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Population Health Improvement: It's Up to the Community—Not the Healthcare System

Ron Deprez
rondeprez@gmail.com

Rick Thomas

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It's Up to the Community—Not the Healthcare System

by Ron Deprez and Rick Thomas

Despite the growing interest in population health on the part of health professionals, policy analysts, and government agencies, there is no widely accepted definition of the term nor agreement on how to apply the concept in health-improvement planning. In this article, Ron Deprez and Rick Thomas clarify the definition, attributes, and applications of population health, tracing its history and evolution to its current form and assess the roles of communities and health systems in advancing a population health approach.

INTRODUCTION

A growing interest in the concept of *population health* exists among health professionals, policy analysts, nd government agencies. The premise of population health is that assessing health from a population perspective rather than a patient perspective provides an opportunity for better understanding and improving the health status of populations whether or not they are patients. Policy analysts and other observers of healthcare trends agree that the health system cannot continue doing the same things as in the past and expect to be effective (Luft 2006). While there is no consensus on what approach best addresses the deficiencies in the existing system, a population health approach can address a number of persistent and growing health problems in communities such as obesity, diabetes, food security, behavioral health, and drug addiction.

A number of factors confound the discussion of population health, particularly the lack of clarity in its definition and confusion over what is meant by a *population health approach* to improving health status. In this article, we discuss these issues, clarifying key concepts relative to population health, address the opportunities for (and limitations to) applying this approach to health status improvement, and focus on the roles of the health system and the community in implementing a population health-improvement model. Additionally, we touch upon the potential value of this approach for formulating health policy, planning health services, and changing goal-based programs and local infrastructure.

As with most new concepts in health care, there are several definitions that vary widely in both interpretation and application. Kindig and Stoddart's (2003) definition of population health is the most commonly cited, but seems somewhat lacking today. They define it as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group" (Kindig and Stoddart 2003: 381). Kindig (2007) subsequently expanded the scope of this definition to consider factors that have an impact on population health (e.g., social determinants). Jacobson and Teutsch (2013) suggest that the term *total population health* might be employed to distinguish between what is considered population health in contrast to more restricted views espoused (if inadvertently) by healthcare organizations.

Many analysts find fault with these definitions; others define the term in different ways depending on their role in health care—for example, clinician, planner, or community agency. Healthcare providers generally use the term as a replacement for *patient health* and have difficulty getting past the notion of improving health one patient at a time (Raths 2015). Managers of accountable care organizations (ACOs) see population health in terms of the status of their patient panels—especially Medicare patients—while public health officials often view population health in geographical terms or by racial and ethnic population subgroups (Tompkins et al. 2013). Even federally qualified health centers, which ought to be closer to this issue than most healthcare providers, view providing a medical home

for the medically underserved as their contribution to population health (Hagland 2013). Healthcare organizations tend to think in terms of their populations rather than the total population when referring to population health.

Our approach to clarifying the definition involves making a distinction between the term used as a noun and as an adjective—then describing how to integrate them as an approach. As a noun, population health refers to the status of the population's health and well-being in terms of several relevant population-based measures. For example, we use a four-tiered measure of health ranging from *well to not well* to describe the health of adult population in our community health assessment process.[1] Others use a five-tiered measure ranging from *poor* to *very good* based on self-reported responses to surveys by the Centers for Disease Control and Prevention (CDC, Behavioral Risk Factor Surveillance System Survey) and the National Center for Health Services (NCHS, National Health Interview Survey).[2]

Another approach to conceptualizing population health is represented by data compiled for the County Health Rankings (http://www.countyhealthrankings.org). This approach attempts to measure population health using a limited number of factors such as education, obesity, smoking, unemployment, air quality, poverty, and teen birth rates since all influence health status directly or indirectly. The intent of County Health Rankings is to inform communities about selected health indicators to stimulate discussion, planning, and local solutions to improve health. While the rankings provide data for a number of different types of indicators, their limitations are the limited scope of indicators and lack of rigor in analysis for planning innovations. Just using comparisons to state or national data falls short of a comprehensive population health assessment for change.

A set of standardized indicators is essential for an assessment to be useful in understanding both health status and factors that influence health status. However, the indicators need to be organized to paint a picture of these issues in a community including the types and quality of care available to the population. This requires analysis and an understanding of the health system and the community. We recommend starting with a set of health and health-related measures broken out by population groupings, health service, and health conditions. We developed an assessment tool for this purpose in 1989 and have used it in our community health needs assessment work all over the United States.

DEFINITIONS

Population health, noun: an assessment of the health status of a population that uses aggregate data on health and health-related indicators to measure the totality of health and well-being of the total population and medical subgroups.

Population health, adjective: describes an approach or process to improving community health status that focuses on populations (or subsets of a geographic population) and addresses the root causes and structural impediments of ill health rather than exclusively focusing on treating symptoms or conditions of individuals.

As an adjective, population health describes a process for improving health status that operates at the population level rather than the individual (or patient) level. The approach focuses more on social pathology than biological pathology and involves treating conditions within the environment and policy realms in addition to providing clinical services to individual patients. An underlying assumption is that a population health approach improves health status by focusing on the healthcare needs and resources of populations not individuals. It does not rule out, however, specific patient-based medical treatment. Rather, it views the improvements in the health services sector as only one limited component of an initiative.

We believe that a population health approach should be viewed as it relates to both descriptors and an understanding of what drives the levels of these descriptors in a population. Indeed, we ascribe the following attributes to a population health approach:

- an emphasis on understanding the determinants of health be they family genetics, environment, economic factors, education, or any number of other factors (Kindig and Stoddart 2003), recognizing the importance of social pathology over biological pathology
- a focus on measuring health and health outcomes in a population rather than only intermediate clinical outcomes such as reduction of blood glucose levels, blood pressure, or improvements in lung function

- a community-based (participatory) understanding of the critical health issues in a population and what changes in resources, policies, organization, and incentives in the healthcare delivery and transportation and educational, social, environmental, or economic opportunities are necessary to improve community health
- an acceptance of the limited role that each sector (medical, community, physical environment, culture) can play in improving health status
- a recognition that changing personal health status often needs to be addressed in the context of the social or community environment
- a recognition of the role (and responsibility) that the public and its representatives have in improving population health in their communities

Kindig, Asada, and Booske (2008) proposed a population health framework for planning and implementing goals, policies, and interventions aimed at improving or reducing health outcomes. Their framework views determinants from both structural (social environment, genetics, health system) and individual behavioral factors. Outcomes are broken out by disparities (for example, socioeconomic status, race or ethnicity, and geography) and health metrics (limited to mortality and quality-of-life measures). Goals and policies to address most of these disparities, however, may involve decades-long struggles and are difficult to sustain over time.[3] Additionally, improving healthcare systems does not necessarily lead to better population (or patient) health outcomes. It certainly does not appear to reduce risk factors for chronic diseases or disease prevalence, as is reflected in the limited impact (an estimated 10 percent) that the healthcare system has on health status outcomes (McGinnis, Williams-Russo, and Knickman 2002).

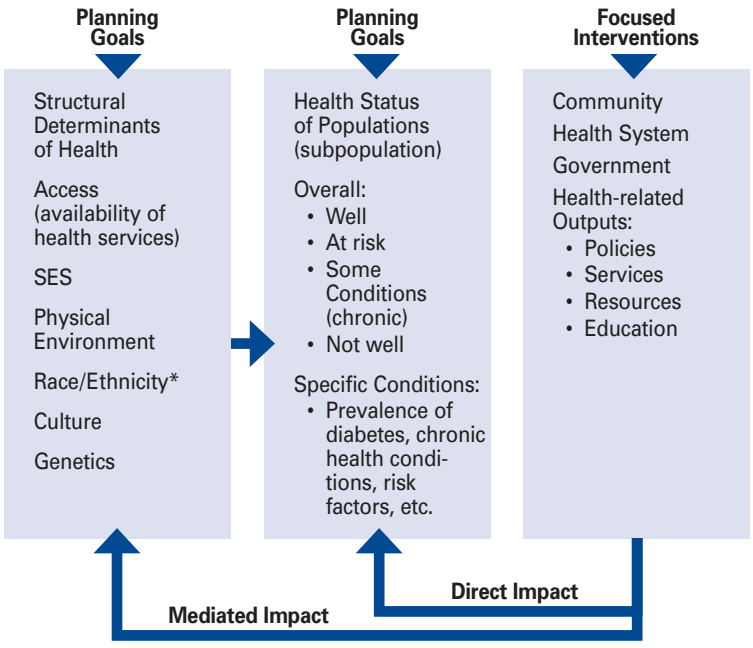
A major challenge facing a population health approach involves shifting from the patient to the community as the context for health improvement. While various parties offer guidance on how to implement a population health approach, these guidelines seldom get past the first few paragraphs before referring to "patients" and "market opportunities."[4] While it is not surprising for health professionals to default to familiar territory, this underscores their lack of understanding of the population health approach. They attempt to force square pegs into round holes by talking about more efficient management of patient data, expanded case management activities, personalized patient experiences, wrap-around services, and a variety of other spinoff activities reflecting a system built on the care of individual patients.

It is not surprising that clinicians struggle to connect social conditions and health status. Most do not understand that the environment—social, economic, or physical—has more influence on health status than the armamentarium that health professionals can bring to bear (Ellaway 2014). For example, there is growing evidence that the best predictor of even clinical outcomes are nonmedical factors—the patient's history, lifestyle, social circumstances, and demographic traits. Indeed, recent research has identified the individual's home zip code as the best predictor of health status.[5] Even physicians who understand the role patients' social context may play in their health rarely take the context into consideration in either planning treatments or in their expectations of the patients. Thus, patients with the same or similar treatment plans from the same institution often exhibit quite different outcomes as the result of disparities and barriers that have virtually nothing to do with the care proposed or received (Hopper 2011).

While evidence-based treatment for chronic conditions is constantly advanced, the population continues to get sicker and community health status declines (Hagland 2015a).[6] In response to these factors, we need a systemic population health approach that targets things that can be changed in a limited amount of time and with limited resources. In short, we need to focus on strategies to overcome current structural and functional barriers that negatively affect health status and access to care-seeking and health-promoting behaviors. To accomplish this, we clearly need a better understanding of the drivers of health in a specific population or area and knowledge of how to overcome the barriers to improving health behaviors. Providers, community organizations, consumers, and government agencies can focus on specific factors within their purview that affect the health of the populations they serve.

In addition to understanding the epidemiology, access, quality, and healthcare delivery issues in a population, a population health approach requires an understanding of community attributes, the physical and social environment, the relevant culture and subcultures, and the existing policies that have implications for health (McGinnis, Williams-Russo, and Knickman 2002). Figure 1 represents our attempt to expand on

FIGURE 1: **Overview of a Population Health Approach to Improving Health Status**



* Less prone to change.

Kindig's earlier model depicting the various components that interact to determine population health.

On the left, we list structural determinants of health. Generally, these conditions require long lead times and substantial resources to change or cannot be changed. On the right, we list the areas of focus for a population health approach for improving health status. These factors include community-initiated actions such as planned infrastructure changes, a built environment that is sensitive to health impacts, health education programs, and efforts to increase food security. Our approach assumes community participation in defining health issues and solutions based in part on collected data and from the community members' experiences. Outputs from a population health initiative include policy, service, resource, and education innovations that are in accord with the culture, education level, income, and contextual realities of the community. In the center, we list the type of population health measures to be followed over time. By including both global and condition-specific measures, we will develop a fuller understanding of the strengths, weaknesses, and gaps in the health status of a population.

THE ROLE OF THE HEALTHCARE SYSTEM IN POPULATION HEALTH IMPROVEMENT

The healthcare system alone cannot drive improvement in population health. Healthcare providers are not trained for, and often have little capacity to address, their patients' nonmedical health issues. The focus of clinical providers should be on diagnosis, treatment or management, and cures (both clinical and behavioral) of patients' medical conditions. While it is essential to have healthcare providers as part of a team approach to patient care, their role in population health should be limited to improving clinical decision making and patient adherence and only then if the patient's life circumstances are taken into consideration.

Public policy is an area where a population health approach can substantially affect health, yet the role of the healthcare system in policy making is currently limited. Providers are typically not aware of the implications of public health policies and regulations as they affect patient and population health. This leaves most policy discussions unaffected by the healthcare system, except for, for example, lobbying for higher cigarette taxes and expanding public insurance programs. While national-level policies that focus on economic development, housing, nutrition, physical activity, and education have relevance for population health, the most effective policy changes will have to take place at the state or local level and are essentially beyond the control of the healthcare system.

While there is a role for the healthcare system as part of a community consortium, the most effective approach would be for the system to focus on the things that are under its control. Healthcare providers should also support efforts by those outside the healthcare system to address the issues that are difficult for healthcare services to address.

THE ROLE OF THE COMMUNITY IN POPULATION HEALTH IMPROVEMENT

It is increasingly recognized that contemporary health problems and their solutions have their roots in the community (http://www.scotpho.org.uk/life-circumstances/community-wellbeing/key-points).

Kindig, Asada, and Booske (2008) note the importance of this perspective, and Kindig and Isham (2014) further advance this notion by describing a "community health business model."

Representatives of the community, however defined, may not be aware of the epidemiological profile of their population, but they typically are aware of many of the sources of its health-related problems. Community agencies know about toxic environmental sites, unsafe housing, concentrations of poverty, defects in the educational system, food deserts, deteriorating infrastructure, and the factors limiting educational achievement in children.

Communities have the ability to contribute to all three dimensions of population health—clinical care, environmental improvement, and policy development.

If policy changes are critical to improving health status, the community must orchestrate the changes. Recent local efforts to increase Supplemental Nutrition Assistance Program (SNAP) payments at farmers' markets, increase use of food pantries and mobile produce markets, and develop community gardens are examples of policy changes that contribute to the improvement of health status via better access to healthy foods (CDC n.d.). The initial action of the community should involve establishing priority health issues based on accurate data and critical analyses. Community representatives will have fairly clear-cut notions about their community's health problems. The public health community including local stakeholders should be leading the charge for population health.

What Communities Can Do

Communities have the ability to contribute to all three dimensions of population health—clinical care, environmental improvement, and policy development. For clinical care, in many communities, the public or nonprofit hospital or clinic plays a critical role in providing care for many in the community, and communities (including governments) support the provision of such services. More important, however, is the community's role in assuring a smooth interface between services provided publicly and those offered by private providers. In addition, communities often support other organizations involved in addressing the healthcare needs of the population—medical schools, research institutes, and healthcare coalitions. Communities also play a significant role in assessing their populations' current health status and establishing the criteria by which health status improvement will be measured. Whether through community circles, town meetings, or community focus groups, communities need to influence resource allocation and policy decisions. Indeed, as one of the requirements for the Affordable Care Act (ACA), not-for-profit hospitals need documented community input into the community health needs assessment. This input is critical because the community's perception of health issues will differ from that of health professionals.

Communities have a leading role to play in the other two dimensions—environment and policy. Since community agencies field the complaints from citizens concerning the environmental factors that contribute to ill health, they should be aware of the effect the physical and social environment has on the health and well-being of their citizens. Additionally, various community agencies are aware of child abuse and domestic violence, mental illness and substance abuse, toxic materials, homelessness and housing insecurity, school dropout rates, lack of job opportunities, food deserts, and myriad other factors that ultimately contribute to the health status of the population. Issues related to housing quality and security, educational attainment, food security, and job development and training must occur at the grassroots, and they are important points of attack in addressing the social roots of ill health in a population.

Although resources always seem to be scarce, committed communities can often obtain the resources necessary for addressing population health issues.[7] The bang-for-the-buck from these efforts is likely to exceed the benefits of expenditures for clinical care. For example, how far could the $500,000 spent keeping a premature newborn alive go in providing prenatal care for high-risk pregnant women? Although the medical community is uncomfortable with such issues, communities can approach them with relative impunity. The intent is not to deny care to anyone, but to proactively address reproductive health issues, thereby eliminating

HEALTHY MAINE PARTNERSHIPS

For the past 10 years, Maine has done what many other states have been unable to do—build a (largely nongovernmental) local public health infrastructure through the Healthy Maine Partnerships (HMP). Established in 2007 by Maine statute, HMPs are community-based organizations that have played an important role improving population health. The HMP have worked to improve the community's health through diabetes prevention, health promotion for adults and children, school lunch improvement, substance and tobacco use prevention, and food security programs. The HMPs are unique because many of these community-based organizations, with little state seed funding, developed private- and public-sector collaborations and have attained significant private and federal grant dollars. Unfortunately, Maine's government has decided to defund and de-name the HMPs without legislative approval. In March 2016, the Maine Center for Disease Control and Prevention (Maine CDC), announced it would shift resources previously granted to the HMPs to four statewide vendors that would then subcontract prevention work as part of the district public health and district coordinating council (DCC) structure. While public health district coordinating councils are expected to play a more prominent role in programs, they are not designed nor staffed for this (*Bangor Daily News*, September 30, 2016). As of October 1, 2016, HMPs no longer exist in the eyes of the state; agencies have been informed that they are no longer able to use this brand in future activities. The elimination of the HMPs leaves Maine with a vacuum of local public health presence and programs and no clear direction from the Maine CDC.

the need for expensive neonatal care and reallocating those savings to other initiatives.

It has become increasingly clear that health conditions are often *symptoms* of underlying problems. In fact, it would not be surprising for citizens to note poor housing, lack of food, or unsafe streets as health problems. Given that the conditions of the individual before and after her healthcare encounter may be more important for outcomes than the healthcare encounter itself, the social circumstances of community members should be a major concern of community leaders.

The third area—policy making—is almost exclusively the domain of the community. Although certain policies related to healthcare are developed at the state or national level, communities have the ability to address many important policy issues, issues that may ultimately have a greater impact on health status than policies directly related to healthcare. Although progress has been slow, there appears to be growing momentum nationwide for addressing the impact of public policy on health status.

An important step forward has been emergence of the health impact studies, which involve the community in the assessment of the impact that any policy, program, or project will have on health status. Health impact studies have long been a requirement in many Western European counties, and now many US communities are also requiring them when assessing major policy or infrastructure changes. Until recently, most policies, programs, and projects have been implemented with little concern for the direct or indirect implications for health status.

A valid question is, how realistic is it to ask communities to take a lead role in population health improvement? Relevant organizations do not always have a history of working together, and indeed, we often find that the key representatives from various agencies (for example, housing, economic development, education, environmental safety) have never been in the same room on key policy issues. Is there likely to be community resistance to this responsibility or committing community resources? Are there other barriers to the community's taking a lead role?

We suggest that communities take the following steps to develop a population health approach:

- Acknowledge the interconnection of social, environmental, and policy factors with the health status of the community. Through an approach to local governance and community development that includes health in all policies, communities are in a unique position to view health issues within a comprehensive framework. Given that all aspects of community life fall within the

purview of local government, community leaders are the appropriate party for identifying and clarifying these interconnections (PHI 2013).

- Recognize the limitations of the healthcare system in addressing population health issues. We have had a tendency to leave health issues to the healthcare system since a combination of public health measures and patient care has worked to address health issues and improve overall health status in the past. Now, however, we need a different approach as public health and clinical care affects a dwindling proportion of health issues.
- Identify the true health issues in the community, not ones based on clinical metrics. The healthcare system representatives form their opinions based on what they see within their walls, a perception that typically does not reflect the true nature of morbidity or its drivers within the population. Since the roots of community health problems will be found beyond the frontlines of medical care, communities themselves should take on the responsibility of identifying health issues. Communities must connect the dots between housing conditions or crime or unemployment and health issues.
- In conjunction with the medical community, identify priorities for action. This is an area in which the healthcare system and nonhealth entities can jointly generate data that offer a view of health issues and priorities from the perspective of the community. Indeed, such an effort will be required for ACA-mandated community health needs assessments in the future.
- Inventory community health assets, applying the broadest possible definition to the term asset and match these with the identified needs. The community is in a position to identify the assets that might be leveraged toward improved community health. (An asset map is particularly useful for addressing a particular set of health issues and identifying specific resources and gaps.) A key step in this process is determining shortfalls in resources that need to be addressed, which may involve physical and financial resources along with human capital, policies, and other less tangible assets.
- Assess existing policies in relevant areas for their impact on population health. While most communities commonly assess their policies, they are not necessarily sensitive to the impacts that policies in nonhealth areas may have on the health of the community. The health-in-all-policies guidelines that are being developed should be useful in this regard (PHI 2013).
- Establish or reinforce umbrella entities that can coordinate service and programs. These coalitions take various forms and have a variety of goals and different types and levels of funding. It is hard to imagine communities making any progress toward health improvement without such an organization. A challenge in many communities will be the ability to share data between organizations, a process that is particularly delicate when personal health and social services data are involved.
- Mandate a health-in-all-policies approach that assures impact assessments are performed before any policy or project implementation. Although potentially more costly up front, there is an opportunity with the health-in-all-policies approach to introduce efficiencies in the health-improvement effort. For example, communities may find that an investment in safe housing prevents later illnesses.
- Provide oversight and evaluation for the healthcare community's impact on the health status of the population. Just as the healthcare community may be unaware of health status metrics beyond its walls, it may not be in a position to assess the impact of its efforts. The community has a responsibility to work with health professionals to establish goals related to health status improvement, set benchmarks for these efforts, and generate the data needed for evaluation and surveillance.

An ongoing challenge to implementing a population health approach is the weakness of the data infrastructure supporting the population health movement (Hagland 2015b). While health data are abundant, it is difficult to obtain health data from disparate sources and integrate them to support efficient analysis. The population health approach calls for even more robust

resource- and data-management capabilities and for the ability to incorporate nonhealth data with health data to conduct appropriate analyses. We are a long way from being able to effectively profile the full range of attributes of a community's health status, so we must be well aware of the shortcomings in data management and the subsequent barriers that may hinder such efforts.

CONCLUSIONS

As the movement gains momentum, there is a need for greater clarity with regard to the nature of population health and the process involved in implementing a population health approach to community health improvement. We need better measures and methods for assessing population health that go beyond the standard metrics of morbidity and mortality, and we must develop meaningful indicators of community health that consider social and environmental factors and identify the impact of current policies. Effective implementation of the population health model must target the social roots of ill health and addresses the well-being of groups of people and not just existing patients. We need to treat the factors that contribute to the health and illness of the population and the policies that either abet or deter community health improvement.

We contend that the implementation of a population health model is ultimately the responsibility of the community and not the healthcare system. A number of factors limit the ability of the healthcare system to mount an effective population health initiative, leaving the community—however defined—as the primary driver for population health improvement. Every community is different, of course, and population health initiatives will play out differently in different locations. Regardless of the form the initiative takes, it will require the combined resources of various community entities to generate the collective impact necessary for meaningful community health status improvement.

ENDNOTES

1 UNE Center for Community and Public Health. Statewide Community Health Needs Assessment 2010—OneMaineHealth Collaborative. Using a multifactor algorithm overall health of the population is classified as (1) well, (2) at risk for future medical problems, (3) some health problems, and (4) not well. See page 39 and the Appendix for a more complete description of this measure.

2 More information about these surveys may be found at the following websites: http://www.cdc.gov/brfss/ and http://www.cdc.gov/nchs/nhis.htm

3 For example, over 20 states started their own health insurance plans prior to the Affordable Care Act. Only a few were able to sustain them beyond a few years.

4 For example, the Governance Institute's agenda on implementing a population health approach focuses in part on identifying the key indicators that can help determine the pace of evolution towards population health in an organization's local market and potential market opportunities.

5 See, for example, http://www.hsph.harvard.edu/news/features/zip-code-better-predictor-of-health-than-genetic-code

6 See also http://www.cdc.gov/chronicdisease/about/multiple-chronic.htm, http://mpkb.org/home/pathogenesis/epidemiology#historical_increases_in_the_prevalence_of_certain_chronic_diseases, and http://www.fightchronicdisease.org/sites/fightchronicdisease.org/files/docs/GrowingCrisisofChronicDiseaseintheUSfactsheet_81009.pdf

7 See https://nccd.cdc.gov/DCHSuccessStories/searchstories.aspx for examples from the US CDC Community Transformation Grant Projects.

REFERENCES

CDC (Centers for Disease Control and Prevention) n.d. State Initiatives Supporting Healthier Food Retail: An Overview of the National Landscape. CDC, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. http://www.cdc.gov/obesity/downloads/Healthier_Food_Retail.pdf

Ellaway, Anne. 2014. "The Impact of the Local Social and Physical Local Environment on Wellbeing." In Wellbeing and the Environment, vol. 2, ed. Rachel Cooper and Elizabeth Burton, 1–18. Wiley-Blackwell, Oxford.

Hagland, Mark. 2013. "What Federally Qualified Health Centers Can Teach Their Provider Peers about Data and Population Health." Health Informatics (May 17). http://www.healthcare-informatics.com/article/what-federally-qualified-health-centers-can-teach-their-provider-peers-about-data-and-popula

Hagland, Mark. 2015a. "Chronic Care World: What a New California Report Tells Us about the Future of U.S. Healthcare." Healthcare Informatics (May 1) http://www.healthcare-informatics.com/blogs/mark-hagland/chronic-care-world-what-new-california-report-tells-us-about-future-us-healthcare

Hagland, Mark. 2015b. "Leveraging Data for Public Health: One Health Plan Leader's Perspective." Healthcare Informatics (June 22). http://www.healthcare-informatics.com/article/leveraging-data-population-health-one-health-plan-leader-s-perspective-0

Hopper, K. 2011. "Disparities in Cardiac Rehab." Unpublished presentation.

Jacobson, Dawn Marie, and Steven Teutsch. 2013. An Environmental Scan of Integrated Approaches for Defining and Measuring Total Population Health by the Clinical Care System, the Government Public Health System, and Stakeholder Organizations. National Quality Forum Washington, DC. http://www.improvingpopulationhealth.org/PopHealthPhaseIICommissionedPaper.pdf

Kindig, David A. 2007. "Understanding Population Health Terminology." The Milbank Quarterly 85(1): 139–161.

Kindig, David A., Yukiko Asada, and Bridget Booske. 2008. "A Population Health Framework for Setting National and State Health Goals." Journal of the American Medical Association 299:2081–2083.

Kindig, David A., and George Isham. 2014. "Population Health Improvement: A Community Health Business Model That Engages Partners in All Sectors." Frontiers of Health Services Management 30(4): 3–20.

Kindig, David, and Gregg Stoddart. 2003. "What is Population Health?" American Journal of Public Health 93:366–389.

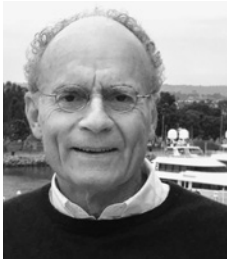
Luft, Harold S. 2006. "What Works and What Doesn't Work Well in the US Healthcare System." Pharmacoeconomics 24(Suppl 2): 15–28.

McGinnis, J. Michael, Pamela Williams-Russo, and James R. Knickman. 2002. "The Case for More Active Attention to Health Promotion." Health Affairs 21(2): 78–93.

PHI (Public Health Institute). 2013. Health in All Policies: A Guide for State and Local Government. PHI, Washington, DC.

Raths, David. 2015. "Getting Beyond Encounter-Based Care to Include Social Determinants." Healthcare Informatics (June 2). http://www.healthcare-informatics.com/blogs/david-raths/getting-beyond-encounter-based-care-include-social-determinants

Tompkins, Christopher, Aparna Higgins, Jennifer Perloff, and German Veselovskiy. 2013. "Population Health Management in Medicare Advantage." Health Affairs (April 2). http://healthaffairs.org/blog/2013/04/02/population-health-management-in-medicare-advantage/



Ron Deprez is president of the Public Health Research Institute (Deer Isle, Maine) and an associate research professor at the University of New England.

Rick Thomas is associate professor of preventative medicine at the University of Tennessee Health Science Center.