus transmission using community wastewater data. Of note, wastewater surveillance has been in use since the 1990s, and it has continued to be a valuable resource for understanding virus transmission rates, including COVID-19.*

The organization's model was able to predict numbers and periods of increased admission by more than 90% accuracy. Once patients were admitted for symptoms related to COVID-19, the team was able to assess the accuracy of their projections and adjust accordingly.

This intervention allowed for the system to prepare for increased admissions by ensuring hospital beds were available, flexing staff to ensure adequate support, and ordering additional personal protective equipment. As a result, it successfully reduced the gap in care experienced by patients—ones who may live in communities that have historically been disproportionally affected by adverse health outcomes.

* Source: Larsen, D.A., Wigginton, K.R., "Tracking COVID-19 with Wastewater" (Nature Biotechnology 38, 1151–1153, 2020).

STEP ONE

Identify SDOH Opportunities

Multiple opportunities for SDOH involvement will present themselves. Determining which intervention aligns with your goals and overall strategy is necessary for a successful implementation. Questions to ask when deciding which opportunities to consider include the following:

- What issues are present in the community?
- What medical incidents does your organization encounter that can be traced to SDOH?
- What issues are the most pressing with respect to severity to the population?
- What initiatives are already in play in other communities that can provide value to your organization?

Upon answering these questions, you need to determine how to implement each initiative and evaluate its success. Throughout the process, your organization's leaders should seek input from affected internal stakeholders (e.g., patients and their families, providers, staff, company board) and external stakeholders (e.g., community leaders) in a manner that ensures voices on all sides feed into the strategy.

STEP TWO

Analyze Opportunities, and Select the Most Attainable Initiative

Once one or more opportunities are identified, the next step is to determine the most attainable initiative. The questions below can help guide the selection process. The sections that follow address each question.

? *Does the data confirm this is the right initiative, and what else can the data tell us about it?*

? *Has this been done before? If yes, what were the outcomes?*

? *What stakeholders and partners can be brought into this opportunity?*

? *What funding sources exist—both internally and externally?*

? *Is there an estimated positive ROI to be achieved?*

PERFORM A DATA ANALYSIS

? *Does the data confirm this is the right initiative, and what else can the data tell us about it?*

To create a meaningful and actionable analysis, we recommend segmenting data into contextual areas. Some of these areas may be more appropriate for government policy intervention, whereas others can be influenced by healthcare organizations, often in collaboration with nonprofit social services organizations. The examples shown in figure 2 can provide value by helping organizations select the most impactful programs.

With an understanding of these segments and their impact on SDOH, a consumable and visual analysis of publicly available and internal data can be created. This will help determine the next steps for healthcare organizations, informing their efforts to concentrate on specific social programs, as well as indicating the potential impact of these programs.

For example, internal data of hospitalizations of people with type 2 diabetes could be evaluated to determine whether food insecurity was a significant factor. If yes, this finding could lead to a public data neighborhood analysis and specific opportunities for providing food and/or nutritional education. The analysis could be conducted internally, or your organization can partner with a vendor that specializes in SDOH data analysis.

SDOH DATA SEGMENTATION

GEOPOLITICAL DETERMINANTS

Impact of governmental decisions, economic/social policies such as housing and labor markets, public policies regarding education and health, and cultural societal norms:

- The impact is greater based on the country's and/or region's development level.
- In the US, a current example is the COVID-19 pandemic and the direct impact each state's policy has had on its residents' health.

ECONOMIC DETERMINANTS

Impact of socioeconomic position and social class (e.g., education, profession, income):

- Individual or family care decisions are driven by income and the associated social class.
- Patients make healthcare decisions based on their ability to afford care and may defer or forgo medical procedures.

PROVISIONAL DETERMINANTS

Impact of circumstantial conditions such as the local healthcare environment and biological and/or psychological behaviors:

- The availability and quality of healthcare can impact outcomes and ultimately create healthier—or unhealthy— populations.
- Even in settings where geopolitical, social, and/or economic conditions are optimal, personal choices and decisions can still lead to adverse results.

Figure 2: SDOH Data Segmentation

CONDUCT RESEARCH

? *Has this been done before? If yes, what were the outcomes?*

The data might confirm that the SDOH programs being considered are indeed needed and even pinpoint specific populations (e.g., by zip code, age, chronic condition) that would benefit most; or it may lead to different programs or approaches. Once the data has been gathered and the most impactful initiatives confirmed, the next step is to review any work that has already been tested in this area. Although the literature on SDOH is still emerging, especially outcomes from SDOH programs, relevant information exists and should be researched.

Journals such as *Health Affairs* have written about SDOH and initiative outcomes. Publications by the Commonwealth Fund and websites such as Healthy People 2030 summarize SDOH outcomes research. Associations like the AMA, AHA, and HFMA that provide guidance to their members and host industry conferences are also sources. Vendors or nonprofits that have a financial or mission-driven stake in outcomes are additional resources.

For healthcare organizations with technology solutions like machine learning and natural language processing, it is also possible to discover and analyze patterns in complex and large unstructured databases, particularly those of a qualitative nature. These tools allow an organization to determine which of its selected initiatives appear most promising and perform higher-level analyses such as the evaluation and visualization of trends and concepts.

Once similar programs to those being considered have been identified, have discussions with the leaders who have run them to understand what worked well, what did not, and lessons learned. Based on this understanding, develop your own key performance indicators (KPIs) for each potential program. Sample KPIs are presented in figure 3.

Figure 3: Sample KPIs

DETERMINE THE NEED FOR PARTNERSHIPS

? *What stakeholders and partners can be brought into this opportunity?*

? *What funding sources exist—both internally and externally?*

Start by assessing your internal capabilities based on the desired outputs for the target population. Does your organization have the resources to provide the required social interventions, or does it need to develop partnerships with nonprofit social services organizations and other similar entities that help provide housing, employment, and nutrition assistance and have other related capabilities?

1. For example, perhaps you have the basic infrastructure to support a nutrition-related program (e.g., in-house program that can be expanded to provide meals to those with food insecurity). If the infrastructure is not available, your organization can explore partnering with an entity that can provide these services (e.g., Meals on Wheels).

2. Another example is if your organization wants to enhance access to care through additional means of transportation, you can confirm whether you already contract with a rideshare company (e.g., Lyft Business). If so, you can expand the contract to include coverage for the patient pool in question. If not, establish a relationship with a vendor.

3. Additional situations that may require partnership include supplementing your existing care management and navigation teams with outside resources or purchasing data collection systems. Once you review possible partnerships in your community, then begin discussions with those organizations to determine whether their offerings fit the needs of your intervention.

Consider funding sources as well. Do you have the internal funding necessary to support the programs you are considering? Are there outside partners or programs with aligned incentives that could reduce your costs or even provide all the capital needed to operate the programs? Logical funding sources are tax exemptions through community benefit requirements for nonprofit hospitals; state Medicaid waivers for innovative programs; local, state, or federal grants; and public/private investor partnerships in the community. The nonprofit organizations you engage with may be funding partners as well.

Ensure the costs you incur and funds you procure are included in your ROI analysis. If you participate in alternative payment models, or are an ACO or HMO, the payments received for improved outcomes and quality based on the programs you implement will be part of your ROI.

DETERMINE ROI

Is there an estimated positive ROI to be achieved?

Creating new or using existing cost-benefit methods is valuable for the long-term success, scalability, and repeatability of SDOH initiatives. Understanding the financial ROI and social return on investment (SROI), and how to achieve both, will be critical information for executive and board support. In doing these calculations, make sure to provide an estimated range, not an absolute number, of expected ROI.

Social Return on Investment

A form of cost-benefit analysis that considers the intervention's broader effects on the economy, environment, and people. This analysis expands on the traditional ROI, as it considers the value of the public good generated.

FINANCIAL ROI

Your organization can start by developing a financial ROI formula that accounts for the costs and outcomes of the intervention. In doing so, keep in mind the ROI time frame. The example formula in figure 4 provides a guideline for the calculation.

EXAMPLE ROI FORMULA

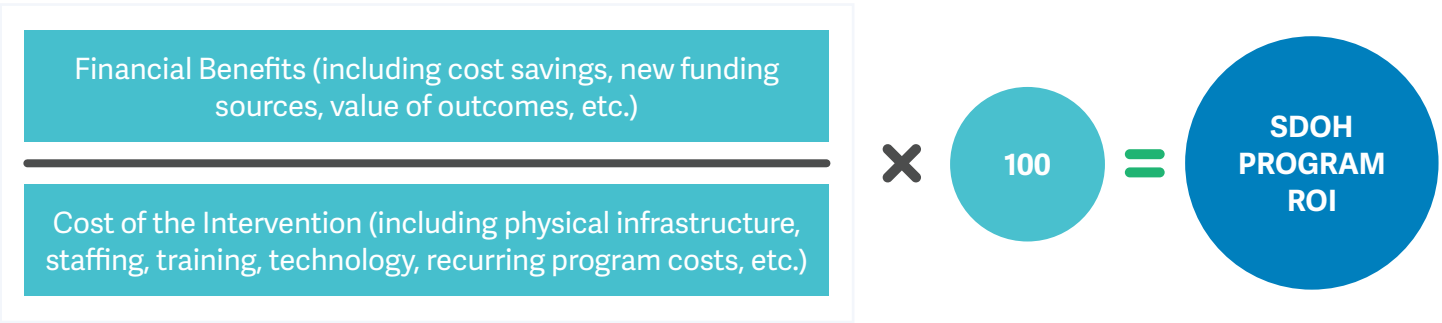


Figure 4: Example ROI Formula

Sample financial quantitative and qualitative benefits are summarized in table 2. The research performed up front will also provide additional measures of benefits to consider.

SAMPLE FINANCIAL BENEFIT OUTCOMES

QUANTITATIVE OUTCOMES (TANGIBLE)	QUALITATIVE OUTCOMES (NONTANGIBLE)
Cost savings (e.g., dollars saved from readmission prevention)	Staff morale (e.g., decrease in staff turnover)
Additional revenue (e.g., grant from state fund)	Improved brand identity, recognition, and goodwill (e.g., increase in member acquisition)
Quality measures payment (e.g., controlling high blood pressure)	Patient satisfaction (e.g., increase in CAHPS scores)
Environmental sustainability (e.g., reduction in carbon footprint)	
Community impact (e.g., tax exemptions through community benefit requirements)	

Table 2: Sample Financial Benefit Outcomes

Alternatively, you can use other calculators for determining the financial ROI—such as the one developed by the Commonwealth Fund—that have been successful for other organizations.[8]

SROI

The SROI will provide your organization the community benefit impact through a health equity lens, supplementing the financial ROI. Existing SROI guidelines, such as those developed by the United Kingdom's Cabinet Office, have been used by healthcare organizations.[9] The provided framework outlines the SROI process in stages, and it includes a straightforward impact map for organizations to document their analysis.

SROI studies for SDOH are limited to date, but an example can be found with the analysis conducted for Bon Secours Hospital's Housing for Health affordable housing program in Baltimore, Maryland.[10] Through their intervention, Bon Secours achieved an estimated social return of $1.30 to $1.92 for every dollar in annual operating costs.

SELECT AN SDOH INITIATIVE

Calculating ROI allows the operational team to define the value of enacting a specific intervention. If more than one intervention is being considered, ROI calculations will allow your organization to determine which intervention should be a priority based on available resources (e.g., improving housing for the unhoused versus improving nutrition for communities that experience food instability). After an acceptable ROI is calculated and sufficient operational and financial support obtained, your organization is ready to initiate the implementation phase.

STEP THREE

Implement the Initiative

The path to implementation is anchored by organizing both the internal and external systems for the initiative, followed by launching the intervention. Figure 5 outlines these components.

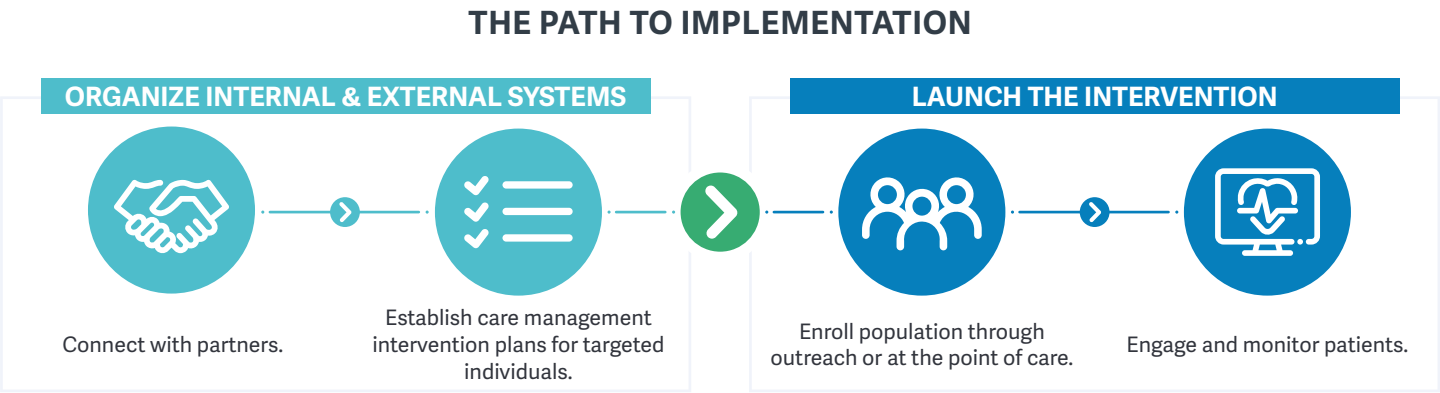


Figure 5: The Path to Implementation

ORGANIZE INTERNAL AND EXTERNAL SYSTEMS

Once the initiatives have been selected and approved, focus on developing a comprehensive project plan—one that considers the people, processes, and technologies. As necessary, staff and partners will need to be onboarded and trained and workflows redesigned. In addition, to succeed, the interventions will require reliable systems that capture data in automated and, if also needed, manual methods; this can occur in or outside the electronic health record (EHR). Data must be captured and monitored prior to, during, and after each intervention.

It is critical to ensure there is a well-defined process for each system to capture relevant clinical, intervention, and other appropriate data for the population enrolled. This information will be used to capture SDOH metrics used for outcomes, KPIs, and ROI calculations. An example data metric for an intervention to reduce clinic no-shows is the relationship between these patients and a lack of transportation.

The data elements required and sources for the data collection must be identified early, along with defined reporting and customized systems if necessary. A source could be the EHR, an external system, and/or Excel or other documents. Ideally, all sources would be interfaced, but if not, a workflow for data capture and reporting can be created.

If collaborating with external partners, ensure their data capabilities are interoperable with your organization and that collection is automated as much as possible. Agree on a reliable and consistent method of sharing the details, definitions, and processes that are part of the data capture and reporting workflows.

Support staff and leaders will need to be trained specific to each initiative and newly created workflows, including patient intervention, data collection, and monitoring processes. The time to do so must be factored in.

All relevant staff, including partner stakeholders, data teams, quality teams, etc., should be included in the implementation where appropriate. This will give the initiative visibility and show leadership commitment to addressing the full spectrum of a patient's clinical, behavioral, and social needs. Such engagement could also raise employee satisfaction levels as a result of being part of a caring organization.

Figure 6 lists critical success factors.

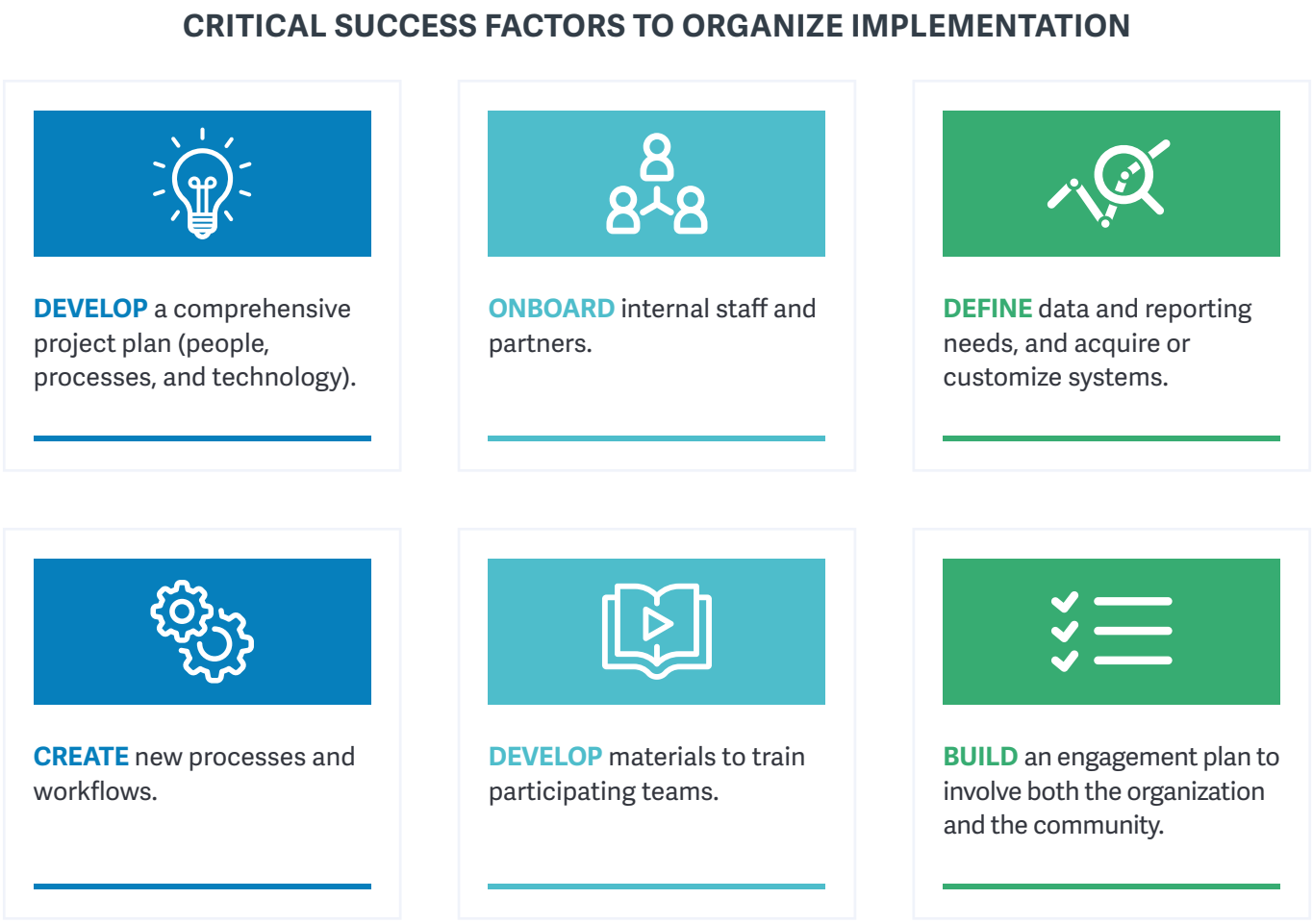


Figure 6: Critical Success Factors to Organize Implementation

Your organization will be ready to launch the intervention upon developing the new data systems; processes; workflows; data collection; and reporting, training, and engagement plans.

LAUNCH THE INTERVENTION

Enrolling patients for a predetermined time period will be paramount. The selected period will be known as the pilot. There are multiple methods of enrolling patients in the pilot, and the two main avenues can be grouped into: **A** outreach efforts and **B** point-of-care efforts (e.g., emergency department, specialty clinic).

A For outreach efforts, your organization can use its existing patient population to narrow the list based on the intervention criteria and demographics (e.g., residence zip code, age). This is a straightforward exercise that starts with obtaining a list of active patients (e.g., patients who have had at least one visit in the area or at a particular facility within the past 12 months). Patient outreach can be accomplished in a variety of ways, including letters and call campaigns. If the desired intervention pool is 100 patients, then an initial effort should aim to reach five times that number (i.e., 500 patients), as only an estimated 20% of those contacted are anticipated to participate. Additional efforts can be made if 100 patients are not selected in the first round.

B For point-of-care efforts, your organization can identify target locations for enrollment. For example, your team can verbally ask patients who present at the emergency department whether they would be interested in participating in this program. This avenue is most effective for highly specialized interventions.

If the chosen methods of enrolling patients do not result in the required number of participants, it may be necessary to reassess the criteria for inclusion.

Once the desired pool of patients is enrolled, engage them and monitor their progress. This can be accomplished using care team member-to-patient interactions (e.g., phone calls at regular intervals, in-person visits) and/or digital interactions (e.g., texting, remote monitoring, mobile applications). An integral part of this step is to document each touch point in the data collection tools. This should be done during the pilot, at near-term intraproject intervals, and at long-term postproject intervals.

STEP FOUR

Monitor for Success

Data collection should occur prior to, during, and after the intervention. As an example, let's consider a pilot projected to last six months.

- Capture a baseline metric a few months before the first day of the intervention and a second measurement at launch. If the intervention is starting right away with no buffer time, then at a minimum, obtain a baseline.
- Capture additional measurements during the intervention. For this example, we recommend at least two additional data points during the first few months. Intraproject checkpoints allow your organization to assess the immediate impact of its efforts. If the results are not favorable, a corrective course of action should be taken to maximize the outcomes. Organizations that "keep a pulse" on the progress of their project may notice a more positive impact on the patients, which can be incorporated as part of the regular checkpoints that a care team member is already having with the patients throughout the intervention.
- Finally, take a measurement at the end of the six months to assess the outcomes of the intervention. Postproject measurements are also recommended at regular intervals. This additional data can detail the long-term effects of the project, migrate the project from a pilot to a sustained effort, and help inform future interventions.

Table 3 presents an overview of the measurements for this example.

PROPOSED DATA MEASUREMENT TIMELINE FOR A SAMPLE SIX-MONTH INTERVENTION

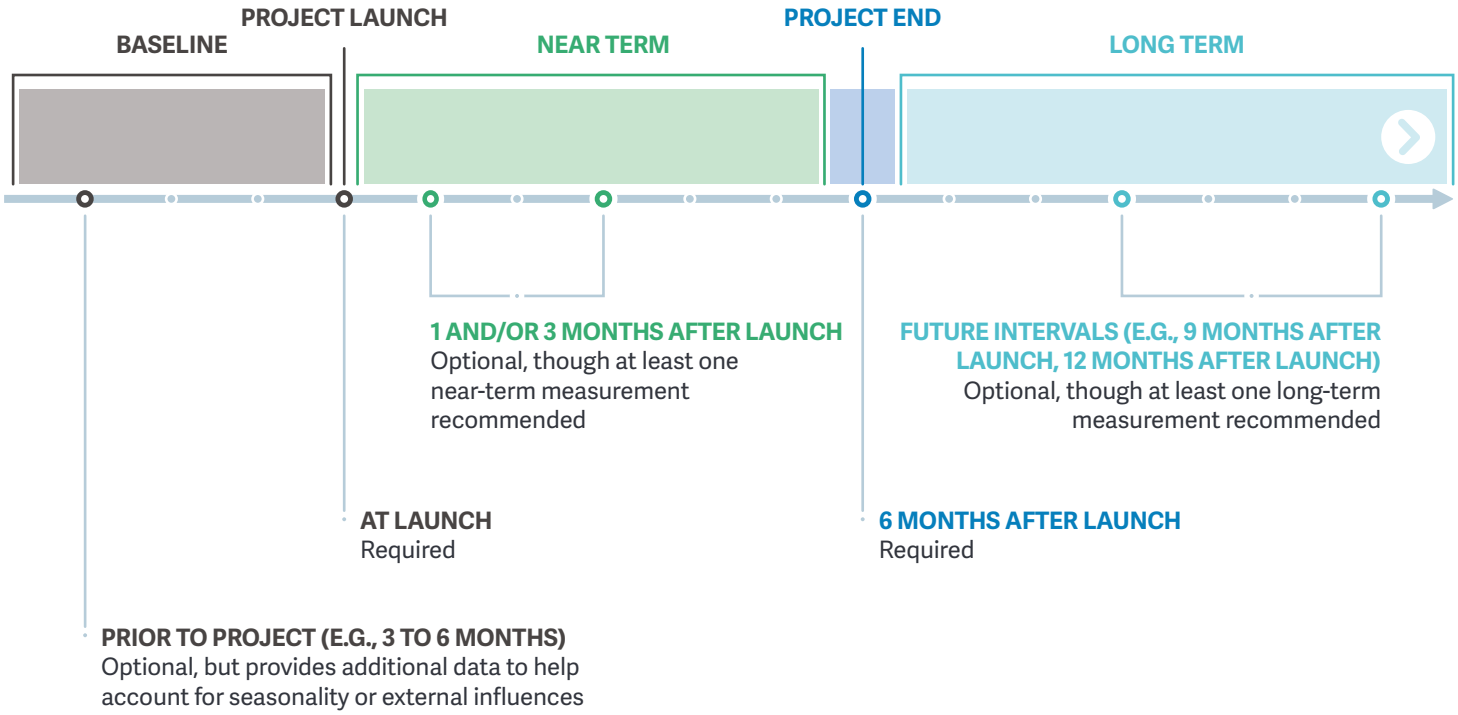


Table 3: Proposed Data Measurement Timeline for a Sample Six-Month Intervention

Begin Your SDOH Journey

Addressing SDOH factors is a must-do for organizations to detect gaps in their patient population's health outcomes. Your journey starts with identifying opportunities, conducting data analyses and research, calculating ROI with a timeline to determine the most impactful interventions, obtaining operational and technical support, and launching a pilot to determine efficacy.

Whether the initiatives are large or small, they should impact the health outcomes of both your patients and community. Advancing health-related social services through SDOH and equity interventions can be a "win-win-win" for your patients, your organization, and society.

Proven Value for Your Patients and Organization

The case for addressing the outlined social factors brings measurable value to your organization beyond patient outcomes. Since ROI can be calculated, acting on an opportunity can be accomplished in alignment with your organization's financial goals and overall strategy.

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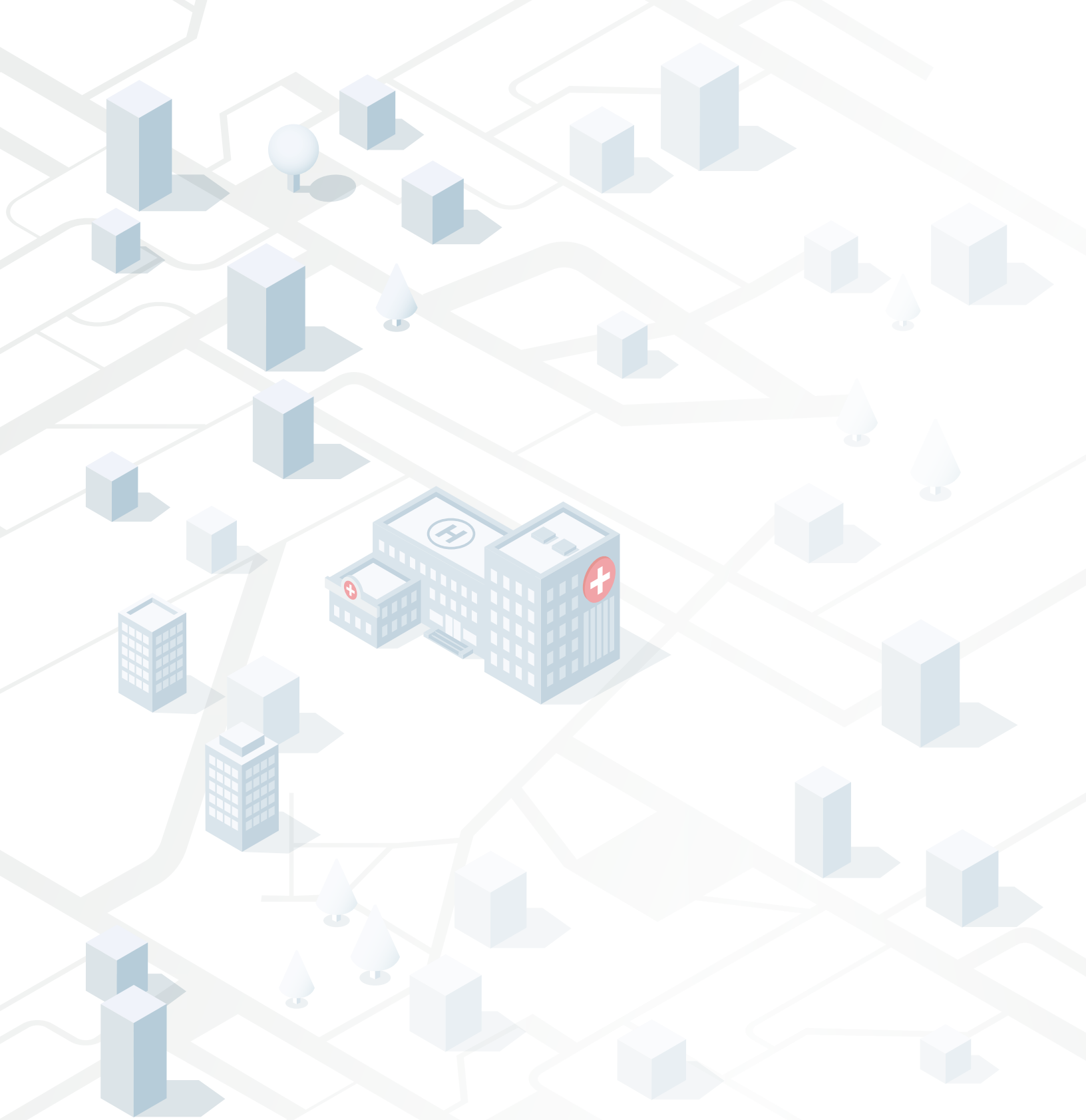

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