POPULATION HEALTH AT ESSENTIAL HOSPITALS

Findings from Moving to Action for Hospitals and Population Health

NOVEMBER 2016
ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

We now know that an individual’s health is influenced by far more than the clinical care that they receive or their own habits and behaviors. The social, economic, and environmental circumstances of a person’s life can account for as much as 50 percent of what determines their health. This knowledge challenges health care providers to think more broadly about their role in communities, how they deliver care, and how they distribute resources. It also offers an opportunity.

Health care reform has challenged the industry to simultaneously improve the efficiency and quality of the care it provides. Reform has pushed providers to shift their focus from fee-for-service to value-based care models and to expand their thinking from episodic, reactive care to more preventive, community-based health. Addressing the social risk factors of patients and the social determinants of health on the population level could provide the key to meeting this challenge while reducing health care costs and creating healthier communities.

Essential hospitals have a long history of working with vulnerable populations and are uniquely positioned to expand their role to include upstream factors affecting health. They often serve as anchors within their communities, with deep economic and social ties to the residents, leading to a clear understanding of the nonclinical influences on patients and population health.

Funding from the Robert Wood Johnson Foundation has allowed America’s Essential Hospitals and Essential Hospitals Institute to interview experts, survey essential hospitals, and conduct key informant interviews to better understand the state of population health improvement activities at essential hospitals. Our researchers have identified barriers to progress, highlighted potential facilitators to success, and determined resource needs of essential hospitals as they embrace a population health approach.

This document presents our findings categorized into five areas: finding an appropriate role, building a foundation for population health, working beyond the hospitals’ walls, measuring population health, and aligning population health financing.

1. As hospitals look to address upstream factors related to health, they are searching for appropriate roles within their community. Some hospitals see population health improvement as an opportunity to influence the upstream aspects of care specific to their attributed patient population, through care coordination and chronic disease management. Others have adopted a broader definition of population health, focused on a larger geographic area or community.

2. Hospitals are in the process of building a foundation for population health. This includes creating leadership support, allocating appropriate staff resources, developing more robust health information technology (HIT) platforms, and incorporating population health into strategic planning. Readiness assessments and asset mapping of the hospital and community help to set internal goals, allocate resources, and provide focus to hospital operations.
Hospitals are working beyond their walls to improve the health of their community. Many partner with community organizations, public health departments, and other providers to assess and meet community health needs. Collaboration allows hospitals to broaden the scope and depth of their work, while conserving the resources they otherwise would spend recreating the services and expertise of other organizations. Successful partnerships are likely to have a shared vision, mutual trust, clear goals, shared resources, and a bidirectional flow of data.

Measuring population health is a challenge for both hospitals and communities. Collecting data from patients through systematic screening for social risk factors is a valuable opportunity for hospitals to understand the health of their community. However, the lack of standardized metrics, restrictive data-sharing regulations, and the inability to conduct real-time analysis are consistent barriers that prevent hospitals and health systems from implementing sustainable measurement systems.

Success requires aligning population health resources inside health systems and in the community. Hospital leaders, stakeholders, payers, and policymakers must better understand the return on investment of population health improvement to design sustainable funding models. Alternative payment models that incentivize a population health approach are nascent, and though several show promise, more expansive, long-term policy action is needed to align financial incentives with population health in health systems’ core models of care.

LOOKING FORWARD

Our findings indicate that essential hospitals are embracing population-focused health care and beginning to incorporate a population health approach in their work. However, significant challenges exist in developing partnerships, building needed infrastructure, measuring progress, and creating sustainable funding models. To guide hospitals in their implementation of population health improvement activities, these findings were used to inform A Road Map to Population Health for Essential Hospitals.
The passage of the Affordable Care Act (ACA) in 2010 created a shift away from traditional fee-for-service (FFS) models and toward a value-based purchasing model in which hospitals are tasked not only with treating the sick, but also creating health in their communities. Hospitals are responding to this charge by expanding their care delivery systems to include the nonmedical factors influencing the health of their communities and embracing their roles as both providers of acute, episodic care and stewards of population health.

Essential hospitals and health systems—those that treat a large proportion of vulnerable patients—are in a unique position to drive population health improvements. These hospitals occupy central positions within their community as large employers, providers of care, and sources of community support.

**FIGURE 1: PROJECT TASKS**

**TASK 1: Survey Development & Administration**
- Environmental scan
- Item creation
- Item and survey testing
- Survey administration
- Data analysis

**TASK 2: Key Informant Interviews**
- Informant identification
- Interview protocol and questions
- Data collection
- Qualitative data analysis

**TASK 3: Roadmap Summit**
- Report of findings from Task 1 and Task 2
- In-person summit for discussion and deliberation

**TASK 4: Dissemination/Communications**
- Educational programming
- Progress updates
- Partners engagement
- Road map dissemination

**TASK 5: Program Plan**
- Proposal for multiyear project to implement population health initiatives
resources. Their experience caring for complex patients with needs that go beyond medical care gives essential hospitals a deep understanding of the community’s needs.

But essential hospitals also require unique considerations when it comes to population health implementation due to organizational structure, resource constraints, and under-developed incentive systems. Essential hospitals, on average, operate with no margin, affecting their ability to fund population health initiatives. Also, the supply of adequately trained staff are not available for population health programs. While many population health road maps and frameworks exist, strategies that account for the unique attributes and needs of essential hospitals are lacking.

In light of these gaps, Essential Hospitals Institute, with support from the Robert Wood Johnson Foundation (RWJF), carried out three research tasks (Figure 1) designed to inform a population health road map tailored to the unique needs of essential hospitals and health systems.

Task 1 and Task 2 comprise the qualitative and quantitative research and analysis that—together with stakeholder input from Task 3—will inform the strategies and guidelines included in the final road map. These tasks were framed by seven overarching domains of population health: needs assessment, partnerships, social determinant of health activities, resource allocation, measurement, policy alignment, and leadership activation. A full list of domains, research questions, and methodology for these tasks can be found in Appendix I.
The findings from our investigation of these domains are presented for five central themes: Finding an appropriate role for essential hospitals and health systems’ in population health, building a foundation for population health within health systems, working beyond the hospital walls, measuring population health, and financing population health.
FINDING AN APPROPRIATE ROLE

Policy changes implemented through the ACA have placed more responsibility for community wellbeing on hospitals and health systems. In light of these changes, hospitals and health systems are implementing population health improvement initiatives across their organizations and communities. While these health care providers traditionally have played central roles in their communities, new accountability to population health is magnifying the responsibilities associated with such central positions.

Regulations stemming from the ACA signal a move toward greater accountability for hospitals and health systems to think beyond episodic care. The Triple Aim—proposed by Don Berwick, president emeritus and senior fellow at the Institute for Healthcare Improvement—is one of the fundamental drivers of these regulations. The Triple Aim states that the U.S. health care system requires the “simultaneous pursuit of three aims: improving the experience of care, improving the health of populations, and reducing per capita costs of health care.” While population health is only one of the three aims, its central tenet has been adopted across various ACA policies, crossing into quality improvement and patient-centered transformations.

For example, Section 3025 of the ACA regulates how hospitals can be penalized for patient readmission rates—an outcome measure that is significantly influenced by a patient’s social determinants of health. Likewise, delivery system models, such as patient-centered medical homes and accountable care organizations (ACOs) (described in sections 3502 and 2706 of the ACA, respectively), fundamentally create incentives to include population health improvements or preventive services, which keep patients healthy and lower financial risk.

The ACA’s requirements that 501(c)3-status hospitals conduct a Community Health Needs Assessment (CHNA) at least every three years (section 9007(a)) is another driver in shifting population health responsibilities to hospitals and health systems. Under the regulation, a hospital or health system’s CHNA findings must be made publicly available, which shows a broader push toward transparency and accountability for these providers.

The Population Health Spectrum

Kindig and Stoddart first put forward a definition for population health in 2003. They proposed defining population health as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.” They went on to recommend that this field include “health outcomes, patterns of health determinants, and policies and interventions that link these two.”

This definition has led to a wide spectrum of understanding among hospitals and others as to the meaning of “group.” Hospitals could focus their population health efforts on specific disease groups, patients who use the hospital or health system, or broader geographic communities. We found that the application of “population health” can differ among providers, academics, and policymakers depending on how the population is defined.

“Culturally, it is a mindset shift. I do think that there is a need to embrace caring and providing service as a cost reduction rather than as an expense. So I do think that there will need to be a cultural shift ... people are going to have to recognize that more emergency room visits is a failure. So there will need to be an understanding of a shift in what’s valued.”

– Key informant
At one extreme, Jacobson and Teutsch in their 2012 report define population health in terms of total population health, referring to focusing on the health outcomes of a geographic population or similar group beyond the patient population. In contrast, population health management reflects the same goals of total population health, but within the defined patient population. In addition, population health management typically incorporates care coordination and other delivery system transformations with the goal of “minimizing the need for expensive interventions, such as emergency department visits, hospitalizations, imaging tests, and procedures.”

Halfon et al. leveraged these multiple understandings to outline a transitional path for the health care system as it embraces population health. Hester et al. built upon this work in their health care 3.0 framework (Figure 3). Their framework consists of three stages, which move from acute, episodic non-integrated care (1.0), to a coordinated, accountable system (2.0), then to a community integrated system (3.0). A key challenge for hospitals—and essential providers in particular—is that they must maintain elements of all three categories as they move forward. Their roles as providers of episodic care will be influenced by a population health paradigm, but providing acute-care services will certainly

**FIGURE 3: HEALTH CARE 3.0 FRAMEWORK**

**COMMUNITY INTEGRATED HEALTH CARE SYSTEM 3.0:** Community-Integrated Health Care
- Health population-centered population health-focused strategies
- Integrated networks linked to community resources capable of addressing psycho-social/economic needs
- Population-based reimbursement
- Learning organization: capable of rapid deployment of best practices
- Community health integrated
- E-health and telehealth capable

**COORDINATED SEAMLESS HEALTH CARE SYSTEM 2.0:** Outcome-Accountable Care
- Patient/person centered
- Transparent cost and quality performance
- Accountable provider networks designed around the patient
- Shared financial risk
- Health information technology-integrated
- Focus on care management and preventative care

**ACUTE CARE SYSTEM 1.0:** Episodic Non-Integrated Care
- Episodic health care
- Lack of integrated care networks
- Lack of quality and cost performance transparency
- Poorly coordinated chronic care management

_Hester et al., adapted from Halfon et al., 2014._
remain a core activity. Likewise, many activities, such as chronic disease management and preventive care strategies, will be maintained from a population health management paradigm. As the intermediaries between public health and primary care, hospitals must work to meet the needs of their patients and the needs of the population.

More than half of essential hospitals that responded to our survey identified their primary role as caring for patients in a geographic area, and nearly 75 percent reported coordinating activities with local social services departments. A hospital or health system’s resources, capacity, culture, leadership, and marketplace primarily drive how they define their target population and to what extent they are able to build an infrastructure for population health.

As hospitals and health systems expand from episodic to population-based care, they must reorient their strategic priorities, care delivery systems, organizational culture, and community relationships. Doing so will require hospitals, experts, and communities to develop a shared understanding of the goals and language of population health. In particular, this shared understanding is key to creating initiatives and systems that meet the needs

**FIGURE 4: THE ROLE OF ESSENTIAL HOSPITALS**
of populations; formulating standards of accountability; establishing the role of partners; and developing tools for measurement and evaluation.11,18,19

MODELS THAT LEVERAGE THE HOSPITAL AND HEALTH SYSTEM POSITION

A catalyst for hospitals and health systems’ activities in population health is their historic mission to serve as stewards of their communities, as well as their economic position in their local areas.11,16-24,26-31 This central role of essential hospitals and health systems in communities is summarized well by the term “anchor institution.” Anchor institutions—or anchors—are organizations, including hospitals, that typically are the largest employer in the area, and are closely tied to the larger “economic and social fabric of their communities.”18,25 For example, Gourevitch discussed the anchor role specific to academic medical centers, which traditionally hold central roles in their communities because of their extensive purchasing practices, employment of local residents, and provision of health care to the population.11 Norris and Howard define the mission of these types of institutions as “a commitment to consciously apply the long-term, place-based economic power of the institution, in combination with its human and intellectual resources, to better the long-term welfare of the community in which the institution is anchored.”21 Many others have noted the critical nature of hospitals as anchors for population health improvement activities, specifically related to their position for forming partnerships and influencing the community.5,10,20-23,26-28

A similar hospital and health system role is that of the community “integrator,” which was first introduced in 2012 by Debbie Chang, vice president of policy and prevention at Nemours.29 Like anchors, integrators play a central role in their communities. However, the functions and responsibilities of the integrator go a step further—they fully assume accountability for the health of the community and act as a convener for population health improvements and collaborations.17 Examples of integrators beyond hospitals and health systems include “quasi-governmental agencies to community-based nonprofits and coalitions.”26,30 While the literature does not assume a hospital or health system will or should always play the integrator role, there is a general consensus that integrators can greatly benefit population health improvement activities across the community.9,15,28,29,31-36
Hospitals and health systems require a strong internal infrastructure to implement population health improvements. To create this infrastructure, certain elements must be in place:

- well-trained, dedicated population health improvement staff;
- a health information technology (HIT) infrastructure that is used to its full capacity;
- specific planning and development strategies for moving beyond the hospital walls; and
- leadership commitment to population health.

AN EXPERIENCED AND ADEQUATELY TRAINED WORKFORCE IS NEEDED

Human capital, staff expertise, and training are all important workforce development components for hospitals and health systems as they move forward with population health. Our survey findings and key informant interviews indicate that dedicated staff is needed at the clinical and administrative levels, as well as the leadership and C-suite levels. Many essential hospitals are beginning to create leadership positions for population health. For example, as of August 2016, approximately 23 percent of America’s Essential Hospitals’ members had at least one staff member or leader with a title related to population health. However, a need for human resources remains, as these positions often lead small teams. In fact, 53 percent of survey respondents indicated that additional staff is one of their greatest resource needs.

Meanwhile, because population health is a relatively new field and has not yet become a specific career track, gaps exist in workforce competencies. One of our expert interview subjects noted the potential misconception that all health care providers are well-equipped in their current roles and competencies to perform population health activities. In reality, there is a great need for staff whose core duties revolve around population health and whose skills and training are specific to those responsibilities. According to a 2012 American Hospital Association survey, “There is high demand for further training and continuing professional education in the population health field. Community health, health education, and community benefit are the most desirable professional and educational backgrounds, while community health needs assessments, healthy communities and collaborative facilitation, and leadership are considered the most critical professional education subjects.”

Meanwhile, our survey findings indicate that the supply of staff with appropriate population health expertise does not meet hospital and health system demand. Not only was staff training identified by 21 percent of respondents as an area of need within their hospital or health system, but
several informants also cited the lack of adequate staffing as the primary barrier to their population health efforts.

As this work continues to integrate with the core responsibilities of health care, there will need to be a concurrent effort to develop new competencies and diverse skill sets for nontraditional settings. As one key informant explained, “A lot of resources need to be focused on training the staff that we currently have, or hiring the right kind of staff with the right skill sets and the right mindset.”

**CREATING HIT AND ANALYTICS INFRASTRUCTURE IS KEY**

A strong HIT infrastructure is an additional requisite for hospitals and health systems’ internal foundations for population health. This includes a fully integrated electronic health record (EHR) system that is linked to population-level data and that has the capacity for “bidirectional flow of information.”

Researchers at the Institute for Health Technology Transformation (IHTT) state that selecting and implementing an HIT system is among “the most important components of planning for

“Having the right data available at the right time in the right way, I think, is really key to all of this and I would say our No. 1 issue right now.”

– Key informant

**FIGURE 5: ASSESSMENT AND/OR PLANNING ACTIVITIES INCLUDED IN HOSPITAL/HEALTH SYSTEM POPULATION HEALTH WORK**
population health management.” IHTT researchers also suggest that hospitals and health systems work closely with HIT vendors to stay up-to-date on beneficial upgrades and constantly re-evaluate the appropriateness of their systems. In fact, many of these considerations for HIT are incorporated into the Medicaid EHR Incentive Program regulations, set by the Centers for Medicare & Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC). Hospitals should consider these regulations and related criteria when developing HIT and data sharing practices for population health.

According to our survey findings, the lack of adequate HIT and analytics infrastructure is a significant barrier for essential hospitals, with 53 percent of respondents indicating that analytics systems and tools would be helpful for their population health work. One of our key informants noted that an updated EHR would enable better creation of registries, community needs assessments, and data integration to identify trends. Another noted that gathering meaningful population health data from current record systems required staff to painstakingly comb physician notes for relevant information. Hospitals also reported a shortage of staff with the requisite skills to successfully perform the data and analytics work needed for population health tracking and improvement. This underscores the need for more robust IT teams comprised of reporting specialists, data architects, and analysts that can build and use data systems that drive improvement.

SUCCESS IS LED BY STRATEGIC PLANNING

There are many planning strategies hospitals and health systems can conduct internally before shifting their focus toward the community and population health improvements. One of the primary strategies is to conduct a readiness assessment. This is recommended as a first step to help hospitals and health systems better understand their strengths and needs in the context of population health. Our survey findings show that 30 percent of respondents conducted a readiness assessment when preparing for population health activities.

The literature also shows that hospital leaders benefit by conducting a strategic planning process, which includes setting priorities and considering the financial and reimbursement mechanisms for population health programs. Other strategies include asset mapping and developing formal communication strategies. While asset mapping traditionally looks outward toward the community, these ideas also can be applied inside the hospital. The National Quality Forum’s Improving Population Health by Working with Communities—Action Guide 3.0 states that asset mapping is focused on “strengths and positive attributes,” both tangible and intangible, rather than areas of need or deficit. Responses from our survey indicate that:

- 45 percent of respondents conducted formal priority setting endorsed by senior leadership;
- 55 percent of respondents aligned population health work with quality or patient safety initiatives;
• 40 percent of respondents gathered input from their hospital or health system’s board;

• 35 percent of respondents performed asset mapping; and

• 25 percent of respondents developed a formal communication strategy.

INTERNAL POLICIES CAN ALIGN THE POPULATION HEALTH MISSION

Another key element of a hospital or health system’s mission, role, and strategic planning is the incorporation of internal policies that support community investment and build a larger business model for population health. One example is the “community health business model,” which integrates population health with the hospital or health system’s overall business plan.17,47 For example, Isham et al. write, “The organization now expects leaders to continually report to the board progress made toward the nonclinical goals, just as they have traditionally reported progress toward strategically important clinical care goals. Achievement of nonclinical goals also factors into overall performance evaluations of leaders.”47 One key informant described how this type of model is being incorporated across the informant’s organization, saying, “We help every department, every individual understand how they contribute to the overall cultural commitment to improving health, and we also include that as part of the evaluation of our leaders. So each leader is evaluated on their ability, and their work around improving community health.”

A similar, business-focused model has been designated “All in for Mission” by Norris and Howard and relates to a hospital’s anchor role.21 This model is described as “the much larger and ultimately more sustainable opportunity [to] transform the hospital business model, integrating community benefit into the fabric of the institution and bringing to bear the full potential

“The long-range vision of leadership is really important to make this work as meaningful as it needs to be.”

– Key informant

FIGURE 6: BUSINESS PRACTICES USED BY HOSPITAL/HEALTH SYSTEM TO INVEST IN AND IMPROVE THE LOCAL COMMUNITY

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<th>Practice</th>
<th>Percentage</th>
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<td>Hiring and workforce development practices (e.g., local hiring from targeted communities)</td>
<td>71%</td>
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<tr>
<td>Supply chain procurement policies (e.g., buying local, fair, and/or sustainable products and services)</td>
<td>50%</td>
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<tr>
<td>Investment portfolio (e.g., targeting a portion of funds to support interventions that create healthier communities)</td>
<td>19%</td>
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<tr>
<td>None</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>14%</td>
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of hospitals and health systems as economic drivers of community transformation and health promotion.” A major piece of the “All in for Mission” model includes reorienting nonclinical practices within the hospital or health system. Examples include “supply chain procurement policies, hiring and workforce development practices, and investment portfolios.”

Essential hospitals are adopting these internal policies. For example, 71 percent of survey respondents reported that their organization invests in their community through hiring and workforce practices, such as targeted local hiring. An additional 50 percent of survey respondents have targeted supply chain procurement policies to buy local, fair trade, or sustainable products. One key informant explained, “As we make investment decisions for organizations or issues that we sponsor, we really tie it back to what are our health priorities—at the hospital system, locally, at the community level, and at the state level.”

**POPULATION HEALTH REQUIRES LEADERSHIP COMMITMENT**

Leadership plays a vital role in successful population health improvement. One key informant described leadership as “the driving force for embracing population health countywide.” The collective commentary around this topic called for hospital or health system leaders to make strong commitments to population health improvement. To do this, leaders must set internal goals for initiatives and health outcomes, allocate the resources necessary for improvement activities, and take ownership of such activities. Having commitment at the board and executive levels is linked to greater success among on-the-ground improvement teams and across community partnerships. It also was noted that building this type of leadership infrastructure might require creating new leadership positions dedicated to population health and realigning “a governing paradigm to build the organizational capacity to effectively transform into institutions that excel in population health management.”
BEYOND THE HOSPITAL WALLS

Population health requires hospitals and health systems to work extensively beyond their walls, and there are preparatory steps that these providers must take to implement successful population health programs. These include identifying and understanding the needs of the community, as well as forming partnerships with external organizations and community members.

COMMUNITY NEEDS ASSESSMENT DRIVES POPULATION HEALTH

To appropriately carry out population health improvements, hospitals and health systems use strategies to identify the needs of their target populations. CHNAs are one of the primary ways hospitals identify the broader community’s needs.12,17,48,49 While the ACA and IRS regulations require tax-exempt hospitals to conduct a CHNA every three years, for-profit and public hospitals also conduct these assessments and historically have done so. Results from our survey show that 14 percent of respondents were not required to conduct a CHNA under federal regulations but did so anyway.

Although CHNAs have great potential as a tool for population health improvement, experts caution that the CHNA process is not always well-integrated throughout the institution, community, and population health improvements.38,51 One key informant shared an experience with a highly integrated CHNA process, which included more than 70 organizations in a countywide initiative. “We realized if we are going to move the needle on health, we really had to create goals and identify priorities with everyone else in the community. Not just us identifying priorities, and not just us identifying solutions,” the informant said.

Hospital- and community-level data also can be used to identify population needs. Two prominent examples of hospital-level data are claims data and patient data found in EHRs.8,53 In addition, analyzing patient utilization data, reviewing patient data according to pre-determined measure sets (e.g. Healthy People 2010/2020), or leveraging other data reporting requirements from CMS could be used.46,54,55 As for community-level sources, data collected by public health departments, census tract data, and data collected by other community-based organizations could be strong starting points for hospitals.41,56,57 One expert commented, “Hospitals can take advantage of data that’s already there, from some sort of government in many cases, what you can find in the County Health Rankings, and what the Healthy Communities Institute puts out with their dashboards, and so on. So, hospitals can make better use of existing data in trying to set their priorities.”

Hospitals often use community data as a benchmark to guide the prioritization of the population’s needs. Tools—such as County Health Rankings—are widely used in this regard, although experts caution that these rankings are just a starting point for measuring population health. Our survey found that 67 percent of respondents reported using County Health Rankings for population health improvement. Several of our interviewees said that community-level profiles would be helpful in their efforts.

Engaging the Community

University of Vermont (UVM) Medical Center in Burlington, Vermont employs a series of channels to engage the community when assessing need and identifying priorities. Its formal community health needs assessment (CHNA) is conducted with guidance from a community-based steering committee, which comprises eight organizations, including the health system. Patient and family advisers are then embedded in each of the implementation teams that are set up to meet the needs identified in the CHNA. Additionally, UVM Medical Center has established a community health investment committee to solicit input on how the health system can invest in community improvement. UVM Medical Center’s chief medical officer chairs the committee, and committee membership is split evenly between hospital staff and external community members. UVM Medical Center also attends regular meetings with “neighbors” to discuss concerns facing residents or other organizations adjacent their large campus. Lastly, UVM Medical Center leadership hosts events with community leaders and legislators to showcase partnerships and programs that support population health work in the area.
POPULATION HEALTH REQUIRES COLLABORATION

There is a great need for partnerships between hospitals, health systems, and organizations in the community when implementing population health improvement initiatives.\textsuperscript{44,58-60} Such community organizations include public health departments, education systems, community-based organizations, and other hospitals or partners along the care continuum. Community residents also are identified in our expert interviews as essential partners for population health activities. One expert discussed how hospitals and health systems have “embraced listening to their communities, listening to the populations, and particularly those that are most affected by poor health,” and that this communication is advantageous for population health improvement initiatives.\textsuperscript{36}

Further, public health departments are commonly identified as an essential, even primary, partner for hospitals and health systems in population health due to the similarities between traditional public health services and population health initiatives. In fact, the ACA mandated that the Public Health Accreditation Board require public health agencies to conduct comparable community health assessments.\textsuperscript{53} While there is no requirement for hospitals, health systems, and public health agencies to conduct these assessments jointly, Prybil noted that these requirements highlight the push for greater health care and public health integration—a traditional pairing for population health.\textsuperscript{24,29}

However, our interviews drew attention to existing tensions between public health and the health care sector that might present a barrier to establishing partnerships. One expert commented, “There’s certainly suspicion on the public health side of hospitals and health systems being the big gorilla who’s going to suck up all the resources. If there’s too close of a partnership, then public health will lose its identity.”\textsuperscript{54} The expert reiterated this idea, saying, “A century ago, hospitals regarded public health departments as the competition, in some respects.” He went on to describe the challenges these sectors might experience due to historical separation. The expert also explained that once hospitals and health departments are working collaboratively, it can be difficult for both parties to establish clear roles and maintain accountability.\textsuperscript{53} Still, 45 percent of hospitals that completed our survey indicated that they have a collaborative relationship with a public health agency.

These cultural or historical tensions might not be specific to public health-hospital relationships. Alliances with nontraditional partners will require overcoming language and culture gaps, working to find each partner’s niche, and not recreating existing services. For example, reports from the former Institute of Medicine’s (IOM’s) Roundtable on Population Health Improvement highlight a common theme: the collective partners in population health initiatives—all coming from different sectors—need to develop a common language, respect each other’s cultural differences, and take time to understand each partner’s values and goals.\textsuperscript{19,26,31,51} One key informant described that need for partnership and collaborative work, saying, “We don’t see the ability to stand alone as an individual hospital as we move forward to payment reform in the future; we’re going to have to be part of a bigger system to succeed.”

Similar barriers to forming successful partnerships include communication challenges; difficulty maintaining interest and time commitments;
perceptions of competition between partners; and the speed at which participants realize a return on investment (ROI). In addition, within the health care sector, hospitals might struggle with moving from a competition mindset to a collaborative mindset while under a FFS financial model. Such barriers also were echoed throughout qualitative portions of the survey. Multiple respondents reported experiencing challenges related to building trust, having enough time for relationship building and collaborative meetings, and navigating “turf battles” with partners.

Alternatively, facilitators to forming sustainable partnerships include standardized data collection among partners; shared vision; mutual trust; developing formal documents, such as memorandums of understanding; and clarifying goals for the partnership. Sharing resources, such as staff and physical space, was another area that seemed to facilitate and benefit partnerships between hospitals, health systems, and external organizations. For example, 85 percent of survey respondents indicated that they share human capital (e.g. staff and leadership) with their external partners for population health improvement. One key informant described how their organization shares “staff resources, expertise, mental capital, [and] physical space” with partners for each of their population health initiatives.

Creating partnerships with payers is also an important step for hospitals and health systems to consider when moving forward with population health improvements. Researchers from the Health Research & Educational Trust explain, “Hospital-payer collaborations have the potential to improve care for the population by sharing data, encouraging alignment with physicians, and facilitating a focus on primary care.” This was echoed throughout the expert interviews. For example, one interviewed expert stated, “The hospitals are not going to do [population health] unless the payers come along.” Other experts commented that payers, such as CMS and foundations, are beginning to come to the table in new ways. However, multiple experts stressed the importance of communicating ROI to payers when engaging them as partners.

Hospitals also can make significant contributions to their communities through partnerships and initiatives led by other organizations. As needs are identified and interventions are planned, it is important for hospitals and health systems to engage in partnerships that further their mission and role. Leveraging existing community efforts and resources often can be more effective than creating new initiatives. Another strategy is to work with community or economic development agencies to leverage funds for further investment in the community from existing sources. Engaging community improvement through a broad base of multiple partners can help hospitals do more without overwhelming their limited resources.

“I think people struggle with, you know, the allocation of responsibility, within a partnership”

– Key informant

Public Health Partnerships

Harborview Medical Center, in Seattle, is owned by King County, governed by a county-appointed board of trustees, and managed by the University of Washington. As part of a renewed management agreement in 2016, those three entities established new requirements for Harborview and the local public health department to increase collaboration and identify new opportunities to support the mission of caring for vulnerable populations. The requirement will push both the hospital and public health department to look at economies of scale and new sources of revenue to avoid redundancy and ensure alignment, with an aim to eventually reduce public health operating funds.
Expanding the perspective of hospitals and health systems to include efforts that affect the social determinants of health increases the need for adequate systems to collect data and measure progress. Such systems are critical for the assessing a population’s health, evaluating the impact of improvement initiatives, and establishing accountability among community organizations and health care providers.29 Although essential hospitals have a strong desire to conduct population health initiatives, they often face challenges gathering adequate data and tools to effectively measure population health outcomes.

WHAT SHOULD HOSPITALS MEASURE?

The academic community argues that successful population health metrics should be valid and reliable, limited in number, comprehensive enough to cover all the important issues, coherent, and able to be monitored over time.53,67 These measures should also reflect outcomes, processes, and collaboration metrics that can guide health care organizations as they endeavor to improve community issues that span multiple sectors. Interviewed experts encouraged hospitals to connect concrete process and project measures to larger population-level metrics, such as mortality and morbidity rates through the use of evidence-based interventions.

DEVELOPING A SHARED UNDERSTANDING OF MEASUREMENT

While standardized performance metrics have been established and refined in the clinical quality arena since the passage of the ACA, metrics of population health come from a wide array of sources, such as the Centers for Disease Control and Prevention, the former IOM, IHI, and the Office of Disease Prevention and Health Promotion. Hospitals are just beginning to examine how they can use population-level metrics in their measurement activities. Experts suggest that, unsurprisingly, hospitals tend to use metrics that measure the clinical and population health management end of the spectrum. These types of metrics help hospitals as they expand their activities into population health, but such metrics are limiting. One expert noted that they mostly provide evidence for the “performance of [hospital’s] clinical population, [according to] those clinical metrics.”38 Respondents to our survey indicate that in the absence of a generally agreed upon set of measures, they are selecting a variety of measures from different sets as they find them useful. However, the use of differing metrics can challenge to cooperation within communities and comparison between organizations. A shared set of measures will help align goals and expectations between hospitals, community partners, and public health.68 A standard set of metrics also will help alleviate the reporting and tracking burden organizations now face. Our survey found that in many cases, organizations partnering for population health improvement would be required to track different metrics and in larger partnerships, each organization would bring its own tracking requirements to the project, resulting in a large reporting burden for the initiative. Experts and hospitals alike are calling for a standardized set of core measures that most effectively predict a population’s health.69

“Trying to figure out how to measure communitywide health improvement that is an outcome-based measure, not a process measure, is really tricky. And it also leads you to the point where you think ‘maybe this isn’t mine alone to try to measure.’”

– Key informant
TIMELY ACCESS TO DATA IS CRITICAL

To accomplish population health goals, hospitals and health systems must have access to timely, accurate data at the individual and community levels. In the United States, data suitable for population health measurement are not collected into any single source—rather hospitals and the health care system in general tend to rely on CHNAs and other large-scale surveys to provide data on the health of the population.70 These data often are not up-to-date and require technical skills and experience in each source to be leveraged effectively. CHNAs are conducted every three years and the results of assessment surveys, such as the National Health Interview Survey and the Behavioral Risk Factor Surveillance System, often lag by one to two years.12,59,69 Hospital leaders are accustomed to having access to clinical metrics and data in near real time and often feel that data from population health sources are too old to effectively act upon.36 Some essential hospitals are looking to augment their community health data by screening the patients they see for social determinants of health.34 For example, Cook County Health & Hospitals System (CCHHS) has added two screening questions to the EHR system that focused on the food security of patients. These questions allow CCHHS to provide referrals and services to that particular patient, as well as gather information on potential hotspots of food insecurity in the community they serve.

Hospitals are an important source of data for population health assessment and monitoring. The valuable data housed in their EHR systems often are an overlooked source of rich population health information.71,72 By examining patient-level data, hospitals can explore any disparities in care or outcomes among subpopulations.69,73 For those hospitals that serve a large proportion of their geographic population, EHR data can serve as a reliable indicator of the health of the overall population.74 Their role as integrators and anchor institutions give hospitals an opportunity to gather data that the entire community can use to manage the upstream factors of health.

Collecting and leveraging hospital data for population health, though valuable, poses significant challenges for these organizations. Existing data systems and architecture often are not designed with population health interventions or even data collection in mind. Building and upgrading systems requires resources and expertise that is difficult to obtain in an uncertain funding environment. This is an area where the sharing of examples and best practices can help health systems confidently undertake population health work.

DATA IS A COMMUNITY ASSET

By participating in community partnerships, hospitals are able to share data with others in their community to improve health beyond their walls. Our survey found that 63 percent of essential hospitals share data in some fashion with their local health department and 95 percent share data with an external organization as part of population health improvement activities. However, there are substantial data security concerns, interoperability challenges, and technological challenges that must be overcome when sharing data between providers and social services organizations.

Many hospitals and communities are working together to integrate health records and give providers data regarding a patient’s social needs.
But, upgrading EHR systems, hiring and training analytics staff, and implementing robust data systems are expensive, requiring capital investment from health systems with already thin margins.

Despite these challenges, essential hospitals pull together their communities resources for improvement. One health system we spoke to said even though the massive amounts of data that already exist in each of its local social service organizations has not been integrated, the community works together to share aggregated data to get an understanding of the larger issues in the community. Such use of nonhealth data can be beneficial to hospital project planners and decision-makers.

Medicare EHR Incentive Program requirements set standards for data structure, content, and transport that pave the way for greater data sharing and collaboration among health care providers. Such standards make regional health information exchanges (HIEs) possible. These exchanges provide a means for health care providers to share patient data across the care continuum and effectively “improve the speed, safety, quality, and cost of patient care.” Experts recommend that organizations seeking to engage in population health improvement should support the adoption of HIEs. According to our survey results, participation in HIEs is growing among essential hospitals, with half of respondents already participating in an exchange.

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**Data Sharing Relationships**

VCU Health in Richmond, Virginia, engages in multiple data-sharing relationships to assess and monitor population health improvement. VCU contributes to the Virginia Health Information Warehouse, which collects data from health systems and long-term care facilities across the state and then provides aggregate information to all participants. VCU also provides “view-only” access to their electronic health records for various clinics, community physicians, and the local public health department. To improve access to information on patients with multiple providers, VCU is in the process of joining a regional health network so that the system and its partners can see more aggregated data in one location.
FINANCING POPULATION HEALTH

Population health improvements cannot exist without sustainable funding. To date, policy has played a key role in the national push toward population health and subsequent funding streams. Financing mechanisms—such as shared-savings models—State Innovation Models (SIMs), and Medicaid waivers were implemented as part of the ACA. However, there is a need for greater policy action to align financial incentives for better integration of population health across hospitals, health systems, and their community partners. Our expert interviews featured an extensive discussion focused on this area. An expert explained that current FFS payment models do not create incentives for population health activities. The expert said, “As long as hospitals see that the way they will get paid is to create more volume for illness care, then there is a monetary incentive to continue to provide illness care. So I think the payment incentives are a huge barrier.”

Many alternative funding streams currently exist for hospitals and health systems’ population health initiatives. However, new funding mechanisms are beginning to emerge that might better align with long-term goals. For example, short-term grants might not support or create incentives for long-standing population health outcomes if those outcomes cannot be achieved within the terms of the funding cycle. Especially within the limitations on metrics and measurement, as described above, better alignment is needed between population health funding and goals. The financing models outlined below capture both current and emerging financing options for population health, all of which show potential for supporting long-term population health improvement.

OPPORTUNITY FOR COMMUNITY BENEFIT

Community benefit is widely viewed as a source of potential funding for population health initiatives. Under community benefit requirements, tax-exempt hospitals and health systems must contribute a portion of their spending to charitable services. Community benefit regulations have been a long-standing requirement from the IRS for such institutions. However, the ACA incorporated new requirements related to community benefit, including requiring tax-exempt hospitals to conduct CHNAs and have written financial assistance policies. While community benefit requirements reflect the changing priorities of the health care sector, some experts see the lack of a minimum spending requirement as a limiting factor. There is additional concern that funding population health improvement through hospital community benefit requirements could lead to increased disparities based on geography because state policies, community benefit allocations, and the distribution of tax-exempt hospitals vary considerably between communities.

Early evidence suggests that hospitals still are using community benefit dollars as vehicles to provide charity care and make up for government payer shortfalls. Essential hospitals serve communities with high social needs and might struggle to divert resources away from patient care to address upstream factors that influence population health. Additionally, some community building activities do not qualify as community benefit...
spending.\textsuperscript{50,81} This could discourage hospitals from targeting this important aspect of population health.

**FINANCING POPULATION HEALTH**

Further, ACOs and similar shared-savings models often are highlighted as funding models that work well with population health activities, but some experts caution that more complete models of population health will be necessary. ACOs and other shared risk/shared savings models create a broader push toward value-based care. However, these financial and care delivery models traditionally focus on the patient population, not the broader community.\textsuperscript{15,82} Crawford et al. noted, “ACOs tend to lack the incentives, infrastructure, expertise, partnerships, and authority necessary to assume responsibility for a population broader than their narrowly defined members (also known as ‘attributed’ members)—or for a broader set of services than the medical services agreed to in existing contracts.”\textsuperscript{24} Looking back to the health care 3.0 framework (Figure 3), this model for a hospital or health system, in and of itself, would categorize as 2.0.\textsuperscript{16} That is not to say that health care providers at this stage cannot move to a community-based, 3.0 model. In fact, they might be better situated to do so with a more established funding and reimbursement structure. For example, models—such as accountable care communities—are beginning to emerge that broaden the scope of ACOs while leveraging the shared-savings financial arrangement.\textsuperscript{84}

SIM grants—and particularly their population health improvement plans—also frequently are mentioned as a potential funding stream for population health at the state level. While many states already have received one, if not two, rounds of SIM funding, the literature discusses how these could be further developed and used in the future.\textsuperscript{32,33} For example, SIM grants provide an opportunity for health care providers to broadly redesign their delivery systems and create financial mechanisms to incorporate social services into traditional health care reimbursement. The Accountable Health Communities Model is one of the primary methods for this within SIM states.\textsuperscript{23} Our survey results show that 12 percent of responding hospitals and health systems are using SIM grants to fund their population health improvement initiatives. Auerbach et al. argue that SIM funding creates an unprecedented opportunity to test such delivery and payment models, and that states receiving this funding should take advantage of that opportunity to specifically target population health improvement.\textsuperscript{32}

Similarly, state Medicaid waivers, awarded by CMS, could provide funding for population health improvement. For example, Delivery System Reform Incentive Payment (DSRIP) programs, which are part of Section 1115 waivers, specifically target population health (referencing the Triple Aim) as part of the requirements for hospitals’ implementation plans and reporting.\textsuperscript{83} Of the hospitals and health systems that responded to our survey, 36 percent fund their population health initiatives through DSRIP programs. One key informant explained how fundamental this source of funding has been to population health work, saying, “I would say that DSRIP provides such a unique opportunity ... I don’t think we’ve ever seen anything like this and it is enabling us—kind of forcing us—to look at all aspects of population health from A to Z. And because of the rigorous timelines and milestones that are associated, things are actually happening.” While DSRIP is currently the strongest program
within Medicaid waivers for driving population health, waivers and their components are constantly evolving and might serve as an important funding source for testing new innovative practices in population health.

NEW FUNDING MECHANISMS ARE EMERGING

There are several alternative funding streams that could become more available and appropriate in the future. Examples include social impact bonds or pay-for-success programs. Shari Sprong and Laurie Stillman, with Health Resources in Action, in a 2014 paper describe this funding stream as one that “draws upon private capital to fund effective interventions designed to meet the needs of the underserved.” They go on to explain that because this funding comes from private investors, performance risk is shifted away from the provider or federal payers. In fact, the investor is only repaid in the case that the intervention or program succeeds. This is a new area that many communities are just beginning to explore. Spartanburg Regional Healthcare System in South Carolina, for example, is investigating how such funds could be used for early childhood education programs. Discussions around social impact bonds across the literature indicate that they might be a sustainable way to mobilize population health activities at a local scale without overburdening federal funds.

Wellness trusts also are a potential funding source that could become more prominent. Cantor and affiliates describe wellness trusts, at the most basic level, as a state or local funding pool that is dedicated “specifically to support prevention and wellness interventions to improve health outcomes of targeted populations.” Traditionally, these funds are raised by private investments or by taxing insurers. A strong example is Massachusetts’ Prevention and Wellness Trust. This trust was established in 2012 and was able to raise $60 million through “assessments on insurers and large providers.” These funds then are administered through the Massachusetts Department of Public Health to appropriate wellness and prevention initiatives. Other examples of wellness trusts include the Los Angeles Wellness Trust and the North Carolina Health and Wellness Trust Fund.

RETURN ON INVESTMENT IS KEY

As mentioned above, it is essential to create funding mechanisms that support the long-term goals of population health. Many of the funding mechanisms discussed here show potential for that form of sustainability. However, for this trend to continue, hospitals, health systems, stakeholders, and policymakers must establish the ROI. One of our key experts said, “I think the ROI of population health isn’t as crystal clear to people. It is not necessarily short-term—sometimes it’s a longer-term payback, and so there is a disincentive to invest your dollars in that.” Our survey results and key informant interview show that hospital and health systems are thinking in these terms. When asked about what training or educational resources would help support their population health efforts, 56 percent of hospitals that responded to our survey answered “articulating return on investment.” Moreover, one key informant highlighted how data is essential

“What is the incentive for these other players in the market to cooperate, if they feel threatened in terms of market share, etc.? So I think competitive pressures don’t often yield cooperation in terms of aligning data and measurement, for the sake of population health management.”

– Key informant
to supporting the communication of ROI. The informant said, “What would be really helpful is to have data supporting the type of work that we do ... To try to get people to see the long vision—how we prevent complications, and how we prevent a diabetic patient from losing their leg, by controlling their condition early on and paying for that medication, all of the different medical expenses that come from that type of unfortunate event—is to really say, that this saves money. Even if it costs money up front—to hire the staff, to get the infrastructure built—to say that not only are we doing better for our patients, but, really, it saves money for the system. That type of data, I really think, would speak loudly in terms of trying to get everyone on board and going in the same direction.”

**FIGURE 7: FUNDING SOURCES FOR HOSPITAL/HEALTH SYSTEM POPULATION HEALTH ACTIVITIES**

- Hospital/health system investment: 83%
- Federal grants or programs (not including 1115 Waivers, SIM, or other CMS/CMMI grants): 62%
- Non-federal grants: 60%
- Community foundations: 52%
- External partners: 43%
- Waiver funding (e.g., 1115 Waivers): 36%
- Payer investment (other than CMS): 33%
- Other CMS/CMMI grants: 31%
- Reinvestment of savings from 340B programs: 21%
- SIM funding: 12%
- Reinvestment of savings from previous population health programs: 7%
- Social impact bonds or private investors: 2%
- Other: 5%
APPENDIX I. METHODOLOGY

This project used a mixed methods sequential approach to explore how essential hospitals define, develop, implement, and evaluate population health activities, as well as to identify facilitators and barriers to the widespread adoption of population health initiatives. An initial set of five research domains—population, partnership, activities, resources, and measurement—was created to guide each step of the methodological process. These domains and the research questions within them were continually updated as new information was gathered. The final domain list, which refined the five original domains and added two new domains (leadership activation and policy), and respective research questions can be seen in Figure 2.

A review of the relevant literature was conducted to situate this project in the context of the larger discussion of the topic. Expert interviews then were conducted for the purpose of guiding the creation of a web-based survey data collection tool in accordance with an exploratory sequential model (Figure 1). This survey questionnaire was fielded to hospitals and health systems that are members of America’s Essential Hospitals. To gain a better understanding of our survey results, we then employed follow-up interviews with survey respondents and non-respondents in an explanatory sequential design.

LITERATURE REVIEW

The literature review included both academic and grey literature. The literature was scanned according to a set of search terms specific to each research domain, as well as general terms such as population health and hospital or health system. Inclusion criteria was set for domestic publications only, as well as a publication date between January 1, 2010, and April 30, 2016.

FIGURE 1: METHODS
FIGURE 2: RESEARCH DOMAINS

NEEDS ASSESSMENT
- What do hospitals perceive as their role in population health?
- How do hospitals identify their population?
- How do hospitals identify the needs that exist within their population?

PARTNERSHIPS
- Who are hospitals partnering with?
- Where do the partnerships fall on a scale of informal to formal?
- What facilitated the partnerships (e.g., environment, finances, champion, regulation)?
- What is hindering the formation of future partnerships?
- How do hospitals partner with payers (e.g., incentivize population health efforts, share in savings)?

RESOURCES ALLOCATION
- How do hospitals acquire resources?
- How do hospitals align resources with partners?
- What resources are hospitals lacking for current and/or future activities?

MEASUREMENT
- What metrics are hospitals measuring, clinical or otherwise, as part of their activities? (Culture of Health, CMS reporting requirements, Healthy people 2020, etc.)
- How do hospitals measure and/or report their metrics?
- How do hospitals utilize partners for collecting or aligning data?
- How do hospitals continually monitor changes in their population/population's needs?

LEADERSHIP ACTIVATION
- Who is championing population health activities at the hospital, system, or community level?
- How do hospital or health system leaders impact current and/or future activities?
- How does hospital or health system culture impact other resources and/or activities?

SOCIAL DETERMINANT OF HEALTH ACTIVITIES
- What upstream factors are hospitals trying to address?
- What health outcomes are hospitals targeting?
- How do hospitals develop population health activities?
- What population health activities are hospitals implementing?
- How do hospitals align population health activities with other internal initiatives?
- How are population health activities implemented and governed within hospitals and communities?
- How are hospitals sustaining population health activities?
- How do hospitals utilize preexisting referral processes to connect with social services?

POLICY ALIGNMENT
- What policies and regulations impact the hospitals current and/or future activities?
- How are hospitals influencing policy change at the local, state, or federal
PubMed was the primary database used to search for academic literature. Initial searches resulted in 1,048 articles. After review, 45 articles were included in the final analysis. Additional search and review of key journals, including *Health Affairs*, *JAMA*, *Preventing Chronic Disease*, the *American Journal of Public Health* and *Frontiers of Health Services Management*, yielded nine additional articles meeting our inclusion criteria. Grey literature was primarily found through the GreyLit.org database, as well as by searching premier organizations for population health. Initial searches resulted in more than 5,000 articles, with a few hundred meeting the inclusion criteria based on title and/or summary. After review, a total of 61 articles were included in the final analysis.

**EXPERT INTERVIEWS**

As supplement to the literature review and to guide item creation for our survey, expert interviews were held with experts in the field and representatives from leading organizations in population health. Interviews took place between March 7 and March 30, 2016, were conducted by phone, and lasted approximately 30–40 minutes. A formal protocol was used to guide the interviews and each interview was recorded upon consent. The expert interviewees included:

- **Nancy Hanson**, Associate Director, Child Health Advocacy, Children's Hospital Association, and **Karen Seaver Hill**, Director, Community and Child Health, Children's Hospital Association
- **Diane Jones**, Vice President, Healthy Communities, Catholic Health Initiatives
- **Paula Lantz**, PhD, MS, MA, Associate Dean for Research and Policy Engagement, Professor of Public Policy, University of Michigan
- **Jeff Levi**, PhD, Professor; George Washington University School of Public Health
- **Hector Rodriguez**, PhD, MPH, Associate Professor, UC Berkeley School of Public Health
- **Michael A. Stoto**, PhD, Professor of Health Systems Administration and Population Health, Georgetown University
- **Soma Stout**, MD, MS, Lead Transformation Adviser, Cambridge Health Alliance
- **Julie Willems Van Dijk**, PhD, RN, Associate Scientist, University of Wisconsin Population Health Institute

**POPULATION HEALTH SURVEY**

The creation of the survey was guided by our findings from the literature review and expert interviews. Cognitive testing was conducted to ensure that survey items were uniformly understood. Our survey questionnaire was sent to 108 hospital systems, representing the 262 members of America's Essential Hospitals. Forty-four systems completed the questionnaire, representing 109 essential hospitals. Participation rates for the survey were 40.7 percent of systems and 41.6 percent of represented hospitals.
APPENDIX I. METHODOLOGY

KEY INFORMANT INTERVIEWS

To expand on the findings from the essential hospital population health survey, follow-up interviews were conducted with 10 survey respondents (Group A). In addition, to get a better understanding of the facilitators and barriers to population health activities across the America’s Essential Hospitals membership, seven interviews were held with hospitals and health systems that did not respond to the survey (Group B). These interviews were held between July 27 and August 11, 2016, were conducted by phone, and lasted approximately 45–60 minutes. Formal protocols were used for all interviews and were tailored based on the interviewees’ survey responses when appropriate. Each interview was recorded upon consent. The organizations that participated as key informant interviewees included:

Key Informant Group A - Survey Respondents
- Harbor-UCLA Medical Center
- Hennepin County Medical Center
- Lee Memorial Health System
- Maricopa Integrated Health System
- Spartanburg Regional Healthcare System
- University of Texas Medical Branch at Galveston
- University of Vermont Medical Center
- VCU Health
- Ventura County Health Care Agency

Key Informant Group B - Survey Non-respondents
- Arrowhead Regional Medical Center
- Kern Medical
- Parkland Health and Hospital System
- Regional One Health
- Stony Brook University Hospital
- Harborview Medical Center
- Zuckerberg San Francisco General Hospital and Trauma Center

STAKEHOLDER SUMMIT

Recognizing the value of diverse viewpoints, we convened a one-day summit which allowed stakeholders to react to our findings and provide insights on possible milestones and strategies that lead to successful population health improvement at essential hospitals. This summit gathered thought leaders from among America’s Essential Hospitals’ membership, federal agencies, community organizations, and academia.

- **Matt Aliberti**, Director of Impact, United Way Worldwide
- **Mary Kate Allee**, Senior Director for Transformation & Workforce, National Association of County & City Health Officials
• Rich Bell, Senior Project Officer, Active Living By Design
• Arlene Bierman, Director of Center for Evidence and Practice, Agency for Healthcare Quality and Research
• Dave Chokshi, Assistant Vice President, New York City Health and Hospitals Corporation
• Emily Chung, Health Program Specialist, Santa Clara Valley Health & Hospital System
• Martha Davis, Senior Program Officer, Robert Wood Johnson Foundation
• Nancy Fishman, Senior Program Officer, Robert Wood Johnson Foundation
• Susan Freeman, President, CEO of Temple’s Center for Population Health, Temple University Health System
• Sheryl Garland, Vice President for Health Policy and Community Relations, Virginia Commonwealth University Health System
• Karen Hacker, Director, Alleghney County Health Department
• Leon Haley, Executive Associate Dean of Clinical Services, Chief Medical Officer of Emory Care Foundation, Grady Memorial Hospital, Emory School of Medicine
• Hilary Heishman, Program Officer, Robert Wood Johnson Foundation
• King Hillier, Vice President Public Policy and Government Relations, Harris County Hospitals District
• Penrose Jackson, Director of Community Health Improvement, University of Vermont Medical Center
• Diane Jones, Vice President of Health and Communities, Catholic Health Initiatives
• Denise Koo, Advisor to the Associate Director for Policy, Centers for Disease Control and Prevention
• Joseph Lamantia, Chief of Operations for Population Health, Stony Brook University Hospital
• Thomas Mason, Chief Medical Officer, National Coordinator for Health Information Technology
• Phyllis Meadows, Associate Dean for Practice, Clinical Professor of Health Management and Policy, University of Michigan School of Public Health
• Rebecca Onie, Co-Founder and Chief Executive Officer, Health Leads
• Gregory Paulson, Executive Director, Trenton Health Team
• Mary Pittman, President and Chief Executive Officer, Public Health Institute
• Jon Pryor, Chief Executive Officer, Hennepin County Medical Center
• Ben Raimer, Senior Vice President for Health Policy and Legislative Affairs, University of Texas Medical Branch
• Nishant Shah, Practitioner, Health Department Officer for Homeless Health Care, Contra Costa Health Services
• Jason Williams, Senior Government Relations Strategist, University of Vermont Medical Center
APPENDIX I. METHODOLOGY

ANALYSIS

General results from the literature review, expert interviews, and key informant interviews were thematically analyzed, in part through the use of NVivo Software, and themes were identified within each research domain. Survey results were analyzed using SAS version 9.4.

LIMITATIONS

Population health improvement is a widely published topic. Time limitations, as well as the scope of the project, limited research staff from exploring every discussion related to this topic. In lieu of these limitations, a structured methodological approach was used to maximize the amount and quality of information that could be collected given a restricted time frame.
APPENDIX II. KEY INFORMANT INTERVIEW PROTOCOL

Interviewee(s): ____________________________________________________________
Title: ___________________________________________________________________
Institution: __________________________________________________________________
Date & Time: __________________________________________________________________
Post-Interview Notes: __________________________________________________________________

Introduction: Good morning/afternoon. Before we get started, I will read through a quick introductory protocol and consent.

Thank you for agreeing to participate as one of our key informant interviewees. We asked to speak with you today because you were identified as someone with an in-depth understanding of the current environment around population health.

Today, we specifically wish to discuss matters pertaining to what hospitals and health systems are doing around population health and what they might be able to accomplish in the future. We believe this is of particular interest to our membership of essential hospitals, who have the most need for population health initiatives but may be lacking in the necessary resources.

Our hope is that our discussion today will inform the development of a web-based survey as part of a research project funded by the Robert Wood Johnson Foundation. For this project, we plan to take the information we gain from the survey and interviews to create a population health road map for hospitals and health systems. You have received a PowerPoint presentation with more information about the survey and research project. You have also received a list of draft domains, which will guide our research and deliverables, and which we will reference throughout this interview. Do you have these domains in front of you now?

We have planned for this interview to last approximately 30–40 minutes. We have several questions for you and will aim to cover as many as time permits. To aid our note taking and analysis of this interview, we would like to record our conversation today. Do you agree to the recording of this interview for note taking purposes?

Thank you, I am turning on the recorder now.

Perceptions

1. What do you see as the primary reasons hospitals and health systems should engage in population health activities?
   o Probe: In your opinion, what is hospital and health system’s responsibility in population health?

2. What do you think are the biggest barriers for hospitals and health systems in moving population health beyond just the patient population?
   o Probe: What do you think the population “denominator” should be for hospitals and health systems as they implement population health activities?
Survey Development

3. Referencing the list of domains we sent you, at the highest level, do you feel these are appropriate domains to frame our survey questions?
   o Probe: We’ll get into more specifics shortly, but do you see any large buckets that we are missing?

Partnerships

4. Who do you think hospitals and health systems should be partnering with around population health?
   o Probe: What do you see as the biggest barriers to hospitals and health systems in forming these partnerships?
   o Probe: How about payers? What role should they play in these partnerships?

5. Looking closer at our domain questions, do you think there are any topics within this domain that we are missing?

Activities

6. How do you think hospital and health systems’ population health activities have shifted over the past five years?
   o Probe: How do you foresee these activities shifting over the next five years?
   o Probe: What do you see as the biggest barriers to hospitals and health systems implementing population health activities?

7. Looking closer at our domain questions, do you think there are any topics within this domain that we are missing?

Resources

8. What resources do you think hospitals and health systems are still lacking as they push forward in population health?
   o Probe: What do you think would need to change for the resources to be readily available to/within hospitals and health systems?

9. How much of an impact do you think federal, state, or local policies have on hospital and health systems’ population health efforts?
   o Probe: For example, beyond the Affordable Care Act, do you think hospitals look to policies like soda taxes, the Supplemental Nutrition Assistance Program, or mixed-income housing to support their population health efforts?

10. Looking closer at our domain questions, do you think there are any topics within this domain that we are missing?
Measurement

11. From your experience, what are your thoughts on how hospitals and health systems are measuring and reporting their population health work?
   - Probe: How do you think this needs to change?
   - Probe: What do you think are the biggest challenges hospitals face when it comes to making these changes?

12. In your opinion, how do you think hospitals and health systems can better leverage their population health data and/or measure success for funding, policies, or partnerships?

13. Looking closer at our domain questions, do you think there are any topics within this domain that we are missing?

Closing

14. That wraps up our questions. Now we’d like to open the floor to you for any final thoughts on what we talked about today or anything we didn’t cover.

Thank you again for all of your thoughts. This has been a very informative interview for us.

Going forward, as we develop our reports and formal deliverables, we may want to you use quotes from this interview. If that is the case, we would send you a draft version of the document for your approval of the use of the quote. Would you be comfortable with this?

Great, thank you. We will also be sure to keep you posted on the progress of our project and our final road map. Thank you again for your time and have a great rest of your day.
APPENDIX III. FOLLOW-UP INTERVIEW PROTOCOLS: RESPONDENT

Interviewee(s): ____________________________________________
Title: ______________________________________________________
Institution: ________________________________________________
Date & Time: ______________________________________________
Post-Interview Notes: ________________________________________

Introduction: Good morning/afternoon. Thank you for agreeing to participate as one of our key informant interviewees and for completing our population health survey. Before we get started, I am going to read through a quick introductory protocol and consent.

We asked to speak with you today because your survey responses provided valuable information and insights that have already contributed to our ongoing work in this area. Through this interview, we hope to gain a more comprehensive understanding of your hospital’s population health work, as well as your needs moving forward.

Today we will discuss matters pertaining to seven overarching domains in population health, which we believe are of particular interest to our membership of essential hospitals. Those seven domains are needs assessment, partnerships, social determinants of health activities, resource allocation, measurement, policy alignment, and leadership activation. We will primarily be building off of items asked in our recent survey and may quote your responses when posing these interview questions.

The goal of this project, funded by the Robert Wood Johnson Foundation, is to create a road map for hospitals and health systems based on the information gathered by our survey and these qualitative interviews. We hope that this will lead to a multiyear project, allowing us to move this road map to action and help our members improve the health of their communities.

We have planned for this interview to last approximately 45–60 minutes. We have several questions for you and will aim to cover as many as time permits. To aid our note taking and analysis of this interview, we would like to record our conversation today. Do you agree to the recording of this interview for note taking purposes?

Thank you, I am turning the recorder on now.

Needs Assessment

1. One of the first questions in our survey asked, in your opinion, what is your hospital’s primary role in population health improvement. Can you please elaborate on your response, which you selected from a set of options, that your role is to care for and/or improve the health of individuals ________________?

2. In response to our question about assessing the needs of your population, you responded that you do so through ________________. Can you expand on those different components?
   ○ Probe: Do you have any formal interaction or deliberation with your community when you are assessing or prioritizing those needs?

3. How does your hospital, or larger community, prioritize the needs identified in your needs assessments?
4. Are there any areas where you know there is significant need but you haven’t been able to address due to barriers?

**Partnerships**

5. In one section of our survey, we asked you to rank various relationships on a scale from networking to collaboration, with collaboration being the closest level of partnership. In regard to your local public health department, you answered that your partnership is at the level of _________. Can you describe that relationship in more detail?
   - Probe: Do you share data with the public health department?

6. Are you able to broaden the resources behind your work, from grants or other sources, through your partnerships?
   - Probe: To what extent do you share resources with partners?

**Social Determinants of Health Activities**

7. A large portion of our survey asked whether your hospital conducts population health activities addressing various social determinants of health. You responded that your hospital’s activities _________. Of these, can you identify which would be your top three focus areas, or areas with the most developed program?
   - Probe: For these activities, how do you identify who you are going to provide those services to?

8. You also answered that your hospital formally refers patients to community social services for several social determinants, including some that you do not conduct population health activities for, for example _________. Can you explain how those referral processes work?

**Resource Allocation**

9. Looking at our survey question relating to funding for population health activities, you responded that the main sources for your hospital included _________. Can you expand on those different sources?

10. Which departments and staff are most closely involved with your population health work?

11. Can you also expand on your answer to our question about the business practices your hospital uses to invest in and improve the local community? You selected the responses _________.

**Measurement**

12. You mentioned sharing data with a number of other entities including _________. Can you explain how some of those data-sharing agreements work, and how they have impacted your population health work?

13. Additionally, you mentioned some of the measures you use to monitor progress in population health improvement—specifically, _________. Can you tell us about how you use those metrics?

14. What do you consider the single largest barrier to measuring population health improvement?
   - Probe: You mentioned that _________. Would be helpful for evaluating population health programs. Can you expand on that answer?
Policy Alignment

15. Do you see any particular internal policy changes that would make your population health work easier to execute?

16. Do you see any particular external policy changes that would make your population health work easier to execute?

Leadership Activation

17. Can you tell us about the role of senior leadership at your organization in regard to the current or historical population health work at your hospital?

18. Can you speak to the cultural implications of doing this type of work on the staff and activities in your organization?

Future Work at America’s Essential Hospitals

19. Thinking about future work at America’s Essential Hospitals, you answered that some additional resources that might be helpful are __________. Can you expand on what those mean to you?

20. You also answered that the social determinants that would be most beneficial for us to offer educational resources and training around would be __________. As __________ is a determinant that you have not conducted formal population health activities around, what has been the biggest barrier to addressing that determinant?

21. You also listed __________ as more functional focus areas that would be helpful to have educational resources and training in. Which of those would you consider to be most important to your organization?

22. Some of the educational offerings we have considered for future work include learning collaboratives and peer-to-peer networks. In your opinion, what would successful programs of that nature look like?
   ○ Probe: Thinking about peer-to-peer networks, are there any specific hospitals or health systems that you would like to work with?

That concludes our questions for you today. Now we’d like to open the floor for you to provide any final thoughts on what we talked about today, or anything we didn’t cover.

Thank you again for all of your thoughts. This has been a very helpful and informative interview for us. Going forward, as we develop our reports and formal deliverables, we may want to you use quotes from this interview. If that is the case, we would send you a draft version of the document for your approval of the use of the quote. Would you be comfortable with this?

Great, thank you. We will also be sure to keep you posted on the progress of our project and our final roadmap. Thank you again for your time and have a great rest of your day.
APPENDIX III. FOLLOW-UP INTERVIEW PROTOCOLS: NONRESPONDENT

Interviewee(s): __________________________________________
Title: ____________________________________________________
Institution: ________________________________________________
Date & Time: _______________________________________________
Post-Interview Notes: _________________________________________

Introduction: Good morning/afternoon. Thank you for agreeing to participate as one of our key informant interviewees. Before we get started, I am going to read through a quick introductory protocol and consent.

We asked to speak with you today because we would like to gain a more comprehensive understanding of your hospital’s population health work, as well as your needs moving forward. We will discuss matters pertaining to seven overarching domains in population health, which we believe are of particular interest to our membership of essential hospitals. Those seven domains are needs assessment, partnerships, social determinants of health activities, resource allocation, measurement, policy alignment, and leadership activation.

The goal of this project, funded by the Robert Wood Johnson Foundation, is to create a road map for hospitals and health systems based on the information gathered by our survey and these qualitative interviews. We hope that this will lead to a multiyear project, allowing us to move this roadmap to action and help our members improve the health of their communities.

We have planned for this interview to last approximately 45–60 minutes. We have several questions for you and will aim to cover as many as time permits. To aid our note taking and analysis of this interview, we would like to record our conversation today. Do you agree to the recording of this interview for note taking purposes?

Thank you, I am turning the recorder on now.

Needs Assessment

1. In your opinion, what is your hospital/health system’s primary role in population health improvement within your community?

2. How do you assess the needs of your population?
   ○ Probe: What type of interaction or deliberation do you have with your community when you conduct a needs assessment?

3. How does your hospital, or larger community, prioritize the needs identified in your needs assessments?

4. Are there any areas where you know there is significant need but you haven’t been able to address due to barriers?

Partnerships

5. To what degree do you work with or partner with your public health department?
   ○ Probe: Do you share data with the public health department?
6. Are you able to broaden the resources behind your work, from grants or other sources, through your partnerships?
   o Probe: To what extent do you share resources with partners?

**Social Determinant of Health Activities**

7. What social determinants of health would you identify as the top focus areas for your hospital system?
   o Probe: For each of those activities, who are you providing services to?

8. Does your hospital have a referral system in place for various social determinants of health?

**Resource Allocation**

9. How have your hospital’s population health programs been funded?

10. Which departments and staff are most closely involved with your population health work?

11. What business practices does your hospital use to invest in and improve the local community?

**Measurement**

12. What types of measures does your hospital use to monitor your population’s needs or measure progress in population health improvement?

13. What type of data-sharing activities does your hospital engage in for the purpose of population health?

14. What do you consider the most significant facilitators and barriers to measuring population health improvement?
   o Probe: What other resources would be helpful for evaluating and measuring population health programs?

**Policy Alignment**

15. Do you see any particular **internal** policy changes that would make your population health work easier to execute?

16. Do you see any particular **external** policy changes that would make your population health work easier to execute?

**Leadership Activation**

17. Can you tell us about the role of senior leadership at your organization in regard to the current or historical population health work at your hospital?

18. Can you speak to the cultural implications of doing this type of work on the staff and activities in your organization?
Future Work at America’s Essential Hospitals

19. What additional resources would be helpful for your future population health work?

20. Which social determinants of health would be most helpful for America’s Essential Hospitals to provide training and educational resources?

21. What are some more functional focus areas (i.e. needs assessment, partnerships) in which America’s Essential Hospitals could support your population health improvement activities with training and educational resources?

22. What modes of support or training delivery would be most beneficial for your hospital/health system?
   o Probe: Would peer-to-peer mentoring, learning collaboratives, and online resources be particularly helpful?
   o Probe: Thinking of peer-to-peer mentoring, can you think of any specific hospital that you would like to work with?

That concludes our questions for you today. Now we’d like to open the floor for you to provide any final thoughts on what we talked about today, or anything we didn’t cover.

Thank you again for all of your thoughts. This has been a very helpful and informative interview for us. Going forward, as we develop our reports and formal deliverables, we may want to use quotes from this interview. If that is the case, we would send you a draft version of the document for your approval of the use of the quote. Would you be comfortable with this?

Great, thank you. We will also be sure to keep you posted on the progress of our project and our final road map. Thank you again for your time and have a great rest of your day.
Essential Hospitals Population Health Survey 2016

America’s Essential Hospitals and the Robert Wood Johnson Foundation are currently investigating the landscape of population health efforts implemented by essential hospitals across the nation.

Through this survey, we wish to better understand the population health improvements driven by essential hospitals, the facilitators and barriers to this work, and the future tools and resources that can lead to greater success. Specifically, we are interested in how hospitals and health systems are assessing the needs of their community, partnering with others, developing interventions, and measuring outcomes among their population.

Your response to this survey will inform the creation of a road map to population health, assisting you and others in your journey towards population health. We expect this survey will take approximately 45 to 60 minutes to complete. Please answer to the best of your ability and feel free to seek information from others within your hospital or health system as needed. You will have the ability to save and return to the survey. Do not use your browser’s back button while taking this survey. If you need to return to a previous portion of the survey, use the controls at the bottom of your screen.

There are no right or wrong answers, please choose the answer that best describes your hospital/health system’s population health activities. Your responses will be confidential and used only in aggregate with other responses. Individual responses will be available to the submitting organization upon request for one (1) year after submission. Submission of this survey will indicate your informed consent to participate.

If you have any questions, please contact surveys@essentialhospitals.org.

Thank you for participating in this exciting work.

1. Survey Contact Information

(a) Full Name

(b) Position Title

(c) Organization

(d) Telephone

(e) Email Address
2. For this survey, please include data for hospitals and outpatient facilities owned by your hospital/health system.

In the space below, please list the hospitals for which you are including data in this survey.

For the purpose of this survey, population health is defined as: The health outcomes of a defined group of people, including the distribution of such outcomes within the group. (Kindig and Stoddart, 2003)
Population
In this section we ask questions relating to your hospital/health system’s efforts to identify and prioritize the needs of its community between January 1, 2013, and December 31, 2015.

3. In your opinion, what is your hospital/health system’s primary role in population health improvement within your community? (Select one option)

- To care for and/or improve the health of individuals for whom you have a financial risk
- To care for and/or improve the health of individuals who may utilize your hospital/health system
- To care for and/or improve the health of individuals experiencing a certain disease or condition
- To care for and/or improve the health of individuals living in a specified geographic area (e.g. county, city, etc.)
- Other (Please describe)

4. Please select the statements below that accurately describe your hospital/health system. (check all that apply)

- We conducted a community health needs assessment (CHNA) as part of IRS requirements.
- We participated in a CHNA in partnership with another hospital/health system.
- We conducted a CHNA even though we were not required to by the IRS.
- We have not conducted a CHNA and we are not required to by the IRS.
- We do not conduct any needs assessment.
- We conducted some other type of needs assessment. (Please describe)
5. Please list the top three community needs your hospital/health system found during its CHNA or similar assessment between January 1, 2013, and December 31, 2015.

(a) 

(b) 

(c) 

6. For population health, how does your hospital/health system assess the needs of its population? (check all that apply)

- Community health needs assessment (CHNA)
- Patient advisory group
- Community engagement group
- Discussions with community leaders/members
- Analysis of national level data (e.g. BRFFS, NHANES, Census Data)
- Analysis of data from a regional health information exchange
- Analysis of state level data
- Analysis of County Health Rankings data
- Analysis of hospital collected patient-level data
- Analysis of non-health data (e.g. transportation data, homelessness data, park use or recreation data)
- Analysis of hospital collected data on health behaviors
- Analysis of claims or payer-provided data
- Analysis of other local public health data sets
- Other (Please describe)
7. What additional tools or resources would be helpful for your hospital/health system to better identify your population(s) and their needs? Please describe in detail.

Partnerships
In this section we ask questions about the partnerships your hospital/health system is engaging in to conduct population health improvement activities, as well as the facilitators and barriers to the success of those partnerships.

In the following table, please describe the relationship that your hospital/health system had with various external organizations or types of organizations around population health activities between January 1, 2013, and December 31, 2015. Please use the following scale:

- Networking: exchanging information for mutual benefit
- Coordination: exchanging information for mutual benefit and altering activities for mutual benefit and to achieve a common purpose
- Cooperation: exchanging information, altering activities, and sharing resources for mutual benefit and to achieve a common purpose
- Collaboration: exchanging information, altering activities, sharing resources, and enhancing the capacity of another organization for mutual benefit and to achieve a common purpose

Health Care Partners

| 8. Please select the most appropriate relationship between your hospital/health system and these external health care partners. |
|---|---|---|---|---|---|
| (a) External public health department | None | Networking | Coordination | Cooperation | Collaboration |
| (b) External FQHC, community health center, or free clinic | None | Networking | Coordination | Cooperation | Collaboration |
| (c) External respite care facility | None | Networking | Coordination | Cooperation | Collaboration |
| (d) Retail clinics (e.g. Walgreens, CVS, Rite Aid) | None | Networking | Coordination | Cooperation | Collaboration |
| (e) External behavioral health facility | None | Networking | Coordination | Cooperation | Collaboration |
| (f) Other hospitals or health systems | None | Networking | Coordination | Cooperation | Collaboration |
### Funding Partners

9. Please select the most appropriate relationship between your hospital/health system and these external funding partners.

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<thead>
<tr>
<th></th>
<th>None</th>
<th>Networking</th>
<th>Coordination</th>
<th>Cooperation</th>
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<td>(a) State Medicaid program</td>
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<td>(b) External Medicaid plan (e.g. MCO or other contracted plan)</td>
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<td>(c) Private payers (not affiliated with Medicaid)</td>
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<td>(d) Private funders or foundations</td>
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Networking: exchanging information for mutual benefit

Coordination: exchanging information for mutual benefit and altering activities for mutual benefit and to achieve a common purpose

Cooperation: exchanging information, altering activities, and sharing resources for mutual benefit and to achieve a common purpose

Collaboration: exchanging information, altering activities, sharing resources, and enhancing the capacity of another organization for mutual benefit and to achieve a common purpose

### Government Partners

10. Please select the most appropriate relationship between your hospital/health system and these government partners.

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<tr>
<th></th>
<th>None</th>
<th>Networking</th>
<th>Coordination</th>
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<td>(a) Office of state, county, or local elected official</td>
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<td>(b) Local social services departments</td>
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<td>(c) Public safety department</td>
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<td>(d) Transportation department</td>
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<td>(e) Local justice system, prison system, jail, or legal groups</td>
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<td>(f) Urban planning</td>
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<td>(g) Other state, county, or local government</td>
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**Community Benefit Partners**

11. Please select the most appropriate relationship between your hospital/health system and these external community benefit partners.

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<th></th>
<th>None</th>
<th>Networking</th>
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<td>(a) Community development organization</td>
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<td>(b) Federal/national organization</td>
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<td>(c) Food banks, farmers’ markets, or other food suppliers</td>
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<td>(d) Housing organization</td>
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<td>(e) Other neighborhood organizations (including faith-based)</td>
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- **Networking:** exchanging information for mutual benefit
- **Coordination:** exchanging information for mutual benefit and altering activities for mutual benefit and to achieve a common purpose
- **Cooperation:** exchanging information, altering activities, and sharing resources for mutual benefit and to achieve a common purpose
- **Collaboration:** exchanging information, altering activities, sharing resources, and enhancing the capacity of another organization for mutual benefit and to achieve a common purpose

**Education/Small Business Partners**

12. Please select the most appropriate relationship between your hospital/health system and these education/small business partners.

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<tbody>
<tr>
<td>(a) External colleges or universities</td>
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<td>(b) Early childhood education and/or schools</td>
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<td>(c) Chamber of Commerce</td>
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<td>(d) Local/small business</td>
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13. If you have a relationship with an organization not covered, please indicate with whom you are partnering and the nature of the relationship according to the scale listed above.
14. Think about your hospital/health system’s efforts to develop partnerships around population health activities between January 1, 2013, and December 31, 2015.

(a) What aided the success of these partnerships?

(b) What challenges did you encounter while developing these partnerships?

15. In the space below, please list any organizations in your community with whom you would like to partner but have not yet been able to do so.

16. What additional tools or resources would be helpful for your hospital/health system to better form partnerships in your community? Please describe in detail.

Activities
In this section we ask questions about your hospital/health system’s planning and implementation of population health improvement activities between January 1, 2013, and December 31, 2015.

To begin, we will ask a series of questions related to your hospital/health system’s activities which address specific social determinants of health (SDOH) - conditions in the environments in which 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.

The following questions will specifically ask about your hospital/health system’s activities related to: Housing Instability; Food Insecurity; Transportation; Education; Utility Needs; Interpersonal Violence; Family & Social Supports; Employment & Income; Health Behaviors; Health Literacy; and Community Infrastructure.

Housing Instability/Homelessness: Having difficulty paying rent, spending more than 50 percent of household income on housing, having frequent moves, living in overcrowded conditions, or doubling up with friends and relatives.
### 17. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing housing instability? (Select one option)

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### 18. What population was targeted by your activities in housing instability? [Answer this question only if answer to Q#17 is Yes]

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<td>Attributed patient population</td>
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<td>Individuals experiencing a certain disease or condition</td>
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<td>Individuals living in a specific geographic area or community</td>
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### 19. What types of activities did your hospital/health system implement around housing instability? [Answer this question only if answer to Q#17 is Yes]

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<td>Access to care</td>
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<td>Changing physical environment</td>
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<td>Disease management</td>
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<td>Education</td>
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<td>Financial incentives/offset costs</td>
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<td>Healthy food/beverage provision</td>
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<td>Media/marketing</td>
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<td>Point-of-decision prompt</td>
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<td>Policy adoption/change</td>
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<td>Screening</td>
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<td>Other (Please specify)</td>
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20. Did your hospital/health system track any health or health care outcome measures for your programs related to housing instability? (check all that apply) [Answer this question only if answer to Q#17 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Other (Please specify)
- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
21. Did your hospital/health system track any additional outcome measures for your programs related to housing instability? (check all that apply) [Answer this question only if answer to Q#17 is Yes]

- [ ] Access to exercise opportunities
- [ ] Access to transportation
- [ ] Adverse childhood experiences (ACEs)
- [ ] Air quality
- [ ] Availability of healthy food
- [ ] Domestic violence or child abuse rates
- [ ] Drug dependence/illicit use/alcohol dependence
- [ ] Educational attainment
- [ ] Employment status
- [ ] Healthy eating patterns
- [ ] Homelessness/housing instability
- [ ] Other (Please specify)

Food Insecurity (Hunger and Nutrition): The state of being without reliable access to a sufficient quantity of affordable, nutritious food.

22. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing food insecurity (hunger and nutrition)? (Select one option)

- [ ] Yes
- [ ] No
### 23. What population was targeted by your activities in food insecurity (hunger and nutrition)? [Answer this question only if answer to Q#22 is Yes]

- [ ] Attributed patient population
- [ ] Individuals experiencing a certain disease or condition
- [ ] Individuals living in a specific geographic area or community
- [ ] Other (Please specify)

### 24. What types of activities did your hospital/health system implement around food insecurity (hunger and nutrition)? [Answer this question only if answer to Q#22 is Yes]

- [ ] Access to care
- [ ] Campaigns
- [ ] Care transition/utilization
- [ ] Changing physical environment
- [ ] Counseling
- [ ] Disease management
- [ ] Education
- [ ] Financial incentives/offset costs
- [ ] Healthy food/beverage provision
- [ ] Media/marketing
- [ ] Point-of-decision prompt
- [ ] Policy adoption/change
- [ ] Screening
- [ ] Other (Please specify)
25. Did your hospital/health system track any health or health care outcome measures for your programs related to food insecurity (hunger and nutrition)? (check all that apply) [Answer this question only if answer to Q#22 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Other (Please specify)
- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
26. Did your hospital/health system track any additional outcome measures for your programs related to food insecurity (hunger and nutrition)? (check all that apply) [Answer this question only if answer to Q#22 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACES)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)

- Housing conditions
- Income level
- Neighborhood walkability
- Number of school days missed
- Social capital/social support
- Tobacco use
- Violence or crime rates
- Water quality
- Youth safety
- None

Transportation: The availability of affordable and reliable modes of travel which impact an individual’s ability to access well-coordinated health care, purchase nutritious food, and otherwise care for him or herself.

27. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing transportation? (Select one option)

- Yes
- No
28. What population was targeted by your activities in transportation? [Answer this question only if answer to Q#27 is Yes]

- Attributed patient population
- Individuals experiencing a certain disease or condition
- Individuals living in a specific geographic area or community
- Other (Please specify)

29. What types of activities did your hospital/health system implement around transportation? [Answer this question only if answer to Q#27 is Yes]

- Access to care
- Campaigns
- Care transition/utilization
- Changing physical environment
- Counseling
- Disease management
- Education
- Financial incentives/offset costs
- Healthy food/beverage provision
- Media/marketing
- Point-of-decision prompt
- Policy adoption/change
- Screening
- Other (Please specify)
30. Did your hospital/health system track any health or health care outcome measures for your programs related to transportation? (check all that apply) [Answer this question only if answer to Q#27 is Yes]

| □ Birthweight                                      | □ Mortality rates (specified or non-specified) |
| □ Breastfeeding rates                              | □ Obesity rates                                |
| □ Chronic condition rates                          | □ Patient experience                           |
| □ Dental care access/use                            | □ Primary care access/use                       |
| □ Depression and other mental health rates          | □ Screening rates                               |
| □ Disability associated with chronic condition     | □ Self-rated health status                      |
| □ Disease-specific measures (e.g. HA1c, LDL, BP)    | □ STI rates                                    |
| □ Health insurance status                          | □ Suicide rates                                 |
| □ Hospital utilization rates                        | □ Teen birth rates                              |
| □ Immunization rates                                | □ None                                         |
| □ Medication reconciliation                        |                                              |
| □ Other (Please specify)                            |                                              |
31. Did your hospital/health system track any additional outcome measures for your programs related to transportation? (check all that apply) [Answer this question only if answer to Q#27 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACEs)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)

- Housing conditions
- Income level
- Neighborhood walkability
- Number of school days missed
- Social capital/social support
- Tobacco use
- Violence or crime rates
- Water quality
- Youth safety
- None

32. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing education? (Select one option)

- Yes
- No
### 33. What population was targeted by your activities in education? [Answer this question only if answer to Q#32 is Yes]

- [ ] Attributed patient population
- [ ] Individuals experiencing a certain disease or condition
- [ ] Individuals living in a specific geographic area or community
- [ ] Other (Please specify)

### 34. What types of activities did your hospital/health system implement around education? [Answer this question only if answer to Q#32 is Yes]

- [ ] Access to care
- [ ] Campaigns
- [ ] Care transition/utilization
- [ ] Changing physical environment
- [ ] Counseling
- [ ] Disease management
- [ ] Education
- [ ] Financial incentives/offset costs
- [ ] Healthy food/beverage provision
- [ ] Media/marketing
- [ ] Point-of-decision prompt
- [ ] Policy adoption/change
- [ ] Screening
- [ ] Other (Please specify)
35. Did your hospital/health system track any health or health care outcome measures for your programs related to education? (check all that apply) [Answer this question only if answer to Q#32 is Yes]

- [ ] Birthweight
- [ ] Breastfeeding rates
- [ ] Chronic condition rates
- [ ] Dental care access/use
- [ ] Depression and other mental health rates
- [ ] Disability associated with chronic condition
- [ ] Disease-specific measures (e.g. HA1c, LDL, BP)
- [ ] Health insurance status
- [ ] Hospital utilization rates
- [ ] Immunization rates
- [ ] Medication reconciliation
- [ ] Other (Please specify)
- [ ] Mortality rates (specified or non-specified)
- [ ] Obesity rates
- [ ] Patient experience
- [ ] Primary care access/use
- [ ] Screening rates
- [ ] Self-rated health status
- [ ] STI rates
- [ ] Suicide rates
- [ ] Teen birth rates
- [ ] None
## 36. Did your hospital/health system track any additional outcome measures for your programs related to education? (check all that apply) [Answer this question only if answer to Q#32 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACEs)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)
- Housing conditions
- Income level
- Neighborhood walkability
- Number of school days missed
- Social capital/social support
- Tobacco use
- Violence or crime rates
- Water quality
- Youth safety
- None

## 37. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing utility needs? (Select one option)

- Yes
- No
### 38. What population was targeted by your activities in utility needs? [Answer this question only if answer to Q#37 is Yes]

- Attributed patient population
- Individuals experiencing a certain disease or condition
- Individuals living in a specific geographic area or community
- Other (Please specify)

### 39. What types of activities did your hospital/health system implement around utility needs? [Answer this question only if answer to Q#37 is Yes]

- Access to care
- Campaigns
- Care transition/utilization
- Changing physical environment
- Counseling
- Disease management
- Education
- Financial incentives/offset costs
- Healthy food/beverage provision
- Media/marketing
- Point-of-decision prompt
- Policy adoption/change
- Screening
- Other (Please specify)
40. Did your hospital/health system track any health or health care outcome measures for your programs related to utility needs? (check all that apply) [Answer this question only if answer to Q#37 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
- Other (Please specify)
41. Did your hospital/health system track any additional outcome measures for your programs related to utility needs? (check all that apply) [Answer this question only if answer to Q#37 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACEs)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)

- Housing conditions
- Income level
- Neighborhood walkability
- Number of school days missed
- Social capital/social support
- Tobacco use
- Violence or crime rates
- Water quality
- Youth safety
- None

---

Interpersonal Violence: The intentional use of physical force or power, threatened or actual, against another person or against a group or community that results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation.

42. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing interpersonal violence? (Select one option)

- Yes
- No
### 43. What population was targeted by your activities in interpersonal violence? [Answer this question only if answer to Q#42 is Yes]

- Attributed patient population
- Individuals experiencing a certain disease or condition
- Individuals living in a specific geographic area or community
- Other (Please specify)

### 44. What types of activities did your hospital/health system implement around interpersonal violence? [Answer this question only if answer to Q#42 is Yes]

- Access to care
- Campaigns
- Care transition/utilization
- Changing physical environment
- Counseling
- Disease management
- Education
- Financial incentives/offset costs
- Healthy food/beverage provision
- Media/marketing
- Point-of-decision prompt
- Policy adoption/change
- Screening
- Other (Please specify)
### 45. Did your hospital/health system track any health or health care outcome measures for your programs related to interpersonal violence? (check all that apply) [Answer this question only if answer to Q#42 is Yes]

- [ ] Birthweight
- [ ] Mortality rates (specified or non-specified)
- [ ] Breastfeeding rates
- [ ] Obesity rates
- [ ] Chronic condition rates
- [ ] Patient experience
- [ ] Dental care access/use
- [ ] Primary care access/use
- [ ] Depression and other mental health rates
- [ ] Screening rates
- [ ] Disability associated with chronic condition
- [ ] Self-rated health status
- [ ] Disease-specific measures (e.g. HA1c, LDL, BP)
- [ ] STI rates
- [ ] Health insurance status
- [ ] Suicide rates
- [ ] Hospital utilization rates
- [ ] Teen birth rates
- [ ] Immunization rates
- [ ] None
- [ ] Medication reconciliation
- [ ] Other (Please specify)
46. Did your hospital/health system track any additional outcome measures for your programs related to interpersonal violence? (check all that apply) [Answer this question only if answer to Q#42 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACEs)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)

- Housing conditions
- Income level
- Neighborhood walkability
- Number of school days missed
- Social capital/social support
- Tobacco use
- Violence or crime rates
- Water quality
- Youth safety
- None

47. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing family and social supports? (Select one option)

- Yes
- No
48. What population was targeted by your activities in family and social supports? [Answer this question only if answer to Q#47 is Yes]

- Attributed patient population
- Individuals experiencing a certain disease or condition
- Individuals living in a specific geographic area or community
- Other (Please specify)

49. What types of activities did your hospital/health system implement around family and social supports? [Answer this question only if answer to Q#47 is Yes]

- Access to care
- Campaigns
- Care transition/utilization
- Changing physical environment
- Counseling
- Disease management
- Education
- Financial incentives/offset costs
- Healthy food/beverage provision
- Media/marketing
- Point-of-decision prompt
- Policy adoption/change
- Screening
- Other (Please specify)
50. Did your hospital/health system track any health or health care outcome measures for your programs related to family and social supports? (check all that apply) [Answer this question only if answer to Q#47 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
- Other (Please specify)
51. Did your hospital/health system track any additional outcome measures for your programs related to family and social supports? (check all that apply) [Answer this question only if answer to Q#47 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACEs)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)

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52. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing employment and income? (Select one option)

- Yes
- No
53. What population was targeted by your activities in employment and income? [Answer this question only if answer to Q#52 is Yes]

- Attributed patient population
- Individuals experiencing a certain disease or condition
- Individuals living in a specific geographic area or community
- Other (Please specify)

54. What types of activities did your hospital/health system implement around employment and income? [Answer this question only if answer to Q#52 is Yes]

- Access to care
- Campaigns
- Care transition/utilization
- Changing physical environment
- Counseling
- Disease management
- Education
- Financial incentives/offset costs
- Healthy food/beverage provision
- Media/marketing
- Point-of-decision prompt
- Policy adoption/change
- Screening
- Other (Please specify)
55. Did your hospital/health system track any health or health care outcome measures for your programs related to employment and income? (check all that apply) [Answer this question only if answer to Q#52 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
- Other (Please specify)
56. Did your hospital/health system track any additional outcome measures for your programs related to employment and income? (check all that apply) [Answer this question only if answer to Q#52 is Yes]

- Access to exercise opportunities
- Access to transportation
- Adverse childhood experiences (ACEs)
- Air quality
- Availability of healthy food
- Domestic violence or child abuse rates
- Drug dependence/illicit use/alcohol dependence
- Educational attainment
- Employment status
- Healthy eating patterns
- Homelessness/housing instability
- Other (Please specify)

- Housing conditions
- Income level
- Neighborhood walkability
- Number of school days missed
- Social capital/social support
- Tobacco use
- Violence or crime rates
- Water quality
- Youth safety
- None

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Health Behaviors: Any activity undertaken which impacts the prevention or detection of disease or the general health and wellbeing of an individual.

57. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing health behaviors? (Select one option)

- Yes
- No
### 58. What population was targeted by your activities in health behaviors? [Answer this question only if answer to Q#57 is Yes]

- [ ] Attributed patient population
- [ ] Individuals experiencing a certain disease or condition
- [ ] Individuals living in a specific geographic area or community
- [ ] Other (Please specify)

### 59. What types of activities did your hospital/health system implement around health behaviors? [Answer this question only if answer to Q#57 is Yes]

- [ ] Access to care
- [ ] Campaigns
- [ ] Care transition/utilization
- [ ] Changing physical environment
- [ ] Counseling
- [ ] Disease management
- [ ] Education
- [ ] Financial incentives/offset costs
- [ ] Healthy food/beverage provision
- [ ] Media/marketing
- [ ] Point-of-decision prompt
- [ ] Policy adoption/change
- [ ] Screening
- [ ] Other (Please specify)
60. Did your hospital/health system track any health or health care outcome measures for your programs related to health behaviors? (check all that apply) [Answer this question only if answer to Q#57 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
- Other (Please specify)
### 61. Did your hospital/health system track any additional outcome measures for your programs related to health behaviors? (check all that apply) [Answer this question only if answer to Q#57 is Yes]

- [ ] Access to exercise opportunities
- [ ] Access to transportation
- [ ] Adverse childhood experiences (ACEs)
- [ ] Air quality
- [ ] Availability of healthy food
- [ ] Domestic violence or child abuse rates
- [ ] Drug dependence/illicit use/alcohol dependence
- [ ] Educational attainment
- [ ] Employment status
- [ ] Healthy eating patterns
- [ ] Homelessness/housing instability
- [ ] Other (Please specify)
- [ ] Housing conditions
- [ ] Income level
- [ ] Neighborhood walkability
- [ ] Number of school days missed
- [ ] Social capital/social support
- [ ] Tobacco use
- [ ] Violence or crime rates
- [ ] Water quality
- [ ] Youth safety
- [ ] None

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**Health Literacy:** The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

### 62. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing health literacy? (Select one option)

- [ ] Yes
- [ ] No
### 63. What population was targeted by your activities in health literacy? [Answer this question only if answer to Q#62 is Yes]

- [ ] Attributed patient population
- [ ] Individuals experiencing a certain disease or condition
- [ ] Individuals living in a specific geographic area or community
- [ ] Other (Please specify)

### 64. What types of activities did your hospital/health system implement around health literacy? [Answer this question only if answer to Q#62 is Yes]

- [ ] Access to care
- [ ] Campaigns
- [ ] Care transition/utilization
- [ ] Changing physical environment
- [ ] Counseling
- [ ] Disease management
- [ ] Education
- [ ] Financial incentives/offset costs
- [ ] Healthy food/beverage provision
- [ ] Media/marketing
- [ ] Point-of-decision prompt
- [ ] Policy adoption/change
- [ ] Screening
- [ ] Other (Please specify)
### 65. Did your hospital/health system track any health or health care outcome measures for your programs related to health literacy? (check all that apply) [Answer this question only if answer to Q#62 is Yes]

- [ ] Birthweight
- [ ] Breastfeeding rates
- [ ] Chronic condition rates
- [ ] Dental care access/use
- [ ] Depression and other mental health rates
- [ ] Disability associated with chronic condition
- [ ] Disease-specific measures (e.g. HA1c, LDL, BP)
- [ ] Health insurance status
- [ ] Hospital utilization rates
- [ ] Immunization rates
- [ ] Medication reconciliation
- [ ] Other (Please specify)
- [ ] Mortality rates (specified or non-specified)
- [ ] Obesity rates
- [ ] Patient experience
- [ ] Primary care access/use
- [ ] Screening rates
- [ ] Self-rated health status
- [ ] STI rates
- [ ] Suicide rates
- [ ] Teen birth rates
- [ ] None
### 66. Did your hospital/health system track any additional outcome measures for your programs related to health literacy? (check all that apply) [Answer this question only if answer to Q#62 is Yes]

<table>
<thead>
<tr>
<th>Outcome Measures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to exercise opportunities</td>
<td></td>
</tr>
<tr>
<td>Access to transportation</td>
<td></td>
</tr>
<tr>
<td>Adverse childhood experiences (ACEs)</td>
<td></td>
</tr>
<tr>
<td>Air quality</td>
<td></td>
</tr>
<tr>
<td>Availability of healthy food</td>
<td></td>
</tr>
<tr>
<td>Domestic violence or child abuse rates</td>
<td></td>
</tr>
<tr>
<td>Drug dependence/illicit use/alcohol dependence</td>
<td></td>
</tr>
<tr>
<td>Educational attainment</td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
</tr>
<tr>
<td>Healthy eating patterns</td>
<td></td>
</tr>
<tr>
<td>Homelessness/housing instability</td>
<td></td>
</tr>
<tr>
<td>Housing conditions</td>
<td></td>
</tr>
<tr>
<td>Income level</td>
<td></td>
</tr>
<tr>
<td>Neighborhood walkability</td>
<td></td>
</tr>
<tr>
<td>Number of school days missed</td>
<td></td>
</tr>
<tr>
<td>Social capital/social support</td>
<td></td>
</tr>
<tr>
<td>Tobacco use</td>
<td></td>
</tr>
<tr>
<td>Violence or crime rates</td>
<td></td>
</tr>
<tr>
<td>Water quality</td>
<td></td>
</tr>
<tr>
<td>Youth safety</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Other (Please specify)</td>
<td></td>
</tr>
</tbody>
</table>

### 67. Between January 1, 2013, and December 31, 2015, did you conduct population health activities addressing community infrastructure? (Select one option)

- [ ] Yes
- [ ] No
### Appendix IV. Survey Instrument

#### 68. What population was targeted by your activities in community infrastructure? [Answer this question only if answer to Q#67 is Yes]

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attributed patient population</td>
</tr>
<tr>
<td>Individuals experiencing a certain disease or condition</td>
</tr>
<tr>
<td>Individuals living in a specific geographic area or community</td>
</tr>
<tr>
<td>Other (Please specify)</td>
</tr>
</tbody>
</table>

#### 69. What types of activities did your hospital/health system implement around community infrastructure? [Answer this question only if answer to Q#67 is Yes]

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to care</td>
</tr>
<tr>
<td>Campaigns</td>
</tr>
<tr>
<td>Care transition/utilization</td>
</tr>
<tr>
<td>Changing physical environment</td>
</tr>
<tr>
<td>Counseling</td>
</tr>
<tr>
<td>Disease management</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Financial incentives/offset costs</td>
</tr>
<tr>
<td>Healthy food/beverage provision</td>
</tr>
<tr>
<td>Media/marketing</td>
</tr>
<tr>
<td>Point-of-decision prompt</td>
</tr>
<tr>
<td>Policy adoption/change</td>
</tr>
<tr>
<td>Screening</td>
</tr>
<tr>
<td>Other (Please specify)</td>
</tr>
</tbody>
</table>
70. Did your hospital/health system track any health or health care outcome measures for your programs related to community infrastructure? (check all that apply) [Answer this question only if answer to Q#67 is Yes]

- Birthweight
- Breastfeeding rates
- Chronic condition rates
- Dental care access/use
- Depression and other mental health rates
- Disability associated with chronic condition
- Disease-specific measures (e.g. HA1c, LDL, BP)
- Health insurance status
- Hospital utilization rates
- Immunization rates
- Medication reconciliation
- Other (Please specify)

- Mortality rates (specified or non-specified)
- Obesity rates
- Patient experience
- Primary care access/use
- Screening rates
- Self-rated health status
- STI rates
- Suicide rates
- Teen birth rates
- None
71. Did your hospital/health system track any additional outcome measures for your programs related to community infrastructure? (check all that apply) [Answer this question only if answer to Q#67 is Yes]

<table>
<thead>
<tr>
<th>Access to exercise opportunities</th>
<th>Housing conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to transportation</td>
<td>Income level</td>
</tr>
<tr>
<td>Adverse childhood experiences (ACEs)</td>
<td>Neighborhood walkability</td>
</tr>
<tr>
<td>Air quality</td>
<td>Number of school days missed</td>
</tr>
<tr>
<td>Availability of healthy food</td>
<td>Social capital/social support</td>
</tr>
<tr>
<td>Domestic violence or child abuse rates</td>
<td>Tobacco use</td>
</tr>
<tr>
<td>Drug dependence/illicit use/alcohol dependence</td>
<td>Violence or crime rates</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>Water quality</td>
</tr>
<tr>
<td>Employment status</td>
<td>Youth safety</td>
</tr>
<tr>
<td>Healthy eating patterns</td>
<td>None</td>
</tr>
<tr>
<td>Homelessness/housing instability</td>
<td></td>
</tr>
<tr>
<td>Other (Please specify)</td>
<td></td>
</tr>
</tbody>
</table>
72. For which of the following social determinants of health does your hospital/health system have a system in place to formally refer patients to community social services? (select all that apply)

- [ ] Food insecurity (hunger and nutrition)
- [ ] Housing instability
- [ ] Transportation
- [ ] Education
- [ ] Utility needs
- [ ] Interpersonal violence
- [ ] Family & social supports
- [ ] Employment & income
- [ ] Health behaviors
- [ ] Health literacy
- [ ] Community infrastructure
### 73. What assessment and/or planning activities were included in your hospital/health system’s population health work between January 1, 2013, and December 31, 2015? (check all that apply)

- [ ] Systematically identified community assets (asset mapping)
- [ ] Developed a formal communication strategy
- [ ] Conducted a readiness assessment
- [ ] Gathered input from external experts
- [ ] Reviewed successful hospitals or models
- [ ] Developed formal IT infrastructure
- [ ] Gathered existing data
- [ ] Surveyed or interviewed community members, other partners, or stakeholders
- [ ] Convened leaders (e.g., hospital, community, or political)
- [ ] Gathered input from hospital/health system board
- [ ] Conducted formal priority setting endorsed by senior leadership
- [ ] Identified and engaged potential partners
- [ ] Aligned with quality or patient safety initiatives
- [ ] Other (Please describe)

### 74. What departments within your hospital/health system are performing population health related functions? (e.g. conduct the CHNA, coordinate community programs, or evaluate population health measures)
75. What business practices does your hospital/health system use to invest in and improve the local community?

- [ ] None
- [ ] Supply chain procurement policies (e.g., buying local, fair, and/or sustainable products and services)
- [ ] Hiring and workforce development practices (e.g., local hiring from targeted communities)
- [ ] Investment portfolio (e.g., targeting a portion of funds to support interventions that create healthier communities)
- [ ] Other (Please describe)

76. Think about your hospital/health system’s internal efforts to develop and implement population health improvement activities between January 1, 2013, and December 31, 2015.

(a) What aided your hospital/health system in developing and implementing these programs?

(b) What challenges did you encounter while developing and implementing population health activities?

---

Resources

In this section we ask questions about the resources that your hospital/health system dedicates to population health improvement activities as well as the challenges and resource needs that you face.
### 77. Between January 1, 2013, and December 31, 2015, how were your hospital/health system’s population health activities funded? (check all that apply)

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal grants or programs (not including 1115 Waivers, SIM, or other CMS/CMMI grants)</td>
<td></td>
</tr>
<tr>
<td>Waiver funding (e.g. 1115 Waivers)</td>
<td></td>
</tr>
<tr>
<td>SIM funding</td>
<td></td>
</tr>
<tr>
<td>Other CMS/CMMI grants</td>
<td></td>
</tr>
<tr>
<td>Non-federal grants</td>
<td></td>
</tr>
<tr>
<td>Social impact bonds or private investors</td>
<td></td>
</tr>
<tr>
<td>External partners</td>
<td></td>
</tr>
<tr>
<td>Reinvestment of savings from previous population health programs</td>
<td></td>
</tr>
<tr>
<td>Reinvestment of savings from 340B programs</td>
<td></td>
</tr>
<tr>
<td>Hospital/health system investment</td>
<td></td>
</tr>
<tr>
<td>Payer investment (other than CMS)</td>
<td></td>
</tr>
<tr>
<td>Community foundations</td>
<td></td>
</tr>
<tr>
<td>Other (Please describe)</td>
<td></td>
</tr>
</tbody>
</table>

### 78. What resources have you shared with external partners as part of population health improvement activities? (check all that apply)

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Human capital (e.g. shared staff, leadership)</td>
<td></td>
</tr>
<tr>
<td>Technologies (e.g. EHRs, software, web-based platforms)</td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td></td>
</tr>
<tr>
<td>Funding</td>
<td></td>
</tr>
<tr>
<td>Other (Please describe)</td>
<td></td>
</tr>
</tbody>
</table>
79. Approximately how many full time equivalents (FTEs) does your hospital/health system devote to population health improvement activities in the following categories? Please include administrative and programmatic positions.

- Clinicians
- Administration
- Communication (e.g. public relations, marketing)
- Program evaluation (e.g. researchers, analysts, statisticians)
- Community health workers or similar positions (e.g. health educators, advocates, outreach workers, promotoras, care coordinators, or navigators)
- Public health (e.g. public health nurses, epidemiologists, health promotion coordinators)
- Social workers
- Human resources
- Information technology
- Other
- Total

80. Think about your hospital/health system’s efforts to align resources with partners for population health improvement activities between January 1, 2013, and December 31, 2015.

(a) What aided your ability to align resources with your partners? Please explain.

(b) What were some challenges in this area? Please explain.

81. Think about changes to regulations or policies at the local, state, or federal level that impacted your hospital/health system’s population health improvement activities between January 1, 2013, and December 31, 2015.

(a) What regulations or policies aided your population health improvement activities? Please explain.

(b) What regulations or policies acted as barriers to these activities? Please explain.
### Question 82

Thinking beyond your hospital/health system’s current resources, what additional resources would be most helpful for your hospital/health system’s population health improvement activities? (Please select at most 3 options.)

- Funding
- Staff
- Staff training
- Leadership support
- Policy changes
- Case studies or other evidence-based practices
- Enhanced electronic health record
- Analytics systems/tools
- Governance education
- Strategy consultation
- Other (Please describe)

### Question 83

For which of the following social determinants of health would it be most beneficial for America’s Essential Hospitals to provide training and educational resources? (Please select at most 3 options.)

- Housing instability, quality of housing, or financing for housing
- Food insecurity
- Utility needs
- Interpersonal violence
- Transportation needs
- Family and social supports
- Education (Pre-K, K-12, higher education)
- Employment and income
- Health behaviors
- Other (Please describe)
84. What are some areas in which America’s Essential Hospitals could support your population health improvement activities with training and educational resources around the following methods or skills? (Please select at most 5 options.)

- Conducting needs assessments
- Multi-stakeholder partnership building
- Program planning
- Monitoring and evaluation
- Asset mapping
- Network analysis
- Communication and messaging
- Community/patient engagement
- Articulating return on investment
- Measurement and metrics
- Providing technical assistance
- Aligning with payers
- Policy
- Evidence based practice
- Other (Please describe)

85. What modes of support or training delivery would be most beneficial for your hospital/health system? (Please select at most 3 options.)

- Peer-to-peer mentoring
- Coaching
- Learning collaborative
- Online training/webinars
- Compendium of best practices
- In-person summits
- Other (Please describe)
### Measurement
In this section we ask questions about how your hospital/health system monitors and measures the health of your population.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| 86. Please select the statements below that accurately describe your hospital/health system’s data sharing activities for the purpose of population health improvement between January 1, 2013, and December 31, 2015. (check all that apply) | - participated in a regional health information exchange  
- shared data with an externally managed data warehouse/repository  
- shared data with our state hospital association  
- shared data with the public health department  
- shared data with community level partners  
- did not share data with any external organizations  
- Other (Please describe) |
| 87. Please select the statements below that accurately describe the set of measures your hospital/health system used to monitor your population’s needs or measure progress in population health improvement between January 1, 2013, and December 31, 2015. (check all that apply) | - measures set by NQF  
- IOM’s Vital Signs measure set  
- HHS Healthy People 2020 measure set  
- measures set by the CDC  
- data from County Health Rankings  
- the Healthcare Effectiveness Data and Information Set (HEDIS)  
- custom measures or some other measure set (Please describe) |
88. Think about your hospital/health system’s efforts to measure outcomes related to your population health improvement activities.

(a) What aided you in your efforts to measure your population health activities?

(b) What challenges did you encounter in your efforts to measure your population health activities?

89. What additional tools or resources would be helpful for your hospital/health system to evaluate population health improvement?

90. Please use the space below to provide any further comments about your hospital/health system’s experiences assessing the needs of your community, partnering with others, developing interventions, and measuring outcomes among your population. Include any topics that are important to your hospital/health system’s population health work that were not included in this survey.

Thank you for participating in this survey. If you have any questions, feel free to contact surveys@essentialhospitals.org.
APPENDIX V. COMPLETE FINDINGS

FIGURE 1: HOSPITAL OWNERSHIP TYPE*

```
                   | Nonmembers | Members | Respondents |
-------------------|------------|---------|-------------|
Public – Non-federal | 19%        | 50%     | 59%         |
Public – Federal    | 0%         | 0%      | 4%          |
Private             | 0%         | 0%      | 27%         |
Not-for-profit      | 0%         | 41%     | 44%         |
```

FIGURE 2: HOSPITAL REGION*

```
                    | Nonmembers | Members | Respondents |
---------------------|------------|---------|-------------|
Northeast            | 13%        | 23%     | 28%         |
Midwest              | 14%        | 21%     | 28%         |
South                | 18%        | 18%     | 40%         |
West                 | 12%        | 24%     | 12%         |
Associated Areas     | 1%         | 0%      | 0%          |
```

* Information from the FY 2014 American Hospital Association Annual Survey of Hospitals
**Figure 3: Urbanicity**

- Metro: Nonmembers 93%, Members 96%, Respondents 66%
- Micro: Nonmembers 14%, Members 4%, Respondents 1%
- Rural: Nonmembers 19%, Members 3%, Respondents 3%

**Figure 4: Medical School Affiliation**

- Affiliated: Nonmembers 25%, Members 72%, Respondents 69%
- Not Affiliated: Nonmembers 28%, Members 28%, Respondents 31%

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* Information from the FY 2014 American Hospital Association Annual Survey of Hospitals

** Medical school affiliation reported to American Medical Association
FIGURE 5: HOSPITAL NUMBER OF BEDS*

* Information from the FY 2014 American Hospital Association Annual Survey of Hospitals
FIGURE 6: HOSPITAL/HEALTH SYSTEM’S PRIMARY ROLE IN POPULATION HEALTH IMPROVEMENT WITHIN THEIR COMMUNITY: TO CARE FOR AND/OR IMPROVE THE HEALTH OF...*

- Individuals living in a specified geographic area (e.g. county, city, etc.) - 52%
- Individuals who may utilize your hospital/health system - 32%
- Individuals for whom you have a financial risk - 5%
- Other - 11%

* single selection question

FIGURE 7: HOSPITAL/HEALTH SYSTEM’S INVOLVEMENT IN COMMUNITY HEALTH NEEDS ASSESSMENT**

- Conducted a CHNA as part of IRS requirements - 43%
- Participated in a CHNA in partnership with another hospital/health system - 27%
- Conducted some other type of needs assessment - 27%
- Did not conduct a CHNA and not required to by the IRS - 18%
- Conducted a CHNA even though not required to by the IRS - 14%
- Did not conduct any needs assessment - 5%
- No response - 2%

** multiple selection question

Other answers include mission statement, and financial and geographic risk.
FIGURE 8: WAYS BY WHICH HOSPITAL/HEALTH SYSTEM’S ASSESS THE NEEDS OF THEIR POPULATION**

- Analysis of hospital collected patient-level data: 84%
- Discussions with community leaders/members: 80%
- Analysis of other local public health data sets: 77%
- Analysis of claims or payer-provided data: 73%
- Community health needs assessment (CHNA): 73%
- Analysis of state level data: 70%
- Analysis of County Health Rankings data: 68%
- Patient advisory group: 61%
- Analysis of non-health data: 55%
- Analysis of national level data (e.g. BRFFS, NHANES, Census Data): 55%
- Analysis of hospital collected data on health behaviors: 48%
- Community engagement group: 48%
- Analysis of data from a regional health information exchange: 30%
- Other: 11%

Other answers include collaboratives with partners; forecasting; and conducting CHNA for some communities, but not all.

FIGURE 9: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS HOUSING INSTABILITY

- Conducted: 48%
- Did not conduct: 52%

** multiple selection question
FIGURE 10: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS HOUSING INSTABILITY

- Individuals living in a specific geographic area or community: 52%
- Attributed patient population: 43%
- Individuals experiencing a certain disease or condition: 35%
- Other: 35%

Other answers include patients, families of patients, attributed populations, and high ED utilizers.
FIGURE 11: ACTIVITIES IMPLEMENTED BY HOSPITALS/HEALTH SYSTEMS AROUND HOUSING INSTABILITY**

- Access to care: 70%
- Care transition/utilization: 65%
- Screening: 57%
- Education: 52%
- Disease management: 43%
- Counseling: 39%
- Healthy food/beverage provision: 26%
- Financial incentives/offset costs: 26%
- Policy adoption/change: 13%
- Campaigns: 13%
- Point-of-decision prompt: 9%
- Media/marketing: 9%
- Changing physical environment: 9%
- Other: 26%

Other answers include partnership with supportive agencies, running shelters, providing referrals, and data analysis.

**multiple selection question
FIGURE 12: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO HOUSING INSTABILITY**

- Hospital utilization rates: 70%
- Primary care access/use: 48%
- Patient experience: 35%
- Health insurance status: 35%
- Chronic condition rates: 26%
- Medication reconciliation: 22%
- Immunization rates: 22%
- Screening rates: 17%
- Dental care access/use: 17%
- STI rates: 13%
- Self-rated health status: 13%
- Disease-specific measures (e.g. HA1c, LDL, BP): 13%
- Suicide rates: 9%
- Mortality rates (specified or non-specified): 9%
- Disability associated with chronic condition: 9%
- Depression and other mental health rates: 9%
- Teen birth rates: 4%
- Obesity rates: 4%
- Breastfeeding rates: 4%
- Birthweight: 9%
- None: 9%
- Other: 9%
- No response: 2%

Other answers include that they did not know.

** multiple selection question
**FIGURE 13: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO HOUSING INSTABILITY**

- Homelessness/housing instability: 57%
- Drug dependence/illicit use/alcohol dependence: 30%
- Income level: 22%
- Availability of healthy food: 22%
- Access to transportation: 17%
- Tobacco use: 17%
- Housing conditions: 17%
- Violence or crime rates: 13%
- Employment status: 13%
- Domestic violence or child abuse rates: 13%
- Social capital/social support: 9%
- Adverse childhood experiences (ACEs): 9%
- Air quality: 4%
- Access to exercise opportunities: 4%
- None: 17%
- Other: 13%
- No response: 13%

*Other answers include that they did not know, and extensive screening for multiple measures.*

**FIGURE 14: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS FOOD INSECURITY**

- Conducted: 57%
- Did not conduct: 43%

** multiple selection question
FIGURE 15: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS FOOD INSECURITY (FOOD AND NUTRITION)

- Individuals living in a specific geographic area or community: 72%
- Attributed patient population: 32%
- Individuals experiencing a certain disease or condition: 20%
- Other: 28%

Other answers include patients and attributed population.
FIGURE 16: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND FOOD INSECURITY (HUNGER AND NUTRITION)**

- Healthy food/beverage provision: 72%
- Education: 60%
- Access to care: 48%
- Counseling: 36%
- Screening: 32%
- Campaigns: 28%
- Financial incentives/offset costs: 24%
- Disease management: 20%
- Point-of-decision prompt: 16%
- Media/marketing: 16%
- Care transition/utilization: 12%
- Changing physical environment: 8%
- Policy adoption/change: 8%
- Other: 36%

*Other answers include community organizing and enrollment in benefit programs.*

** multiple selection question
FIGURE 17: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO FOOD INSECURITY (HUNGER AND NUTRITION)**

Other answers include that they did not know, and infant measurements.

** multiple selection question
**FIGURE 18: ADDITIONAL MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO HOUSING INSTABILITY**

- Availability of healthy food: 36%
- Homelessness/housing instability: 24%
- Healthy eating patterns: 20%
- Tobacco use: 16%
- Income level: 16%
- Employment status: 12%
- Educational attainment: 12%
- Drug dependence/illicit use/alcohol dependence: 12%
- Access to transportation: 8%
- Access to exercise opportunities: 12%
- Youth safety: 8%
- Violence or crime rates: 8%
- Social capital/social support: 8%
- Housing conditions: 8%
- Domestic violence or child abuse rates: 8%
- Air quality: 4%
- Adverse childhood experiences (ACEs): 4%
- None: 24%
- Other: 12%
- No response: 20%

*Other answers include that they did not know, and number served by food programs.*

**FIGURE 19: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS TRANSPORTATION**

- Conducted: 50%
- No response: 2%
- Did not conduct: 48%

*Multiple selection question*
FIGURE 20: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS TRANSPORTATION

- Individuals living in a specific geographic area or community: 50%
- Attributed patient population: 41%
- Individuals experiencing a certain disease or condition: 27%
- Other: 23%
- No response: 5%

Other answers include patients, attributed population, and high ED utilizers.
FIGURE 21: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND TRANSPORTATION**

- Access to care: 64%
- Care transition/utilization: 50%
- Financial incentives/offset costs: 36%
- Screening: 27%
- Education: 27%
- Disease management: 18%
- Point-of-decision prompt: 14%
- Campaigns: 14%
- Policy adoption/change: 14%
- Counseling: 14%
- Healthy food/beverage provision: 5%
- Changing physical environment: 5%
- Other: 23%
- No response: 5%

Other answers include partnerships, out-of-state transportation, and transportation vouchers.

** multiple selection question
FIGURE 22: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO TRANSPORTATION**

Other answers include ED use and missed appointments.

** multiple selection question
FIGURE 23: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO TRANSPORTATION**

Access to transportation: 36%  
Employment status: 18%  
Violence or crime rates: 14%  
Income level: 14%  
Educational attainment: 14%  
Youth safety: 9%  
Tobacco use: 9%  
Homelessness/housing instability: 9%  
Availability of healthy food: 9%  
Water quality: 5%  
Social capital/social support: 5%  
Neighborhood walkability: 5%  
Housing conditions: 5%  
Healthy eating patterns: 5%  
Drug dependence/illicit use/alcohol dependence: 5%  
Domestic violence or child abuse rates: 5%  
Air quality: 5%  
Adverse childhood experiences (ACEs): 5%  
Access to exercise opportunities: 5%  
None: 41%  
No response: 18%

FIGURE 24: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS EDUCATION

- Conducted: 57%
- No response: 2%
- Did not conduct: 41%

** multiple selection question
FIGURE 25: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS EDUCATION

- Individuals living in a specific geographic area or community: 72%
- Attributed patient population: 36%
- Individuals experiencing a certain disease or condition: 28%
- Other: 12%
- No response: 4%

Other answers include staff and patients.
**FIGURE 26: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND EDUCATION**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>68%</td>
</tr>
<tr>
<td>Access to care</td>
<td>56%</td>
</tr>
<tr>
<td>Screening</td>
<td>40%</td>
</tr>
<tr>
<td>Disease management</td>
<td>28%</td>
</tr>
<tr>
<td>Counseling</td>
<td>28%</td>
</tr>
<tr>
<td>Care transition/utilization</td>
<td>20%</td>
</tr>
<tr>
<td>Campaigns</td>
<td>16%</td>
</tr>
<tr>
<td>Point-of-decision prompt</td>
<td>12%</td>
</tr>
<tr>
<td>Healthy food/beverage provision</td>
<td>12%</td>
</tr>
<tr>
<td>Financial incentives/offset costs</td>
<td>16%</td>
</tr>
<tr>
<td>Policy adoption/change</td>
<td>12%</td>
</tr>
<tr>
<td>Media/marketing</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
</tr>
<tr>
<td>No response</td>
<td>4%</td>
</tr>
</tbody>
</table>

Other answers include school-based services.

** multiple selection question
FIGURE 27: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO EDUCATION

- Primary care access/use: 36%
- Chronic condition rates: 36%
- Hospital utilization rates: 32%
- Screening rates: 28%
- Patient experience: 28%
- Immunization rates: 24%
- Health insurance status: 24%
- Mortality rates (specified or non-specified): 20%
- Depression and other mental health rates: 20%
- Dental care access/use: 20%
- Disease-specific measures (e.g. HA1c, LDL, BP): 16%
- Teen birth rates: 16%
- Suicide rates: 16%
- Self-rated health status: 16%
- Obesity rates: 16%
- Medication reconciliation: 16%
- Breastfeeding rates: 16%
- Birthweight: 16%
- STI rates: 12%
- Disability associated with chronic condition: 8%
  - None: 28%
  - Other: 4%
  - No response: 8%

Other answers include that they did not know.

**multiple selection question**
FIGURE 28: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO EDUCATION**

- Employment status: 40%
- Educational attainment: 40%
- Income level: 32%
- Tobacco use: 24%
- Access to transportation: 20%
- Homelessness/housing instability: 20%
- Drug dependence/illicit use/alcohol dependence: 20%
- Domestic violence or child abuse rates: 20%
- Violence or crime rates: 16%
- Healthy eating patterns: 16%
- Availability of healthy food: 16%
- Youth safety: 12%
- Access to exercise opportunities: 12%
- Housing conditions: 8%
- Social capital/social support: 8%
- Water quality: 4%
- Neighborhood walkability: 4%
- Air quality: 4%
- Adverse childhood experiences (ACES): 4%
- None: 36%
- Other: 12%
- No response: 16%

Other answers include measures tracked within individual departments.

FIGURE 29: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS UTILITY NEEDS

- Conducted: 61%
- Did not conduct: 39%

** multiple selection question
FIGURE 30: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS UTILITY NEEDS

- Individuals living in a specific geographic area or community: 47%
- Attributed patient population: 41%
- Individuals experiencing a certain disease or condition: 12%
- Other: 24%

Other answers include patients.
FIGURE 31: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND UTILITY NEEDS**

- Financial incentives/offset costs: 53%
- Counseling: 47%
- Screening: 29%
- Access to care: 29%
- Education: 24%
- Care transition/utilization: 18%
- Changing physical environment: 6%
- Campaigns: 6%
- Policy adoption/change: 6%
- Disease management: 6%
- Other: 29%

Other answers include collaboration with utility companies, relocation of patients, and legal support.

** multiple selection question
FIGURE 32: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO UTILITY NEEDS**

- Hospital utilization rates: 24%
- Screening rates: 12%
- Primary care access/use: 12%
- Patient experience: 12%
- Chronic condition rates: 12%
- Teen birth rates: 6%
- Suicide rates: 6%
- Obesity rates: 6%
- Mortality rates: 6%
- Medication reconciliation: 6%
- Immunization rates: 6%
- Health insurance status: 6%
- Depression and other mental health rates: 6%
- Dental care access/use: 6%
- Birthweight: 6%
- None: 29%
- Other: 12%
- No response: 24%

Other answers include tracked referrals.

** multiple selection question
FIGURE 33: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO UTILITY NEEDS**

- Income level: 24%
- Homelessness/housing instability: 18%
- Employment status: 18%
- Housing conditions: 12%
- Educational attainment: 12%
- Availability of healthy food: 12%
- Youth safety: 6%
- Violence or crime rates: 6%
- Tobacco use: 6%
- Social capital/social support: 6%
- Neighborhood walkability: 6%
- Healthy eating patterns: 6%
- Drug dependence/illicit use/abuse rates: 6%
- Domestic violence or child abuse rates: 6%
- Access to transportation: 6%
- Air quality: 6%
- Adverse childhood experiences (ACEs): 6%
- Access to exercise opportunities: 6%
- None: 47%
- No response: 18%

FIGURE 34: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS INTERPERSONAL VIOLENCE

- Conducted: 45%
- Did not conduct: 55%

** multiple selection question
FIGURE 35: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS INTERPERSONAL VIOLENCE

- Individuals living in a specific geographic area or community: 54%
- Attributed patient population: 42%
- Individuals experiencing a certain disease or condition: 21%
- Other: 17%

Other answers include patients who are referred and attributed population.
FIGURE 36: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND INTERPERSONAL VIOLENCE**

- Education: 63%
- Counseling: 63%
- Access to care: 58%
- Screening: 46%
- Campaigns: 33%
- Care transition/utilization: 29%
- Media/marketing: 17%
- Policy adoption/change: 13%
- Point-of-decision prompt: 8%
- Financial incentives/offset costs: 8%
- Disease management: 4%
- Other: 13%

*Other answers include collaboration with court and support programs.*

** multiple selection question
FIGURE 37: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO INTERPERSONAL VIOLENCE**

- Hospital utilization rates: 17%
- Health insurance status: 13%
- Depression and other mental health rates: 13%
- Teen birth rates: 8%
- Screening rates: 8%
- Primary care access/use: 8%
- Suicide rates: 4%
- STI rates: 4%
- Self-rated health status: 4%
- Patient experience: 4%
- Obesity rates: 4%
- Medication reconciliation: 4%
- Immunization rates: 4%
- Disability associated with chronic condition: 4%
- Depression and other mental health rates: 4%
- Dental care access/use: 4%
- Chronic condition rates: 4%
- Breastfeeding rates: 4%
- Birthweight: 8%
- None: 42%
- Other: 21%
- No response: 17%

Other answers include number served by program and rates of recurrence.

** multiple selection question
FIGURE 38: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO INTERPERSONAL VIOLENCE**

- Violence or crime rates: 25%
- Domestic violence or child abuse rates: 25%
- Youth safety: 17%
- Employment status: 17%
- Drug dependence/illicit use/alcohol dependence: 17%
- Adverse childhood experiences (ACES): 17%
- Income level: 13%
- Homelessness/housing instability: 13%
- Tobacco use: 8%
- Housing conditions: 8%
- Availability of healthy food: 8%
- Social capital/social support: 4%
- Neighborhood walkability: 4%
- Healthy eating patterns: 4%
- Educational attainment: 4%
- Access to transportation: 4%
- Air quality: 4%
- Access to exercise opportunities: 4%
- None: 46%
- Other: 13%
- No response: 4%

Other answers include summary of all screening metrics.

FIGURE 39: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS FAMILY & SOCIAL SUPPORTS

** multiple selection question
FIGURE 40: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS FAMILY & SOCIAL SUPPORTS

- Individuals living in a specific geographic area or community: 50%
- Attributed patient population: 50%
- Individuals experiencing a certain disease or condition: 29%
- Other: 17%

Other answers include patients and family of patients.
FIGURE 41: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND FAMILY & SOCIAL SUPPORTS**

Other answers include provided resources and lead programs.

** multiple selection question
FIGURE 42: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO FAMILY & SOCIAL SUPPORTS**

- Hospital utilization rates: 46%
- Primary care access/use: 38%
- Chronic condition rates: 25%
- Mortality rates (specified or non-specified): 21%
- Health insurance status: 21%
- Depression and other mental health rates: 21%
- Breastfeeding rates: 21%
- Patient experience: 17%
- Medication reconciliation: 17%
- Birthweight: 17%
- Disease-specific measures (e.g. HA1c, LDL, BP): 13%
- Teen birth rates: 13%
- Screening rates: 13%
- Self-rated health status: 8%
- Dental care access/use: 8%
- Suicide rates: 4%
- STI rates: 4%
- Obesity rates: 4%
- Immunization rates: 4%
- Disability associated with chronic condition: 4%
- None: 4%
- Other: 13%
- No response: 13%

Other answers include that they did not know, number that attended programs, and survey of patients involved.

** multiple selection question
FIGURE 43: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO FAMILY & SOCIAL SUPPORTS**

- Homelessness/housing instability: 17%
- Social capital/social support: 8%
- Access to transportation: 8%
- Youth safety: 8%
- Tobacco use: 8%
- Employment status: 8%
- Domestic violence or child abuse rates: 8%
- Availability of healthy food: 8%
- Adverse childhood experiences (ACEs): 8%
- Number of school days missed: 4%
- Violence or crime rates: 4%
- Neighborhood walkability: 4%
- Income level: 4%
- Housing conditions: 4%
- Healthy eating patterns: 4%
- Educational attainment: 4%
- Drug dependence/illicit use/alcohol dependence: 4%
- Access to exercise opportunities: 4%
- None: 38%
- Other: 8%
- No response: 25%

Other answers include that they did not know, and measurement from community health workers.

FIGURE 44: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS EMPLOYMENT & INCOME

- Conducted: 61%
- No response: 36%
- Did not conduct: 2%

** multiple selection question
FIGURE 45: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS EMPLOYMENT & INCOME

- Individuals living in a specific geographic area or community: 56%
- Attributed patient population: 31%
- Individuals experiencing a certain disease or condition: 13%
- Other: 25%
- No response: 6%

*Other answers include staff, patients, and attributed population.*
FIGURE 46: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND EMPLOYMENT & INCOME**

- Access to care: 63%
- Education: 44%
- Financial incentives/offset costs: 38%
- Counseling: 31%
- Care transition/utilization: 25%
- Disease management: 19%
- Screening: 13%
- Campaigns: 13%
- Healthy food/beverage provision: 6%
- Policy adoption/change: 6%
- Other: 25%
- No response: 6%

Other answers include partnerships with other organizations, assistance in finding jobs, and enrollment assistance in insurance.

** multiple selection question
FIGURE 47: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO EMPLOYMENT & INCOME

- Hospital utilization rates: 50%
- Primary care access/use: 38%
- Health insurance status: 38%
- Self-rated health status: 25%
- Screening rates: 25%
- Depression and other mental health rates: 25%
- Dental care access/use: 19%
- Chronic condition rates: 19%
- Disease-specific measures (e.g. HA1c, LDL, BP): 13%
- Teen birth rates: 13%
- Suicide rates: 13%
- Patient experience: 13%
- Obesity rates: 13%
- Mortality rates (specified or non-specified): 13%
- Disability associated with chronic condition: 13%
- Birthweight: 13%
- Breastfeeding rates: 6%
- STI rates: 6%
- Medication reconciliation: 6%
- Immunization rates: 6%
- None: 25%
- Other: 6%
- No response: 19%

Other answers include program retention rates.
**FIGURE 48: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO EMPLOYMENT & INCOME**

- Employment status: 56%
- Income level: 50%
- Educational attainment: 38%
- Homelessness/housing instability: 25%
- Drug dependence/illicit use/alcohol dependence: 19%
- Availability of healthy food: 19%
- Access to transportation: 13%
- Violence or crime rates: 13%
- Housing conditions: 13%
- Domestic violence or child abuse rates: 13%
- Access to exercise opportunities: 13%
- Youth safety: 6%
- Tobacco use: 6%
- Social capital/social support: 6%
- Neighborhood walkability: 6%
- Healthy eating patterns: 6%
- Air quality: 6%
- Adverse childhood experiences (ACEs): 6%
- None: 38%
- No response: 6%

**FIGURE 49: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS HEALTH BEHAVIORS**

- Conducted: 86%
- Did not conduct: 14%

**multiple selection question**
FIGURE 50: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS HEALTH BEHAVIORS

- Individuals living in a specific geographic area or community: 61%
- Attributed patient population: 53%
- Individuals experiencing a certain disease or condition: 34%
- Other: 13%

Other answers include patients, attributed population, and high ED utilizers.
**FIGURE 51: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND HEALTH BEHAVIORS**

- Education: 79%
- Access to care: 79%
- Disease management: 76%
- Counseling: 55%
- Screening: 47%
- Care transition/utilization: 39%
- Healthy food/beverage provision: 32%
- Campaigns: 32%
- Policy adoption/change: 29%
- Media/marketing: 18%
- Financial incentives/offset costs: 18%
- Point-of-decision prompt: 16%
- Changing physical environment: 13%
- Other: 5%
- No response: 3%

Other answers include community outreach and ran physical programs.

** multiple selection question
FIGURE 52: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO HEALTH BEHAVIORS**

Other answers include hospital readmission rates and viral load measurements.

** multiple selection question
FIGURE 53: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO HEALTH BEHAVIORS**

- Tobacco use: 45%
- Drug dependence/illicit use/alcohol dependence: 26%
- Availability of healthy food: 26%
- Income level: 21%
- Healthy eating patterns: 21%
- Access to exercise opportunities: 21%
- Employment status: 18%
- Educational attainment: 18%
- Domestic violence or child abuse rates: 16%
- Homelessness/housing instability: 13%
- Violence or crime rates: 11%
- Neighborhood walkability: 11%
- Number of school days missed: 8%
- Access to transportation: 8%
- Social capital/social support: 8%
- Housing conditions: 8%
- Adverse childhood experiences (ACEs): 8%
- Water quality: 3%
- Youth safety: 3%
- Air quality: 5%
- None: 16%
- Other: 3%
- No response: 11%

Other answers include that they did not know.

FIGURE 54: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS HEALTH LITERACY

- Conducted: 34%
- Did not conduct: 66%

** multiple selection question
FIGURE 55: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS HEALTH LITERACY

- Individuals living in a specific geographic area or community: 60%
- Individuals experiencing a certain disease or condition: 47%
- Attributed patient population: 33%
- Other: 7%

Other answers include attributed population.
FIGURE 56: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND HEALTH LITERACY**

- Education: 80%
- Counseling: 60%
- Screening: 47%
- Disease management: 47%
- Access to care: 47%
- Media/marketing: 40%
- Campaigns: 40%
- Care transition/utilization: 20%
- Policy adoption/change: 13%
- Financial incentives/offset costs: 7%

** multiple selection question
**FIGURE 57: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO HEALTH LITERACY**

- Patient experience: 33%
- Primary care access/use: 20%
- Depression and other mental health rates: 20%
- Breastfeeding rates: 20%
- Disease-specific measures (e.g., HA1c, LDL, BP): 13%
- Screening rates: 13%
- Obesity rates: 13%
- Hospital utilization rates: 13%
- Health insurance status: 13%
- Dental care access/use: 13%
- Chronic condition rates: 13%
- Self-rated health status: 7%
- STI rates: 7%
- Teen birth rates: 7%
- Suicide rates: 7%
- Immunization rates: 7%
- Medication reconciliation: 7%
- Mortality rates: 7%
- None: 40%
- Other: 13%
- No response: 7%

*Other answers include educational materials provided in other language and increased patient knowledge.*
FIGURE 58: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO HEALTH LITERACY**

- Tobacco use: 20%
- Income level: 13%
- Homelessness/housing instability: 13%
- Employment status: 13%
- Drug dependence/illicit use/alcohol dependence: 13%
- Domestic violence or child abuse rates: 13%
- Adverse childhood experiences (ACEs): 13%
- Youth safety: 7%
- Violence or crime rates: 7%
- Social capital/social support: 7%
- Neighborhood walkability: 7%
- Housing conditions: 7%
- Healthy eating patterns: 7%
- Educational attainment: 7%
- Availability of healthy food: 7%
- Air quality: 7%
- Access to exercise opportunities: 7%
- None: 53%
- No response: 13%

FIGURE 59: PERCENTAGE OF RESPONDENTS WHO CONDUCTED POPULATION HEALTH ACTIVITIES TO ADDRESS COMMUNITY INFRASTRUCTURE

- Conducted: 43%
- Did not conduct: 57%

** multiple selection question
**FIGURE 60: POPULATION TARGETED BY HOSPITAL/HEALTH SYSTEM’S ACTIVITIES THAT ADDRESS COMMUNITY INFRASTRUCTURE**

- Individuals living in a specific geographic area or community: 68%
- Attributed patient population: 21%
- Individuals experiencing a certain disease or condition: 16%
- Other: 11%

*Other answers include attributed population.*
FIGURE 61: ACTIVITIES IMPLEMENTED BY HOSPITAL/HEALTH SYSTEM AROUND COMMUNITY INFRASTRUCTURE**

- Access to care: 47%
- Education: 37%
- Changing physical environment: 37%
- Media/marketing: 26%
- Screening: 21%
- Healthy food/beverage provision: 21%
- Policy adoption/change: 21%
- Disease management: 16%
- Campaigns: 16%
- Point-of-decision prompt: 11%
- Financial incentives/offset costs: 11%
- Counseling: 5%
- Care transition/utilization: 5%
- Other: 11%

Other answers include community organization.

** multiple selection question
FIGURE 62: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO TRACK ANY HEALTH OR HEALTHCARE OUTCOMES FOR PROGRAMS RELATED TO COMMUNITY INFRASTRUCTURE**

- Primary care access/use: 26%
- Patient experience: 26%
- Hospital utilization rates: 26%
- Chronic condition rates: 26%
- Obesity rates: 21%
- Mortality rates (specified or non-specified): 21%
- Health insurance status: 21%
- Disease-specific measures (e.g. HA1c, LDL, BP): 16%
- Screening rates: 16%
- Depression and other mental health rates: 16%
- Self-rated health status: 11%
- Dental care access/use: 11%
- Teen birth rates: 5%
- Disability associated with chronic condition: 5%
- Suicide rates: 5%
- STI rates: 5%
- Medication reconciliation: 5%
- Immunization rates: 5%
- None: 37%
- Other: 5%

Other answers include that they did not know.

** multiple selection question
**FIGURE 63: ADDITIONAL OUTCOME MEASURES USED TO TRACK HOSPITAL/HEALTH SYSTEM’S PROGRAMS RELATED TO COMMUNITY INFRASTRUCTURE**

Access to transportation: 21%
Neighborhood walkability: 21%
Healthy eating patterns: 21%
Access to exercise opportunities: 21%
Income level: 16%
Homelessness/housing instability: 16%
Availability of healthy food: 16%
Youth safety: 11%
Violence or crime rates: 11%
Tobacco use: 11%
Housing conditions: 11%
Employment status: 11%
Drug dependence/illicit use/alcohol dependence: 11%
Domestic violence or child abuse rates: 11%
Water quality: 5%
Social capital/social support: 5%
Educational attainment: 5%
Adverse childhood experiences (ACES): 5%

None: 47%
Other: 5%

*Other answers include that they did not know*

**multiple selection question**
FIGURE 64: SOCIAL DETERMINANTS FOR WHICH HOSPITAL/HEALTH SYSTEM’S HAVE FORMAL REFERRAL SYSTEMS IN PLACE**

- Interpersonal violence: 75%
- Health behaviors: 68%
- Family & social supports: 68%
- Housing instability: 68%
- Food insecurity (hunger and nutrition): 64%
- Transportation: 61%
- Utility needs: 43%
- Education: 36%
- Community infrastructure: 34%
- Employment & income: 32%
- Health literacy: 30%
- No response: 2%

** Multiple selection question
FIGURE 65: ASSESSMENT AND/OR PLANNING ACTIVITIES INCLUDED IN HOSPITAL/HEALTH SYSTEM POPULATION HEALTH WORK**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathered existing data</td>
<td>70%</td>
</tr>
<tr>
<td>Identified and engaged potential partners</td>
<td>68%</td>
</tr>
<tr>
<td>Surveyed or interviewed community members, other partners, or stakeholders</td>
<td>61%</td>
</tr>
<tr>
<td>Gathered input from external experts</td>
<td>59%</td>
</tr>
<tr>
<td>Convened leaders (e.g., hospital, community, or political)</td>
<td>57%</td>
</tr>
<tr>
<td>Reviewed successful hospitals or models</td>
<td>55%</td>
</tr>
<tr>
<td>Aligned with quality or patient safety initiatives</td>
<td>52%</td>
</tr>
<tr>
<td>Conducted formal priority setting endorsed by senior leadership</td>
<td>43%</td>
</tr>
<tr>
<td>Gathered input from hospital/health system board</td>
<td>39%</td>
</tr>
<tr>
<td>Developed formal IT infrastructure</td>
<td>39%</td>
</tr>
<tr>
<td>Systematically identified community assets (asset mapping)</td>
<td>34%</td>
</tr>
<tr>
<td>Conducted a readiness assessment</td>
<td>30%</td>
</tr>
<tr>
<td>Developed a formal communication strategy</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
<tr>
<td>No response</td>
<td>2%</td>
</tr>
</tbody>
</table>

Other answers include that they did not know, and collaborated with partners.

** multiple selection question
FIGURE 66: BUSINESS PRACTICES USED BY HOSPITAL/HEALTH SYSTEM TO INVEST IN AND IMPROVE THE LOCAL COMMUNITY

- Hiring and workforce development practices (e.g., local hiring from targeted communities): 68%
- Supply chain procurement policies (e.g., buying local, fair, and/or sustainable products and services): 50%
- Investment portfolio (e.g., targeting a portion of funds to support interventions that create healthier communities): 18%
- No response: 2%
- Other: 16%
- None: 9%

Other answers include sponsorship for community efforts, providing grant funding, and contracting with local providers.
**FIGURE 67: FUNDING SOURCES FOR HOSPITAL/HEALTH SYSTEM’S POPULATION HEALTH ACTIVITIES**

- Hospital/health system investment: 82%
- Federal grants or programs (not including 1115 Waivers, SIM, or other CMS/CMMI grants): 61%
- Non-federal grants: 57%
- Community foundations: 50%
- External partners: 41%
- Waiver funding (e.g., 1115 Waivers): 34%
- Payer investment (other than CMS): 32%
- Other CMS/CMMI grants: 30%
- Reinvestment of savings from 340B programs: 20%
- SIM funding: 11%
- Reinvestment of savings from previous population health programs: 9%
- Social impact bonds or private investors: 2%
- Other: 5%
- No response: 2%

Other answers include 501C3.

** multiple selection question
**FIGURE 68: RESOURCES SHARED WITH EXTERNAL PARTNERS AS PART OF POPULATION HEALTH IMPROVEMENT ACTIVITIES**

- Data: 86%
- Human capital (e.g. shared staff, leadership): 80%
- Technologies (e.g. EHRs, software, web-based platforms): 45%
- Funding: 32%
- Other: 7%
- No response: 7%

Other answers include health status information and space.

** multiple selection question
**FIGURE 69: ADDITIONAL RESOURCES MOST HELPFUL FOR HOSPITAL/HEALTH SYSTEM’S POPULATION HEALTH IMPROVEMENT ACTIVITIES**

- **Funding**: 88%
- **Analytics systems/tools**: 52%
- **Staff**: 52%
- **Staff training**: 20%
- **Policy changes**: 16%
- **Leadership support**: 18%
- **Strategy consultation**: 14%
- **Case studies or other evidence-based practices**: 14%
- **Enhanced electronic health record**: 11%
- **Governance education**: 2%
- **Other**: 5%

*Other answers include federal waiver support.*
FIGURE 70: SOCIAL DETERMINANTS IN NEED OF ADDITIONAL TRAINING OR RESOURCES FROM AMERICA’S ESSENTIAL HOSPITALS

Health behaviors: 57%
Housing instability, quality of housing, or financing for housing: 52%
Family and social supports: 36%
Transportation needs: 34%
Employment and income: 25%
Food insecurity: 25%
Education (Pre-K, K-12, higher education): 23%
Interpersonal violence: 14%
Utility needs: 2%
Other: 2%
No response: 2%

Other answers include impact of community violence.
FIGURE 71: AREAS AND ACTIVITIES IN NEED OF TRAINING AND EDUCATIONAL RESOURCES FROM AMERICA’S ESSENTIAL HOSPITALS

- Articulating return on investment: 57%
- Measurement and metrics: 50%
- Monitoring and evaluation: 45%
- Aligning with payers: 34%
- Evidence based practice: 32%
- Asset mapping: 32%
- Multi-stakeholder partnership building: 32%
- Conducting needs assessments: 27%
- Community/patient engagement: 23%
- Program planning: 20%
- Policy: 18%
- Communication and messaging: 14%
- Network analysis: 14%
- Providing technical assistance: 5%
FIGURE 72: MODES OF SUPPORT OR TRAINING DELIVERY MOST BENEFICIAL FOR HOSPITAL/HEALTH SYSTEM

- Compendium of best practices: 61%
- Learning collaborative: 61%
- Online training/webinars: 55%
- In-person summits: 50%
- Peer-to-peer mentoring: 39%
- Coaching: 16%

FIGURE 73: HOSPITAL/HEALTH SYSTEM METHODS OF DATA SHARING FOR THE PURPOSE OF POPULATION HEALTH IMPROVEMENT**

- Shared data with our state hospital association: 64%
- Shared data with the public health department: 61%
- Shared data with community level partners: 55%
- Participated in a regional health information exchange: 50%
- Shared data with an externally managed data warehouse/repository: 45%
- Did not share data with any external organizations: 5%
- Other: 9%
- No response: 5%

Other answers include statewide information exchange and collaborative efforts with partners.

** multiple selection question
FIGURE 74: MEASURES USED BY HOSPITAL/HEALTH SYSTEM TO MONITOR POPULATION NEEDS OR MEASURE PROGRESS IN POPULATION HEALTH IMPROVEMENT**

The Healthcare Effectiveness Data and Information Set (HEDIS) 77%
Measures set by NQF 57%
Measures set by the CDC 43%
Data from County Health Rankings 41%
HHS Healthy People 2020 measure set 36%
IOM’s Vital Signs measure set 18%
Custom measures or some other measure set 5%
No response 2%

FIGURE 75: RELATIONSHIP BETWEEN THE HOSPITAL/HEALTH SYSTEM AND EXTERNAL HEALTH CARE PARTNERS

External public health department
- No response 18%
- None 14%
- Collaboration 24%
- Coordination 40%

External FQHC, community health center, or free clinic
- No response 17%
- None 21%
- Collaboration 15%
- Coordination 44%

External respite care facility
- No response 26%
- None 19%
- Collaboration 23%
- Coordination 13%

Retail clinics (e.g. Walgreens, CVS, Rite Aid)
- No response 48%
- None 13%
- Collaboration 15%
- Coordination 9%

External behavioral health facility
- No response 13%
- None 17%
- Collaboration 29%
- Coordination 8%

Other hospitals or health systems
- No response 4%
- None 24%
- Collaboration 19%
- Coordination 15%

** multiple selection question
FIGURE 76: RELATIONSHIP BETWEEN THE HOSPITAL/HEALTH SYSTEM AND EXTERNAL FUNDING PARTNERS

- **State Medicaid program**: 4% No response, 9% Networking, 24% Coordination, 29% Cooperation, 29% Collaboration
- **External Medicaid plan (e.g. MCO or other contracted plan)**: 6% No response, 10% Networking, 24% Coordination, 14% Cooperation, 45% Collaboration
- **Private payers (not affiliated with Medicaid)**: 8% No response, 13% Networking, 30% Coordination, 23% Cooperation, 25% Collaboration
- **Private funders or foundations**: 4% No response, 6% Networking, 24% Coordination, 16% Cooperation, 28% Collaboration

FIGURE 77: RELATIONSHIP BETWEEN THE HOSPITAL/HEALTH SYSTEM AND EXTERNAL GOVERNMENT PARTNERS

- **Office of state, county, or local elected official**: 17% No response, 25% Networking, 11% Coordination, 43% Collaboration
- **Local social services departments**: 4% No response, 21% Networking, 29% Coordination, 13% Cooperation, 31% Collaboration
- **Public safety department**: 4% No response, 10% Networking, 22% Coordination, 26% Cooperation, 8% Collaboration
- **Transportation department**: 23% No response, 32% Networking, 19% Coordination, 9% Cooperation, 15% Collaboration
- **Local justice system, prison system, jail, or legal groups**: 4% No response, 8% Networking, 27% Coordination, 16% Cooperation, 29% Collaboration
- **Urban planning**: 19% No response, 31% Networking, 21% Coordination, 10% Cooperation, 17% Collaboration
- **Other state, county, or local government**: 4% No response, 9% Networking, 21% Coordination, 26% Cooperation, 15% Collaboration
FIGURE 78: RELATIONSHIP BETWEEN THE HOSPITAL/HEALTH SYSTEM AND EXTERNAL COMMUNITY BENEFIT PARTNERS

Federal/national organization
- 10% None
- 29% Networking
- 24% Coordination
- 16% Collaboration
- 20% No response

Community development organization
- 10% None
- 34% Networking
- 18% Coordination
- 12% Collaboration
- 24% No response

Food banks, farmers markets, or other food suppliers
- 13% None
- 19% Networking
- 17% Coordination
- 17% Collaboration
- 32% No response

Housing organization
- 13% None
- 19% Networking
- 30% Coordination
- 15% Collaboration
- 21% No response

Other neighborhood organizations (including faith-based)
- 8% None
- 23% Networking
- 21% Coordination
- 23% Collaboration
- 25% No response

FIGURE 79: RELATIONSHIP BETWEEN THE HOSPITAL/HEALTH SYSTEM AND EXTERNAL BUSINESS OR EDUCATION PARTNERS

External colleges or universities
- 5% None
- 18% Networking
- 18% Coordination
- 16% Collaboration
- 43% No response

Early childhood education and/or schools
- 13% None
- 23% Networking
- 17% Coordination
- 17% Collaboration
- 29% No response

Chamber of Commerce
- 13% None
- 34% Networking
- 13% Coordination
- 21% Collaboration
- 19% No response

Local/small business
- 16% None
- 33% Networking
- 16% Coordination
- 22% Collaboration
- 14% No response
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