Population Health Investments by Health Plans and Large Provider Organizations—

*Exploring the Business Case*

By Northeastern University
Institute on Urban Health Research and Practice

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The Institute of Urban Health Research and Practice (IUHRP) is a public health research institute at Northeastern University's Bouvé College of Health Sciences. IUHRP is devoted to research and its practical application in an effort to improve the health and well-being of the residents of Boston and other urban communities. The IUHRP is focused on exploring the social determinants of health in urban settings, the promotion of health equity, and the elimination of health disparities. The Institute examines the efficacy of programs and interventions in order to inform health care practices, policies, and training.

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ABSTRACT

OBJECTIVES

1) To determine if there is a business case for the population health investments made by health plans and large provider organizations; and, if so, 2) To understand how business interests inform decision-making and affect the outcomes of population health investments.

METHODS

Robert Wood Johnson Foundation funded an exploratory study composed of a convenience sample of 5 health plans and provider organizations currently investing in population health initiatives. Two kinds of investments qualified for the project: 1) those that focused on patient panels with interventions outside the delivery of clinical care; or 2) those that focused on the broader community and included patient populations. The participant organizations were diverse in scope and geography, and included: Kaiser Permanente, Molina Healthcare of New Mexico, Montefiore Health System, Nemours Children’s Health System, and The University of Pittsburgh Medical Center Health System with their Medicaid plan, UPMC for You. Exploration of the topics included a combination of interviews with participant organizations and independent experts in the population health field, literature review, analysis of organizations’ reports and documents, site visits, and follow-up confirmatory inquiries.

FINDINGS

There is a business case for the population health investments of these five organizations. The business case is shaped by organizational missions, changes in the marketplace, payment pressures, partner expectations, as well as current and future costs resulting in pressure for upstream interventions. Among these study organizations, launching successful population health initiatives relied on a complex alignment of internal and external partners, resources, and delivery capacities. Measuring the impact of population health interventions continues to be a challenge. Investments vary considerably in their ability to command long-term commitments.

STUDY CONCLUSIONS

Business interests shape the magnitude, scope, and duration of population health investments. Health plans and large provider organizations are willing to engage in promising innovations. The capacity of value-based purchasing strategies to support these investments is uncertain. Additionally, achieving improvement in the health of populations in a geographic area is likely to require building shared strategies across plans and provider systems, as well as other partners. Technical support and strategic policy analyses are needed to further clarify and facilitate future opportunities.

RECOMMENDATIONS

Future strategies regarding the contribution of plans and provider systems to population health improvements will benefit from considering the complex mix of organizational business interests, improving the infrastructure needed to support effective intervention development, supporting cross-plan and provider system strategies, and addressing key policy issues, including payer commitment and cross-sector responsibilities. Further development of an effective integrator function, potentially governmental, is likely to be needed to achieve geographic population health improvement.
EXECUTIVE SUMMARY

Twenty years of philanthropic, governmental, and academic efforts to build frameworks for population health improvement have shaped important questions about the focus, financing, and measurement of potential strategies. The advent of value-based purchasing has fueled the hope that healthcare industry partners—payers, plans, and providers—will play an important role in paying for those interventions that can impact population level morbidity and mortality. This study explores the efforts of industry partners that are forging the way forward in this new arena.

Specifically, this study set out to determine whether there is a business case informing the population health investments of health plans and large provider systems, and, if so, to understand how business interests shape the decision-making process of the organizations. Guiding this inquiry was the assumption that outcome-oriented purchasing strategies may prompt health plans and provider systems to make upstream investments—beyond medical care delivery—to address the social determinants of the health of their patients and members. Robert Wood Johnson Foundation funded a team at Northeastern University’s Institute on Urban Health Research and Practice to conduct this exploratory study of healthcare organizations investing in population health.

Participating organizations comprised a convenience sample of five willing early adopters with public commitments to population health strategies. Study participants included: Kaiser Permanente, Molina Healthcare of New Mexico, Montefiore Health System, Nemours Children’s Health System, and The University of Pittsburgh Medical Center Health System with their Medicaid plan, UPMC for You. Population health initiatives qualifying for inclusion in the study were either focused on patient panels but incorporated interventions outside the delivery of medical care or were focused on the broader community, and included, but were not limited to site-based patient populations. Exploration of the topic included preliminary research, site visits, interviews, and follow-up confirmatory inquiries.

Why care about a business case? Absent an understanding of the internal and external forces that shape the willingness of healthcare organizations to invest in addressing broader social and other determinants of health, reform-minded advocates and policy makers may under-appreciate potentially important levers for improving healthcare industry commitments to population health. This study attempts to articulate these business interests and recommend pathways for building more effective partnerships for the future.

FINDINGS

This study yields a number of important findings, which are further detailed in the report:

FINDING #1
Health plans and large provider organizations have a business case for making population health investments. Factors informing the business cases include organizational mission, markets, payment changes, cost exposures, and partner expectations.

FINDING #2
Launching a successful population health initiative relies on alignment of internal and external partners, expectations, resources, and delivery system capacities.

FINDING #3
Measuring the impact of a population health intervention is a serious challenge. It relies on
the ability to collect meaningful data, select appropriate metrics, and understand which aspects of a given population health intervention are able to produce an impact.

**FINDING #4**
The outcomes of population health investments vary considerably. While there are always lessons learned, sustaining or scaling an investment over time depends on finding a pathway to reimbursement or a rationale for ongoing institutional financing.

**STUDY CONCLUSIONS**
Four major conclusions may be drawn from this exploratory study: 1) Business interests shape the magnitude, scope, and duration of population health investments. 2) Health plans and provider systems are willing to engage in promising interventions and understand that investments in certain population health strategies are necessary to improve quality and cost outcomes and to respond to payer performance expectations. 3) It remains unclear to what extent value-based purchasing strategies will prompt effective population health investments; and 4) Optimizing health improvements in geographic populations requires building shared strategies across plans and provider systems, as well as with other partners.

**RECOMMENDATIONS**
The findings from this study suggest that further analytic and technical assistance development may be needed to support effective engagement of health industry partners in population health improvement. To that end, we offer a number of recommendations.

**RECOMMENDATION #1**
Improve needed infrastructure. Plans and provider organizations are making considerable investments in building the strategies and analytics needed to support population health investments. These organizations face great uncertainty regarding the likely efficacy, appropriate measurement, expected outcomes, necessary resources, and potential returns on investment. Improving the infrastructure necessary to mount effective population health investments would create efficiencies and potentially maximize impact. Efforts should be undertaken to:

- Further describe and make available, through case studies and other mechanisms, effective plan and provider system interventions, including resource requirements, implementation strategies, and analytic needs.
- Model the intersection between community level and patient panel interventions to characterize effective pathways to population health impact.
- Improve and develop new ROI analyses for promising population health investments.
- Develop mechanisms for knowledge transfer and technical assistance regarding effective population health strategy development and execution through philanthropic, governmental, and peer-based healthcare industry resources.

**RECOMMENDATION #2**
Leverage existing and potential investments. Building more pathways for health care industry partners to contribute to improving population health would benefit from efforts to:

- Demonstrate cross-plan and provider system collaborative population health investment strategies to optimize impact.
- Determine the need for effective, potentially governmental, integrator functions to facilitate the priority setting and resource allocation and accountability needed to systematically impact population health in a given geographic area.
• Identify alternative mechanisms for incorporating healthcare industry business interests in building population health strategies.

RECOMMENDATION #3
Address key policy issues. Our study raises several key policy issues that merit further exploration for the continued evolution and success of population health strategies. Efforts should be undertaken to:

• Assess public and private payer interests in population health investments. Uncertainty about payer interest and commitment, both for recognizing these investments as appropriate expenditures, and for permitting retention or sharing of savings to support ongoing investment, will continue to make plan and provider systems cautious about their commitments.

• Articulate the long-term policy implications of health care industry investments in, and potential retained savings from, community-based and cross-sector population health initiatives. There are inevitable shifts in the performance expectations for, the delivery, and, sometimes even the purpose of community services whose funding base gets increasingly located in healthcare services financing. Important questions to address include:

  o What are the programmatic, cost, ownership and other implications for community-based human services whose financing becomes increasingly located in the healthcare industry? What are the particular concerns when healthcare industry partners absorb previously non-medical, community-based service provision?

  o Are policy responses needed to address revenue losses faced by healthcare industry partners in service arenas most sensitive to the effects of upstream population health investments?

  o If healthcare industry investments demonstrate significant unmet need in non-medical human services, what is the path to meaningfully facilitating other sector investment?

• Identify solutions to regulatory barriers and other alignment challenges for cross-industry and cross-sector population health financing, service delivery, and program and impact evaluation. Of particular importance is the development of strategies to address critical data sharing barriers and to facilitate more effective nonprofit hospital community benefit investments.
For more than two decades, the improvement of population health has been an important focus in the academic, philanthropic, and public health sectors. Mounting evidence continues to indicate that clinical care alone is insufficient to maximize health and reduce morbidity and mortality.\textsuperscript{1, 2} Increasingly, health improvement strategies focus on social and environmental determinants. Most recently, the Affordable Care Act (ACA) identified the “improvement of population health outcomes” as one of its core objectives. To achieve that goal, this landmark legislation will move the healthcare industry to outcome-based performance and encourage other non-health sectors to contribute to “health in all policies”.\textsuperscript{3}

The Robert Wood Johnson Foundation (RWJF) has worked over the past decade across many domains to further articulate and support the achievement of population health objectives. RWJF’s efforts have helped to build critical metrics, characterize hospital, health plan, and public health community investment strategies, and shape an understanding of the cross-sector collaboration needed to achieve population health improvements. More recently, the Institute of Medicine (IOM) Roundtable on Population Health—in collaboration with RWJF, the Centers for Disease Control and Prevention (CDC), the Centers for Medicare & Medicaid Services (CMS) and other governmental and non-governmental partners—has worked to build the analytic underpinnings of the focus, financing, measurement, and viability of population health strategies.\textsuperscript{4, 5, 6}

The study described in this report fits squarely into these ongoing efforts to further delineate the forces behind population health improvement. The IOM and others have hypothesized that at least part of the financing for population health will originate with health plans and large provider organizations, including hospital systems, as they shift to value-based purchasing. The assumption is that improvement in health outcomes and costs will ultimately require the use of non-medical and community-level upstream interventions that address the social determinants of health.\textsuperscript{7} With such a backdrop, we ask whether or not a business case informs the decision making of the healthcare organizations leading the way in improving population health.

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**STUDY OVERVIEW**

RWJF funded Northeastern University’s Institute on Urban Health Research and Practice to conduct an exploratory study of health plans and large provider organizations investing in population health. This inquiry focuses on organizations leading the way as early adopters in this area. The study seeks to understand: *Do these health plans and large provider systems have a “business case” informing their decision-making process about population health efforts?*

Why care about a business case? Absent an understanding of the internal and external forces...
that shape the healthcare industry’s willingness
to invest in addressing broader determinants of health, reform-minded advocates and policy makers may under-appreciate potentially important levers for improving industry commitments to population health.

**STUDY OBJECTIVES**

Through preliminary research, site visits, and follow-up confirmatory inquiry, our goal was to explore two questions:

1. Is there a business case for population health investments made by health plans and large provider organizations?

2. If so, how do business interests inform their decision-making and affect the outcomes of their population health investments?

**PARTICIPATING ORGANIZATIONS**

This exploratory study is composed of a convenience sample of five willing provider systems and plans actively engaged in population health activities. The participant organizations are diverse in scope and geography and included: two multi-state health plans; one multi-state hospital and outpatient pediatric specialty care system; two large local hospital and outpatient provider systems, one of which operates a Medicaid behavioral health program and a Medicaid managed care plan. The table on the following page provides a description of each organization and the population health investments reviewed in this study. More complete summaries are included in the section *Site Profiles* on page 51.
### Table 1: Health Plans and Large Provider Systems Included in Study

<table>
<thead>
<tr>
<th>Organization</th>
<th>Type / Financial Arrangements</th>
<th>Market</th>
<th>Population Health Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser Permanente</td>
<td>Health plan and integrated delivery system. Operating under capitated full-risk arrangement.</td>
<td>Operates in CA, OR, WA, GA, CO, HI, VA, MD, and DC.</td>
<td>Thriving Schools: To increase healthy eating and physical activity among students, staff, and teachers in K-12 at over 300 sites in multiple states.</td>
</tr>
<tr>
<td>Molina Healthcare of New Mexico (MHNM)</td>
<td>Health plan. Operating under capitated full-risk arrangement.</td>
<td>Operates in 11 states including NM, with dominance in Medicaid market in NM.</td>
<td>Community Connector Program: To address the complex needs of high-cost enrollees by deploying Community Health Workers (CHWs) into the community in NM.</td>
</tr>
<tr>
<td>Montefiore Health System</td>
<td>Hospital-based integrated delivery system. Operating under fee-for-service with some risk arrangements.</td>
<td>Operates in NY in 150 locations including 6 hospitals and 50 primary care locations.</td>
<td>Diabetes Prevention Program: To prevent or delay the onset of diabetes among adult patients and employees in the Bronx.</td>
</tr>
<tr>
<td>Nemours Children's Health System</td>
<td>Hospital and outpatient system for children and integrated delivery system. Operating under predominantly fee-for-service arrangements.</td>
<td>Operates in DE, FL, PA, NJ, and MD, with focus on DE as a laboratory for population health.</td>
<td>Optimizing Health Outcomes for Children with Asthma in Delaware: To improve health outcomes among children with asthma in DE.</td>
</tr>
<tr>
<td>University of Pittsburgh Medical Center Health System &amp; UPMC for You</td>
<td>Hospital-based integrated delivery system with Medicaid, Medicare and commercial plans. UPMC for You operates under capitated full-risk arrangement.</td>
<td>Operates in western PA.</td>
<td>Cultivating Health for Success: To stabilize housing and improve health outcomes for a small number of homeless adults enrolled in UPMC for You in PA.</td>
</tr>
</tbody>
</table>

Though not deeply explored in this study, the state(s) where these projects are located constitute an important backdrop for plan and provider system decision-making. National variability in healthcare delivery and payment reform means plans and provider systems face very different local opportunities for innovation. Furthermore, the environments they encounter are also shaped by the extent to which state governments are adopting and promoting population health objectives by benchmarking health improvements through metrics like the County Health Rankings, establishing State Health Improvement Plans, or participating in the Centers for Medicare & Medicaid Services (CMS) State Innovation Model Initiative (SIM) or the Delivery System Reform Incentive Program, both of which have population health improvement components.
**Population Health Initiatives: Framework**

Our study relies on the prevailing definitions of population health in the field*, the work of Kindig and Stoddart (2003) as modified by the work of Jacobson and Teutsch (2012). Consistent with population health initiatives that have been the subject of multiple reviews, projects qualifying for this study fall into two categories:

1. An investment “beyond the clinic walls” that focuses exclusively, or predominantly, on the members of the health plans or the patient panel.

2. An investment in a geographic community population inclusive of, but not exclusive to, plan members or provider patients.

Table 2 locates the population health initiatives undertaken by each participating organization in this framework.

<table>
<thead>
<tr>
<th>POPULATION HEALTH INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Investment in Plan Members/Panel</td>
</tr>
<tr>
<td>Investment “beyond the clinic walls” that focuses exclusively or predominantly on the members of the health plans or the patient panel.</td>
</tr>
<tr>
<td>• <strong>Cultivating Health for Success</strong>, UPMC for You, Pittsburgh, Pennsylvania. To stabilize housing and improve healthcare outcomes and costs for members who are homeless and enrolled in the Medicaid plan, UPMC for You.</td>
</tr>
<tr>
<td>• <strong>Community Connector Program</strong>, Molina Healthcare New Mexico (Molina/MHNM). To help address the complex needs of high-cost individuals who are member of Molina/MHNM by deploying Community Health Workers into the community.</td>
</tr>
<tr>
<td>• <strong>Diabetes Prevention Program</strong>, Montefiore, Bronx, New York. To prevent or delay the onset of diabetes among patients and employees. To support this project by ensuring the availability of healthy food choices.</td>
</tr>
<tr>
<td>2. Investment in the Community-At-Large</td>
</tr>
<tr>
<td>Investment in a geographic community population inclusive of, but not exclusive to, plan members or provider patients.</td>
</tr>
<tr>
<td>• <strong>Thriving Schools: A Partnership for Healthy Students, Staff and Teachers</strong>, Kaiser, California. To increase healthy eating and physical activity among students, staff and teachers in K-12 schools by making health-promoting changes in the schools in targeted communities.</td>
</tr>
<tr>
<td>• <strong>Optimizing Health Outcomes for Children with Asthma in Delaware</strong>, Nemours, Delaware. To improve health outcomes among children with asthma in three communities in Delaware by integrating clinical care with community-based prevention.</td>
</tr>
</tbody>
</table>

*According to Kindig and Stoddart, population health refers to the health outcomes of a group of individuals, including the distribution of such outcomes within the group (Kindig and Stoddart, 2003). Jacobson and Teutsch (2013) later amended the definition, stating that “total population health” refers to those outcomes and distributions as they apply to a specific geographic area.*
The following section provides an additional introduction to each initiative. For further information, please see the section Site Profiles on page 51.

KAISER PERMANENTE — THRIVING SCHOOLS

Thriving Schools (TS) is part of Kaiser Permanente’s enterprise-wide mission to address the Total Health of its members and their communities. Thriving Schools seeks to create lasting system and environmental changes in the K-12 schools located in Kaiser’s service areas. This five-year project builds on the success of Kaiser’s prior 10-year Community Health Initiative, which also relied upon multi-modal community interventions. In Thriving Schools, Kaiser focuses on healthy eating, physical activity, and employee wellness, seeking to create a culture of health in schools. The goal is to prevent obesity and otherwise improve the health of students, families, staff and teachers in Kaiser’s service areas. Funded by the health plan, Kaiser Community Benefits, and with support from its labor partners, Thriving Schools reaches over 300 schools in multiple states, and contributes to health policy efforts on local, regional, and national levels. Partners in this initiative include: Alliance for a Healthier Generation, Safe Routes to School National Partnership, and the School-Based Health Alliance.

MOLINA HEALTHCARE OF NEW MEXICO (MHNM) — COMMUNITY CONNECTOR PROGRAM

Molina Healthcare of New Mexico (MHNM) launched its Community Connector Program in 2006 to address the complex needs of high-cost members. Molina deploys Community Health Workers (CHWs), or “Community Connectors,” to provide health education and support, to coordinate care for members, and to address socioeconomic, environmental, and behavioral barriers to healthcare access. The initial program emerged from a W. K. Kellogg Foundation Community Voices Initiative located within the University of New Mexico’s Center for Community Partnerships. The University subsequently recruited, trained and deployed CHWs under contract with Molina. Over time, MHNM and others were successful in getting Medicaid reimbursement for CHWs; they continue to collaborate with UNM for training and other purposes, but they now employ their community connectors directly. This report refers to this study site as Molina/MHNM.

MONTEFIORE HEALTH SYSTEM — DIABETES PREVENTION PROGRAM

In 2011, Montefiore Health System adopted the Diabetes Prevention Program (DPP), an evidence-based intervention in partnership with the YMCA. The goal of the program was to prevent or delay the onset of diabetes within its adult patient panel. A decade earlier, Montefiore researchers and sites were involved in a multi-site clinical trial of this intervention; they demonstrated a 58% reduction of diabetes incidence. This study paved the way for a lifestyle change program accredited by the Centers for Disease Control and Prevention (CDC). For the last three years, Montefiore funded the staffing and training of YMCA lifestyle coaches who led the 16 group health education sessions in which participants learned to improve their dietary habits and physical activity, among other behavioral modifications. In 2015, Montefiore brought the DPP in-house for its patients, and kept the YMCA-based program for its employees. Montefiore participates in a companion community-level Shop Healthy NYC intervention intended to support healthier eating habits through inventory and display changes in bodegas and local stores.

NEMOURS CHILDREN’S HEALTH SYSTEM — OPTIMIZING HEALTH OUTCOMES

Optimizing Health Outcomes (OHO) for Children with Asthma in Delaware aims to reduce asthma-related emergency room use, hospitalizations, and associated costs among pediatric Medicaid patients in three communities in Delaware. Funded by a Health Care Innovation Award from CMS, Nemours worked to integrate healthcare with community support services
and local government initiatives to provide healthier environments for children with asthma in schools, child care centers, and in their housing settings. This clinical-community collaboration strategy had been successful in Nemours’ earlier childhood obesity prevention project. To address the non-medical concerns of families with high needs, the organization deployed Community Health Workers (CHWs) to provide home-based services, patient navigation, and case management support. Nemours worked closely with the local affiliates of the American Lung Association and local governmental initiatives for community education, and advocacy, using technology to engage school nurses in coordinated care. The project ended in December 2015. Analyses of the impact of the program are ongoing.

UNIVERSITY OF PITTSBURGH MEDICAL CENTER HEALTH SYSTEM: UPMC FOR YOU — CULTIVATING HEALTH FOR SUCCESS

Cultivating Health for Success is a pilot program dedicated to improving the health and security of high-cost, chronically-ill homeless adults enrolled in UPMC for You, a capitated Medicaid plan. Through high-touch care coordination and multiple partnerships, this program facilitates access to behavioral and primary healthcare and provides participants with housing support and HUD vouchers to help finance a transition to stable living arrangements. This initiative began in 2010, and is jointly financed by UPMC for You and by the Allegheny Housing Authority. The program involves collaboration with a number of local partners including; the Community Human Services Corporation, a long-term homeless and housing human services agency; the Allegheny County Department of Human Services; Metro Community Health Center; and Community Care Behavioral Health Organization. Enrollment has varied over time from a high of 75 to an adjusted cohort of 25 in the current one-year extension of the program. Expected outcomes include improved client health and housing tenancy, as well as reduced hospital and emergency department admissions. This report refers to UPMC for You, the Medicaid plan under which this project took place, as UPMC.
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Darshak Sanghavi, MD, Director, Preventive and Population Health Care Models Group, Center for Medicare and Medicaid Innovation, CMS
RESEARCH METHODOLOGY

In collaboration with the Robert Wood Johnson Foundation (RWJF), we identified five health plans and large provider organizations, which have made early commitments to population health investments. These organizations comprised a convenient and willing sample as early adopters in this arena. While not inherently representative of those more broadly engaged in population health, these five study sites do represent considerable diversity in important areas shaping our inquiry:

- Size and type of population health investment.
- Type of organization.
- Geographic location.
- Healthcare market and payer mix.
- Types of financial arrangements.

The study process consisted of:

- Extensive peer review and other document analysis.
- Interviews with population health experts and other key stakeholders.
- Development of a preliminary project framework in consultation with external consultants, national experts, and RWJ Foundation personnel.
- Selection of early adopters with a public presence in the population health arena.
- Development of an interview guide and project approval by Northeastern University IRB.
- Pre-site visit telephone interviews and organizational document review.
- Recorded and transcribed interviews with leaders and senior staff on site at each of the organizations.
- Follow-up fact-checking calls and emails as needed.
- Team-based interview data analysis.
The study’s main finding affirms that participating entities do have a business case for their population health initiatives. In fact, the organizations participating in this study bring their business interests to bear from the beginning—when deciding to invest in population health—all the way through to the commitment (or lack thereof) for longer-term financing.

These business interests include:

- Institutional mission and culture.
- Patient and population health status and risks.
- Short and long-term health outcome and cost imperatives.
- Changing healthcare markets and payment landscape.
- Community and other partner interests.
- Internal and external financial and care-delivery capacity.

- The ability to assess impact to inform future decision-making.

The population health strategies of the entities are subject to the same business concerns that apply to their other development and investment decision-making. Similar to the work of Bailit and Dyer (2004)\textsuperscript{12} and Leatherman, Berwick, et al (2003)\textsuperscript{13}, we find that organizations consider a wide range of business interests, substantially broader than just a return on investment (ROI). Always, the concerns of these entities are deeply rooted in strategic considerations for future viability.

The following pages further elaborate on our core findings and on the opportunities and challenges organizations face when moving outside their clinic walls and upstream into the community with population health investments. These efforts are a work-in-progress with many lessons to inform the ongoing development of the healthcare industry’s engagement in population health improvement.
Finding #1. Health plans and hospital systems have a business case for their population health investments.

MISSION SHAPES STRATEGY.
The organizations in our study are fundamentally motivated to pursue population health initiatives in order to have a positive impact on the wellbeing of members, patients, and the community. Each of the study organizations’ mission statements reflect this aspiration. Mission congruence has been identified in much of the population health literature as a core component of effective industry participation. What differentiated our findings regarding the role of mission is the extent to which mission is articulated as core to organizational business strategies as a whole. In fact, respondents link mission to their discussions about organizational response to market pressures, cost exposures, payment changes, client status, patient outcomes, purchaser demands, and community expectations. Together, these complex considerations shape the business case for population health investments. They are relevant at the front end of the process as described here in Finding 1, and have further expression in the implementation and legacy concerns described in Findings 2, 3 and 4.

For each entity, mission is central in creating a rationale for population health investments. The scope of the study organizations’ missions ranges from the delivery of quality healthcare to the building of healthy communities. The focus ranges from specific geographic regions to targeted population cohorts. Besides directing product-line development and other business priorities, organizational missions serve to align leadership strategies across each enterprise.

### MISSION STATEMENTS

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
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<tr>
<td>Montefiore</td>
<td>Montefiore's mission is “to heal, to teach, to discover and to advance the health of the communities we serve,” a statement about an enduring commitment to the Bronx. Montefiore sees its ability to serve patients as intimately linked to its ability to shape the community in which patients and workers live.</td>
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<tr>
<td>Molina</td>
<td>Molina mission is to provide quality healthcare to people receiving government assistance.</td>
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<tr>
<td>UPMC</td>
<td>UPMC's mission is to provide “outstanding patient care and to shape tomorrow’s healthcare system” in its hospital, outpatient provider system, and public health plan development. Its success is directly linked to the health and quality of life in Western Pennsylvania.</td>
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<tr>
<td>Kaiser Permanente</td>
<td>Kaiser Permanente seeks to establish “Total Health,” a visionary, enterprise-wide expression of its mission. Total Health is a framework to facilitate the alignment of resources across all endeavors. Kaiser sees its population health investments as a business and organizational development strategy, as well as an opportunity to lead the industry and influence other healthcare players. As an integrated plan and provider organization, Kaiser has always had its eye on the whole person and on creating healthy local communities, starting with its long-term base in California.</td>
</tr>
<tr>
<td>Nemours</td>
<td>Nemours recently updated its mission to specifically address the “improvement of children’s health,” an evolution of its original mission, which focused on “the restoration of health.” The mission statement also includes a commitment to providing “care and programs not readily available.” Nemours’ mission gives it a platform from which to expand into community-wide populations and preventive interventions, where other delivery-oriented systems may feel constrained.</td>
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</table>
MARKETS MATTER.
The forces of uncertain and changing markets inform where a population health strategy may or may not fit into a business case. Study organizations are growing and facing many challenges, including: the vertical and horizontal re-structuring of delivery systems, increased competition, and payers working at different stages of value-based purchasing. Well-designed population health strategies can differentiate an organization’s relative value to both payers and patients. For example:

- Kaiser invests in children across all of the communities it serves. Because children comprise 20% of overall enrollment, and because Kaiser members tend to stay with the plan over long periods, any impact on the health trajectory of children will generally impact the plan’s health costs and outcomes over time. Investing in the health of school children is also of interest to Kaiser’s current and potential employer clients who care about healthy communities too. Furthermore, because of Kaiser’s extensive contracts with public employers, many covered workers are school employees whose health Kaiser also seeks to impact through the workforce components of Thriving Schools, while addressing the health of their children and others in the community. Strategically investing in districts where market penetration is high makes good business sense by supporting the organization’s Total Health mission and positioning Kaiser well for the future.

- UPMC’s market expansion strategy relies, in part, on becoming an even more integrated plan and provider organization in Western Pennsylvania and taking care of “the whole person” in its public and private delivery and plan operations. UPMC intends to compete in the market on the basis of quality, which may include employing strategic population health interventions. As UPMC moves to a “20 Hospital/One Plan” structure, the organization is assessing where upstream strategies may make a difference.

While these study organizations seek to compete in exchange-based and other private markets, state Medicaid expansions also shape their market strategies. Beginning to serve newly insured Medicaid beneficiaries, the organizations face expanding numbers of low-income patients, many of whom have had significant health challenges over time without the benefit of insurance. All the study organizations have considered the implications of effectively serving newly covered individuals and the likelihood that they will require social, behavioral, and community care solutions. For example:

- Molina/MHNM takes its community-focused outreach worker strategy to Medicaid expansion states in order to better manage complex social needs and appropriate primary care use. It has had success with such a strategy in New Mexico. Molina/MHNM has also found that community workers can be important in addressing Medicaid and other healthcare delivery market failures in jurisdictions that have insufficient clinical capacity. In these settings, community health workers become a kind of clinical extender as Molina/MHNM seeks to build effective care models in rural and under-resourced settings.

- As Kaiser grows its Medicaid population, it is increasing its efforts to address the social and non-medical needs of those members. These efforts include assessment, navigation, and team-based care for people with complex conditions. Kaiser also intends to better integrate clinical care delivery with safety-net service providers who have expertise working with vulnerable populations.

- With its history of working with Medicaid beneficiaries, UPMC for You enjoys plan and hospital system leadership grounded
in behavioral health and human services. UPMC is committed to the idea that the welfare of many Medicaid enrollees depends on community-based services and support. UPMC aims to optimize the Medicaid program’s commitment to serve, stabilize, and potentially reduce the costs of complex beneficiaries through innovative service delivery and collaborations.

**PAYMENT CHANGES ARE SHIFTING DELIVERY.**

Public and private payers have been shifting reimbursement approaches, even before additional incentives emerged from the ACA. These arrangements are increasingly value-based and emphasize outcome-focused provision of care, increased quality, and risk assumption. In many ways, the future is already here: a rapid progression from fee-for-service payment plans to bundled and incentivized payment is underway, at least in some parts of the country. As one participant noted, “We assume that keeping people healthy is what we will be paid for in the future.” The mindset is changing. Moving healthcare delivery upstream into population health interventions is one potential response to an outcome-focused environment.

All of the participating organizations operate in states where payment and delivery reforms are underway, including: expanded managed care, especially in the Medicaid environment; increasing performance-based commercial plan purchasing; emerging Accountable Care Organizations (ACOs), including those under the Medicare Pioneer ACO program; and expanding numbers of Primary Care Medical Homes.

Four study organizations currently operate under capitated and incentivized payment approaches. For example, both Montefiore and UPMC have risk-bearing contracts with over 250,000 and 400,000 covered individuals in managed Medicare and/or Medicaid plans, respectively. New Mexico’s Medicaid program now penalizes Molina/MHNM and its other health plans for missing certain MCO standards, including, for example, a reduction in ambulatory sensitive hospital admissions. Study organizations with hospitals in their networks are also experiencing shifts in reimbursement stemming from Medicare, as well as multi-payer value-based and other payment changes.

Changes in payment structures are already changing delivery strategies. Study organizations are expanding care management approaches, transforming ambulatory and acute care practices, and engaging network providers in the process.

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Moving healthcare delivery upstream into population health interventions is one potential response to an outcome-focused environment.
SHIFTING PAYMENT & CARE

Kaiser is shifting its focus from high-cost conditions and post-acute management to reshaping ambulatory care for specific populations facing social, economic, and behavioral risks. Efficacy with these populations will require more upstream strategies. Their hypothesis is that the plan is currently substituting expensive medical care for less expensive social care for at least some of these enrollees and Kaiser is “on a journey to learn about that.”

To support the transition of network providers to new payment expectations, Molina/MHNM is implementing gain-sharing relationships with emerging Primary Care Medical Homes (PCMHs) in its New Mexico network. These PCMHs will incorporate community health workers, previously employed by the plan to meet certification requirements.

Value-based purchasing and risk-bearing contracts are not typical in most of the states where Nemours operates. Nevertheless, Nemours experiences increasing uncompensated hospital days and is actively changing hospital and outpatient care management to reduce ambulatory sensitive hospital admissions. Nemours also aims to position the organization within the evolving environment of Accountable Care Organizations (ACOs).

Current and future costs are pushing plans and providers upstream. Multiple factors shape the perceived utility of upstream strategies, including the health status of various patient populations, the likelihood of their ongoing tenancy in a delivery system, and the differential cost of their care. Population health projects at several of the study organizations were compelled by current risks regarding high-cost patients and members.

COST EXPOSURE & UPSTREAM INVESTING

Molina/MHNM faced increasing and unsustainable emergency room costs associated with its hardest-to-reach populations. Its health worker strategy was initially propelled by the need to understand the complexity of enrollees’ lives in order improve their primary care utilization. Molina/MHNM’s work revealed that substantial safety, economic, behavioral, literacy, as well as other basic life needs, shaped health risks and impeded healthcare access.

UPMC identified high costs among its homeless population as a substantial risk to its Medicaid plan, UPMC for You. The study organization viewed its supportive-housing collaboration as an insurance initiative. UPMC believes that better collaborative management will yield both improved care outcomes and reduced costs within a reasonable period of time. Additionally, UPMC anticipates that people with disabilities will “be around for a long time,” and a successful intervention implemented now may lead to improved management and reduced costs in the future.

Nemours has experienced increasing losses in potentially preventable ED use and hospitalizations among its children with asthma. Nemours understands that home-based and other preventive interventions have increasingly proved effective in this population and sought to change clinical and community practice through grant-related funding.
Two of the study organizations took a long-term view of patient health outcomes and costs in the geographic areas where they have high market penetration. Kaiser and Montefiore anticipate that patients who are at risk for specific chronic diseases are likely to continue to be in their plans or provider networks for a long time. As a result, the institutions started with a long-range view of risk, remediation, and associated costs.

PLANS AND SYSTEMS ARE EXPECTED TO BE PART OF THE SOLUTION.

Health plans and large provider systems function in an era of great expectations concerning population health. Increasingly, they are seen as part of the solution to prevention and to addressing social determinants of health, work previously more closely associated with the roles of public health and community-based social service organizations. Beyond the pressures of public and private payers, governmental bodies at state, county, and local levels expect industry players to help achieve health improvement plans and population health benchmarks. However, many have become “anchor” institutions in their communities. In such a critical role, they are seen alternately as a great benefactor or an encroaching threat.24 They are expected to help solve significant local problems, and yet are often viewed with suspicion when they over-reach.

As much of the literature focused on financing population health has noted, IRS-related community-benefit obligations of non-profit hospitals represent, albeit unevenly, some of the most notable long-term healthcare industry financing for community health-related projects. While the overwhelming majority of resources have gone to uncompensated care and research, the process itself has nurtured connections among community-based advocacy, human service organization and hospitals. With recent IRS Community Health Needs Assessment and implementation requirements, the magnitude of dollars earmarked for community services is expected to increase, as will the expectations of historic and new partners.

All participating study organizations either own or have non-profit hospitals in their networks. For some, the community benefit requirements are primarily a philanthropic effort, not necessarily situated within the organizational business objectives. But for others, community benefit and philanthropic investments are increasingly aligned with healthcare delivery on their operational side. Kaiser seeks just such synergy to support its Total Health mission. Montefiore similarly tries to facilitate alignment of care delivery and community investment through its Office of Community and Population Health.

Health plans and large provider systems function in an era of great expectations concerning population health.

All participating study organizations view themselves as embedded in their communities with lengthy and ongoing local philanthropic commitments that express their missions and secure their reputation as “good neighbors.” The organizations are invested in—and often dependent on—the wellbeing and good will of local and state partners and decision-makers for business-related issues as diverse as coordinated service delivery, product marketing, capital development, and facility zoning. Over time, many have become “anchor” institutions in their communities. In such a critical role, they are seen alternately as a great benefactor or an encroaching threat.24 They are expected to help solve significant local problems, and yet are often viewed with suspicion when they over-reach.
Population health investment has the potential to improve healthcare costs and outcomes while at the same time meeting community service development needs. Optimally, these joint interests shape the “laboratories of change” needed to determine what works in upstream interventions. The question facing study organizations is how far outside and upstream should the healthcare industry go to improve population health?

**FINDING #1: SUMMARY POINTS**

- Mission, markets, payers, and partners shape the business case for population health investments in much the same way that they inform other healthcare industry business development and decision-making.

- Plans and hospital systems are already experimenting with shifting reimbursement approaches and pushing investments upstream in anticipation of increased outcome-oriented requirements.

- Provider systems and plans are expected to be part of the solution and are often “laboratories of change,” as they continue to ask critical questions about what is an appropriate role for them in achieving improved population health.
Finding #2. Launching successful population health initiatives relies on alignment of internal and external partners, expectations, resources, and delivery system capacity.

How do organizations decide to launch population health efforts? They bring to bear the leadership, analytic, financial and other resources that inform business development more broadly. Specifically, our study organizations:

- Assess the need and opportunity to address an important population health concern.
- Leverage institutional histories demonstrating transformational healthcare and improved outcomes.
- Test their organization’s willingness—financially and politically—to take the necessary strategic risks involved in improving population health.

Though the study organizations are diverse in size and reach, their population health strategies share many objectives, use similar resources, and struggle against nearly identical rate-limiting issues.

**THERE IS A REASON TO BELIEVE IN THE INTERVENTION’S SUCCESS.**

After identifying a target population health issue, it is essential for organizations to have evidence-based options for creating change. However, study organizations face multiple challenges when figuring out how far and how much of an upstream investment to make, regardless of whether the reach of the project is the patient panel or the broader community. There are a number of questions organizations must answer, including:

- How likely are interventions to have an impact on targeted health outcomes?
- Is the effect of the intervention well demonstrated in the population of interest?
- To what extent does the impact of the intervention depend on having resources from other sectors in place?
- Is it possible to determine a reasonable timeline for having an impact on the target population?
- Are there reliable measures available?

Many governmental and non-governmental entities have sought to address how to select the best interventions to improve specific population health outcomes. To make the decision, our study organizations draw upon their own experiences and other established data.
### HISTORY AND DATA INFORM DECISIONS

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<thead>
<tr>
<th>Organization</th>
<th>Description</th>
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<tr>
<td>NEMOURS</td>
<td>Prior work at Nemours in combatting childhood obesity confirms the value of partnering with local schools and community organizations to mount a cross-sector initiative on asthma.</td>
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<tr>
<td>MOLINA/MHNM</td>
<td>Molina/MHNM had experienced the early success of the University of New Mexico by connecting a network of community-based outreach workers directly to a health plan.</td>
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<tr>
<td>MONTEFIORE</td>
<td>A decade ago, Montefiore researchers participated in a three-arm diabetes prevention trial, which included an educational intervention. The impetus to make the current investment is based on several factors, including the compelling data from the pre-diabetes trial, increasing concern about large cohorts of pre-diabetic patients, and the availability of a community partner, the YMCA, certified in the CDC’s licensed curriculum. Similarly, emerging data on moderating the effects of environmental triggers continues to focus Montefiore to work with local bodegas to change the availability and store location of high fructose drinks.</td>
</tr>
<tr>
<td>UPMC</td>
<td>To improve client health and housing tenancy, UPMC invested in integrating clinical-care management with the homeless housing program of a local human service agency. The organization relies on more than a decade’s worth of studies supporting the efficacy of community-clinical connections in working with homeless individuals.</td>
</tr>
<tr>
<td>KAISER</td>
<td>A decade ago Kaiser created an environmental change strategy focused on communities as the unit of analysis, a geographic population rather than a population of members or patients already living with certain diseases. The Community Health Initiative (CHI) gave Kaiser their “sea legs” in understanding how to successfully mount multi-modal, community-level prevention interventions. CHI preceded and continues to undergird Kaiser’s Total Health strategy and its Thriving Schools initiative.</td>
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### THERE IS INSTITUTIONAL LEADERSHIP.

The Institute of Medicine (IOM) and others have addressed the importance of leadership in facilitating population health initiatives. Leadership references were redolent throughout the reflections of the participating study sites. All study organizations understand the importance of having institutional sponsors of population health at the highest levels of the enterprise. In all cases, major fiscal, mission, market, partnership and other resources are at stake, even with relatively small projects. Corporate officer buy-in is observed as necessary to the success of the project. In this study, the site leaders are located either in the philanthropic/analytic or the operational/delivery side of organization with varied disciplinary backgrounds. They represent diverse experience in healthcare, public health, human service delivery system, and analytics; this diversity benefits an organization’s ability to appreciate novel interventions and to build cross-sector partnerships. These site leaders were similarly effective at building buy-in internally across their institutions.

### THERE IS SUPPORT ACROSS THE ENTERPRISE.

Being successful in population health strategies depends upon cross-enterprise understanding in a way that historic charitable giving and community engagement do not. All study sites share an understanding of the benefits of commitment to population health improvement across plan, provider, and philanthropic structures. Leaders understood from the outset that buy-in was not necessarily a given and that culture change and collaborative learning needed to occur. For example, Kaiser, with its Total Health strategy, actively built a cross-enterprise platform for aligning community and clinical investments. Similarly, Nemours has been evolving the role of Nemours Health and
Prevention Services, its health promotion and community research and investment arm, in order to inform the healthcare delivery side of its operations.

Working across philanthropic and delivery structures can be challenging. Different language, incentives, expectations, and timelines shape different cultures and obligations. Innovation on the “soft side” of the enterprise may be dismissed as unimportant or less efficacious. And, historically, these investments have not been subject to the same quality and cost savings burdens that clinical delivery continues to face. One clinical leader described a struggle in getting their provider network to view community investment as something other than “just another pig at the trough.” He believed the network needed to appreciate the potential for upstream, community-based strategies to inform clinical care.

Well-intentioned population health strategies can also have unanticipated negative impacts on care delivery and other operations. In two study organizations, the new interventions created workflow and data collection challenges. In another, the population health effort hadn’t anticipated—and was negatively affected by—a planned location move of the clinical site.

Well-intentioned population health strategies can also have unanticipated negative impacts on care delivery and other operations. As one study participant noted, it is only in the actual implementation of integrated community and clinical efforts that the real costs and organizational effects become apparent. In this respect, the extent to which study entities consider themselves to be “learning institutions” creates a tolerance for some uncertainty and the iterative development of understanding. Building cross-enterprise knowledge about population health strategies is perhaps an under-appreciated component of these initiatives.

**THERE IS A HISTORY OF INNOVATION AT THE ORGANIZATION.**

All study organizations have demonstrated experience in building and testing care delivery transformation and community improvement projects. On the healthcare delivery side, they have been improving primary care interventions, expanding chronic disease management efforts, developing acute care management and transition strategies, and reducing emergency room and hospital admissions. Such efforts have been undertaken to improve patient outcomes and to respond to changing payment related expectations. Outreach into—and actual purchasing of—community-based non-medical services are ongoing as study organizations seek to determine what interventions will have an impact on healthcare delivery requirements and what factors will improve individual and community health. Modeling strategies and measuring impact are subjects of considerable investment. An institutional capacity to invest in program development and outcome assessment is advantageous to building and testing upstream population health investments.

Most of the sites have incubator processes or platforms to support innovation in care delivery. Funded by a trust and through external grants, Nemours Health and Preventive Services functions in this way. At Montefiore, the Office of Community and Population Health directs administrative and grant funds into community health related innovations and establishes investment performance measures. For Kaiser, model building and analysis is a joint effort across the business and philanthropic sides of the organization. Kaiser’s Total Health strategy provides a platform for aligning diverse functions and organizational assets to
improve population health, with efforts that span clinical and community domains.

These early adopters also share multi-level approaches for innovation and change management. Molina/MHNM’s community health worker initiative is a good example. This initiative has relied upon multiple strategies over time from testing efficacy to acquiring reimbursement, including:

- Establishing plan related outcomes.
- Reassessing worker roles and training needs.
- Evaluating impact, cost, and ROI.
- Engaging community and state actors in payment policy development.

Molina/MHNM now exports this strategy to their other state plans and new partners in their expanded provider network in New Mexico.

While our study focuses on singular initiatives, all study organizations have many innovations underway with population health as a primary focus (e.g., Montefiore’s adolescent health initiatives) or with a goal of incentivizing population health strategies within provider networks (e.g., UPMC’s current risk-sharing strategy for management of children with special healthcare needs). Considerable resources are devoted to identifying, replicating, evaluating, and transforming delivery of healthcare and improvement of population health. Determining how best to harness the lessons learned and facilitate cross-industry access to best practices may be an important area of development for the future.

THERE ARE WILLING AND CAPABLE PARTNERS.
All of the participating study organizations believe that there are community-based entities better suited to deliver social and human services that improve health costs and outcomes for at-risk members and patients. They have long histories with many community-service providers as funders or collaborators. Community partners in each of the study projects have long-standing relationships with the plans and provider organizations and are uniquely situated with resources and competencies expected to produce reliable outcomes. For instance:

- The University of New Mexico had well-trained and experienced community outreach workers prepared to support Molina/MHNM’s population health strategy.
- The Bronx YMCA is certified to provide the CDC’s licensed diabetes prevention intervention that Montefiore wants its patients to attend.
- Community Human Services Corporation in Pittsburgh brought a long history of providing housing support for homeless individuals like those UPMC hoped to help.
- Local affiliates of the American Lung Association and collaborating schools and community groups from its prior obesity initiative supported Nemours’ OHO child asthma intervention.
- The Alliance for a Healthier Generation, a national school-based obesity intervention program, helped scale an evidenced-based program to more than 300 schools across Kaiser’s footprint. In those schools, Alliance staff also play a role integrating Kaiser wellness assets, grants and other Kaiser resources.

THERE IS A FINANCING MECHANISM.
In each site, population health investing began with resources allocated from outside the organization’s operational funds. Three study sites operated predominantly using administrative dollars from the plan or provider system. Another site financed its project predominantly through federal demonstration funds. And one relies on the plan’s philanthropic resources, which have recently been matched with a commitment from the operations side.
of the enterprise. Having resources available that do not immediately affect delivery systems appears to be an important requirement for moving into uncertain upstream interventions.

The length of the commitment to an intervention is often unknown during project planning and initiation. All study organizations engage in an iterative process that includes investing, operationalizing, evaluating, modifying, and reassessing their strategies as implementation proceeds. Most of these initiatives do not have sufficiently proven track records to reliably command reimbursement or long-term business development investment at the outset. They are all works-in-progress that seem to “make sense” until a more detailed understanding of the impact and future value of the initiative can be achieved.

**THERE IS AN OPPORTUNITY FOR A POSITIVE FINANCIAL IMPACT.**

The business case for all of the study organizations is predicated on interests well beyond narrow calculations of the traditional ROI. Nonetheless, “keeping business realities in mind,” for the near-term and long-term, remains important. As the operations leaders at one study site noted, “We think this makes good business sense…but when we put our resources into this (population health initiative), we are making a choice not to put our resources somewhere else.” Determining fiscal impact is critical.

All study organizations begin their population health initiatives with the expectation of reducing the current and future high costs of the target population in some way. Assessing the fiscal impact of the interventions take place at different points during each project.

Nemours, UPMC, and Molina/MHNM focused on high cost/high risk groups as follows:

- **Nemours** aimed to reduce ED use and hospital admissions for children with asthma in its catchment areas. Its Health Care Innovation Award from CMS has a three-year timeline with an expectation of both child health improvement and a positive ROI by the end of the demonstration period. The analysis for this return is ongoing.

- **As a fully capitated plan, Molina/MHNM** is financially at risk for its members’ emergency room use. Community health worker support is the interventional strategy. Several years after seeing a reduction in ED use, Molina/MHNM built a retrospective analysis that demonstrates a positive return on their investment.\(^34\)

- **UPMC for You** expected to see an ROI based on reduced emergency room utilization and hospital admissions for high-cost homeless members in three years. UPMC continues to view the investment as an insurance initiative intended to provide more efficient care under the full-risk capitated arrangement UPMC for You has with the state’s Medicaid program.

Montefiore and Kaiser both started with long-term timelines in seeking to prevent diabetes and obesity, respectively. Montefiore moved its intervention evaluation into an ROI analysis when results likely to have an impact on cost came in sooner than expected. Kaiser’s Thriving Schools initiative has a five-year timeline with a complex logic model of assessing outcomes associated with members and the broader community. Kaiser’s success in preventing childhood obesity is part of a much larger Total Health strategy, a commitment to creating healthy communities while taking care of members and expanding its market. Given its size and reach, Kaiser considers a narrow ROI analysis of limited value to the project. However, demonstrating the economic value of diverse interventions over time continues to be an aspiration.
FINDING #2: SUMMARY POINTS

- Successfully launching a population health initiative is a complex endeavor, involving many factors including the existence of evidence for success, institutional leadership, and support across the organization.

- Study organizations rely on internal and external alignment of resources, capacity, trust, and willingness from all involved stakeholders.

- Organizations launching population health interventions make considerable investments to develop partnerships, data, financing, and implementation strategies that will shape a successful venture.

- Demonstrating an ROI is important, though organizations face different expectations regarding the specificity of the analysis and the time frame needed to produce results.
Finding #3. Measuring the impact of population health interventions is a serious challenge.

The importance of identifying meaningful population health metrics has been the subject of many endeavors over the last decade.\textsuperscript{35, 36, 37} There are several difficulties in choosing and using reliable metrics, including:

- The relative utility of various morbidity and mortality indicators as measures for assessing movement in population health outcomes.
- The appropriate geographic domain across which both interventions and measurement should occur.
- The lack of alignment between broader population health measures and patient/provider data typically used to measure healthcare utilization, quality, and cost outcomes.

These challenges are reflected in the study interventions, as is an aspirational spirit for broader public and private efforts to improve data modeling that can capture the interconnection between individual and population health. This is an arena of considerable activity and study sites demonstrated commitment to innovation even as they faced the limitations of available strategies.

**The ability to collect data is a function of the extent to which health plans and provider organizations have their arms around the target populations and interventions.**

The process of moving outside of the clinic walls, or outside of one’s panel or members, introduces many data collection challenges including:

- Provider organizations often have access predominantly to data associated with fee-for-service delivery. Even when organizations operate with a bundled payment or sub-capitation, data reach is limited to their own service delivery components.
- Plans have access to all the cost and outcome data for their own members and services. But even for plans, there continue to be many payer-based services that are reimbursed outside of their capitation, including, most notably, behavioral health and long-term supports.
- Most plans and provider systems are not integrated with public health related service delivery, or cost and outcome data. Virtually no plans or provider systems have data collection sharing with non-medical community-based social and human service delivery systems, even for their own members and patients.
- There is no meaningful access to broader population health data for plans and provider systems beyond what is publicly available, usually aggregate data.

These constraints not only limit the incentives healthcare provider have for improving population health, but they also limit the ability of willing organizations to assess the full cost and outcomes of their efforts. For example:

- Nemours’ childhood asthma intervention was focused on populations within a geographic region. To access data required by the federal innovation grant, Nemours relied upon collaborative agreements with partners in the state of Delaware. Despite these relationships, Nemours faced challenges in accessing full information regarding utilization, cost, and outcomes.
- Even as a capitated Medicaid plan with a population health intervention focused only on its members, UPMC for You faced
data access challenges similar to those of many public and private plans that have a behavioral health carve-out. The organization has been unable to link important individual behavioral health utilization and cost data to its medical care information, even though another division of UPMC Health System is the behavioral health plan for the project population. The behavioral health data has been available only at an aggregate level.

PARTNERING WITH COMMUNITY-BASED ORGANIZATIONS PRESENTS ITS OWN CHALLENGES WITH DATA COLLECTION.

Among study sites, effective delivery of population health interventions requires active engagement of non-medical services and community partners. While community entities often have experience with process-related data, they rarely deal with health-status data collection and never handle health outcomes and cost information. Additionally, non-medical providers do not typically share information across sectors, and are prohibited from doing so in certain cases.38

For example, UPMC for You noted the challenge of not being able to “liberate” data from social and human services, and other community partners, in order to fully evaluate its homeless intervention. Even when data from the County Department of Human Services becomes available, critical housing-status indicators are often missing. In many cases, health industry partners are left with partial cost and outcome data or must attempt to estimate expenditures by aligning interventional costs and impact with available aggregate data from other sectors. While the ongoing development of the Hennepin County model offers some hope in terms of producing effective cross-sector data and analyses, the work relies only on integrating publicly held data for publicly insured populations.39

Even when data collection and transfer arrangements are part of a contract with community partners, there may still be challenges in getting needed information. As has been reported by others, the inability to link community intervention data effectively with electronic health records (EHRs) has resulted in problems with completeness and quality. Molina/MHNM and Montefiore both faced this issue. Both have moved their community-purchased services into their own operations. The goal of this move has been, in part, to assure direct and accurate process and outcome data collection.

Data difficulties can diminish institutional commitment to population health efforts, particularly when healthcare organizations cannot reliably assess the health improvement or cost savings of their investments.

SELECTION OF APPROPRIATE METRICS IS DIFFICULT.

All of the participating study sites struggle to integrate familiar clinical utilization and cost data with broader population health measures. Organizations are trying to address multiple interests across their institutions, regardless of whether investments have a reach beyond panels or not. Leaders in our study organizations look to an uncertain future regarding what outcome measures will be most relevant in restructured delivery and payment arrangements.

In this way, organizations face a conundrum. First and foremost, there is a misalignment between the measures that are relevant to payers—as well as to overall plan and provider performance—and those that are more typically associated with population health analyses.

For example, Montefiore has historically relied on local health department data as a baseline for understanding patients in the context of the health measures reported for the total population in the Bronx. Recently it became apparent that city data does not consistently map well onto Montefiore patient panels. One of Montefiore’s strategies to address this problem was to incorporate a subset of indicators from The Behavioral Risk Factor Surveillance System.
into EHRs. Montefiore anticipated that this would improve its ability to better understand how its patients differ from the broader borough and city populations.\textsuperscript{42} This strategy is now being reassessed because clinicians did not experience the data collection as sufficiently related to their patient-care needs. Montefiore has re-focused the strengths of its EHR-data collection to create a community health dashboard that will better reflect the upstream impact on population health exerted by its care-delivery process. The organization is also using the social-determinant framework of equity and health used by Parkland Hospital to measure their impact on the community.\textsuperscript{43}

Identifying appropriate metrics becomes particularly important in the face of the long, and sometimes uncertain, timelines needed to influence the social and economic factors that can improve population health. The further upstream plans and providers go, the more tenuous is their ability to see—and measure—health impact and intervention cost.

### DATA COLLECTION CHALLENGES

| MOLINA/MHNM | To gauge the impact of its community health workers (CHWs) intervention, Molina/MHNM initially relied on HEDIS scores, service utilization, and cost data, plus member- and provider-satisfaction scores. However, leaders at Molina/MHNM have realized that such indicators under-appreciate the diversity of social and non-medical system interventions. In response, Molina/MHNM has established a goal-based strategy for better CHW monitoring. It has also launched a searchable database to capture the range of upstream interventions CHWs provide. As Molina/MHNM moves to more risk-based and shared-savings contracts with its in-network primary care medical homes (PCMHs), the organization faces a new measurement challenge regarding the work of CHWs who will now be employees of the PCMHs, rather than employees of the plan. |
| KAISER PERMANENTE | The process of determining which metrics matter most becomes even more difficult when the intervention exists across sectors and lasts over time. Kaiser uses the County Health Rankings as a benchmark for population health interventions, but also uses many other health behavior and outcome indicators. To encourage cross-sector engagement, Kaiser is considering data elements that may help schools understand “intermediate outcomes” that influence health. As a result, Kaiser has incorporated school attendance and performance measures into its health outcome logic model. |
| UPMC | UPMC for You continues to identify and adjust for multiple data challenges in its supportive housing project. HUD definitions of homelessness and program goals have shifted over time and data regarding clients’ actual housing status is not always reliably available. Members enrolling in the program are sometimes new to the plan, making adequate benchmarking of clinical acuity and unmet service needs nearly impossible. Following individuals over time in a transient population with changing plan eligibility is difficult. Assessing the joint goals of the program, improved housing tenancy and improved health outcomes and costs, remains a work in progress. |
| MONTEFIORE | Montefiore currently relies on individual-level participation and clinical outcome data to assess its obesity intervention. As Montefiore aims to reinforce patients’ progress and health in the community, it continues to collect data from the Shop Healthy NYC initiative. The organization wants to assess whether changing inventory and sales practices related to sugared beverages can independently contribute to overall diabetes prevention. Montefiore is interested in whether cross-sector data can be useful in measuring health. Eventually, the organization expects its community health dashboard to include broader education and employment indicators, which is a goal of external community action efforts. |
UNDERSTANDING WHAT PART OF AN INTERVENTION IS HAVING AN IMPACT MATTERS DIFFERENTLY TO ORGANIZATIONS AND DEPENDS ON TIME HORIZONS, PAYER EXPECTATIONS, AND OTHER CONCERNS.

Most population health strategies rely on multiple interventions. For example, Nemours’ efforts to reduce costs and improve health outcomes for children with asthma in Delaware relied on:

- School-based collaborations.
- Community health-worker home interventions.
- Collaboration with the local American Lung Association.
- Outpatient and hospital-based clinical management efforts.
- Its integrator role that worked across systems to change policies and practices.
- Changes in the clinical delivery system, especially in the primary care team.

Post-demonstration analytic work for Nemours’ intervention is ongoing. So far, however, preliminary results have demonstrated improved child health and reduced hospitalizations. In response to this success, the organization has changed the clinical management and referral protocols of its network providers and has achieved changes in the state Medicaid formulary. At some level, the combined effort of its strategies resulted in promising outcomes, but which interventions mattered most?

The ability to differentiate the effects of multiple parts of an intervention is critical when the future financing of the population health strategies is in question.

- For Montefiore, understanding and quantifying the effect of its diabetes prevention intervention has been critical to moving the intervention into a covered-service category. Bringing the intervention’s services in-house permitted adjustment and titration of the program to better measure efficiencies, quality, and positive health outcomes.

- Molina/MHNM’s CHWs have performed many supportive services for high-risk members, including improving use of basic primary care with navigation support. As Molina/MHNM moves the purchase of CHW support to network PCMHs, it is becoming more important to characterize the diversity and intensity of the services.

- Kaiser’s Thriving Schools strategy is a multi-pronged, multi-year endeavor. It relies on a “suite of evidence-based interventions.” Right now, Kaiser does not differentiate the relative contribution of each individual component to the reduction in childhood obesity. Instead, Kaiser hopes to understand the value of intermediate behavioral and other cross-sector health-related measures that may predict health and cost improvements. The organization wants to characterize the relative value of Thriving Schools in order to inform long-term policy and investment plans. Kaiser also expects to get critically important information regarding dose effects from measuring intensive interventions provided through the Alliance for a Healthier Generation.
FINDING #3: SUMMARY POINTS

- Efforts to identify, access, and analyze the right metrics for characterizing population health interventions continues to challenge healthcare industry leaders, early-adopters and partners.

- Healthcare industry partners wish to contribute to broader efforts to improve population health, but their own core business and data requirements are not necessarily oriented to easily achieve or measure outcomes.

- Efforts to work across a variety of sectors to build the needed analytics are significantly affected by the fact that the core business of other sectors is not solely the production of health, as it is for our study organizations.

- There are serious limitations in the readiness, willingness, and capacity of partners outside the healthcare industry to generate and share relevant data.
Finding #4. The outcomes of population health investments vary considerably.

Whether focused on patients and plan members, or on the community at large, population health innovations remain something of a grand experiment. As such, outcomes vary considerably due to a number of factors, including organization commitment, cross-sector partnerships, reimbursement and financing pathways, and ongoing broader payment and institutional financial pressures.

THERE ARE ALWAYS LESSONS LEARNED, BUT CONTINUITY OF A POPULATION HEALTH INVESTMENT IS A FUNCTION OF IMPACT, PLAN/PROVIDER SYSTEM COMMITMENT, AND CROSS-SECTOR/PAYER RELATIONSHIPS.

All of the participating sites demonstrate a remarkable level of ongoing and iterative learning that inform the delivery and approach of their population health effort and often result in institutional practice change.

Now at the end of its asthma project, Nemours has learned many lessons and has made a number of administrative and care delivery transformations. Early findings by CHWs regarding the challenges families face in using inhalers correctly has led to a successful Delaware Medicaid formulary change spearheaded during the course of the demonstration. The proven efficacy of asthma-related housing and community services has resulted in changed patient management and referral protocols for Nemours’ outpatient and hospital providers. Additionally, new clinic hours address parent work schedules and children’s needs. Across the enterprise, the role of Nemours Health and Prevention Services (NHPS), as a change agent for and with the Nemours service network, has been well established. Many of the demonstration program strategies have been institutionalized in Nemours’ care-delivery processes. However, while there had been considerable interest in and progress toward identifying ongoing financing of community health workers, lack of commitment by payers has required Nemours to limit and modify the use of CHWs, a major feature of its strategy.

UPMC for You also discovered unanticipated aspects of the complexity of patients’ lives and the community services they use. Patients entering the program have been more behaviorally involved than had been apparent through available claims-related information. The enrollment of individuals who are relatively new to the plan has made it difficult to appreciate their baseline clinical acuity. For some clients, housing locations made it difficult to access transportation and get to designated clinical sites. These and other complex aspects of clients’ lives have had an impact on program retention as well as on the ability to demonstrate health outcome improvements and anticipated cost savings. Even when social and clinical-care management approaches were shifted to improve retention, other program circumstances, such as the absence of a sobriety requirement for program participation as well as ongoing transportation problems easily destabilize care continuity and housing tenancy in this complex population. The lessons learned regarding siting programs and improving community collaborations are extensive. Similarly, UPMC gained new insights regarding establishing more realistic goals for this population and building more flexible and responsive cross-sector financing and support.

Over time, Molina/MHNM has engaged in the ongoing refinement of the roles and responsibilities of CHWs in its New Mexico Medicaid plan. Molina Healthcare has now adopted this strategy in other states. The learning process continues as various state plans experiment with the right mix of frontline worker
versus clinical-care management personnel for achieving quality and cost outcomes.

With confidence in the platform for change already experienced in Thriving Schools, Kaiser is adding strategies to take on violence and mental health issues in school environments, while continuing to evolve and evaluate its obesity intervention. Pushing forward with a place-based, multi-level, community-engaged approach, Kaiser continues to ask the questions: How far upstream and how broadly across sectors can and should the plan reach? This inquiry is underscored by the persistent question all our study organizations asked: “What is our role in prevention?”

SOME POPULATION HEALTH STRATEGIES FIND A PATHWAY TO REIMBURSEMENT OR ONGOING INSTITUTIONAL COMMITMENT.

The search for financing mechanisms for population health investments has been a major focus of the Institute of Medicine (IOM) Roundtable on Population Health and others.44 One hope is that population health efforts will prove worthwhile to a purchasing system that is shifting its focus to health outcomes and that permits both flexibility in services and retention of savings. In our study, three of the interventions found such pathways, at least for part of their intervention.

Understanding the pathway to reimbursement is more difficult when an intervention is located in the broader community and when contributions to member health and costs are less well understood. Kaiser’s Thriving Schools has three more years during which they hope to be able to characterize the community-level health improvement and cost reductions relevant to ongoing investments. Across the enterprise, Kaiser is now building an interconnected pathway through workforce wellness, care management, quality improvement, member-based prevention, and community wellness efforts. The organization hopes to be able to better understand the value of population health commitments. This is a part of the work that lies ahead.

PATHWAYS FOR FINANCING

| MOLINA/MHNM | Molina/MHNM’s CHW intervention was underway for many years before New Mexico Medicaid recognized its cost effectiveness. Molina/MHNM already knew the CHWs improved patients’ engagement in care and reduced emergency department use. The organization retrospectively built the data to further demonstrate this impact, and, with other plans and advocates, garnered a commitment from New Mexico Medicaid to incorporate the service into its capitation for all Medicaid managed care plans in the state. |
| MONTEFIORE | Montefiore has set up an internal reimbursement process for the diabetes prevention program, whereby the Care Management Organization (CMO) is billed for program services rendered to patients covered by value-based contracts. Convincing its fee-for-service insurers that this intervention is a worthwhile venture, however, remains challenging. The fee-for-service environment continues to have limited incentives and a high-bar for making upstream investments. Among other challenges, some insurers require six-month timelines for demonstrating health and cost outcomes. |
| NEMOURS | Though not successful in finding a payment path for much of its community intervention components, Nemours obtained agreement from Delaware’s Medicaid program to fund the more effective and cost-efficient inhaler services through the home-based intervention part of the study. Nemours also noted the project’s “halo effect.” The multi-disciplinary teams set up for the demonstration positioned the PCMHs for NCQA certification, which requires community-service connection and facilitation similar to the support the program’s CHWs provided. NCQA certification may ultimately assure comparable outreach-worker support through new payment mechanisms. |
Financial pressures and inadequate incentives limit support for population health efforts, especially when ROI is insufficient or when dedicated financing ends.

All of the study organizations experience an ongoing quest for savings from plans, employers, and payers. Even when population health strategies hold the promise of reducing costs, there are limits to the resources that might otherwise be available to support ongoing investment. These limitations include increased savings targets, quality withholds, provider payment reductions, lack of access to shared savings, and ongoing fixed cost burdens. With increasingly tight financial management, the incentives for ongoing population health investments can get crowded out quickly.

Even when population health strategies hold the promise of reducing costs, there are limits to the resources that might otherwise be available to support ongoing investment.

For example, when its demonstration project ended, Nemours had no shared savings or other intervention financing mechanisms available for reinvestment. Unlike the other study sites, which are fully at-risk for at least some of the targeted populations, Nemours has not been able to secure risk-based or shared-savings contracts. This situation has limited the organization’s opportunities for potentially capturing savings from upstream investments. Nemours has also experienced rising fixed costs for operations. Like other delivery systems, the organization needs to account for fixed cost increases in a payer environment increasingly focused on cost-containment.

Kaiser has the tremendous advantages of being, mostly, a fully-capitated plan with a large footprint, an integrated network, and several long-term community investment strategies. Nonetheless, the organization faces the implications of the shifting markets in which it operates. Significant expansion into newly-covered Medicaid populations requires adaptation of models for cost and care management. Continuing to move into new geographic markets, Kaiser also experiences the difficulties posed by new network relationships where hospitals and other parts of the delivery system are contracted entities, rather than being fully owned. It is challenging to translate successful quality and efficiency strategies into different provider relationships. Even within existing and fully integrated markets, Kaiser faces the challenge of managing pressure from payers, including Medicare. A particular challenge, for example, is planned Medicare payment reductions for physicians who, at Kaiser, are salaried personnel.

Additionally, for three of the study organizations, establishing a long-term financing strategy for their population health efforts is predicated on determining an ROI to compel commitment over time. Molina/MHNM and Montefiore have both succeeded with at-risk plans within which they currently operate. However, both organizations face expansion challenges. UPMC continues to seek to modify its expected ROI in order to secure a long term commitment to a strategy for homeless members of their plans.

- Montefiore faces resistance from the larger, fee-for-service insurers who look for shorter timeframes for the ROI in the diabetes prevention program.
- Molina Healthcare continues to have difficulty garnering financial commitments from other state Medicaid programs, in spite of New Mexico’s support for its CHWs. Among other problems, Molina encounters resistance from
other state Medicaid programs to reimburse non-clinical workers.

- For UPMC, the homeless-intervention strategy is an insurance initiative launched with the plan’s administrative resources. The anticipated ROI over a three-year period was modest, but expected to inform a longer-term strategy. Finding patients to be considerably more socially and behaviorally complex than originally anticipated, UPMC has continued to refine its ROI analysis and its understanding of the necessary input needed to create change. Among other changes, they are now modeling a different outcome that looks at changes in planned vs. unplanned care use.

UPMC’s success is ultimately predicated on the efficacy of the integrated platform for joint care management created with HUD-related housing support services. UPMC had plans to continue the collaboration in spite of uncertainty about the ROI because of an organizational commitment to the patients and the surrounding community. However, since HUD has reduced its prior multi-year housing support to a year-to-year commitment, the time horizon has become insufficient for UPMC to reliably realize improved patient or plan outcomes. UPMC continues to work in this current one-year extension with a smaller client cohort. The hope is to collaborate with community partners and the Allegheny County Department of Human Services and the County Housing Authority to determine whether or not there is a more effective supportive housing financing strategy. The challenge of aligning cross-sector timelines and other commitments in building population health initiatives has increasingly been a focus of the Federal Reserve Board and others.45

**PLANS AND PROVIDER SYSTEMS FACE BOTH FINANCIAL CHALLENGES AND OPPORTUNITIES WHEN UPSTREAM INTERVENTIONS ARE SUCCESSFUL.**

Population health initiatives have the potential to shift healthcare utilization. Reductions in acute, emergent, and certain long-term care costs have been the target of many population health efforts, including those focused more broadly on improving community wellness. However, as discussed by a number of participants at the 2014 *National Forum on Hospitals, Health Systems and Population Health*,46 organizations that are not fully integrated delivery systems and/or not fully-capitated plans may face serious consequences from revenue lost to successful population health initiatives. Furthermore, changing payer expectations can impact the ability of even fully capitated plans to retain the focus of population health efforts. In the absence of payer interest in upstream interventions, plans and provider systems may have little incentive or capacity to take on the dual risks of investment and potential lost revenue.
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<th><strong>UNCERTAIN FUTURES</strong></th>
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<td><strong>NEMOURS</strong></td>
<td>While achieving an important institutional objective, the improvement of the health of children with asthma, Nemours also experienced significant loss of hospital revenue. One possible future solution to this problem may be participation in shared risk and savings relationships to incentivize an ongoing prevention commitment. Nemours is actively preparing its provider networks to become meaningful participants in Accountable Care Organizations (ACOs) and other value-based purchasing and delivery structures. However, leaders at Nemours worry that many of these new purchasing approaches are already being structured too narrowly as cost-reduction strategies that do not anticipate a redirection of savings into prevention and broader population health efforts.</td>
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<td><strong>KAISER PERMANENTE</strong></td>
<td>For Kaiser, a hospital in its fully integrated networks is considered just another cost center. When facing utilization changes as a result of successful plan and community prevention interventions, a larger system has the capacity to adjust. Right now, for instance, Kaiser can titrate the impact of upstream investments and utilization changes across its provider base. What the organization is less sure about is how an already tightly managed plan continues to be able to employ flexibility in the face of downward pressure from payers. Also at play are changing provider relationships in new markets where more networks will be comprised of contracted service providers and institutions. Kaiser has the leverage and protection that comes with a large market share. However, the organization also recognizes the uncertainties created by changes in the purchasing environment.</td>
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<td><strong>MOLINA/MHNM</strong></td>
<td>Even when an entity successfully moves its population health effort into a reimbursement stream, changing requirements in the capitated environment can place unexpected pressures on the original intervention design. In the most recent Medicaid managed-care contracts in New Mexico, new expectations for health risk assessments among 100% of plan members within 30 days post enrollment created unanticipated pressures on Molina/MHNM with its membership of highly disenfranchised, geographically dispersed populations. Molina/MHNM's CHWs have become expert at finding and supporting far-flung plan members living in the Texas border oil fields, under bridges, and in trailer parks. This level of community connection was what Molina/MHNM needed to meet the new assessment requirements. However, for the entire first year of its new contract, Molina/MHNM had to divert CHWs from their true purpose and value for the plan in community outreach and support to address this new plan requirement.</td>
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SUCCESSFUL INTERVENTIONS OFTEN REQUIRE ALL PARTNERS TO DEVELOP NEW SKILLS AND ADOPT OPERATIONAL AND DELIVERY SYSTEM CHANGES.

Without a doubt, engagement in population health initiatives is transformative and requires organizational and partner commitment. All of our study participants encountered internal and external barriers and unexpected complications as early adopters in population health. Nonetheless, their reflections and insights speak more to the opportunities than the challenges of their institutional and practice change through population health endeavors.

**Without a doubt, engagement in population health initiatives is transformative and requires organizational and partner commitment.**

Every study organization can easily identify institutional culture and delivery system change that has occurred because of their population health investments, including:

- The operations and philanthropic sides of the house have come to rely on one another more.
- Clinicians have begun to see part of their roles as reaching beyond their discipline or their setting and came to appreciate the positive potential of community partners and the potential health effects of ecological changes (in housing, food access, social and economic support services, etc.).
- The real burden of incorporating population health strategies into care delivery has become more apparent. As one site leader noted, “It is challenging to move clinical delivery to a population health focus…. We didn’t realize that the role of doctors would take more of their time.”

Depending on the study site, clinicians have learned a number of new tasks, including using social and community resources, executing new screenings and referrals, collecting new social, economic, and behavioral data, and developing relations with CHWs and other human services representatives to facilitate patient engagement. Where community-based organizations provide part of the population health intervention, study sites sometimes face the challenges of service delivery control and accountability. Industry partners reasonably ask the question: How do I control costs, outcomes, and access to data if I am not running the service myself?

Paying attention to the impact on organization culture and practice is part of the innovation process and is as dependent on strategic support as is the identification, scaling, and measurement of the population health initiatives. Study organizations rely on a two-pronged approach: (1) a team within the institution to focus on spearheading and shaping innovation, and (2) leadership to facilitate the cross-enterprise support. In this way, Nemours Health and Prevention Services functions as the incubator and analytic arm for population health for the Nemours Children’s Health System with a strong bridge to the delivery side. Montefiore’s Office of Community and Population Health works similarly from its location within the corporate leadership structure of the Montefiore Health System.

Change processes at Kaiser are becoming increasingly aligned as social care strategies become better integrated into operational experimentation and business design. In building its Thriving Schools and other community collaborations, Kaiser brings strategies from its work with customers on workforce wellness and its internal clinical care performance improvement processes. Kaiser is unique among the study organizations in terms of articulating an approach that requires readiness assessment
and investment in the capacity development of community partners to assure their ability to successfully participate in strategic interventions. Kaiser’s explicit goal is to engage the entire organization in the design and implementation of community-based outcome-oriented interventions. This kind of capacity development has its own costs and uncertain timelines and impact, making investment decisions difficult for plans and provider systems.

Finally, as all study participants acknowledge, convincing payers what it takes to improve population health is a difficult hurdle. As one site leader stated, “Payers have to be at the table from the beginning of these innovations.” Perhaps more importantly, payers must share a vision about the role of upstream investments in achieving the value they want to purchase.

Across participating sites, we observed payer-related challenges including:

- The dilemma of getting adequate data within the same Medicaid system where behavioral carve-outs exist.
- The challenge of payer reluctance to reimburse for services that are not strictly medical or are not provided by clinicians.
- Variation across payers regarding required timelines for ROIs.
- Insufficiently developed strategies for shared savings that could continue to incentivize industry investment.

These, and other challenges, are deeply reflected in the difficulties CMS itself faces as it attempts to drive population health strategies through Medicaid and Medicare.47

**Finding #4: Summary Points**

- Whether focused on patients and plan members or on the community at large, population health innovations are a grand experiment. Thus, all participating sites demonstrate a remarkable level of ongoing and iterative learning that informed the delivery and approach of their initiatives.

- The early adopters who were a part of this study are advancing the understanding of what is possible even as the continuity of their own interventions are uncertain and continually transformed by ongoing learning.

- All early adopters face uncertainty in population health interventions regarding the most fundamental questions, including: how far, how long, for whom, who pays, and how much.
STUDY CONCLUSIONS

There are many lessons to be drawn from the experiences of the early adopter organizations in this study. Although we studied a small and convenient cohort of willing participants, the transparent and reflective nature of their engagement shaped findings that are likely to resonate across many settings. We believe that these experiences can further inform the development of healthcare industry partnerships in the production of population health.

From this study, we draw four major conclusions:

● Business interests shape the magnitude, scope, and duration of population health investments.

● Health plans and large provider organizations understand that investment in certain population health strategies is necessary to improve quality and cost outcomes and to respond to payer performance expectations. They are willing to engage in promising innovations.

● It remains unclear if, and to what extent, value-based purchasing strategies will be able to prompt effective population health investments.

● Optimizing the geographic population health impact is likely to require building shared strategies across plans and provider systems, as well as other partners.

These conclusions are consistent with much of the most recent population health work of the IOM, RWJF, CMS and others, even though their lenses were not located in the business case for health industry actors.\textsuperscript{48, 49} Given these findings, several important questions emerge that will continue to shape future development.

HOW FAR UP AND HOW FAR OUT DO PARTNERS IN THE HEALTHCARE INDUSTRY NEED TO GO TO MAKE AN IMPACT?

In an attempt to improve health and reduce costs, early adopters invest in innovation, research, and evaluation. They do so in an environment where payer interest and commitment to population health efforts (beyond panel management) remain uncertain at best, in spite of leadership by CMS and other public and private entities. Embracing interventions that are truly upstream requires that healthcare organizations go beyond clinic walls and beyond healthcare delivery. They must build and rely on community social and human service capacity in order to impact the health of populations. But, at what cost? And, who will pay?\textsuperscript{50, 51}

WHOSE RESPONSIBILITY IS POPULATION HEALTH?

Ultimately, industry partners do not ask whether certain social, economic, behavioral, and other supports need to be in place. Instead, they are working to learn what their role in prevention is and when other sectors can and will effectively contribute to improving the health of populations.
WHERE SHOULD THE SAVINGS GO WHEN UPSTREAM STRATEGIES ARE SUCCESSFUL?

There are many interests competing for the expected savings from value-based purchasing approaches. The early adopters all experience pressures to decrease costs from various commercial, employer, and public payers. This is often true even when they are not yet in performance-based contracts.

HOW DOES A HIGHLY MANAGED PLAN WITH A MOSTLY INTEGRATED NETWORK REALIZE GREATER EFFICIENCIES WHILE STILL INVESTING IN NEW COMMUNITY-LEVEL STRATEGIES?

The stakes in terms of payer interests are even higher for relatively small hospital or provider systems that may have the will and skill to impact population health but little ability to offset revenue loss resulting from the success of a population health initiative. Lack of access to shared savings options with a plan or payer is likely to limit ongoing investment. Ultimately, as one respondent put it, in the absence of payer interest, “upstream investments disappear when reimbursement mechanisms are not available.”

Appropriately structured shared-savings strategies offer one answer, but these are still a work-in-progress. How population health investments fit into the evolution of these value-based purchasing mechanisms remains an open question.
RECOMMENDATIONS

Population health is an arena of active investigation and experimentation. Because of the groundbreaking work of early adopters, and philanthropic and governmental partners, strategies for population health improvement continue to evolve. The findings from this study suggest certain analytic and technical assistance development may be needed to support further collaboration of health industry partners in population health improvement. To that end, we offer the following recommendations:

- Improve the infrastructure needed to support population health investment by health plans and provider systems.
- Leverage existing and potential population health investments made by health plans and provider organizations.
- Address key policy questions to guide future organizations in their efforts to improve population health.

Recommendation #1: Improve Needed Infrastructure.

An unanticipated finding from this study is the deep extent to which early adopters are investing in knowledge acquisition and development to select, frame, implement, and evaluate population health strategies. This “learning laboratory” approach undergirds much of the business innovation in the study sites. However, in its application to population health initiatives, organizations face considerable uncertainty in terms of predicting likely efficacy, and identifying reliable measurement options, expected outcomes, predictable timelines, necessary investment and potential ROIs. Population health efforts also face a profoundly incongruent relationship between the implementation focus, measures, and payment for healthcare delivery and the strategies, metrics, and cross-sector roles relevant to addressing social determinants of health and producing healthy populations.

There are a number of philanthropic and governmental initiatives underway that are intended to address the capacity development needs this enterprise requires. Nonetheless, the infrastructure upon which plans and provider systems can rely for building effective population health interventions must be further developed in order to create efficiencies and maximize impact.

Efforts should be undertaken to:

- Further describe and make available effective plan and provider system interventions, including resource requirements, implementation strategies, and analytic needs.
- Model the intersection between community level and patient panel interventions to characterize effective pathways to population health impact.
- Improve ROI analyses for promising upstream investments.
- Develop mechanisms for knowledge transfer and technical assistance regarding effective population health strategy development and execution.

**Recommendation #2: Leverage existing and potential investments.**

Plans and provider systems are clearly interested in the promise of population health improvements for their patients and members, for their payers, and for the communities they serve. What appears to be less clear is determining the best ways they can build and support work outside their clinic walls and upstream from point-of-care delivery. Directly investing in population health innovations is one strategy, but it may not be the most efficacious if the ultimate policy objective is to improve the health of geographic and other target populations regardless of who provides their healthcare. Additionally, while potentially effective, individual population health initiatives are often pursued in isolation from other health plan or provider system efforts.

We therefore recommend exploring the following:

- Model cross-plan and provider system collaborative population health investment strategies to optimize impact.
- Determine the need for effective, potentially governmental, integrator functions to facilitate the priority setting and resource allocation needed to systematically impact population health in a given geographic area.
- Identify alternative mechanisms for incorporating healthcare industry business interests in building population health strategies.

We observe with interest various models of accountable care communities, which may provide one vehicle for achieving these objectives. Additionally, promising voluntary developments in coordinated community-health needs assessments and investments for non-profit hospitals may provide effective mechanisms for aligning cross-provider system investments. Finally, state and local vehicles for taxing, or otherwise facilitating healthcare industry investments in population health, such as the Massachusetts Prevention Wellness Trust Fund, may provide a welcome and more efficient means of achieving an impact on population health.

**Recommendation #3: Address key policy issues.**

Our study raises several key policy issues that merit further exploration to help inform the continued evolution and success of population health strategies. The healthcare industry has increasingly been asked to finance otherwise inadequately resourced social, education, employment, housing and basic human services. In the population health arena, the rationale is that improved access to these services influences both the health status and health costs of populations. However, it is clear that the connection between investment and outcomes can be tenuous. Furthermore, many of these basic needs represent fixed costs that may never result in savings, at least not to a single sector. And, when they do result in savings, the questions about to whom those savings accrue and what are the implications for ongoing investment remain unresolved. There are several arenas of worthy of investigation:

- Assess public and private payer interest in paying for population health investments. Uncertainty about payer interest and commitment, both for recognizing these
investments as appropriate expenditures and for permitting retention of shared savings, will continue to make plan and provider systems cautious about commitments.

- Articulate the long-term policy implications of healthcare industry investments in, and potential retained savings from, community-based and cross-sector population health initiatives. There are inevitable shifts in the performance expectations, the delivery, and, sometimes, even the purpose of community services whose funding base gets increasingly located in healthcare services financing. Important questions to address include:
  
  o What are the programmatic, cost, ownership, and other implications for community-based human services whose financing becomes increasingly located in the healthcare industry? What are the particular concerns when healthcare industry partners absorb previously non-medical, community-based service provisions?
  
  o Are policy responses needed to address revenue losses faced by healthcare industry partners in service arenas most sensitive to the effects of upstream population health investments?
  
  o If healthcare industry investments demonstrate significant unmet need in non-medical human services, what is the path to meaningfully facilitating other sector investment?

- Identify solutions for regulatory barriers and other alignment challenges for cross-industry and cross-sector population health financing, service delivery, and program and impact evaluation. Of particular importance, are:
  
  o The development of data-sharing strategies that can support effective service referral and utilization as well as adequate assessment of performance across relevant sectors including healthcare, public health, human services, housing and education; and
  
  o The facilitation of non-profit hospital coordination in community benefits investments, including for health-related community development efforts, to assure more efficient and improved population health outcomes.

\(^1\) RWJF’s recent initiative, Data Across Sectors for Health: Empowering Communities Through Shared Data and Information (DASH), is an important vehicle for furthering efforts in this arena. See http://dashconnect.org/ for more information.
REFERENCES


SITE PROFILES

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Kaiser Permanente (KP) is one of the nation’s largest nonprofit health plans, serving approximately 10.1 million members. KP includes: Kaiser Foundation Hospitals and subsidiaries, Kaiser Foundation Health Plan, Inc. and the Permanente Medical Groups. These divisions operate in California, Oregon, Washington, Georgia, Colorado, Hawaii, Virginia, Maryland and Washington DC. KP has 38 hospitals and 600+ outpatient offices with 177,000 employees including 18,000 physicians and 50,000 nurses across all states.

**KAISER’S MISSION**
To provide high-quality, affordable health care services and to improve the health of its members and the communities that it serves.

**KAISER’S PAYER MIX**
10% Medicaid
15-20% Medicare
65-70% Commercial and Other

### Thriving Schools: A Partnership for Healthy Students, Staff and Teachers is Kaiser’s Population Health Investment.

Thriving Schools is an enterprise-wide strategy to improve the health of students, staff and teachers in K-12 schools in KP’s service areas. The project goal is to increase healthy eating and physical activity by adopting strategies that make lasting policy, systems and environmental changes. To do that, Kaiser mobilizes grass-roots wellness champions to build momentum for change; promotes policy and environmental changes in schools; supports workforce wellness; and leverages strong partnerships within the organizations, communities, and partners to create and sustain change.

**FOCUS**
To increase healthy eating and physical activity among students, staff, and teachers by making health-promoting changes in targeted K-12 schools and their surrounding communities.

**PARTNERS**
Alliance for a Healthier Generation, Safe Routes to School National Partnership, School-Based Health Alliance, and other partners specific to each community

**DURATION**
2013-2017

**FINANCING**
Project financing shared between KP’s Community Benefits, KP health plans, and labor partners. Kaiser pays for the partnerships that assist in implementing the program.

**OUTCOMES**
KP expects the following improvements in the schools: increased physical activity, improved nutrition among staff, teachers and students, increased ability of school staff and teachers to make health-promoting changes in their schools and in their own lives.

KP expects that, in the long term, this project will result in the prevention and reduction of overweight, obesity and associated chronic health conditions for staff and students, better academic performance, increased productivity of school staff through reduced absenteeism, reduced stress, and improved morale, and sustainability of improved school environments.

**STATUS**
Thriving Schools is in its second year of implementation for the initial cohort of over 300 schools participating in the strategic interventions. An evaluation plan is underway to generate early findings that will be shared and used to improve Thriving Schools along the way. KP plans to seek continued support for the effort across KP regions.
Molina Healthcare | New Mexico

A Health Plan

Molina Healthcare is a large family-owned healthcare organization, consisting of two segments: Health Plans and Molina Medicaid Solutions. The Health Plans segment serves approximately 3.7 million members across 11 states and offers healthcare services through contracted hospitals, physicians, and its own clinics. Molina owns or manages 28 primary care clinics across 6 states and has 10,500 employees. Medicaid Solutions offers information management services to Medicaid agencies in 5 states, as well as the U.S. Virgin Islands, and a drug rebate program in Florida.

Molina’s Mission

To provide quality health care to people receiving government assistance.

Molina’s Payer Mix

- 93% Medicaid (includes 1% dual individuals)
- 2% Medicare
- 5% Commercial (Marketplace)

Community Connector Program is Molina’s Population Health Investment.

Community Connectors represents Molina’s understanding of the complex and non-clinical needs of its members. The project goal is to connect community health workers (CHWs) with members to address their needs. The scope of the project involves: coordinating care, connecting members to resources, providing health management education, and addressing the social, behavioral and economic barriers to health. The target population represents members who are high-cost, due to uncontrolled chronic conditions, chemical dependency, or a history of frequenting the Emergency Department.

Focus

To help address the complex needs of high-cost individuals who are members of Molina Healthcare by deploying Community Health Workers (CHWs) into the community.

Partners

University of New Mexico (UNM) Health Sciences Center; New Mexico Community Voices; Coordinated Systems of Care Community Access Program of New Mexico; and Kellogg Foundation.

Duration

2006-2015. Project started in 2006 through an affiliation between Molina Healthcare and UNM. Community Connectors was included in the Medicaid managed-care contracts between the state and its plans in 2014.

Financing

$521,343 for 25-month period. This amount reflects the cost of training and salaries. Financing was shared by UNM and Molina, with UNM paying for the training of CHWs through a grant from the Kellogg Foundation and Molina paying for the salaries of the CHWs. Molina has covered the costs of the salaries for CHWs since 2006. In 2014, however, NM’s Medicaid program launched a new care coordination program for its managed care plans operating under capitation, which created a funding stream for CHWs through the Medicaid program.

Outcomes

Early reported results by Molina indicate a return-on-investment over a 25-month period (2007-2009) of 4:1. This was achieved through reduced hospital use including emergency department visits and inpatient days; improved patient outcomes, and a lower rate of substance use.

Status

On-going, with plans to expand the Community Connector program into all states in which Molina operates health plans. Molina will pay for CHWs in other states, even if the service is not covered under the Medicaid program. Although Molina New Mexico continues to collaborate with UNM for training and other purposes, they now employ their community connectors directly.
MONTEFIORRE HEALTH SYSTEM | NEW YORK

**AN INTEGRATED DELIVERY SYSTEM**

Montefiore is nationally-recognized for its clinical excellence, as the academic medical center and the University Hospital for Albert Einstein College of Medicine. Montefiore is an integrated health care system, with nearly 200 locations including 10 hospitals and 55 primary care locations, with 29,000 associates including 3,100 employed physicians.

**MONTEFIORRE’S MISSION**

To heal, to teach, to discover and to advance the health of the communities we serve.

**MONTEFIORRE’S PAYER MIX**

- 41% Medicaid, other government and uninsured
- 37% Medicare
- 19% Commercial and Other
- 3% 1199 and self-insured

**DIABETES PREVENTION PROGRAM (DPP) IS MONTEFIORRE’S POPULATION HEALTH INVESTMENT.**

The Diabetes Prevention Program represents Montefiore’s commitment to curbing the incidence of diabetes in the communities it serves. Montefiore’s DPP is an outgrowth of a much larger multi-site, randomized, clinical trial targeting adults over 25 years of age who are at high risk for type 2 diabetes. The goal of the current project is to prevent or delay the onset of type 2 diabetes by providing patients with a trained lifestyle coach that helps them achieve healthy eating, physical activity and other behavior changes. Health educators work with patients in 16-weekly one-hour, face-to-face classes, followed by 6 one-hour monthly follow-up sessions. Montefiore’s clinical or health education staff can refer patients to the program.

**FOCUS**

To curb the incidence of diabetes through lifestyle management, diet and exercise, and education.

**PARTNERS**

YMCA of Greater New York (2011-2015 for both employees and patients). On April 1, 2015, Montefiore modified this partnership, bringing DPP in house for patients, and keeping the partnership with the YMCA for its employees.

**DURATION**

2011-present.

**FINANCING**

Montefiore’s Office of Community and Population Health (OCPH) pays for health educators to teach the program and all training materials, curriculum guides, patient materials, and educator materials. OCPH is currently exploring ways to establish an in-house billing mechanism and to secure payer funding.

**OUTCOMES**

The initial clinical study which included Montefiore researchers and patients and was published in the NEJM in 2002 was shown to prevent or delay type 2 diabetes by 58%. The goals going forward are to reduce body weight by 5-7% and increase physical activity to 150 minutes per week. Montefiore is currently evaluating the impact of its DPP scale-up using similar outcomes as the initial study.

**STATUS**

In 2015, Montefiore moved DPP in house to increase its ability to affect weight loss and change behavior. They applied for, and received, CDC accreditation to run DPP in lieu of partnering with the YMCA. This has allowed them to more closely monitor the program and improve data collection. Montefiore is currently working on many fronts including increasing the number of classes offered, increasing the rate of referral, and securing reimbursement from payers.
Nemours is an internationally-recognized children's health system that owns and operates the Nemours/Alfred I. DuPont Hospital for Children in Wilmington, Delaware and Nemours Children’s Hospital in Orlando, Florida. Nemours also has a number of primary and specialty care clinics in Delaware, Florida, Pennsylvania, New Jersey, and Maryland. Nemours health system serves over 328,000 children with 1.3 million patient visits annually; in Delaware, it serves nearly 84,000 with more than 400,000 patient visits a year. In addition to the Al duPont Hospital for Children, there are 7 primary care facilities, 4 specialty locations in Delaware, and over 3,700 professionals.

**Nemours’ Mission**
To provide leadership, institutions, and services to restore and improve the health of children through care and programs not readily available, with one standard of quality and distinction, regardless of the financial status of the individual.

**Nemours’ Payer Mix**
- 45% Medicaid
- 55% Commercial and Other

Optimizing Health Outcomes for Children with Asthma in Delaware is Nemours’ Population Health Investment.

Optimizing Health Outcomes for Children with Asthma in Delaware is a multi-faceted asthma prevention initiative. While it focuses initially on patients in Nemours’ asthma registries that live in Dover, Seaford, and Wilmington (or in six zip codes surrounding these sites), it affects 42,000 children overall. Nemours has three primary-care sites in those areas. The project goal is to create healthier environments for children with asthma in schools, child-care centers, and housing. The project has four key elements: enhancement of family-centered medical home; use of technology; deployment of a navigator workforce; and, development of an integrator model surrounding each site. Its scope involves integrating care by deploying Community Health Workers (CHWs) to serve as patient navigators, providing case management services to families with high needs and using technology to engage school nurses in coordinated care.

**Focus**
To improve health outcomes among children with asthma in three communities of Delaware by integrating clinical care with community-based prevention

**Partners**
Delaware Health and Social Services, Division of Medicaid and Medical Assistance; Centers for Medicare and Medicaid Services; South Wilmington Planning Network, Healthy Kids Collaboration in Kent County, Sussex County Health Promotion Coalition, United Way of Delaware, Department of Housing and Urban Development, Head Start and schools, American Lung Association, and Department of Public Health.

**Duration**
2012-2015; three-year project.

**Financing**
$3.7 million innovation grant from the Center for Medicare and Medicaid (CMMI); and in-kind resources from Nemours for project staff and leadership.

**Outcomes**
Preliminary results, based on Nemours self-monitoring data, show reductions in asthma-related emergency department visits and hospital re-admissions; connections to community resources; increased flu counseling/vaccination; policy changes; expected reductions in some aspects of the cost of care for patients. External evaluation is pending.

**Status**
Project ended in December 2015 when CMMI award ended. Formal evaluation to be performed by University of Chicago on behalf of CMMI. Nemours plans to continue critical successes of the OHO under a modified design, using it as a template for other diseases.
UPMC is a health care provider and insurance system with a strong presence in western Pennsylvania. It has four major operating units, namely Health Services, Insurance Services, UPMC International Services and UPMC Enterprises. The Health Services division has more than 20 hospitals, 500 doctors' offices, and 5700 affiliated physicians (3600 of them are UPMC employees). They have more than 40 cancer centers and 90 outpatient clinics.

In terms of insurance, 2.7 million members are covered by UPMC Insurance Services products. UPMC for You is a Medicaid/Medical Assistance plan within the Insurance Services Division that also operates the UPMC for Life Dual product for those with special healthcare needs.

UPMC’S MISSION
To serve the community by providing outstanding patient care and to shape tomorrow’s health system through clinical and technological innovation, research, and education.

UPMC’S PAYER MIX
15% Medicaid
43% Medicare
42% Commercial and Other

Cultivating Health for Success (CHS) is UPMC’s Population Health Investment.

Cultivating Health for Success is a pilot program that targets homeless adults enrolled in a UPMC Health Plan Medicaid product. Enrollees have at least one year of high total health care expenditures and tend to have one or more chronic illnesses and a history of avoided inpatient hospital stays or emergency department visits. The project goal is to provide stable housing for participants and to reduce their hospital and emergency department visits. This program facilitates access to behavioral and primary care and provides participants with housing support and HUD vouchers to help their transition to stabilizing housing. The scope of the project involves providing high-touch care coordination and member education from an integrated care team. Enrollment has varied over time from a high of 75 to an adjusted cohort of 25.

FOCUS
To provide stable housing to a small number of homeless adults enrolled in UPMC for You Medicaid or Dual Eligible Special Needs Plan (D-SNP)

PARTNERS
Allegheny County Department of Human Services,
Allegheny County Housing Authority, Metro Community Health Center, Community Human Services Corp. (CHS), Community Care Behavioral Health Organization

DURATION
2010-present

FINANCING
$300,000 annual budget: $150,000 from UPMC for You for care coordination, nursing at the primary care practices, and case management. $150,000 from HUD for supportive housing (administered by Allegheny County Housing Authority).

OUTCOMES
For members with a meaningful tenure in the program (<100), improvements were seen compared to the pre-pilot assessment period. Changes in behavioral health costs were not included in the analysis.

• Average PMPM medical costs decreased 11.5%
• Average PMPM for unplanned care decreased 19.2%
• Average Rx PMPM increased 5.2%
• Total (Medical plus Rx) PMPM decreased by 8.3%

STATUS
Pilot project remains active. UPMC for You will continue the pilot as long as funding is available from HUD. In addition, UPMC is exploring other methodologies for evaluation of Return-on-Investment (ROI).