

# Issue Brief

## Population-Based Planning: Emerging Approaches for Chronic Disease

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The healthcare industry is in the midst of tremendous change as providers work to respond to marketplace demands to cut costs and offer better value—demands made by business coalitions, other purchasers (such as state governments), and the health plans with which they contract. Healthcare providers are conscious of severe pressure, first to cut costs and second to improve the outcomes of care for defined population groups. Over the last century, we have seen a shift in the nature of healthcare needs from a need for care to control infectious disease to a need for care to manage chronic illness. Given the proportion of healthcare dollars attributed to chronic conditions, the complexity of chronic conditions, and the expected rise in the number of people presenting to the healthcare system with such conditions, understanding how to address the needs of this population appears critical to the survival of healthcare organizations. Yet most healthcare organizations are not configured for tracking and managing population groups—nor have healthcare professionals been trained to work in this way. Therefore, it is important for healthcare providers to recognize the population of people with chronic conditions as a “mega-niche.”

This issue brief describes population-based planning and identifies how population-based planning can best be modified to target people with chronic conditions.

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# Antecedents of Population-Based Planning

Population-based planning begins with an understanding of the needs and characteristics of a defined group of people and uses this understanding to shape the delivery of services to address needs. Organizations seek to improve population health outcomes through specific interventions that are based on expectations about factors affecting health—with the evaluation of those interventions based on observed results (adapted from Rundall 1992).

Population-based planning has its roots in epidemiology, which is the study of the distribution and determinants of diseases and injuries in human populations. Epidemiology is concerned with the frequencies and types of illness or disease in groups of people and with the factors that influence the distribution of illness. Knowledge of the distribution of disease or illness is used to investigate causal factors to lay the groundwork for prevention or control of the disease (Mausner and Kramer 1985). Epidemiological methods have been used extensively by public health departments and other agencies.

In a fascinating examination of the history of medicine in the United States, Starr writes about the conflict between early public health agencies and private practitioners (physicians) who were threatened by the blurring of boundaries between medicine and public health. Preventing the spread of disease was a recognized function of public health; diagnosing and curing people who were ill was a recognized function of medicine. Starr traces the evolution of the work of public health departments from a focus on maintaining a safe, clean environment to a focus on human carriers as the source of disease distribution. As public health agencies began to immunize children, educate the public about health and hygiene, dispense medicine to the poor, and offer diagnostic laboratory services, physicians and others began to worry about “municipal socialism” and unfair competition. (1982)

Even today, the connection between the activities of public health departments and those of healthcare providers is not strong. Except in matters of reporting certain communicable diseases or in cases where epidemics have occurred, each discipline seems largely to have kept to its own course.

Healthcare providers have employed population data primarily in relation to planning for new facilities or services to increase the public’s access to care or increase market share in a community. How did this emphasis on facilities evolve? In the 1930s, communities often worked in cooperation with local physicians and hospitals toward the goal of increasing access to medical care (Rundall 1992). The Hill-Burton Act also encouraged construction of new healthcare facilities. During the 1950s, medical insurance as a benefit of employment grew. Insurance payment was triggered by the provision of service, building in an incentive to provide more service. In the mid-1960s, Medicare and Medicaid took effect, ensuring payment for medical care for many uninsured Americans. Access to hospital and physician services improved, especially among the aged and poor.

The increase in number and capacity of medical facilities and services and the availability of medical insurance had the desired effect of increasing access to medical care for the U.S. population. However, it also had an effect on costs, primarily through controlling development of new facilities or reducing the costs paid for each unit of service. By the 1970s, health regulation and planning efforts focused more on controlling healthcare costs than on ensuring access. Regional health planning units, called health systems agencies (HSAs), were established through quasi-state or county governmental agencies, but they focused largely on construction of new hospital or nursing home beds and lacked the necessary political clout or authority to make much impact.

Unfortunately, despite all of the resources poured into healthcare facilities and diagnostic techniques, studies have shown only a faint relationship between these services and the health of the population (Charlton 1983). Groundbreaking work by Wennberg and colleagues has shown that there is a wide variation in supply and utilization of healthcare services and that supply to some extent seems to drive utilization (1996).

From the late 1970s through the 1990s, fragmented financing—with separate policies, rules, and procedures for each public and private payer—has added to an increasingly fragmented delivery system in which different disciplines and settings respond to the rules of their respective payers. The end result: patient care that begins and ends at the door of each setting or facility, with little awareness of the person’s continuing care needs across settings, over time, or between practitioners.

Dramatic changes in patient care delivery over the last few years have been stimulated by new financing approaches, changes in the predominant needs of the population, and advances in technology. Managed care organizations, a term that encompasses a number of organizational structures that work to reorganize health service utilization through altered treatment processes, have proliferated (Mechanic et al 1995).

Choices traditionally made by the patient and his or her doctor are now influenced to a greater or lesser degree by managed care contracts organized by a health plan or by another third-party insurer or payer. Capitation is one method of payment that significantly alters financial incentives for providers. Under this method, the provider group or system is paid a fixed amount, prospectively determined, for a defined set of individuals over a specified time period. It is assumed that the “per member per month” fee will exceed the true costs of care for some people in the defined group and

will be insufficient for others but will, in total, at least balance out. Current wisdom says that capitation and prepayment are necessary but not sufficient factors for influencing a focus away from isolated acute events and toward continuous health management and disability prevention.

Managed care arrangements and capitated or shared-risk financing have created both positive and negative incentives for healthcare providers to date. Organizations have

- Worked to drive down “per unit” costs of care.
- Developed risk-screening methods to identify people at high risk of adverse outcomes as early as possible.
- Worked to intervene earlier in the disease or disability process to avoid expensive hospitalizations or emergency room visits.
- Developed more standardized processes of care for people with specific conditions.
- Developed programs, based on some evidence of effectiveness, to encourage healthy behaviors and maintain health status.
- Worked to create measures of health status to monitor a defined population group or community.

Providers and plans have also

- Tried to pass financial risk “downstream” or shift it to other providers.
- Sought to enroll people who are healthier than average.
- Sought safeguards through risk adjustments in the event that a disproportional share of people with high-cost chronic care needs are enrolled and need to be served.

# A Focus on Chronic Conditions

The nature of healthcare needs in the United States has changed in the last century from a need for services to combat infectious disease to a need for care management to address chronic disease. Chronic illnesses are increasingly the focus of epidemiological research and intervention efforts (Mausner and Kramer 1985). It is vital that population-based planning efforts focus more attention on chronic care.

People with chronic conditions are a significant population subgroup. In 1995 an estimated 99 million people in the United States had a chronic condition characterized by persistent and recurring health consequences lasting for an extended period of time. Though this group may represent only 20 percent to 30 percent of the entire population served by a healthcare system, they represent more than 70 percent of costs. Consider the following.

- Chronic conditions are the leading cause of illness, disability, and death in the United States today. Experts estimate that 90 percent of all morbidity and 80 percent of all deaths are related to a chronic condition.
- 70 percent of the nation's personal healthcare expenditures are for people with chronic conditions.
- In 1987 dollars, the average annual per capita cost for a person with one or more chronic condition was \$4,762.
- In the next 25 years, the number of people with chronic conditions in the United States will increase by approximately 35 million. (Robert Wood Johnson Foundation 1996)

The NCCC defines chronic conditions as

*Biological or physical conditions where the natural evolution of the condition(s) can significantly impact a person's overall quality of life, including an irreversible inability to perform basic physical and social functions. Serious and persistent chronic conditions are **multidimensional, interdependent, complex, and ongoing.** (1995)*

Biegel and colleagues describe chronic diseases as "progressive, constant, or relapsing/episodic. Progressive diseases like Alzheimer's disease may follow a long course of gradual decline. Constant chronic conditions may be due to a significant event, such as a stroke. Relapsing conditions may be characterized by flare-ups followed by a period of plateau, such as in Tourette's syndrome, or cancer. (1991)

In many cases, there is a combination of conditions or comorbidity that makes diagnosis and treatment more difficult. The natural evolution of these conditions, often progressing over years to disability, can significantly affect a person's ability to perform normal activities of daily living and to maintain a meaningful role in his or her family and community. While the prevalence rates of some conditions are decreasing through the advancements of medical science and technology, the total number of people with many of these conditions is expected to increase as the baby boomers age. These conditions and their related care interventions can affect every aspect of a person's life, with significant cumulative costs to individuals and society.

## Challenges in Focusing on Chronic Conditions

### Health Plans

One group who have generally not chosen to enroll in managed care plans are Medicare beneficiaries with chronic illness. It is estimated that 20 percent of Medicare beneficiaries have a chronic illness severe enough to increase their need for medical services. Anderson and Powe estimate that the annual cost of providing services to a Medicare beneficiary with chronic illness is between two times and five times greater than the annual cost of caring for the "average" Medicare beneficiary, with the range in cost depending on the specific illness (1997). Anderson and Powe also note that the current Medicare payment system does not pay managed care organizations a higher rate for enrolling chronically ill

individuals. Risk-adjustment methods that have been offered to date are crude—they do not adequately explain observed variances in cost. As a result, “It is not surprising that few managed care organizations have developed programs to actively enroll chronically ill Medicare beneficiaries” (1997).

Recent evidence from a pivotal study of a mature health plan shows that even those offering a commercial managed care product would be advised to consider the impact of chronic conditions. Fishman and colleagues estimated healthcare costs for all adults who were continuously enrolled in a large staff-model health maintenance organization (1997). More than one third (38 percent) of these adults were diagnosed with at least one chronic condition during the year of study. Costs for this group were at least twice those of individuals without chronic conditions, accounting for 71 percent of the organization’s total costs.

### Physicians

Physicians who specialize in caring for patients with chronic illnesses may have difficulty joining or staying in a group practice or health plan, since their cost profile would identify them as a high-cost provider, making them unattractive within a capitated system. Many physicians or physician groups may not be able to fully assess the financial risk they are assuming or even be fully aware of how the risk profile of their patient base compares with that of other physicians. Particularly for small to mid-size physician groups, this is a concern. A population of chronically ill Medicare beneficiaries represents “adverse selection” to the physician clinic and likely means financial losses that cannot be sustained over time. There is the potential for underservice or for less proactive disability prevention—especially if the benefits to the patient do not also generate near-term cost savings for the provider. Generally, it is unclear how the financial arrangements between the physicians and a health plan would affect the care provided to chronically ill Medicare beneficiaries.

### Healthcare Systems

In a recent article, Berkman writes

*Traditionally, the U.S. health care system has been based on a paradigm of unpredictable acute simple disease. This model has become increasingly inappropriate as greater numbers of patients are presenting with multiple, chronic health problems. These individuals, particularly those who are elderly, will be increasingly at risk of losing their ability to function independently and of living with frailty. The leading causes of morbidity and mortality are almost all related to chronic, complex processes. In the new health paradigm, episodes of need for care may be relatively more predictable (Pawlson, 1994), and there will be the recognition that chronic illnesses are determined by multiple factors, such as an individual’s social, psychological, and physical environment; genetic makeup; and health care accessibility factors (Evans, 1994, Syme, 1994). The view that illness is a chronic process raises the question of whether an acute episode could have been prevented, placing much more importance on patients as consumers and participants in determining their health care service needs. The focus of care is logically on primary care with an emphasis on disease prevention and health promotion (Pawlson, 1994). Screening for patients at risk for physical, social, or psychological regression becomes much more essential in this new model, and the timing of intervention by health care professionals paramount. (1996)*

# Emerging Methods

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Providers have begun testing ways to structure care around population sub-groups through disease management programs that focus on a single disease such as congestive heart failure, diabetes, or asthma. These programs usually offer an organized approach to care that includes multidimensional assessment, treatment, care management, patient education, monitoring, and outcomes measurement.

There is growing evidence that well-organized, thoughtfully executed disease management programs can work, especially when the program has been developed by clinical leaders, has support from administration, is based on clinical research and sound data, and is monitored for effectiveness. Another key factor for success is involvement of the patient as a participant in ongoing care management.

For example, research by Greenfield and colleagues showed that when patients with diabetes were involved in their own care and given appropriate information about management of their disease, they became more engaged in their care. In addition, their glycohemoglobin levels improved overall as compared to other non-intervention groups (1985). Research by Lorig and colleagues at Stanford University also reveals the power of educating people with chronic conditions about the signs and symptoms of their disease. Training by laypeople who taught a six-week course using a well developed curriculum was shown to be effective in helping individuals with arthritis manage their condition. Decreased use of hospital care and fewer physician visits were reported (1993).

Unfortunately, physician training typically emphasizes diagnosis, treatment, and cure and leaves issues of addressing client lifestyle or patient education to social workers or others. Following an interdisciplinary team approach to care across settings and between practitioners is also largely a foreign concept in medical training.

Some see the current interest in disease management as part of an evolution toward population-based health management. For others, disease management may not go far enough.

Peterson and Todd argue that disease management programs remain focused primarily on illness, complications, and specific interventions such as pharmaceuticals, whereas population-based health management incorporates the concept of disease prevention. Peterson and Todd enumerate the objectives of population-based health management as follows.

- To optimize functional health and well-being
- To minimize disease risk factors
- To prevent specific diseases in at-risk populations
- To facilitate the early diagnosis of disease
- To maximize clinical effectiveness and efficiency
- To avoid preventable disease-related complications
- To eliminate or minimize ineffective or unnecessary care
- To measure outcomes and provide continuous assessment and improvement (1997)

With the advent of managed care financing arrangements that in some measure encourage a more longitudinal, prospective view of the patient, healthcare organizations may come to see the concept of population-based planning and management as increasingly relevant and useful. What will be needed, however, are new risk-sharing arrangements that increasingly cover more services and offer greater flexibility to providers in substituting services and trying new approaches based on consumer preferences and evidence of effectiveness. In addition, it will be necessary to retrain healthcare professionals to work together in new ways to focus on disability prevention and adopt a holistic view of the patient.

# Two Approaches to Care

There are two ways to think about how to address healthcare needs through the provision of care. Care can be population based, provided to a defined population group or community as a whole. Care can also be individual based, provided person by person to particular individuals who present their needs at particular points in time. The population-based approach is seen as the traditional public health model, and the individual-based approach is seen as the traditional medical model. But the two approaches are not mutually exclusive; in fact one could assert that healthcare providers will increasingly use both in complementary ways.

The two approaches differ in their collection and use of data, their measurement of outcomes, and their organization and delivery of services.

- **Population based.** With a population-based approach, the point of focus is a defined population group. The healthcare organization views individuals as members of a larger group. It collects community data/population data and assesses the health status of entire communities. It attempts to achieve the greatest possible improvement in health for the greatest possible number of people. It identifies and implements care interventions that are effective for subgroups within populations, for instance providing diabetes screening for high-risk groups or flu shots for the elderly.
- **Individual based.** With an individual-based approach, the point of focus is a single individual. There is a heavy emphasis on the one-to-one relationship between the individual and a specific provider (physician). The healthcare provider collects person-specific data and assesses health status person by person, treating each person as unique. The provider creates each person's care plan and treatment regimen independently of any other and evaluates the effectiveness of different methods or interventions

based on that person's responses. Rarely is information on similar patients aggregated and reviewed over time.

These two approaches to care are joining hands in some healthcare systems. One factor in bringing this about is the greater availability of data and information showing trends in care and outcomes.

In an editorial in *HMO Practice*, Katz discusses the shift toward this two-pronged approach. He explains that we have begun to move away from the view that every patient is different and unique and toward the view that many patients share the same characteristics and therefore can be approached in an organized, consistent way. He cites the development of integrated information systems as an important tool for bringing this about.

*We can now look at each patient with coronary heart disease as having individual disease characteristics and, we also have the capability of looking across the population of individuals who share common characteristics . . . such as (high) LDL levels. . . The crux of the matter, then, is how much emphasis should be placed on the individual characteristics of each patient and how much shared among a population of patients? (1997)*

# Steps in Population-Based Planning

In accordance with the principles of epidemiology, healthcare organizations moving toward population-based planning usually start with a defined or enrolled group (usually through a managed care product or a local employer). Having a population defined from the start allows for a measurement of baseline health status and then for comparative measurements over time. Current steps taken by healthcare delivery systems to conduct a population-based planning and intervention strategy usually include the following.

- **Define a population**, for example a community, enrollee group, or employed group.
- **Develop a profile of the population**, including such factors as health status, disease incidence and prevalence rates, current health services utilization, current costs of care, patient or client satisfaction levels, and trends in demographics.
- **Identify the disease-prevention activities and the set of services that will be offered** for this entire defined population—that is, what will be available to all.
- **Establish parameters for selecting specific subgroups** within the defined population, for example those groups who have had a high probability for adverse health events, those who currently represent a high-cost group to the healthcare system, or those who have traditionally reported less than desired satisfaction with care.
- **Identify important characteristics of these subgroups**, for example health status, average and total costs of care, typical out-of-pocket costs, current utilization patterns, expected disease trajectory, and so on.
- **Cull literature, practice, and current research to create an evidence-based guideline or pathway for each target group**, particularly noting effective primary, secondary, and tertiary prevention interventions.
- **Establish outcomes tracking and set expectations for improvement** as targets for the system.
- **Present information to practitioners and staff.**
- **Select and pilot test an approach.**
- **Modify approach as appropriate based on findings/pilot.** Finalize the approach or pathway with clearly identified interventions at different stages for the chosen population subgroup.
- **Educate and train staff and prepare for implementation** of the approach or strategy.
- **Select screening methodology or criteria** to identify and target subgroups.
- **Implement methods, practices, or approaches.**
- **Monitor method, practice, or approach across providers or settings and collect data.**
- **Report on results.** Determine if changes are needed. Educate and inform about findings. Repeat the cycle as needed, with feedback to providers.

## Case Study

# The Population Health Improvement Program

## Sisters of Providence Health System, Portland, Oregon

### Background

The Sisters of Providence Health System (Providence) is founded upon a commitment to serve arising from its Catholic health ministry and strives to demonstrate its core values of compassion, justice, respect, excellence, and stewardship. Providence serves the healthcare needs of people in the states of Washington, Oregon, Alaska, and California through acute care hospitals, long-term care facilities, primary care clinics, housing programs, education facilities, and managed care plans. Providence Health System of Portland, Oregon, consists of six acute care hospitals, three long-term care/skilled nursing facilities, two elderly housing projects, home health care, health plans, clinics, and primary care physicians.

The vision outlined in Providence's 1996 strategic plan is to: "[A]chieve healthier communities in which all people have access to needed and affordable healthcare through managed care and community partnerships....By the year 2000 to serve 500,000 people through capitated health plans...." Instead of "managed care," Providence calls this "accountable care." Accountable care is consumer centered and population based and demonstrates improvement in value.

One of Providence's goals has been to prepare for a future in which most healthcare will be organized and financed through integrated regional delivery systems at financial risk for enrolled populations. Toward that end, in December 1994 the Quality Committee of the Community Board accepted a proposal for the development of "population management demonstration projects" (later renamed the Population Health

Improvement Program) for selected populations.

The program goals were

- Achieve and demonstrate favorable health status.
- Achieve and demonstrate cost savings without compromising the health status of the population.
- Reduce the risk of adverse health events due to preventable causes.

Providence's population health management strategy provided a method for managing the health of these populations. As part of the strategy, leadership agreed on five strategic priorities.

1. Building an infrastructure that improves the health of people and communities served by the health system
2. Increasing health plan membership
3. Partnering with an adequate number of primary care providers to ensure access to primary care services
4. Building on the strengths and continuing to improve the quality of the health system
5. Developing the proper balance between statewide and service-area decisionmaking

Senior leadership recognized the need for substantial organizational resources in order to accomplish these goals. The efforts were given the necessary organizational visibility, and the effort was named "Health Services Integration." Clinical services were organized around common programs.

## Description

The Population Health Improvement Program got underway with a three-month process involving three teams.

1. An outcomes research team
2. A quality management team
3. A clinical program team

Individuals selected for the teams included a physician epidemiologist from the medical education area and a Ph.D. outcomes expert from the Center for Outcomes Research (CORE). This group combed through existing research and literature and current practice to gather information from all sources related to creating a population health management approach for the system that would incorporate state-of-the-art thinking on outcome measurements. The group looked at current HEDIS measures, for example. The group also studied data about Providence's entire enrolled population, which at the time numbered 150,000 people and represented all lines of business from their health plans.

The process that Providence established as its approach to population health planning includes the following five steps.

1. Selection of populations
2. Suitability analysis
3. Feasibility studies
4. Implementation
5. Oversight

The identification of targeted populations was done through a selection process that used best practice information and a literature search. The team used existing knowledge and information, relying on published and unpublished studies and on organizations such as Henry Ford Health System (Michigan), Kaiser Permanente (California, Colorado, and Oregon), and Group Health Cooperative of Puget Sound (Washington) for information. A member analysis of needs and services used was done using Providence's own health plan claims data. Through this process, the group

identified eight population subgroups to target.

1. High-risk maternity
2. Medicaid managed care
3. Medicare managed care
4. Low back pain
5. Diabetes
6. Breast cancer
7. Children's health
8. Coronary artery disease—risk factors

The team also reviewed claims data for its patient population and found needs in the areas of Caesarean section, hysterectomy, cholecotomy, coronary bypass surgery, special surgery, chronic heart failure, hip fracture, and depression in the elderly.

The suitability and feasibility phases included an examination of each of the identified population subgroups and any relevant information pertinent for decisionmaking.

The team had to determine the suitability of a proposed project relating to a specific population group and ask a number of questions: Is the problem real? What do we know about the scope and nature of the problem? What do we know about the cause(s)? What is known about proposed solutions? This included an examination of potential strategies the system could undertake for addressing the needs of this subgroup and the identification of any support needed for implementing a specific strategy.

The feasibility phase included a three-month process to determine whether the healthcare system had the capacity to change and the support needed for the implementation. The report generated by this phase included information about incidence, prevalence, risk factors, prevention, effectiveness of interventions, expected benefits, potential for harm, and financial costs.

Finally, the implementation process began. It included obtaining approval, pilot design

and funding, and results review. A five-year pro forma was also found to be very helpful as it allowed the team to project the results of the program and link these results to cost models of how various efforts could be funded. Providence was committed to funding what worked.

## Results

In 1994 and early 1995 the teams established a process for addressing each of the eight population subgroups. In 1995 the teams conducted a baseline measurement, obtained additional funding, and began early implementation. In 1996 the teams started measuring their results.

One example of the results is demonstrated in the area of maternity management. Providence Beginnings, the maternity management program, uses 14 full-time employees, has its own health-risk screening tool that has been widely adopted, involves case management, and is a collaboration between the Providence health plan and the Providence delivery system. The system learned that, compared to the commercial population, Providence's Medicaid-risk population had greater needs in the areas of medical risks, psychosocial history (in particular, past abuse), stress factors (financial worries), and barriers to care (transportation and housing). In 1994 the population group represented by women on Medicaid who were served by the system experienced 10 complicated deliveries per 1,000 births. In 1996 this number fell to 5.8 complicated deliveries per 1,000 births (figures are not risk adjusted). In 1996 90.4 percent of women on Medicaid with high-risk pregnancies received prenatal care in the first trimester, 1.5 percent delivered low birthweight babies, and 0.7 percent delivered very low birthweight babies.

## Major Challenges

Several challenges in Providence's population health management efforts are probably not unique to their system. For example, it is often difficult to build trust, allocate resources, and sustain momentum and support for efforts over time. Additional challenges include implementing performance requirements, collecting data, linking care management interventions to outcomes, and shifting attention from short-term gains to a longer timeframe .

The teams were challenged by constraints in the areas of information systems and information technology. The information systems capabilities within the healthcare system did not meet the information needs for a population health management approach. Health-status and risk-assessment data were not widely collected. Access to data and the ability to integrate financial, clinical, and outcomes data was limited. Integration of databases across the system was difficult.

Another challenge was that awareness and understanding of health status and population-based management concepts was not universally shared throughout the system. In addition, scientific knowledge and benchmarks about what affects health status of populations is limited.

The time commitment this effort requires is an ongoing challenge.



## Lessons Learned and Keys to Success

This is a slow, hard process. It took three solid years of work to bring the healthcare system to the point of having data on results. The process included some difficult tasks, for example changing job descriptions, organizational charts, and performance expectations of divisions within the system. These tasks were not undertaken lightly—they affected all management and clinical arenas within the system.

Providence staff report that without a health plan and the defined, enrolled population and financial structure supportive of disability prevention goals that accompany a health plan, it would seem impossible to begin and maintain such an effort.

The group of people who championed this effort were group of dedicated, tenacious individuals who believed in the approach. There was a very high level of commitment and enthusiasm among team members. It would have been difficult to do this without that kind of commitment.

In the end, what began as a population health improvement project became an important part of the foundation for a successful integrated health system. All segments of the system—physicians, the delivery system, and insurance plans—have benefited from the effort. The main beneficiaries, of course, are the patients and members Providence serves.

As the effort proceeds, the fundamental interdependence between clinical quality, health status, and information will shape and/or limit every step of the analytical, redesign, and implementation activity. A key to success will be the extent to which the system can rise to this challenge.



## Case Study

# Population-Based Initiatives

## Intermountain Health Care, Salt Lake City, Utah

### Background

Intermountain Health Care (IHC) is a nonprofit, nondenominational integrated health system with a continuum of care ranging from inpatient hospital care to outpatient and home health care services. The system's service areas range from urban to suburban, rural, and frontier. IHC has 23 hospitals, including small rural facilities as well as metropolitan teaching and research hospitals, and 400 physicians. The IHC system serves more than 100,000 inpatients and receives nearly four million outpatient visits per year. IHC also operates a health insurance network that designs, markets, and administers health plans in cooperation with the healthcare delivery network. IHC owns a health plan and has 400,000 members in its commercial plan, 7,000 in Medicare managed care, and 30,000 in Medicaid managed care.

As part of its efforts to embrace a population-based approach to delivering healthcare, IHC first adopted a definition and a set of tools that could be used for all population-based initiatives. IHC divides its population-based initiatives into three major models: health plan and clinic-based approach, worksite approach, and health community approach.

The iterative population-based planning process that IHC adopted has the following steps.

- Define a population (e.g., health needs appraisal for health plan members, patients, employees, residents).
- Screen and assess health needs (e.g., health status, conditions, health habits, job satisfaction, mortality and morbidity, use of services).
- Plan interventions.

- Implement the interventions (e.g., health promotion, care management, disease management, community action).
- Evaluate and improve.

IHC has undertaken several population-based health management initiatives. For example, in an initiative geared to the health plan and clinics, IHC is evaluating the impact of providing nurse and social work care managers in primary care physician offices. IHC also has experience working with communities to meet their health-related needs and implementing worksite initiatives.

IHC divides its population into subgroups or categories, which allows it to consider different strategies to meet the needs of each category. In general, populations can be divided into the categories of well, episodically ill, chronically ill, and end of life. The type of care each of these populations should receive is very different. For example, the strategies used to serve the well are very different from those used to serve the chronically ill. As a health system, IHC is very good at providing care for acute, episodic illnesses, but struggles with care for the chronically ill. For this population, IHC is seeking to do more in self-care management.

### Health Plan and Clinic Approach

One model for population-based health planning at IHC is the work the system is doing with its health plan members. After a member enrolls in the commercial, Medicare, or Medicaid health plan, IHC conducts a health-needs appraisal. (IHC has experienced very high rates of response for health-needs appraisals conducted by phone with Medicare and Medicaid enrollees.) The health-needs appraisal helps IHC proactively identify current and

potential health needs. The health-needs appraisal tool is automated on clinical work stations in physicians' offices, which allows it to become part of the medical record. This automation also allows IHC to generate a customized letter for each plan member that summarizes the member's status in terms of health habits, screening exams, and prevention services.

The health appraisal helps identify those individuals who should receive an additional health screening. A health screening allows IHC to categorize individuals into risk groups. IHC uses the PraPlus risk-identification tool, which it has adapted for its own purposes. The PraPlus tool is designed to identify risk for elderly populations. IHC is in the process of developing a similar tool for use with pediatric clients. The information from the health-risk screening helps trigger research-based interventions.

IHC is also piloting a program where it provides nurse and social work care managers to assist in primary care physician offices. Though the program is young and data is scarce, the pilot program has been widely accepted. The care managers are from existing areas of the IHC system; they focus their efforts on people with chronic illness and those who have difficulty complying with the plan of care. The care managers educate, perform followup and monitoring activities, provide caregiver and family support, and assist with psychosocial issues.

IHC has not yet connected its staffing levels to identified health needs—to date the system has assigned care managers based on physician office size. IHC plans to evaluate this program based on member satisfaction, use of services (based on per member per month rates, hospital days per 1,000, and physician visits per 1,000), physician satisfaction, and physician productivity.

## Worksite Approach

Another of IHC's population-based initiatives is a worksite program. In the early 1990s, IHC created a partnership with a large local manufacturing company. The purpose of the IHC Work Site Partnership Program was to develop a long-term partnership between the employees, the employer, and the health system to improve the health of employees.

The relationship between the manufacturing company and IHC is a partnership in which the company offers its employees the option to enroll in IHC Health Plans and provides a variety of IHC health services at the worksite. IHC, in turn, provides

- An annual health-promotion assessment of employees
- Targeted health-promotion programs that are identified from the health assessments
- A physical therapy clinic to provide work site interventions and rehabilitation
- An employee assistance program
- A full-time nurse care manager at the work site

All active employees at the manufacturing company were invited to participate in a health assessment and appraisal. Nearly 70 percent responded. The assessment included questions about health behaviors, current diseases and conditions, use of services, and other issues. With these results in hand, IHC planned and implemented interventions that included many hours of onsite education about health behaviors, health, and wellness. A tailored health-risk screen was also developed and used to identify individuals at high risk. The full-time care manager at the worksite designed interventions for this high-risk group based on their work lifestyle and their needs and preferences. For example, the care manager realized there were a number of people with diabetes on the night shift; these people had many health needs and concerns. The care manager was able to design interventions that made sense for this group of chronically ill people.



## Community Health Approach

IHC has also undertaken population-based initiatives in the community setting. In this case, IHC is one of many local partners. Community health is a collaborative process that includes government, private businesses, schools, churches, and providers. In the case of Healthy Sandy (the city of Sandy is small suburban town outside of Salt Lake City), IHC and its partners focused on traffic safety as a major concern of the community. With the health department at the table, epidemiological data was available for analyzing current problems with traffic safety and noting trends. IHC provided the appropriate medical data. After a community-wide intervention featuring changes in road signage, traffic monitoring, and speed limits, the community found that the number of injuries from collisions had decreased from 930 to 698, even though the total number of traffic collisions increased during the same period.

## Lessons Learned and Keys to Success

A key factor in the success of the worksite approach is the collaborative partnership between the employer and the health provider. The employer in this partnership is notable for its level of interest in improving the health of its employees. It has proven its commitment as a partner by providing time for employees to participate in the health assessment and by creating opportunities for IHC to provide health services at the worksite. It has also dedicated physical space for provision of these health services and provided funding to support the nurse care manager.

IHC is equally committed to this partnership. IHC's creative team of researchers and clinicians has spent countless hours exploring, studying, and analyzing ways to improve the health of the employee population group. The first year of this program was financed by IHC's health plan. In year two the program received local foundation money, and by

year three the employer had picked up the program as part of its employee assistance program.

The most critical factor for success in population-based planning and implementation is sustained commitment and focus on partnerships. This worksite program was successful because of shared mutual values between the health system and the employer. It was critical that the employer was motivated to improve the health of the employees. Employers who desire only to find a quick way to reduce medical expenses would not be effective partners for this kind of endeavor.

IHC has learned that it is possible to create a partnership that enhances the health system's ability to understand the unique needs of a defined group of people and to design appropriate programs that improve the health of that group.

# Challenges

In his commentary on POPULIS, the Canadian population-based data system, Nerenz highlights some differences between the Canadian and U.S. healthcare systems that shed light on challenges to population-based planning in the United States. His comments reflect the concerns of NCCC members who are actively involved in population-based planning for people with chronic conditions. Nerenz observes that unlike in Canada, in the United States

- It is difficult to define a population with meaningful boundaries and identify the decisionmakers who have a legitimate role in acting on behalf of that population and who have authority over decisions about service distribution and healthcare policy.
- Members of a population defined by a healthcare organization as a group may not recognize themselves as belonging to a specific group in which membership has a meaningful impact on health status. Furthermore, since relationships with health plans, hospitals, and physicians are voluntary, an individual within that population may choose to go elsewhere for care and thus unexpectedly sever the relationship with the healthcare organization, leaving goals unrealized.
- Healthcare providers who come together to collaborate and redesign service locations around defined populations may find themselves the targets of antitrust action, often initiated by a local healthcare organization that was left out of the group. In geographic areas where the population will support only one full-service regional health system, such a system would have a “natural monopoly.” Work by Kronick indicates that a natural monopoly is likely in areas with a population of 180,000 or less—29 percent of the U.S. population lives in such areas (1993).
- Private healthcare providers, delivery networks, or health plans may never hold the same level of responsibility for the health of a defined population that is seen

under Canada’s single-payer system. Though many organizations have mission statements that target the health of the community, the members of the community have not yet granted these organizations the authority to act unilaterally on their behalf. Between city, county, and state health departments, private healthcare organizations, social service agencies, and others there is a fragmented mix of responsibility and overlapping boundaries and lines of authority. Health plans that enroll individuals as members for a defined premium help eliminate some of these barriers, though many others remain. (1996)

The current healthcare environment, the present state of the art in information systems technology, the existing forms of healthcare financing, and the current delivery system policies and structures can serve as barriers to population-based planning. Other challenges include

- **Following an evidence-based approach.** It is hard to find scientific research that identifies the best approach to care; many care approaches have not been adequately described and there are few existing studies that scientifically compare one method to another in a controlled study.
- **Obtaining useful data.** Good, timely data is hard to find, and what is available is difficult to use. Information systems may not be collecting the right information, or information may be in paper form, making it cumbersome. Primary data collection is extremely expensive.
- **Addressing political realities and consumer distrust.** There is no public policy or policy mandate that supports population health planning approaches. Furthermore, consumers mistrust health plans and large healthcare organizations, fearing a hidden agenda (cost avoidance) and deeming them too impersonal and bureaucratic.

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- **Dealing with the longitudinal nature of chronic conditions.** A quick fix will not address chronic conditions, but most payers are focused on immediate or near-term results.
  - **Targeting groups of people and defining service needs.** Providers and practitioners may be hesitant to change the traditional mix of services, especially by substituting services that are not completely proven for services that are more traditionally accepted in a medical model.
  - **Tackling the problems of control and responsibility.** Where does the responsibility of a single provider or provider network begin or end?
  - **Learning about partnerships and how to actualize a shared responsibility model.** How can control and accountability be shared?
  - **Obtaining the required resources and showing a return on investment.** Where/when is the payoff and to whom?
  - **Negotiating the barrier of “silo reality.”** The silos of individual payers, providers, and clients are solid. Those interested in conducting population-based planning for people with chronic conditions must continually work to develop systems that turn these silos into seamless continuums of care.

# Next Steps

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There is growing evidence that well-organized, thoughtfully executed population-based healthcare interventions can be effective in addressing health needs, improving quality, and managing the cost of care—especially when the person receiving care is involved as a participant in ongoing care management.

As healthcare organizations work to respond to the needs of people with chronic conditions, population-based planning methods will need to

- **More fully incorporate the notion of disability prevention relative to chronic conditions** (especially secondary and tertiary prevention).
- **Target subgroups of people with chronic conditions more appropriately and explicitly.**
- **Develop a set of effective, evidence-based interventions**, using the growing body of research on managing chronic conditions effectively and incorporating the concept of the whole person into care management strategies.
- **Take into account the importance of community and interpersonal issues** (geography, access, family issues).
- **Address the issue of comorbidities and interrelated problems.**
- **Focus on different indices of health for determining results**, for example functional status or self-perceived health status versus morbidity and mortality.
- **Track the cumulative prevalence of disease or disability.**
- **Recognize that often the real problem is masked and only emerges in medical form at the end of a series of events.** That series of events must be determined, and intervention must take place earlier.

# Glossay of Measurement Terms

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**Proportion:** expressed as a percentage, a part considered in relation to the whole.

$$\frac{A}{A + B}$$

**Rate:** the number of events or occurrences over a specified period of time as a proportion of the entire population at risk.

$$\frac{\text{number of events/occurrences over a specific time period}}{\text{population}}$$

**Incidence Rate:** a measure of the probability that healthy people will develop a specific disease or condition during a period of time: the number of new cases of disease in a population over a period of time.

$$\frac{\text{number of new cases of a disease over a specific time period}}{\text{population}}$$

**Prevalence Rate:** a measure of the number of people in a given population group who have a specific disease or condition at a given time.

$$\frac{\text{number of existing cases of a disease at a point in time}}{\text{population}}$$

# References

The National Chronic Care Consortium (NCCC) is a mission-driven organization of leading-edge health networks dedicated to transforming the delivery of chronic care services.

The NCCC's mission is to serve as an operational laboratory for enabling innovative health networks to establish prototype systems for better serving people with chronic conditions.

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