From healthcare to health: A proposed pathway to population health

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A B S T R A C T

Innovations in payment are encouraging clinical-community partnerships that address health determinants. However, little is known about how healthcare systems transform and partner to improve population health. We synthesized views of population health experts from nine organizations and illustrated the resulting model using examples from four health systems. The transformation requires a foundation of primary care, connectors and integrators that span the boundaries, sharing of goals among participants, aligned funding and incentives, and a supporting infrastructure, all leading to a virtuous cycle of collaboration. Policies are needed that will provide funding and incentives to spread beyond early adopter organizations.

A R T I C L E  I N F O

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1. Introduction

The US has embarked on an ambitious payment and delivery reform agenda through the Affordable Care Act (ACA), with a focus on improving access to affordable health care and investment in primary care and population health.\textsuperscript{1–3} In response, health care systems and public health agencies are beginning to design and implement new approaches to health that include clinical-community partnerships.\textsuperscript{4–10} Several “early adopter” healthcare systems have begun efforts to achieve improvements in health by addressing the social determinants of health, such as working and living conditions, and individual health behaviors by partnering with community services.\textsuperscript{11–15} In this context, we sought to understand how key experts and pioneering health systems are working to improve these kind of population health partnerships among community organizations, public health, healthcare providers, and community members.

\textsuperscript{*} The institutional review board at Harvard Medical School approved our interview process. The study was performed at the Harvard Medical School Center for Primary Care.

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2. Our approach

We identified a convenience sample of nine key experts from thought-leading organizations who had expertise in population health and we conducted structured key informant interviews (Table 1). We identified four leading healthcare organizations by reviewing the published literature and through contacts with the organizations. To guide our discussions with population health experts, we defined population health as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.”\textsuperscript{16} The nine experts were interviewed to learn about how their organizations transformed to address population health and social determinants of health, and how they approached partnerships with community and public health agencies. From these interviews, we developed a theoretical framework for a transformation from healthcare to health and then interviewed leaders of four organizations that are focusing on population health to test this framework.

We selected the early adopter organizations through literature review and recommendations from the interviewed experts. In this way, we identified four leading healthcare organizations in the United States, which were developing approaches to implementing community partnerships as a way to improve population health. We intentionally chose health systems with varying characteristics in terms of patient characteristics, organization size and ownership, approach to payment, number of payers, and degree of
4.1. Strong foundation of organized primary care

Below we elaborate on the model and use examples from:

- Funding and incentives
- Supportive infrastructure and existing boundaries
- Multisectoral coalitions
- Aligned resources

The model includes the following building blocks:

1. Organized primary care
2. Connectors of healthcare and community resources
3. Accountable integrators of information and resources that cross pre-existing boundaries
4. Multisectoral coalitions
5. Aligned resources (funding and incentives)
6. Supportive infrastructure and culture

Below we elaborate on the model and use examples from analysis of the four organizations to provide evidence (see Table 3) that support this construct.

4.2. Connectors between patients and community resources

Connectors link patients in the primary care system to community and public health resources. They enable primary care practices to leverage existing resources and infrastructure available within a community to address the social determinants of health. Organizations often test different connector-models depending on the availability of resources in the community, such as community health workers, social workers, health navigators, community resource specialists, promotoras, students or community health teams that include public health and medical care professionals.

4.3. Accountable integrators (boundary-spanning leadership)

Integrators are multi-stakeholder bodies, often led by boundary-spanning individuals or a specific organization with stakeholder buy-in, that assume clear decision-making capacity and accountability for improved health outcomes. The integrator role might vary based on the needs and assets of the community or population, but must have sufficient authority to be accountable for achieving improved health outcomes and allocating resources.

4.4. Shared goals and roadmap

Multisectoral coalitions often start with a single issue (usually a single disease, such as diabetes or cardiovascular disease or a health condition such as tobacco or substance use) bringing together two or three partners based on the health needs of their patients or communities. Over time successful coalitions will co-create shared vision and goals, and finally a shared roadmap with mutual accountability. Each contributing organization needs to understand their role in the context of the roles of others, and to constantly integrate the patient and community perspective in redesigning population health.

4.5. Aligned resources (funding and incentives)

Organizations must align financial incentives with clinical transformation in order to support the goals of integration to achieve improved population health. Having a financial interest in keeping their patients healthy is crucial. These approaches can include global budgets with shared risk, bundled payments, waiver funds, non-profit hospital community benefits, community trusts, grants and/or demonstration projects, and payment reforms that require all payers to fund transformation. Further, these incentives might be directed to staff whose work leads to improved population health, through changes to salaries or additional bonus for improved outcomes. Early successes lead systems to work to further align funding to support the development of a continuum of health and an infrastructure to sustain the work (e.g., accountable care organizations and health communities).

4.6. Supportive infrastructure and culture (e.g. data systems, metrics, process for improvement and culture change, and workforce training)

To create and sustain the changes that are needed, organizations need to support infrastructure and foster culture change and the development of new system properties and rules. They reorient their systems to support a culture of health and invest in workforce training and ongoing improvement, building leadership and professional development programs that help to teach new skills. In addition, systems recognize the need to address their customers’ social and economic context and health behaviors and to embrace the community’s role as a partner in the transformation. This recognition may result in leadership and staff education and training in new competencies (e.g. motivational interviewing techniques and health risk assessments to identify and address socioeconomic barriers), data systems to support an effective flow of information among health system and community partners, shared metrics based on common taxonomies, and processes to report and analyze the data to gain a deeper knowledge of the needs of the population. The development of a learning system with constant feedback loops is important in helping organizations to develop and adapt new processes as needed.

Table 1

<table>
<thead>
<tr>
<th>Interviewed leaders’ organizations.</th>
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<tbody>
<tr>
<td>Institute for Healthcare Improvement (Dr. Soma Stout and Dr. Trissa Torres)</td>
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<tr>
<td>National Institute for Children’s Healthcare Quality (NICHQ) (Dr. Charles Homer)</td>
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<tr>
<td>Institute of Medicine Committee on Integrating Primary Care and Public Health (Dr. Paul Wallace, Chair)</td>
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<tr>
<td>Agency for Healthcare Research and Quality (AHRQ) (Dr. David Meyers)</td>
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<tr>
<td>Duke Medical School Department of Family Medicine (Dr. Lloyd Michener)</td>
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<tr>
<td>Robert Wood Johnson Foundation (RWJF) (Ms. Hilary Heishman)</td>
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<tr>
<td>Veterans Health Administration National Center for Health Promotion and Disease Prevention (Dr. Linda Kinsinger)</td>
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<tr>
<td>MacColl Center for Healthcare Innovation (Dr. Ed Wagner)</td>
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<td>Centers for Disease Control and Prevention (CDC) (Dr. Denise Koo)</td>
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</tbody>
</table>

Interviewed leaders’ organizations.

3. Observations

Our interviews with population health experts suggested that efforts to improve population health often focus on strengthening clinical-community partnerships as a way to address health determinants. This collaboration between healthcare organizations leads to an incremental and sequential process of integration across levels and care settings, based on the health needs and resources of the community. The model, illustrated in Fig. 1, includes the following building blocks: 1) organized primary care; 2) connectors of healthcare and community resources; 3) accountable integrators of information and resources that cross pre-existing boundaries; 4) multisectoral coalitions; 5) aligned resources (funding and incentives), and; 6) supportive infrastructure and culture. Below we elaborate on the model and use examples from analysis of the four organizations to provide evidence (see Table 3) that support this construct.

4. Building blocks

4.1. Strong foundation of organized primary care

The first building block for clinical-community partnerships is organized primary care, usually along the lines of the medical home model. Practices that learn to work in teams, measure outcomes, share information, build a quality improvement culture and establish partnerships within their teams and with their patients, recognize that the empanelment of patients and the focus on complex care management is not enough and that to improve health further they need to address health behaviors and social and environmental determinants of health. To develop such a population-based approach for patients receiving primary care, primary care teams and their healthcare systems begin to look for ways to collaborate with community and public health systems.

4.2. Connectors between patients and community resources

Connectors link patients in the primary care system to community and public health resources. They enable primary care practices to leverage existing resources and infrastructure available within a community to address the social determinants of health. Organizations often test different connector-models depending on the availability of resources in the community, such as community health workers, social workers, health navigators, community resource specialists, promotoras, students or community health teams that include public health and medical care professionals.

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<th>Kaiser Permanente Center for Total Health (KP)</th>
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<tr>
<td><strong>Vision</strong></td>
<td>A Native Community that enjoys physical, mental, emotional and spiritual wellness.</td>
<td>Improving the health of the overall population, and improving control over health care costs by promoting health maintenance, prevention, and care coordination and management.</td>
<td>To improve the health of our communities.</td>
<td>To provide high-quality, affordable health care services and to improve the health of our members and the communities we serve. To be the leader in Total Health by making lives better.</td>
</tr>
<tr>
<td><strong>Distinguishing characteristics</strong></td>
<td>Regional system designed and owned by the Customer; Community driven.</td>
<td>State Initiative Healthcare and Payment Reform. Patient-centered medical homes supported by community health teams and a transformation infrastructure.</td>
<td>Integrated care delivery system that is part of an accountable care organization; runs the Public Health Department in Cambridge; has a Strategic 5-year-Plan to integrate with community and public health.</td>
<td>Fully integrated system (with non-for profit Health Plan); technology supported Total Health Approach, including focus on “Health Behavior change.”</td>
</tr>
<tr>
<td><strong>Patient Population</strong></td>
<td>65,000 native Alaskans, 55 villages 55,000 enrollees/customer-owners.</td>
<td>Targeting all 620,000 citizens in 13 communities. To date, 350,000 patients receive care in the medical home setting.</td>
<td>101,000 predominantly public payer patients.</td>
<td>9.5 million KP members</td>
</tr>
<tr>
<td><strong>Geographic region</strong></td>
<td>Anchorage (Alaska) &amp; remote villages.</td>
<td>Vermont.</td>
<td>7 cities (MA).</td>
<td>8 states and District of Colombia.</td>
</tr>
<tr>
<td><strong>Employees Total providers and staff</strong></td>
<td>Approximately 1700 staff, including40 leadership, 240 providers (MDs, NPs, PAs).</td>
<td>PCMH: 124 PCPs: 644 CHT FTE: 133 SASH FTE: 60 Spoke FTE: 39 Providers: 876</td>
<td>Staff: 3300 employees</td>
<td>Staff: 190,000 Providers: 17,000 physicians</td>
</tr>
<tr>
<td><strong>Visits per year (outpatient)</strong></td>
<td>261,574</td>
<td>1,290,149 primary care visits (3.7 per person).</td>
<td>675,000</td>
<td>36 million</td>
</tr>
<tr>
<td><strong>Payer</strong></td>
<td>Multipayer</td>
<td>Multipayer</td>
<td>Multipayer</td>
<td>Single payer (health plan) to providers. Multipayer to health plan, including government, commercial groups and individuals.</td>
</tr>
<tr>
<td><strong>Funding Institution</strong></td>
<td>Congressional Act (Fund for Native American Indians) $290 million</td>
<td>The Department of Vermont Health Access Blueprint; all major payors in Vermont. Budget: $10.360 million (program, staff; practice facilitators; workshops; evaluation, IT infrastructure)</td>
<td>Cambridge Health Alliance</td>
<td>Not for Profit Health Plan</td>
</tr>
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<td><strong>Annual Budget</strong></td>
<td>$290 million</td>
<td>The Department of Vermont Health Access Blueprint; all major payors in Vermont. Budget: $10.360 million (program, staff; practice facilitators; workshops; evaluation, IT infrastructure)</td>
<td>$600 million</td>
<td>$53 billion</td>
</tr>
<tr>
<td><strong>Proportion of patients/customers under global budget of some kind or shared savings (2013)</strong></td>
<td>50% block grant from the Indian Health Service); 45% Medicaid, Medicare and private insurers, 5% philanthropy and grants</td>
<td>69% clients receive their primary care in medical home and CHT setting. Large proportion of population in 3 shared savings programs (commercial, Medicaid, Medicare)</td>
<td>60% under global budget or shared savings; 40% FFS</td>
<td>Large majority of budget is prepaid capitation, with only a very small percentage fee-for-service.</td>
</tr>
<tr>
<td><strong>Community investment</strong></td>
<td>N/A</td>
<td>Community Health Teams: $1.50 PPPM for CHT staff (~6.2 million total). Grants to communities for transformation and self-management total: $2.4 million.</td>
<td>$7 million / year</td>
<td>$1.9 Billion / year</td>
</tr>
<tr>
<td><strong>Payment of workforce</strong></td>
<td>Salaried (all members of health system)</td>
<td>Practices: PMPM (1.20-$2.39 NCQA PCMH recognition score, in addition to FFS); Community Health Teams: $1.50 PPPM</td>
<td>Staff: Salaried Providers: Predominantly salaried with incentives</td>
<td>Salaried</td>
</tr>
</tbody>
</table>
We proposed a conceptual framework for healthcare systems to address population health through clinical-community partnerships which includes six key building blocks that lead to an incremental process of integration of services and resources (workforce, funding, and information) among healthcare organizations, public health agencies, and community organizations. Once the pathway of building blocks is completed, other shared health needs lead to the engagement of new stakeholders, planning and implementing the appropriate strategies with outcomes and performance indicators and resources and constant monitoring with feedback loops (Plan-Do-Study-Act (PDSA) cycles) that include the customer voice. Shared community vision emerges with a growing number of partners at the table. This continuous cycle of collaboration strengthens relationships and promotes the process of integration across levels and care settings. The end result yields integrated health networks with shared responsibility, resources, and accountability.

Our framework explains why transformation is so challenging. To encourage more healthcare systems to shift toward community linkages as a way to improve population health, we recommend policies that support a sequenced change strategy. For example, aligned funding and infrastructure are needed to encourage transformation. As one example of such a change, Kindig called for the development of a “pay-for-population health performance system that goes beyond medical care to include financial incentives for the equally essential nonmedical care determinants of population health.” But this transformation also requires a profound culture change, which supports partnerships with communities, and shared values and respect for all parties who are helping to co-produce health. Additionally, to foster sustainable population health partnerships, evidence will be required to convince healthcare systems or payers that partnering with communities will produce value (improved health outcomes per unit cost) for their own patients or members. Resources for investment must come an accepted part of community-public health networks to foster more strategic development that this may require a shift of resources from healthcare to other sectors. In addition, healthcare systems may need to become an accepted part of community-public health networks to have a meaningful role in improving health. Our model also highlights the need for a strong primary care foundation as a prerequisite for clinical-community partnerships. If we are to encourage more organizations to address population health, our primary care system will need to be strengthened. With current resources, primary care practices often are unable to fully support population health due to low reimbursement overall, and little or no support for lifestyle change and care management.

Since most primary care practices are not designed to offer intensive health counseling as a regular service, it is important to leverage existing civic infrastructure and integrate services within organizations and workflows.

Several approaches are being taken to align payment with improved health outcomes. For example, accountable care organizations (ACOs) can provide an incentive for healthcare systems to collaborate with communities. However, if ACOs fail to create shared goals and accountability with their communities, we may see little change in how decisions are made or how funds are spent. The historic power differential between healthcare systems and communities could even be exacerbated, creating new conflicts. An integrated board with co-created and shared goals between the community and healthcare systems are an important path forwards for systems that wish to focus on community needs.

Access to data is a challenge in much of healthcare, but even more challenging in improving population health. Data resources that measure social determinants of health and health outcomes are minimal at best. As an example, Healthy People 2020 contains information on social determinants and, for the first time, includes relevant indicators and objectives, but these data are not easily available in ways that can be linked at the individual level. If data-driven work and decisions are based on clinical outcomes and not on overall health outcomes, including social determinants, important opportunities will be missed. Patient-reported data about their social circumstances and health status need to be linked to clinical and administrative data to drive improvement.

Finally, the US may be able to learn from population health approaches in Western European countries. The strong social care systems of European countries such as Switzerland or Sweden and the long tradition of mandatory health insurance allows those countries to focus more strongly on health behavior change and optimization of the collaboration among service providers. Communities are usually equipped with adequate infrastructure to meet social needs. Several European models demonstrate successful integration among health, community, and social services (such as the Community Health Partnerships in Scotland, the “gesundes Klenzigtal” in Germany, the integration of social and health care (in the UK) or in Jönköping County Council, Sweden, in Switzerland, integration of social and health care is being applied to care for residents with addiction. International examples also suggest that addressing social issues may help to reduce healthcare costs and to improve the health of the population, a combination of outcomes that are sorely needed in the United States.

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Table 3
Examples of building blocks in four health systems that emphasize clinical-community partnerships.

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<tr>
<td>Organized primary care</td>
<td>SCF rebuilt their whole healthcare system based on primary care teams with behavioral health and traditional medicine integration.</td>
<td>BH combined a delivery reform with payment reform to foster Patient-Centered Medical Homes in all 14 communities.</td>
<td>CHA used the patient-centered medical home principles as a foundation for transformation to become an accountable care organization. They focused on “planned care” that included reaching out to patients who were overdue for screening or chronic disease management.</td>
<td>KP early focus on a strong primary care foundation served as a model for medical home development in the U.S. KP also implemented an advanced population care management approach for people with chronic diseases.</td>
</tr>
<tr>
<td>Connectors</td>
<td>SCF engaged social workers and community health workers to connect primary care teams and their patients to community resources.</td>
<td>BH created multidisciplinary community health teams that provide connections to community resources and social support. These teams include nurse coordinators, social workers, nutritionists, care coordinators, community health workers, and public health or prevention specialists who used community risk profiles to build consensus among stakeholders on needed interventions. They added self-management programs (workshops, support groups, prevention and wellness services) to help patients adopt healthier lifestyles and engage in preventive health services.</td>
<td>CHA used planned care coordinators, who often were young college graduates from the community, to coordinate outreach. They also provided connecting services, through the primary care team, volunteer health advisers, community resource coordinators, community health workers, promoters or volunteers from the program “Health Leads”</td>
<td>KP tested different connector-models depending on the region and availability of resources in the community. Examples: Promotora Program (California); Health Leads (Northern California); navigator program (Colorado, Northwest and northern California) and use of community health workers.</td>
</tr>
<tr>
<td>Accountable integrator (boundary-spanning leadership)</td>
<td>SCF is a healthcare system and integrator that manages native Alaskan healthcare. The SCF coalition integrates across local, regional and national partners, with shared responsibility, operational principles, core concepts and a board of directors. SCF assumed the responsibility for operating and managing town healthcare for native Alaskan peoples.</td>
<td>As an accountable integrating organization, BH (Department of Health) brings together state government, health insurance plans, business and community leaders, health care providers, and consumers. All key stakeholders are represented on an executive committee (“green mountain board”), which assumes accountability for improved outcomes. BH assumed a role as an organizing body and change agent, and provided practice facilitation, project management, data integration, and program evaluation.</td>
<td>CHA acts as an integrator based on their resources as an integrated health system that includes community hospitals and specialty practice, community-based health centers, and school-based clinics and their role as leader of the public health department in Cambridge. They work with community partners through its Community Health Advisory Council.</td>
<td>KP assumed the role of a fully integrated and accountable health system as an initiating, connecting body and as a facilitator of integration through funding as part of the community benefit mandate (e.g., stewardship for healthy communities, investing in healthy environment, such as bike paths). KP also enabled platforms for exchange and improvement. For example, a multi-stakeholder collaborative (Pueblo Triple Aim Coalition) was initiated in Pueblo, Colorado, which includes government, and health plans to support a comprehensive health network.</td>
</tr>
<tr>
<td>Shared goals and roadmap</td>
<td>SCF worked with its community of customers—owners and tribal leaders to create shared vision and goals and to build relationships across the entire organization. When the community identified child sexual abuse, child neglect and family violence as their top priorities, SCF addressed these problems in partnership with tribal leaders through a culturally-based Family Wellness Warriors initiative.</td>
<td>BH started as a multi-stakeholder working group focused on chronic illness inspired by the Chronic Care Model and evolved into a comprehensive health delivery system reform launched as a Governor’s initiative (2003) that implemented the shared vision and roadmap of “Blueprint of Health” into statute. Milestones included: reform legislation Act 191 in 2005; establishment of Blueprint leadership and pilots in 2007; creation of Community Health Team structure and insurer mandate in 2008; statewide Blueprint Expansion and planning for single payer in 2011; and unified community health system in 2014.</td>
<td>CHA started a smoking cessation initiative with tools, access, and support centers including health coaching, provider education, and an evidence-based tool for patients. They also provided self-management programs (workshops, support groups, prevention and wellness services) to help patients adopt healthier lifestyles and engage in preventive health services.</td>
<td>KP’s overall goal is to promote total health. They partner with communities and develop shared goals based on community assessments. For example, the “Re-Think” tool was used in Pueblo, Colorado to bring all partners together and to support the development of shared goals and strategies.</td>
</tr>
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<td>Aligned resources (funding and incentives)</td>
<td>SCF resources are based on the Fund for Native American Indians through the congressional act. They use supplemental funding (45%) from the Indian Health Service (IHS) as a global budget and supplemented this with fee-for-service payments for patients not included in the IHS payments. SCF pays their physicians and staff salaries and implemented rigorous</td>
<td>BH includes two state-based payment reforms that include all payers. BH aligned reimbursement and purchasing, requiring all payers to fund PCMH transformation and community health teams as a shared cost. Additional funding is provided at the state level for project management, practice facilitation, self-management workshops (grants) and clinical registry,</td>
<td>CHA transformed into an accountable care organization and sought Medicaid waiver transformation funding (approximately 40% of the patients were in some form of a global payment arrangement, and an additional 20% were in a shared savings plan). ACH further changed their compensation plan for primary care clinicians and specialists to a largely</td>
<td>KP is a non-profit health plan. Their population approach to care management combined with capitation payment was aligned with payment incentives to providers to keep their clients healthy. KP invests 3% of its annual budget in community benefits. They pay salaries with a bonus based on improved population health outcomes.</td>
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References


Disclaimer

The opinions of the interviewers are their own and do not necessarily reflect the views of their employers. The affiliations of the interviewers are included for identification only.

Conflict of Interest disclosure statement

This statement accompanies the article Title From healthcare to health: A proposed pathway to population health , authored by Russell S. Phillips and co-authored by Ursula Koch, Somava Stout and Bruce E. Landon and submitted to Healthcare as an Article Type. Authors collectively affirm that this manuscript represents original work that has not been published and is not being considered for publication elsewhere. We also affirm that all authors listed contributed significantly to the project and manuscript.

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Employment: None
Speakers’ bureau: None
Expert witness: None