CHAPTER 12

POPULATION HEALTH: A CULTURE OF HEALTH IMPROVEMENT APPROACHES

"The roundtable's vision is of a strong, healthful, and productive society which cultivates human capital and equal opportunity. This vision rests on the recognition that outcomes such as improved life expectancy, quality of life, and health for all are shaped by interdependent social, economic, environmental, genetic, behavioral, and health care factors, and will require robust national and community-based policies and dependable resources to achieve it."

—National Academies of Sciences, Engineering, and Medicine (2020), Roundtable on Population Health Improvement

Learning Objectives

After completing this chapter, you should be able to

- discuss the purpose of the population health approach,
- discuss four approaches to improving population health and describe their value,
- describe the role of quality improvement in population health,
- explain the utility of the plan-do-check-act cycle,
- define *managerial epidemiology*,
- describe the role of managerial epidemiology in improving a population's health,
- discuss the population health approach with respect to health services management, and
- explain the population health care management model.

Introduction

The National Academy of Medicine (NAM) regularly convenes a Roundtable on Population Health Improvement, at which leaders in public health, healthcare, business, education, and other fields gather to inform, via evidence-based practice, cross-sector initiatives aimed at improving population health (National Academies of Sciences, Engineering, and Medicine 2020). NAM has adopted the Kindig and Stoddart (2003, 381) definition of *population health*: "the health outcomes of a group of individuals, including the distribution of such outcomes within the group." NAM notes that, although the interaction of multiple health determinants is not specifically mentioned in the definition, such determinants (e.g., behaviors, genetics, access to healthcare, the physical environment) provide the foundation for the health outcomes in a population (National Academies of Sciences, Engineering, and Medicine 2020).

The NAM roundtable engages leaders, experts, and other stakeholders to bring together "members and outside experts, practitioners, community members, researchers, and decision makers in dialogue about models and frameworks, good practices and tools, and the evidence about actions that can contribute to building a strong, healthy, and productive society that cultivates human capital and equal opportunity" (National Academies of Sciences, Engineering, and Medicine 2020). Those same goals are central to the population health improvement approaches described in this chapter.

A Population Health Approach

A population health approach can help healthcare and public health administrators in their mission to improve the health of the population. First, let's revisit the population health approach, as described by the Public Health Agency of Canada (2013):

> *Population health* refers to the health of a population as measured by health status indicators and as influenced by social, economic, and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services. As an approach, population health focuses on the interrelated conditions and factors that influence the health of populations over the life course, identifies systematic variations in their patterns of occurrence, and applies the resulting knowledge to develop and implement policies and actions to improve the health and well-being of those populations.

The following narrative identifies the important actions required for a public health and healthcare system to consider when working collaboratively to improve a population's health:

- *Focus on the Population's Health*: Recall that the "patient" of public health is not the individual but rather the population. Thus, actions to improve

health are directed at the population level and not at the individual level. This approach requires inequalities in the health status of population groups to be addressed. The Public Health Agency of Canada (2013) states:

> An underlying assumption of a population health approach is that reductions in health inequities require reductions in material and social inequities. The outcomes or benefits of a population health approach, therefore, extend beyond improved population health outcomes to include a sustainable and integrated health system, increased national growth and productivity, and strengthened social cohesion and citizen engagement.

- *Upstream Investment*: Recall that the social determinants of health (SDoH) have often been described as the nonmedical factors that contribute to influencing health outcomes, including "health-related knowledge, attitudes, beliefs, or behaviors (e.g., smoking)" (Bharmal et al. 2015, 2).

  Upstream determinants, or *structural determinants* (introduced in chapter 2), are determinants of disease that have an indirect but obvious effect on one or more risk factors for disease. "For example, poverty is an upstream determinant of childhood malnutrition; affluence is an upstream determinant of coronary heart disease because it tends to be associated with risk factors such as diets rich in lipids" (Last 2007, 384). Social difficulty, risk exposure, and social inequities represent upstream factors for which interventions can be developed to improve health outcomes for communities (Bharmal et al. 2015). Since these upstream factors influence the conditions in which we live, work, and partake in leisure activities, they influence our health greatly.

  When considering what keeps a population healthy or sick, focus should be directed at the root causes. That way, direct interventions will have the greatest potential to positively affect the health status of the population. Thus, the Public Health Agency of Canada (2013) advises that "a population health approach directs investments to those areas that have the greatest potential to influence population health status positively. A population health approach is grounded in the notion that the earlier in the causal stream action is taken, the greater the potential for population health gains."

- *Evidence-Based Decision Making*: Decision making should be grounded in current research. As communities are examined, new information can improve our understanding of how various factors act as determinants of health and how the effectiveness of interventions can be maximized. Evidence, as a result of research, is used to identify and strategize about determinants of health with the aim of improving population health. "An important part of the population health approach is the development of new sources of evidence

on the determinants of health, their interrelationship, and the effectiveness of interventions to improve health and the factors known to influence it" (Public Health Agency of Canada 2013).

- *Implementation of Multiple Strategies*: Consider not only the SDoH but also the economic, environmental, and political factors. Also, consider what agency or organization will implement the strategies and how they will be evaluated. A population health approach recognizes that the determinants of health interact and fall outside of the medical sector. Thus, strategies to improve health call for "innovative and interconnected strategies that give due consideration to the full spectrum of social, economic and environmental health determinants. Based on the analysis of evidence, strategies are developed that will have the greatest relative impact on population health risks and conditions. Strategy development includes the identification of (a) who will employ strategies, (b) to whom, (c) when, and (d) where, in order to ensure maximum contribution to desired health outcomes" (Public Health Agency of Canada 2013).
- *Intersectoral Collaboration*: Public health is interdisciplinary and collaborative in its approach, and the same philosophy applies when developing a population health framework. The public health and healthcare sectors must integrate for a population health approach to be successfully implemented. A hallmark of a population health approach is the partnership of stakeholders who don't usually work together doing so to share responsibility and accountability for population health improvement. "Intersectoral collaboration in a population health approach includes the horizontal management of health issues. Horizontal management identifies common goals among sectoral partners. It then ensures coordinated planning, development and implementation of their related policies, programs and services" (Public Health Agency of Canada 2013).
- *Citizen Engagement*: In addition to intersectoral collaboration, members of the community must play a meaningful role in the population health approach, just as they must in the community health assessment and community health improvement processes described in chapter 11. Community members live with the health issues affecting the population and can contribute essential qualitative information. Community residents can offer their "lived experience," which can be not only informative but formative in developing solutions and helping to establish evaluation approaches to monitor progress.
- *Health Outcome Responsibility*: Improved health outcomes are the goal of a population health approach. Evaluating processes, impacts, and outcomes and communicating this information to stakeholders are key components of the approach. "A population health approach calls for an increased focus

> on health outcomes (as opposed to inputs, processes and products) and on determining the degree of change that can actually be attributed to an intervention. Changes are examined in health status, determinants of health and health status inequities between population sub-groups. Process, impact, and outcome evaluation are used to assess these changes. Regular and timely reporting of results and sharing of information with partners and residents [community members] is an integral part of a population health approach" (Public Health Agency of Canada 2013).

In sum, the population health approach requires a change in the ways that public health and healthcare systems do business. Implementation can be challenging and is resource intensive (Public Health Agency of Canada 2013).

EXERCISE: STUDYING *HEALTH AFFAIRS* AND CULTURE OF HEALTH

Health Affairs is "the leading journal of health policy thought and research. . . . Its mission is to serve as a high-level, nonpartisan forum to promote analysis and discussion on improving health and health care, and to address such issues as cost, quality, and access" (Health Affairs 2021a). *Health Affairs* is a peer-reviewed journal that has a section called "Culture of Health" that examines the relationship between health status and social issues, which is important when implementing and evaluating a population health approach.

Access the journal's Culture of Health hub (see Health Affairs 2021b in References for link) and examine the health issues being addressed and evaluated. Identify a research example and consider the potential this work holds to improve a population's health.

The sections that follow describe a number of population health improvement approaches.

Canadian Approach to Population Health

The Canadian approach to population health is a model for any community striving to improve the health of its population. The Public Health Agency of Canada (2013) explains:

> In 1989, the Canadian Institute for Advanced Research (CIAR) introduced the population health concept, proposing that individual determinants of health do not act in

isolation. It is the complex interaction among determinants that can have a far more significant effect on health. For example, unemployment can lead to social isolation and poverty, which in turn influences one's psychological health and coping skills. Together, these factors can then lead to poor health. As we learn more about how these interactions affect health, we'll better understand why and how policies and different health approaches affect the health of a population. We'll also better understand why some groups within populations are healthier than others in spite of the fact that all Canadians have access to the health care system.

Public Health and Healthcare System Collaboration

A key focus across many population health improvement approaches is the need for collaboration among public health and healthcare entities. Many entities, whether complying with Affordable Care Act provisions, the community benefit standard for tax exemptions, or Public Health Accreditation Board requirements, must assess the health of the communities in which they provide services; as they do so, they should coordinate their assessments to avoid duplication and maximize resources (Montero, Lupi, and Jarris 2015).

Significant and sustained improvement in a population's health requires "clear direction, commitment, and effective collaboration" between many entities that provide care or engage in improvement efforts (Montero, Lupi, and Jarris 2015, 1). Montero, Lupi, and Jarris (2015, 2) further point out the risks that emerge when hospitals carry out their assessments in isolation:

> While most hospitals genuinely want to improve the health of the communities they serve, without meaningful community participation, some hospitals could perform CHNAs and CHIPs [community health needs assessments and community health improvement plans] in a manner that only minimally satisfies federal requirements. Without review, a hospital could also possibly steer CHNAs and CHIPs to prioritize preferred clinical programs and interventions. In addition, without crucial information from health agencies and communities, hospitals could inadvertently underrepresent vulnerable populations in their CHNA processes. To counter these risks, local and state public health officials can vigorously educate and engage their communities and assertively seek partnerships with local hospitals' top leadership to share data, assessment methodologies, and evidence-based interventions, and connect hospitals with existing community coalitions. Given the opportunities presented by the fundamental health system changes underway across the country, governmental public health should join forces with hospitals by playing a leading role in this aspect of the community health improvement process.

Such integration and collaboration efforts should focus not only on clinical services but also on community-based prevention efforts (Montero, Lupi, and Jarris 2015).

Community Health Needs Assessment (CHNA)

The Affordable Care Act (ACA) of 2010 requires that nonprofit hospitals conduct community health needs assessments (CHNAs), which are similar to the community health assessments (CHAs) previously described in chapter 11. The purpose of the CHNAs is not only to assess the health needs of the communities the hospitals serve but also to implement strategies to address those needs (Stoto and Davis 2019). The CHNA mandate complements the community benefit standard and the Public Health Accreditation Board's CHA and CHIP requirements for public health departments (both discussed in chapter 11).

Stoto and Davis (2019) propose that the ACA requirement has the potential to improve population health outcomes by encouraging collaboration and aligning the efforts and resources of the public health system, the healthcare sector, and other community organizations. Stoto and Davis (2019) further state that a population health approach also requires "A transformation in healthcare towards reimbursement based on value rather than the volume of services provided, meaning that healthcare systems are increasingly held accountable for improving health outcomes, which requires collaboration with others in their communities."

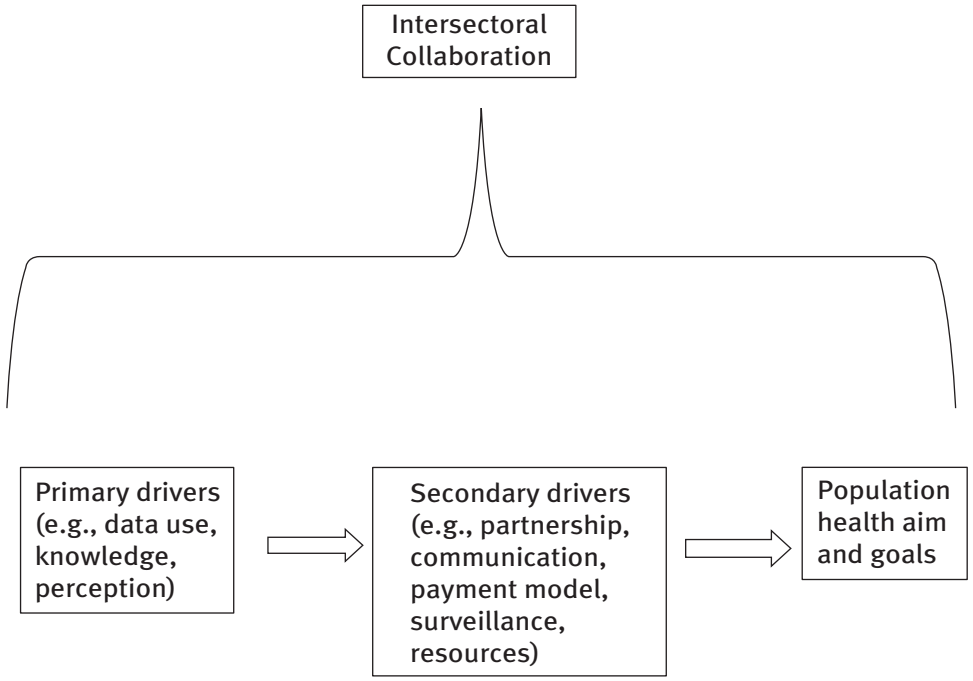
Population Health Driver Diagram Framework

"Public health and health care organizations are more effective when they combine their efforts to address a community population health issue than when they work separately and competitively," observe Bialek, Moran, and Kirshy (2015, 1). In that spirit, another approach to population health improvement is the **population health driver diagram** framework developed by the Public Health Foundation (PHF). The diagram, shown in exhibit 12.1, helps align the efforts of public health and healthcare organizations to better "tackle challenges at the crossroads" of these two sectors (Bialek, Moran, and Kirshy 2015, 1). The primary drivers are broad in scope and represent a set of key factors for achieving the identified goals, and they can be explored and broken down into a set of secondary drivers, which are more specific and precise, and they provide a basis from which targeted interventions can be developed (Bialek, Kirshy, and Moran 2014; PHF 2021).

population health driver diagram
A tool for aligning the efforts of public health and healthcare organizations to address health issues. The diagram links key health aims with broad primary drivers and more specific secondary drivers.

A population health driver diagram identifies primary and secondary drivers of an identified community health objective and serves as a framework for determining and aligning actions that can be taken within a community for achieving the objective. This framework offers not only a starting point for discussion but also flexibility for identifying and addressing unique community characteristics, assets, and needs. It helps create an atmosphere of cooperation by enabling each participant working to address the specific community health objective the opportunity to identify and articulate roles already being played by that individual's organization and to develop an understanding of how what he or she is doing fits in with other community organizations. In addition, this framework can be used to determine other actions that can be taken individually and collectively to positively impact the particular community health objective.

Exhibit 12.1
Population Health Driver Diagram



Source: Adapted from Bialek, Moran, and Kirshy (2015).

The Public Health Foundation (PHF 2021) summarizes: "A population health driver diagram can be used collaboratively by public health, health care, and other partners to identify the potential primary and secondary drivers that can help to achieve an identified community health objective." The diagram can serve as a starting point for discussion among stakeholders, and it can promote an atmosphere of cooperation by enabling all participants to identify their roles in addressing a health challenge.

Bialek, Moran, and Kirshy (2015) describe the PHF's application of the population health driver framework to the issue of improving the use of antibiotics. Through a "Public Health Antibiotic Stewardship Driver Diagram," health departments and hospitals in three separate states worked together to identify primary and secondary drivers and to develop interventions that could be applied by the various stakeholders. The primary drivers identified by the public health and healthcare systems included the following (Bialek, Moran, and Kirshy 2015, 3):

- Appropriate use of antibiotics
- Data monitoring
- Knowledge and awareness of proper antibiotic use

The secondary drivers were as follows (Bialek, Moran, and Kirshy 2015, 3):

- Information about which antibiotics are most effective
- Identification of prevalent diseases in the community
- Incentives for proper antibiotic use
- Appropriate policies for work and school settings
- Use of community-specific resistance data to inform proper antibiotic selection
- Intervention plans for specific target audiences (e.g., patients, providers, insurers)

Community-specific interventions were developed at each site. "Although the specific accomplishments of each site differed, implementation of protocols to tackle antibiotic use and the spread of antibiotic-resistant disease, as well as the education of physicians, nurses, pharmacists, child care workers, and others about the appropriate and inappropriate use of antibiotics, were pillars of achievement common among the pilots" (Bialek, Moran, and Kirshy 2015, 2).

EXERCISE: CREATING A POPULATION HEALTH DRIVER DIAGRAM FOR A COMMUNITY HEALTH ISSUE

Following the approach outlined by Bialek, Kirshy, and Moran (2014, 2), create your own population health driver diagram using the following steps:

1. Develop a specific aim for addressing a community health challenge. The aim should be clear and concise.
2. Draw a diagram with three levels of detail (see exhibit 12.1 for a model). The first level is the aim and the goals of the aim, the next level consists of the primary drivers, and the most specific level includes the secondary drivers related to achieving each primary driver.
3. Develop the main goals related to the aim statement to be achieved.
4. Develop the primary drivers that can contribute directly to the aim. These are the more general categories of activities that can help achieve the aim.
5. Develop the secondary drivers for each primary driver. These are the more specific interventions, changes, or improvements that can help achieve the associated primary driver.

Health in All Policies (HiAP)

As introduced in chapter 3, Health in All Policies (HiAP) is a cooperative approach to improving population health by incorporating health considerations into decision making across various sectors and policy areas (Rudolph et al. 2013a).

Recall from chapter 3 that according to the World Health Organization (WHO 2021), "Health in All Policies is an approach to public policies across sectors that systematically takes into account the health implications of decisions, seeks synergies, and avoids harmful health impacts, in order to improve population health and health equity." Rudolph and colleagues (2013b, 2) add, "Health in All Policies takes project-by-project collaboration further by formalizing structures and mechanisms to incorporate a health, equity, and sustainability lens across the whole of government" (Rudolph, Caplan, Mitchell, et al. 2013, 2).

Rudolph and colleagues identify the following considerations to take into account when implementing the HiAP approach (Rudolph, Caplan, Ben-Moshe, et al. 2013a, 5):

- Health in All Policies is a collaborative approach to improving the health of all people by incorporating health considerations into decision making across sectors and policy areas.
- Health is influenced by the social, physical, and economic environments, collectively referred to as the *social determinants of health*.
- Health in All Policies, at its core, is an approach to addressing the social determinants of health that are the key drivers of health outcomes and health inequities.
- Health in All Policies supports improved health outcomes and health equity through collaboration between public health practitioners and those nontraditional partners who have influence over the social determinants of health.
- Health in All Policies approaches include five key elements:
    1. Promoting health and equity
    2. Supporting intersectoral collaboration
    3. Creating co-benefits for multiple partners
    4. Engaging stakeholders, and
    5. Creating structural or process change.
- Health in All Policies encompasses a wide spectrum of activities and can be implemented in many ways.

- Health in All Policies initiatives build on an international and historical body of collaborative work.

A core feature of a population health approach that has been an underlying theme throughout our text is the need for an intersectoral collaboration. The Association of State and Territorial Health Officials (ASTHO 2013) identifies the following ways to establish a successful partnership:

- Identify shared goals and co-benefits across sectors to build trust, enable partnership, and share successes and leverage them for ongoing work.
- Engage partners early and develop relationships; these efforts are essential in the planning, project development, or policy process.
- Define a common language across and within sectors to help remove communication barriers and allow partners to coordinate efforts around a place rather than a sector or agency.
- Activate the community to help frame the conversation and obtain community buy-in for planned approaches that make health a priority.
- Leverage funding from complementary programs to support cross-agency efforts.

DISCUSSION: HEALTH IN ALL POLICIES (HiAP)

Access the Association of State and Territorial Health Officials (ASTHO) report titled *Health in All Policies: Strategies to Promote Innovative Leadership* (see ASTHO 2013 in References for link). Read the article and answer the following questions:

1. How are the characteristics for effective intersectoral collaborations demonstrated?
2. How was HiAP used to improve the population's health?
3. What is the value of the HiAP approach for a community?

quality improvement (QI)
The continuous use of deliberate processes to improve efficiency, effectiveness, outcomes, and other aspects of performance.

Quality Improvement (QI)

Quality improvement (QI) in public health involves the use of defined and deliberate processes to improve the activities of responding to community needs and improving population health. According to the National Association of County and City Health Officials

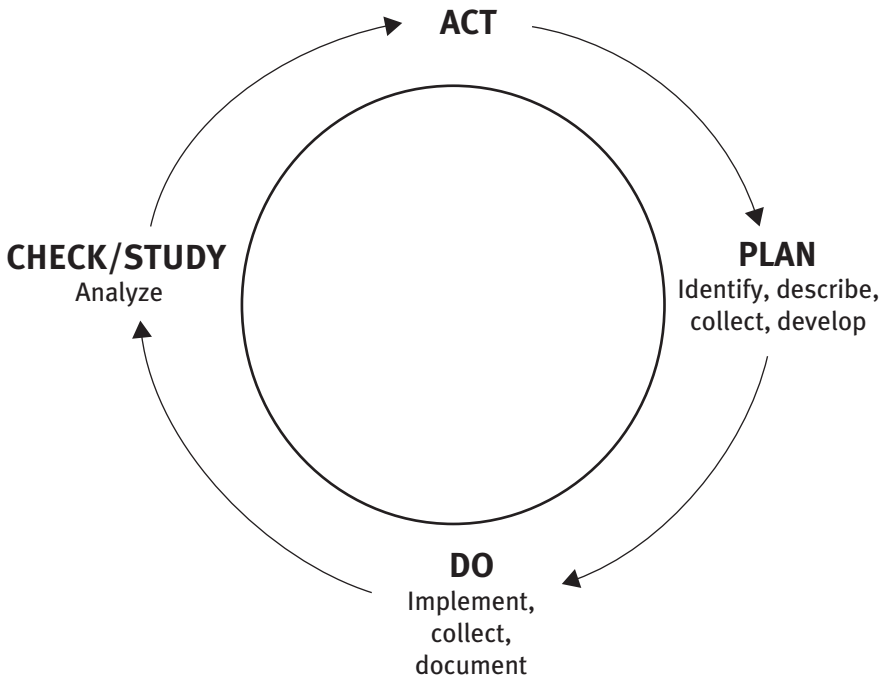


Exhibit 12.2
The Plan-Do-Check-Act Cycle

Source: Adapted from Gorenflo and Moran (2021).

(NACCHO 2021), it represents "a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community." One of the most important QI processes is the **plan-do-check-act (PDCA) cycle**, illustrated in exhibit 12.2.

plan-do-check-act (PDCA) cycle
A process consisting of four phases (*plan, do, check*, and *act*) for developing, implementing, testing, and refining quality improvement activities.

Gorenflo and Moran (2021) outline the phases of the PDCA process as follows:

- *Plan.* The focus of the first phase is to investigate the current situation, understand the nature of the problem to be solved, and develop potential solutions that can be tested. It involves six steps:
  1. Identify and prioritize the issue to be addressed;
  2. Describe the goal, the target audience, and the measure for determining your effectiveness;
  3. Describe the current approach to the issue, and identify areas for improvement;

4. Collect both baseline data and trend data on the issue;
5. Identify factors contributing to the problem; and
6. Develop an action plan.

- *Do.* The second phase involves the implementation of the action plan; the collection of data; and the documentation of problems, observations, and lessons learned.
- *Check.* The third phase focuses on analyzing the effect of the intervention.
- *Act.* The fourth phase involves acting on what was learned—typically either adopting the intervention, modifying it, or abandoning it and returning to the "plan" phase.

The steps in the PDCA process are reminiscent of the core functions of public health, as discussed throughout our text: assessment, policy development, and assurance. As Bialek and colleagues explain, "Quality improvement in public health is the use of a deliberate and defined improvement process, such as Plan-Do-Check-Act, which is focused on activities that are responsive to community needs and improving population health. It refers to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community" (North Carolina Public Health 2020, 1).

EXERCISE: EXAMINING QUALITY IMPROVEMENT INITIATIVES

The National Public Health Improvement Initiative from the Centers for Disease Control and Prevention (CDC) was developed to assist state, tribal, local, and territorial public health departments in improving their efficiency and effectiveness. Results of this initiative's funding include the following (CDC 2017, 23):

- The Sexually Transmitted Disease Unit at the Michigan Department of Health and Human Services used QI to improve the unit's ability to locate clients with syphilis by 12 percent.

(continued)

- In Tooele County, Utah, the percentage of tobacco vendors with a valid permit increased from 42 percent to 74 percent just nine months after implementing a QI solution.
- The Office of Vital Records at the Arizona Department of Health Services reduced the turnaround time for mail-in requests of vital records from 27 days to fewer than 7 days.
- The Puerto Rico Department of Health is responsible for inspecting more than 400 healthcare facilities. Using QI, it reduced the time taken to submit healthcare facility inspection reports from five months (150 days) to 14 days.

Identify a QI project from an organization and address the following questions:

1. What is the key issue being addressed for this population?
2. Consider the interventions described. What drivers are they addressing?
3. What QI goals and processes were implemented?
4. How does the program work?
5. What have been the results of this QI process?
6. Who were the partners involved?
7. Do you think this project is reproducible in other communities? Explain your reasoning. Consider the barriers that would need to be overcome and the resources required to initiate a similar program in another community.

Managerial Epidemiology: Population Health Tool for the Healthcare Setting

managerial epidemiology
The application of epidemiologic tools and principles to decision-making processes and the practice of management in healthcare settings.

Managerial epidemiology can be defined simply as "the study of the application of epidemiologic concepts and principles to the practice of management" (Fleming 2021, 1), or as the "application of the tools and principles of epidemiology to the decision-making process" within healthcare settings (Fleming 2013, 148). Managerial epidemiology is comprehensive in its approach, and it uses information from communities and healthcare settings to improve health outcomes for populations.

Fleming (2013, 148) argues that management (i.e., planning, controlling, staffing, financing) of the healthcare system can benefit from the tools provided by the field of epidemiology, and he points out the difficulty of developing a strategic plan without

incorporating epidemiologic estimates: "For example, strategic planning and needs assessment must consider the present and future burden of disease (measured by what epidemiologists call 'prevalence') and the burden of risk factors, which can translate into subsequent disease, by a factor that epidemiologists call 'relative risk.'" He further states that "the tools of epidemiology provide critical information for managers and planners seeking to predict future demand for services amid the current insurance markets." Fos and Fine (2005, xix) support Fleming's argument on the utility of managerial epidemiology, pointing out that contemporary applications in healthcare management can involve "monitoring the quality and effectiveness of clinical services, strategic and program planning, marketing, and managing insurance and managed care."

Similar to the community health assessment process (discussed in depth in chapter 11), the managerial epidemiology approach defines the population and strives to understand the demographics and trends with respect to the living environment (i.e., the physical, socioeconomic, and political environment). Next, it evaluates the population's healthcare needs based on people's knowledge, attitudes, and beliefs concerning health issues, as well as on the accessibility of healthcare services. In addition, it considers how healthcare providers are influenced to manage patients' care needs.

Epidemiologic data can be quite useful in highlighting community needs. Think about the data sources previously discussed in our text, and then consider which ones might be helpful in painting an epidemiologic picture of "need" in a community. Birth data for adolescent mothers, for instance, might reflect needs relating to comprehensive health education. Behavioral Risk Factor Surveillance System data for the community can reveal issues with how the population perceives its own health. Absenteeism from work or school might suggest high stress levels or the beginning of an infectious disease outbreak. Finally, borrowing from operations research, one might use hospital data to better understand why members of the population go to the emergency room or to ambulatory care centers. Effective identification of needs in the community can help the public health and healthcare systems allocate sufficient resources, develop appropriate interventions, and evaluate the actions taken.

Oleske (2001) proposes that healthcare managers must consider the population size served by healthcare providers; the distribution of health needs in the population; the genesis and consequences of health problems; the way the healthcare system and its organizational characteristics affect the health status of the people; techniques for monitoring performance of the health system, organizations, and programs; the need for restructuring in response to a changing environment; and the development and evaluation of public policy affecting healthcare delivery. She challenges healthcare managers to answer the following questions using an epidemiologic framework (Oleske 2001, 21):

1. Who is the population served?
    a. How is this population defined?

   b. What are the major size and demographic trends in this population?
   c. From what distances do individuals travel to receive health care?

2. What are the population's health care needs?
   a. How can these needs be measured?
   b. What is the prevalence of risk factors?
   c. What is the burden of disease and other problems?

3. What health services are feasible for addressing the population's health care needs?
   a. What are barriers the population can experience when attempting to access health care services?
   b. What are the capabilities of the organization/system relative to the size and needs of the population (personnel, equipment, facilities)?
   c. How do the services of the local health system link to national or regional policy goals or initiatives?
   d. What environmental influences affect health services delivery (payment conditions, provisions, market competition, trends affecting preferred delivery mode/ setting)?

4. What is the population's health status?
   a. How will the health status be measured at the present and over time?

As Oleske (2001, 22) summarizes, "To improve the health status of a population, one needs to understand the population characteristics, the distribution and level of need, factors affecting the use of health care services, and the implications on the system if the desired level of health status is not achieved."

Population Healthcare Management Model

Transitioning to a population health care management model will require a change in orientation and the development of new management skills. Fos and Fine (2005) write:

> The "reformed" health care executive will directly interact with the community and its health insurance vehicles in the planning of medical services to be delivered, including allocation of human and material resources to preventive, curative, restorative, and rehabilitative services. The executive's duties include the design of medical interventions and the monitoring and evaluation of medical services and programs. Clinical

outcome measurement and comparison will become a major source of information for management decision making. Population health care design and planning will gain importance in the evolving integrated delivery systems of the future.

The population health care management model focuses chiefly on the health of the population and the containment of costs. Fos and Fine (2005, 10) explain: "In the population health care management model, the management objectives change to include the reduction in volume of services utilized, shift of utilization to lower-cost settings, achievement of clinical improvement by focusing on the health status of the population, integration of healthcare services, organization of providers into networks, and evaluation and documentation of quality." Using this model, managerial epidemiology "incorporates the business aspects of health care that monitor demand, delivery, clinical outcome measurement, resource allocation, strategic analysis, program planning, and managed care" (Caron 2010, 1549).

In the wake of the Affordable Care Act, with the number of people in the US healthcare system growing dramatically, the ability to provide equitable care while containing costs and ultimately reducing the demand for healthcare is crucial. Managerial epidemiology will allow for healthcare administrators to align "social and economic objectives so that the improvement of population health is the prime metric of success" (Caron 2010, 1549).

Further, Dever (2006, 101) highlights the following key elements important for clinical settings to consider when implementing a population health approach:

- *A holistic view* to treat the patient's unique characteristics and also the societal influences on the patient
- A *systems approach* to coordinate and integrate the delivery of care by using multidisciplinary teams and multiorganizational arrangements for referral
- An *epidemiological foundation* to improve objectivity in clinical and policy decision making
- An *anthropologic view* to understand the patient's perspective of his/her health
- *Distributive justice* to recognize and reduce the unequal distributions of illness, disease, disability, and death across different groups

Dever (2006, 101) states that "incorporating these principles into medical care and health services management can facilitate the process to optimize health." Health services managers who do so "will ensure that their planning and management approach will be responsive to the populations in the communities and to the individuals in their clinics" (Dever 2006, 102).

Key Chapter Points

- The National Academy of Medicine's Roundtable on Population Health Improvement engages leaders, experts, and other stakeholders to improve interaction between healthcare and public health, to strengthen governmental public health, and to consider community actions to affect the conditions that influence the public's health. These concepts are central to a number of approaches to population health improvement.
- As an approach, population health focuses on the interrelated conditions and factors that influence the health of populations over the life course, identifies systematic variations in their patterns of occurrence, and applies the resulting knowledge to develop and implement policies and actions to improve the health and well-being of those populations.
- The "patient" of public health is not the individual but rather the population. Thus, actions to improve health are directed at the population level and not at the individual level. This approach requires the public health system to identify inequalities in the health status of population groups and to address those inequalities.
- Actions key to the implementation of a population health approach include investing upstream, making evidence-based decisions, implementing multiple strategies, collaborating, engaging citizens, and increasing accountability for health outcomes.
- The Affordable Care Act (ACA) requires nonprofit hospitals to conduct community health needs assessments (CHNAs), which are essentially the same as the community health assessments (CHAs) described in chapter 11. The purpose of the CHNAs is not only to assess the health needs of the communities the hospitals serve but also to implement strategies to address those needs.
- The population health driver diagram framework, developed by the Public Health Foundation, helps align the efforts of public health and healthcare organizations to better address the challenges facing both sectors. The diagram links a given health issue with broad primary drivers and more specific secondary drivers, providing a basis from which targeted interventions can be developed.
- Significant and sustained improvement in a population's health requires direction, commitment, and collaboration between many entities that provide care, engage in improvement efforts, or both.
- Health in All Policies (HiAP) is a collaborative approach to population health improvement that seeks to incorporate health considerations into decision making across various sectors and policy areas.

- Quality improvement (QI) in public health involves the use of defined and deliberate processes to improve the activities of responding to community needs and improving population health. The plan-do-check-act cycle is a process, consisting of four phases, for developing, implementing, testing, and refining quality-improvement activities.
- *Managerial epidemiology* is the application of epidemiologic tools and principles to decision-making processes and the practice of management in healthcare settings. Management (i.e., planning, controlling, staffing, financing) of the healthcare system can benefit from the tools provided by the field of epidemiology.
- Healthcare managers must consider the population size served by healthcare providers; the distribution of health needs in the population; the genesis and consequences of health problems; the way the healthcare system and its characteristics affect people's health status; techniques for monitoring performance of the health system, organizations, and programs; the need for restructuring in response to a changing environment; and the development and evaluation of public policy affecting healthcare delivery.
- In the population health care management model, the management objectives change to include the reduction in volume of services utilized, shift of utilization to lower-cost settings, achievement of clinical improvement by focusing on the health status of the population, integration of healthcare services, organization of providers into networks, and evaluation and documentation of quality.

Discussion Questions

1. What is the purpose of a population health approach?
2. What actions are necessary to implement a population health approach?
3. What are four population health approaches? Describe their utility to improving population health.
4. What are two potential barriers to a collaborative approach among public health and healthcare organizations?
5. What is the role of quality improvement in population health?
6. What is the purpose of the plan-do-check-act cycle?
7. Why is it worth considering the HiAP approach when working to improve the health of a community?
8. How can a population health driver diagram approach be useful when working in an intersectoral collaboration?

9. How is managerial epidemiology, as a form of the basic science of public health, applied to a healthcare setting?
10. What is the value of a population healthcare management model?

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