

Operational Building Blocks and Success Factors for Population Health

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WHY IS HEALTHCARE moving from a sickness model to a health model, using a population health approach? It turns out that the vast majority of attributes that influence human health, well-being, and longevity have little to do with what we traditionally consider clinical practices. Nonclinical determinants such as genetics (30 percent), socioeconomic factors (28 percent), healthy behaviors (21 percent), and the safety of the environment in which patients live (7 percent) have, in aggregate, a vastly greater impact on the sum total of clinical interventions than what we consider to be traditional “healthcare” (14 percent). In fact, the single greatest determinant of life expectancy is zip code. For examples, in cities such as Washington, DC, and New Orleans, average life expectancy can vary by as much as 20 years, depending on a person’s zip code. Thus, any serious consideration of health needs to take these determinants into account, if not center them. If healthcare organizations are going to be placed at risk for both clinical and business outcomes, they will have to reconsider ways in which they can leverage and influence factors that are not part of a traditional hospital or even healthcare setting.

From an academic perspective, population health represents a combination of clinical and public health competencies intended to influence, in David Kindig and David Stoddart's (2013, 380) words, "the distribution of health outcomes within a population, the determinants that influence this distribution, and the policies and interventions that impact these determinants." Although this is a comprehensive definition, it does not answer the simple and often elusive question, How do we do that? The purpose of this chapter is to explain population health from a pragmatic and operational perspective so that healthcare leaders understand not only the rationale for moving from a sickness model to a health model but also, even more important, how to redistribute and redirect scarce resources toward areas in which they are most needed and will have the greatest impact on both healthcare outcomes and costs.

THE FOUNDATION OF POPULATION HEALTH

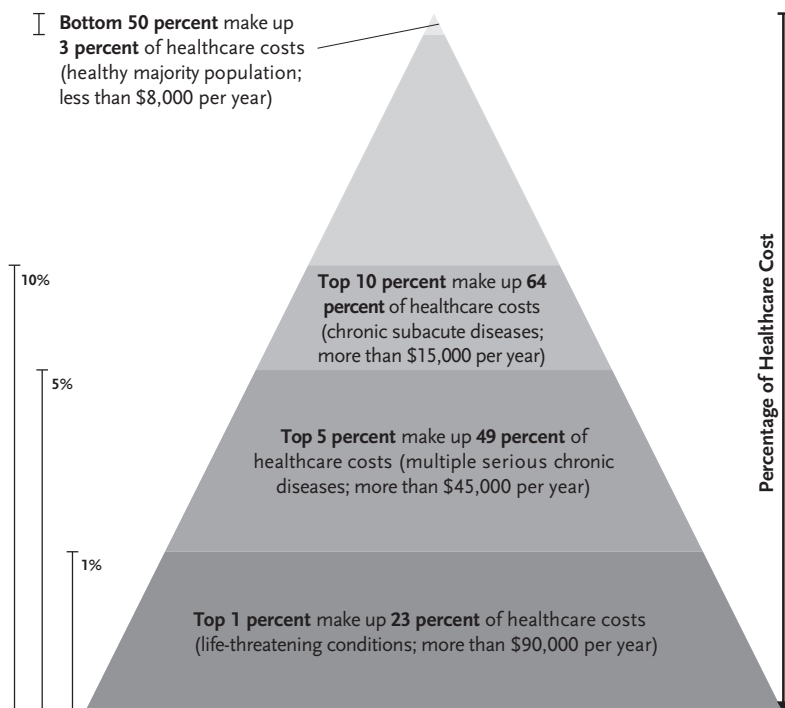
In any group of covered lives (e.g., Medicare, Medicaid, commercial payers), there is a remarkably similar pyramidal distribution in terms of both risk and cost of beneficiaries that looks something like exhibit 11.1. This predictable distribution represents not only the foundation for operationalizing population health but also the imperative for doing so. Why?

The twentieth-century model of healthcare aggregated these groups together into a single approach. If you were sick, you went to the physician's office, and if you were very sick you went to the emergency department (ED), then perhaps you were admitted to the hospital. If you were well, you either saw a physician on an ongoing basis or you didn't, and most healthy individuals remained healthy over time. In other words, whether you were sick or well, there was a single system that determined how your health would be managed both short-term and long-term.

The challenge with this one-size-fits-all approach was that the sickest (the so-called vital few) received too little care too late and the healthy

Exhibit 11.1: Distribution of Risk and Cost in Covered Lives for a Typical Medicare Population

Percentage of Population



majority received excessive and cost-ineffective care. The sickest minority make up more than half of all healthcare costs, and research has shown that early and proactive team-based interventions have a significant impact on not only the cost of care but also the long-term outcomes through the assessment of quality-adjusted life years (QALYs, or years lived without disability). A more comprehensive approach for these individuals reduces the cost of healthcare to the entire system, thus reducing insurance premiums for everyone. This shift makes healthcare more affordable and accessible, as those with the greatest need will receive the necessary care. Healthy people, on the other hand, don't necessarily require the ongoing services of a physician but can often manage their

own care with the help of decision support tools (analytics), e-health, and retail medicine, as well as with the availability of care coordinators or navigators for input and guidance when necessary.

This pyramidal phenomenon also illustrates the necessity for both a public and private insurance-based healthcare system. The sickest among us can seldom afford private commercial coverage without the support of healthy individuals investing into a system that will eventually provide care for them when they enter a higher risk category unexpectedly or over time. In addition, commercial payers may not find a business model that can accommodate the sickest among us—hence, the necessity for some form of publicly financed managed Medicare and Medicaid. Thus, at its root, population health represents the redistribution or rationalization of resources to reduce both the risk and cost of care for those with the greatest need, greatest cost, and greatest risk and to reduce the allocation of resources to healthy individuals who, through disruptive innovation and technology, can be empowered to self-manage their care while they remain both low risk and low cost.

To create a rational care and clinical model to support each layer of the pyramid, key operational components must be assembled to provide the flexibility and scope to care for both the sick minority and healthy majority.

THE ORGANIZATIONAL AND OPERATIONAL BUILDING BLOCKS OF POPULATION HEALTH

Population health has four fundamental building blocks: (1) facilities and providers that are completely aligned with at-risk contracts; (2) integrated healthcare networks (IHNs); (3) health information exchanges (HIEs) and enterprise data warehouses (EDWs) with clinical and business analytics; and (4) appropriate population health infrastructure, including palliative care, disease management, post-acute care, retail medicine, and e-health.

The first three building blocks represent the foundation necessary to support the fourth. All four will be covered individually in this chapter to emphasize the importance and function of their operational contributions.

Facilities and Providers That Are Completely Aligned with At-Risk Contracts

As discussed in chapter 4, an organization that is unaligned cannot compete in today's increasingly global healthcare environment. All leadership groups (governance, management, physicians, other healthcare providers) must work together toward common strategic goals and objectives, both clinical and financial. This cooperation requires all facilities and providers to have at-risk contracts linking participants to work toward mutually agreed-on clinical and business goals and objectives. The great paradigm shift is that systems will need to align with outside organizations that may be beyond normal operational control—and with whom they may have, under past circumstances, competed. Furthermore, alignment will need to be achieved through common payer contracts in which healthcare organizations and systems can be held accountable for clearly defined metrics, with each unit affecting the payment for all. Thus, traditionally separate entities will need to come together to coordinate both contracts and care.

The health system should establish the new patterns of coordination in a particular sequence. First, contracts are developed that create both clinical and business outcome expectations and that require organizations to work with disparate organizations and providers. Alongside these contracts, alignment agreements are established between all organizations and providers that place a part of each agreement at risk for contractual metrics. This alignment transcends employment by involving all key organizations and individuals through some form of comanagement agreement.

Next, specific at-risk components or amounts are collaboratively negotiated between parties to ensure commitment. Over the term of the contract, at-risk agreements will modulate according to results. In general, contracts will vary based on the amount of risk organizations are willing to assume, quality ratings and cost reports, and the ability of organizations to meet payer and beneficiary expectations.

Many organizations create management oversight committees of administrative and clinical leaders who design and negotiate payment models with payers, outside organizations (e.g., skilled nursing facilities, nursing homes, rehabilitation facilities), and physicians and then oversee management of these contracts through shared clinical and business analytics. It is essential that all information is shared so that all parties can work toward common goals and hold each other accountable in a fair and transparent manner.

Methodology for Contracting for Population Health Services

One common methodology for contracting for population health services has five phases: identifying a population of covered lives; developing clinical and business analytics to assess clinical and financial risk; risk-stratifying all covered lives into functional subpopulations; developing cost-effective care and business models for each identified subpopulation; and monitoring, measuring, and modifying plans.

Your specific payer mix will determine which population of beneficiaries you will use to contract for population health. Most organizations start with their captive employee health plans to develop competence in managing population health and then expand to existing payer contracts. Once the employee health plan is managed well for population health services, organizations may expand into Medicare Advantage, managed Medicare plans, or managed Medicaid, as those groups typically represent both the greatest expenditures and the greatest opportunities for cost savings. Many commercial payers are now entering at-risk agreements, and these can often be negotiated separately with regional payers and health plans. Remember, each payer represents a population of

covered lives that may either be managed separately or in aggregate with other payers.

Clinical and business analytics have been described in chapter 8 and will be further described in the next section; however, suffice to say that without predictive analytics to risk-stratify covered lives into relevant subpopulations, population health management is not possible. Strategically, it is necessary to develop role-based analytics or specific actionable information from both a clinical and business perspective that enables each member of the organization to manage and work with beneficiaries to optimize both clinical and business outcomes. Clinical and business analytics break down as follows:

- Clinical: health risk assessments, clinical data, pharmacy usage, QALYs, compliance with evidence-based recommendations, national-level quality measures, clinical outcomes, readmission rates, and similar data points
- Business: length of stay (LOS), adjusted cost per case, total cost per episode of care, case-mix index, shared savings, direct variable cost per episode of care, per member per month cost, and similar data points

Once a general population of covered lives is identified and all risk-related data on each beneficiary (particularly nonclinical determinants) are entered into an EDW, the typical pyramidal pattern will emerge, with seriously ill and potentially ill people making up the vast majority of potential costs (see exhibit 11.2).

Once this information is analyzed, cost-effective and appropriate clinical and business plans should be made for each of these risk-stratified groups (see exhibit 11.3).

Each group may be monitored through clinical and business analytics to optimize outcomes and to share information with providers, payers, and patients through customized and encrypted portals. Based on the measures of each subpopulation, adjustments can be made to both the clinical and business plans and to the

Exhibit 11.2: Healthcare Costs in a Defined Subpopulation (Employee Health Program) at Hospital X

Subpopulation	% of the Population	% of Cost	Cost (\$)
Advanced illness	3	29	54,444
Multiple chronic illnesses	7	23	14,232
At risk	10	19	7,728
Stable	30	22	3,168
Healthy	50	7	660

Exhibit 11.3: Sample Clinical Plan

Subpopulation	Strategy
Advanced illness	Palliative care with intensive disease management, a team-based approach to care (e.g., care coordinator, physician, nurse, pharmacist, care manager, home health agency with wireless monitoring), disease registry with navigator
Multiple chronic illnesses	Disease management with team-based approach, patient-centered medical home or coordinated network of care, disease registry with navigator
At risk	Predictive analytics with decision support tools, disease registry with navigator, patient-centered medical home or wireless technology for periodic screening
Stable	E-health platforms with personalized applications, retail medicine for minor acute conditions, personalized health maintenance programs
Healthy	E-health platforms with personalized applications, retail medicine for minor acute conditions, personalized health maintenance programs

agreements themselves through the creation of dynamic and transparent contracts.

For example, the actual contract between St. Luke's Health System, (Boise, Idaho) and Select Health, a not-for-profit health plan subsidiary of Intermountain Health (Salt Lake City), operates on the following equation:

$$\begin{aligned}\text{Premium} &= \text{Total cost of care} + 10\% \text{ indirect costs} \\ &\quad + \text{Insurance margin (87\% medical loss ratio)} \\ &\quad + 2\% \text{ to } 3\% \text{ margin (capped)}\end{aligned}$$

The medical loss ratio is the percentage of premium dollar that is directed to the care of the beneficiary. In addition, the book of business guarantees a six-year exclusive arrangement and an option to renew.

Integrated Healthcare Networks

Every IHN will, of necessity, be different as a result of differing markets, payer mix, clinical prevalence, demographics, and local financial and socioeconomic factors. However, many common elements may be found in a well-conceived network that will enable the provision of comprehensive healthcare services.

There are four generic principles that must be taken into account whenever building such a network: (1) The network must make clinical and business sense, (2) the network must be created by those with specialized expertise and good generalized leadership oversight, (3) the network should be able to manage an individual throughout the continuum of care, and (4) the network must be completely aligned.

What does it mean that the network must make clinical and business sense? In essence, it means that the structures and processes created, irrespective of their specific form or content, must lead to improved clinical outcomes, greater operational simplification, and

better margins. Unfortunately, many organizations start beneficial initiatives by layering the new policies and structures onto old policies and structures. Every new layer, whether it is clinical or operational, requires some reconception of the entity as a whole so that there is a concurrent simplification or aggregation process that coincides with the addition of greater complexity. Innovation should not lead to non-value-added complexity that detracts from and undermines outcomes.

The IHN must be created by those with specialized expertise and good generalized leadership oversight. In other words, whether the operational entities include skilled nursing facilities, inpatient facilities, or outpatient rehabilitation, those with specialized expertise must participate in design decisions that have an impact on the system as a whole. This involvement requires a paradigm shift toward collaborative governance, matrix management (from both a clinical and an operational perspective), and care provision so that services can be seamlessly developed throughout the network. The purpose of generalist executive oversight is to ensure that the system works as a whole and that its component parts exist and function in proper proportion to their ultimate value for desired outcomes.

The IHN should ideally be able to manage a patient throughout the continuum of care. This capability requires a sufficiently comprehensive approach to system building so that if a person develops a complex cancer or chronic disease, her care can be carried out in an efficient and effective manner throughout the system. This coverage requires quaternary, tertiary, secondary, and primary healthcare facilities supported by information technology (IT), information-sharing agreements, and a comprehensive array of services and practitioners to support the full spectrum of resources and expertise throughout the continuum of care.

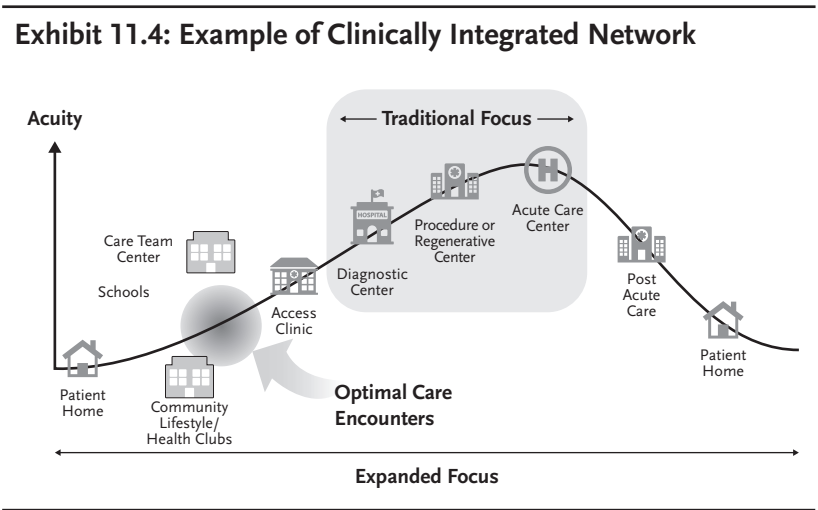
The final principle of building an IHN is that the network must be completely aligned. Many networks have “insiders” as well as “outsiders” who may not be party to at-risk agreements, and this dynamic will not work as effectively as a system in which providers and entities share agreements that align clinical and business

outcomes. Again, the challenge is that healthcare organizations must contract with organizations of which they have no asset or operational control, and that situation requires a different kind of collaborative leadership.

What does a typical IHN look like? It often has the components and characteristics illustrated by St. Luke's Healthcare System (exhibit 11.4). Note that as a patient's healthcare condition shifts in acuity, there is a facility or entity that is appropriate for his care throughout time.

As exhibit 11.4 shows, a clinically integrated network begins and ends with a patient's home. Many experts believe that in the twenty-first century, most healthcare services for routine, easy-to-manage, or stable and chronic conditions will be accessed from a patient's home through wireless technology via the smartphone. These health problems represent the majority of healthcare services that the average individual requires throughout her life.

Schools, while not intuitively obvious sites for healthcare, are, in fact, where most children gain lifelong dietary and physical knowledge and habits. Thus, if healthcare organizations assume increasing



Source: Courtesy St. Luke's Healthcare System.

risk for the overall healthcare costs of dependents of their contracted employees and beneficiaries, the foundational habits of children and young adults will have a significant impact on resultant outcomes and costs. For instance, according to the US Centers for Disease Control and Prevention, approximately 17 percent of American children aged 2 to 19 are obese, with a higher prevalence in the Southeast (Ogden et al. 2015). Thus, healthcare organizations increasingly find themselves working with schools to align their approaches with better long-term healthcare outcomes.

Another nontraditional concern of clinically integrated networks is the recreational facilities that adults use for sports, social activities, or meaningful hobbies. For example, some healthcare organizations work with golf clubs to encourage their members to walk rather than ride golf carts. Obviously, this requires some kind of aligned incentive, given that golf courses earn more on a volume basis by the use of carts—all aligned agreements must be win-win. Scholars have demonstrated that those who exercise regularly typically have lower healthcare costs, so many employers provide discount or copayment incentives for employees to regularly participate in exercise at a health club or other recreational facilities.

A care team center is another important element of St. Luke's network. Healthcare is increasingly a team effort led by a physician and care coordinator, with members who might include advanced-practice nurses (APNs), physician assistants, pharmacists, navigators, home health practitioners, and a variety of other specialists. They are increasingly located in centralized centers through which wireless technology supports the transmission of real-time and predictive clinical and business analytics. These tools enable the team to locate areas of concentration of high-risk, high-cost individuals with relapsing or newly developing clinical conditions that require specific interventions, a phenomenon known as *hot spotting*. The facilities can then develop interventional strategies to prioritize resources for these groups, starting with home visits and leading to a physician's office, retail medicine clinic, or ED only if necessary. Such centers are an integral part of any population health agreement.

Access clinics represent the entry point for most people to St. Luke's network. Traditionally, it has been a physician's office, but it now may also be a nurse practitioner's office, a local health center, an ambulatory clinic, a federally qualified health center (FQHC), or some form of retail clinic. These facilities are generally used by healthy people with minor, acute problems but can also be used by those with preexisting subacute chronic conditions that may require ongoing or intermittent interventions for minor, acute conditions.

When St. Luke's patients need further testing, they proceed to a diagnostic center. Most ancillary testing (e.g., X-rays, electrocardiograms, laboratory) takes place in lower-cost ambulatory facilities that may be owned and operated by a healthcare organization, physicians, nonhealthcare entities, or a combination of these. Those who can provide services at a low cost and with high reliability will outcompete traditional facilities.

Most routine elective procedures are performed in ambulatory procedure centers, and most post-acute care that requires skilled nursing is provided in ambulatory facilities with lower cost structures than hospitals. In the IHN of the future, it is essential to align with organizations that may or may not be within the traditional healthcare system.

Hospitals (or acute care centers) were the hub of the twentieth-century healthcare system; in IHNs, they become cost centers that will care only for those with the most complex and acute conditions. Payers will provide significant incentives to avoid hospital and critical care if possible. Many analysts believe that traditional inpatient capacity will fall by at least 40 percent over the next seven years, as an increasing number of ambulatory facilities are constructed and people choose to spend their final days at home rather than in acute care or critical care settings. Acute care will become increasingly regionalized, as particularly complex, high-risk care and procedures are concentrated in major regional centers to optimize both cost and outcome.

One of the greatest areas of improvement in healthcare outcomes and costs occurs following hospitalization, through low-cost,

post-acute ambulatory, and home health services. St. Luke's monitors patients who are at high risk for relapse and readmission through wireless technology, using predictive analytics that identify those persons who require acute home or ambulatory interventions. These techniques enable the avoidance of unnecessary or preventable ED care or acute care admissions and readmissions.

These specific venues are illustrative of the facilities that are incorporated into well-conceived integrated networks in the twenty-first century. IHNs will include other essential facilities as each healthcare system's demographics, geography, and region allow, supporting its mission to provide high-quality services to defined populations.

Health Information Exchanges and Enterprise Data Warehouses with Clinical and Business Analytics

Population health is not possible without a completely aligned HIE, in which all key facilities and constituents are linked through compatible systems to enable aligned, at-risk agreements. Another essential element is an EDW, which can be used to convert undifferentiated data into actionable information. Though many of these issues have been discussed in chapter 8 from a technical perspective, the following section describes how this essential technology will be applied in necessary ways.

Health Information Exchanges

The healthcare industry is experiencing what the banking industry began in 1967, when the first automatic teller machine was created by John Shepherd-Barron and installed by Barclays in London. Older readers will recall a time in which it was necessary to enter the local branch of a bank during regular banking hours with a bank book and see a personal banker to make deposits and withdrawals. This old-fashioned process is akin to obtaining personal protected health information (PHI) at a healthcare facility today. In the not-too-distant future, people will be able to obtain PHI from the cloud,

around the clock, through an encrypted and encoded process. This information will no longer be the exclusive property of the health-care organization. Only then will patients have unlimited ability to obtain healthcare services with complete documentation support worldwide around the clock, which will enable optimal medical care and accountability for both providers and patients.

Currently, most healthcare systems are working toward a unified IT platform to enable real-time, shared data. These platforms have appropriate information-sharing agreements to permit the transmission of protected peer reviews and health information to those with a need to know. The challenges obstructing this goal include the investment costs to build such a system, proprietary boundaries that prevent interoperability, the lack of standardized legal and regulatory guidance across state and national borders, and the variation among healthcare systems nationally and internationally that inhibits information sharing and interoperability. However, a global HIE will occur, and it will constitute a necessary and important transition that will support a globalized population health system.

As discussed in chapter 6, the EDW is the mechanism by which data are converted to actionable information through the process illustrated in exhibit 8.2.

The basis of an HIE is data. Organizations must acquire a variety of information, including nonclinical determinants (e.g., demographics, zip code, sex, risk factors). They can also use the data reported by medical devices (e.g., sensors, defibrillators, monitors, wireless technology from implantable devices such as pacemakers). The data are then synthesized through integration; modeling; and extraction, transfer, and loading processes so that the EDW can create a comprehensive profile of an individual's care from both clinical and business perspectives.

Once fully processed, the information emerges onto preprogrammed dashboards or scorecards that are specific to both role and function. For instance, each physician, member of the C-suite, payer, and patient requires unique sets of information that support

good decision-making in real time and proactive planning through the creation of predictive analytics.

One of the key leadership functions while establishing an HIE is data governance through a multidisciplinary team of leaders, clinicians, payers, and key stakeholders. This group must oversee the essential attributes of data and information: integrity, credibility, security, stewardship, and privacy. This committee is of increasingly strategic importance as the system determines what pieces of information are necessary to support key strategic initiatives.

The ultimate goal of developing an HIE is optimized and cost-effective patient care, as determined by patients, providers, payers, and systems. This distinction is important, as each stakeholder has a unique perspective on what an optimized outcome represents and thus must be taken into account. The results of this final step inform subsequent cyclical iterations of information management and underlie how these tools are used going forward.

Clinical and Business Analytics

For a system to truly realize the potential of the population health model, real-time, actionable information must be role based according to need. Many kinds of data can be available; the following list covers a few:

- Revenue cycle management: accounts receivable days, net accounts receivable, late charges, denials, adjustments
- Enterprise quality: morbidity and mortality indexes, safety, adjusted LOS, employee injury, value-based purchasing data
- Cost accounting: total costs; direct variable costs per provider; labor chain and supply chain costs per hour, shift, day, week, month, or year
- Supply chain: costs by manufacturer, provider, and procedure; savings
- Clinical access: schedule fill rates, no shows, cancellations, timely appointments, copayments

- General operations: volume and revenue by cost center, observation and bed days, average daily census
- Population management: per member per month data, claims data, information on high-risk patients, hierarchical condition categories risk scores, chronic disease registries
- Provider performance: quality, cost, satisfaction, and safety metrics; work relative value units; coding and charge profiles; cost efficiency index
- Patient: customized health maintenance metrics with decision support tools

The ultimate purpose of analytics is to support timely and accurate decision-making as a means of achieving excellent clinical and business outcomes.

Population Health Infrastructure

Each element of the population health infrastructure is essential to providing comprehensive services to subpopulations: palliative care, disease management, post-acute care, retail medicine, and e-health. The purpose of each element is to optimize quality outcomes while having the same impact on cost of care for each subpopulation to enable the redistribution of resources in the most rational and appropriate way.

Palliative Care

Unfortunately, palliative care is inappropriately associated with end-of-life care. Palliative care goes far beyond hospice care through the comprehensive treatment of individuals with life-threatening conditions from the time of initial diagnosis. The World Health Organization (2018) defines palliative care as “an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and

impeccable assessment and treatment of pain and other problems, physical, psychosocial, and spiritual.” Palliative care is an interdisciplinary, team-based approach that includes professionals such as the following:

- Care coordinators
- Physicians
- APNs or physician assistants
- Nurses
- Counselors
- Home health
- Chaplains or spiritual advisers
- Pharmacists
- Pain specialists
- Physiatrists
- Social workers
- Volunteers
- Public health specialists

The members of the palliative care team work together to provide comprehensive and customized interventions (as determined by predictive clinical and business analytics). The approach is comprehensive, with a focus on pain management, symptom management, functional management (i.e., optimizing activities of daily living), and emotional or spiritual management through the use of both customized and evidence-based practices. The team works with patients and their families to determine personal and life goals to optimize QALYs and healthy life expectancy. In addition, these goals are reconciled with personal and family values (e.g., autonomy, mobility, freedom), as well as the family’s personal and material resources. Such discrepancies are at the root of noncompliance, which should be more accurately portrayed as unaligned recommendations.

Scholars have provided excellent evidence that the earlier palliative care is implemented, the greater the cost savings. In one of

many studies illustrating the impact of palliative care on the direct costs of patients with life-threatening conditions, R. Sean Morrison and his team (2008) demonstrated that there is an immediate and almost 50 percent reduction in cost with the implementation of effective, team-based palliative care. Exhibit 11.5 shows one palliative care team's data, comparing it to the direct cost for patients who were discharged and those who died while inpatients.

Notice that the greatest difference between palliative and regular care is with laboratory, pharmacy, and intensive care unit (ICU) costs (particularly among those who died) and that significantly fewer deaths occur in the ICU with palliative care. Even more important, patients and their families had better acceptance and understanding of prognosis and potential for a good quality of life and did not feel that care was being denied or withdrawn for financial reasons. These discussions and interventions take time and require a deep understanding of the personal goals and values of the patient and each supporting family member.

**Exhibit 11.5: Costs of Regular Care and Palliative Care:
A Comparison**

Costs	Live Discharges (\$)		Difference (%)	Deaths (\$)		Difference (%)
	Palliative	Regular		Palliative	Regular	
Per day	684	867	21	1,069	1,515	29
Per admission	9,992	11,498	13	16,831	23,521	28
Lab	833	1,160	28	1,772	2,805	37
Pharmacy	2,037	2,223	8	3,622	6,063	40
ICU care	1,726	6,974	75	7,755	15,531	50
Died in ICU (%)				4	18	78

While the advantages of this strategy seem apparent to most healthcare leaders, there are many pitfalls that undermine the ability to launch and support widespread palliative care services in the United States, including the following:

- Palliative care is thought of as a contemporary approach to hospice care; if care is not initiated until the end of life, QALYs and cost savings are never realized.
- Palliative care is viewed as the purview of several full-time equivalents rather than a systemic implementation of a full team to care for all of the eligible persons in the top 1 percent of covered lives in terms of risk and cost.
- The need for palliative care should be determined (with the approval and support of physicians) by predictive analytics, not by individual practitioners' referrals. Most physicians do not have access to properly integrated nonclinical determinants of care to accurately predict those with the greatest need.
- A culture supporting a standardized and customized approach to those with life-threatening conditions must replace the traditional cottage industry culture of complete customization and individualization.

Palliative care improves both the cost and quality of people's experiences with life-threatening conditions. It shrinks cost by reducing futile and non-value-added care and by fostering seamless communication and coordination between caregivers. Palliative care teams improve quality of life by optimizing personal control, autonomy, and self-actualization; optimally extending life without disability and in keeping with an individual's deepest values; effectively managing pain, symptoms, and functionality; and most important, achieving the goals set by patients and their families.

Palliative care assumes an even greater importance with the extension of human longevity, as most individuals will experience a relatively brief period of disability of two to three years toward the

end of life, likely suffering from frailty, dementia, organ failure, or cancer. The creation of a cost-effective approach to optimizing functionality and quality of life—while minimizing costs—is essential.

Disease Management

Almost half of humans worldwide have some form of chronic disease, and management of these diseases makes up more than 75 percent of total healthcare costs in the United States. The numbers are enormous, with more than one-third of Americans suffering from either obesity or hypertension, and approximately one-quarter have some form of heart disease. Sixty million Americans suffer from a behavioral disorder for which they may be stigmatized, receiving little financial or social support, and 23.6 million have some form of diabetes. Each of these chronic diseases costs between \$60 billion and \$240 billion annually. Perhaps most astonishing are the costs of cancer, which affects approximately 11.1 million Americans but costs a staggering \$1.6 trillion annually to the US economy (Nash et al. 2010).

More than 50 percent of chronic diseases have an underlying behavioral component, such as depression, bipolar disorder, anxiety, or addictive personality disorder, that the care team must address to achieve an optimal outcome. Thus, many disease management programs include a mandatory behavioral health component. In addition, more than 50 percent of chronic diseases have some significant socioeconomic factor, such as lack of adequate food, shelter, access to healthcare, or personal safety, that either perpetuates or exacerbates a disease. Social workers and care coordinators have a significant role to play in disease management in conjunction with the traditional healthcare team.

Disease management has at least four important elements. First, an approach that is centered around patients and families is vital, particularly when supported and facilitated by physicians and healthcare organizations. Second, effective disease management focuses on empowerment and self-motivation—it demonstrates the underlying behavior or root cause of affective or emotional issues in addition

to treatment of the primary disease. Third, disease management requires an interdisciplinary team, evidence-based clinical and business practices, and clinical and business analytics monitored in real time. Finally, it is built on an approach that focuses on those few interventions that will have the greatest impact on the overall cost and quality of care.

As in palliative care, individuals eligible for disease management are identified through predictive analytics as part of the top 5 percent of risk in a typical population of covered lives. Also, as in palliative care, these people should be identified systemically, not based on individual physician referral, and the emphasis should be on early intervention to achieve the greatest optimization of quality of life and cost savings.

The IT component of disease management works as follows:

1. Payer contracts and predictive analytics determine key clinical and business performance indicators that are of strategic importance.
2. Covered lives for each payer undergo predictive analytics to identify and risk-stratify those who represent the top 5 percent of risk and cost to the system.
3. Patients in the top 5 percent are sorted based on diagnosis to determine the services required (e.g., primary care, care coordinator, ambulatory imaging or procedure center, home health) based on which evidence-based pathways are triggered.
4. Rule-based clinical and process approaches are derived from the specific combination of clinical pathways so that a customized approach for each individual may be derived from the standardized catalog.
5. Dashboards and scorecards demonstrate the specific interventions required for each person based on these rules. An example of a dashboard for a patient with diabetes is illustrated in exhibit 11.6.

To see how disease management works in day-to-day operations, it is useful to look at a specific initiative from St. Luke's, Project Zero. St. Luke's 1.3 percent surgical-site infection (SSI) rate was lower than the national average of 1.9 percent, but its staff chose to reduce it even more. SSIs constitute the single greatest risk and cost of routine surgery at the health system, generally resulting in a 106 percent cost increase (\$16,051 above the normal cost of \$15,131). Moreover, these complications were significant at St. Luke's as a result of the high volume of surgical cases (2,000 spine surgeries and 2,000 total joint replacements annually). SSIs represent the number-one cause of postoperative sepsis, a dangerous and potentially lethal complication of surgery.

The physicians did research and realized that four factors were largely responsible for their SSI rate. First was excessive traffic in the OR as carts were moved in and out throughout the surgery. Second, excessive particulate matter was present in the ventilation system

Exhibit 11.6: Example of Evidence-Based Rule-Generated Dashboard

Endocrine Events				
HgbA1c:	25%	(8 weeks ago)	5.0%	(4 months ago)
BP:	140/86 mmHg	(6 days ago)	111/59 mmHg	(11 days ago)
LDL:	91 mg/dL	(8 weeks ago)	H 138 mg/dL	(4 months ago)
Tobacco Use/Currently Using:	No	(6 weeks ago)	No	(6 weeks ago)
Foot Exam:	08/12/10	(3 weeks ago)	07/28/10	(5 weeks ago)
Eye Exam:	11/17/09	(8 weeks ago)	07/07/10	(2 months ago)

Diabetes Performance Measures (As of last night)	
<input type="radio"/>	1: Hgb A1c Done in last 6 months
<input checked="" type="radio"/>	2: Hgb A1c < 8.0%
<input checked="" type="radio"/>	3: BP < 130/80
<input type="radio"/>	4: LDL Cholesterol Done in last year
<input type="radio"/>	5: LDL Cholesterol < 100
<input type="radio"/>	6: Tobacco Non-user
<input checked="" type="radio"/>	7: Creatinine Done in last year
<input checked="" type="radio"/>	8: Micro-albumin Done in last year
<input type="radio"/>	9: Foot Exam Done in last year
<input type="radio"/>	10: Eye Exam Done in last year
<input checked="" type="radio"/>	11: Diabetic Education Done in last year
<input type="radio"/>	12: Flu Vaccine Done in last year
<input checked="" type="radio"/>	13: Pneumovax Done
<input type="radio"/>	14: Aspirin Use

Chronic Disease Algorithm
Diabetes Mellitus (DM)
Hypertension in DM

Source: Adapted from Mayo Clinic.

from outdated OR systems. Third, a few surgeons were driving up the complication rate and exposure to particulate matter, as they took excessive time to perform their procedures. Fourth, the lack of transparency and data sharing among physicians meant that outlier physicians had no idea they were outliers.

As a result, physicians, with management support, pursued the following solutions:

- All carts must remain in the OR throughout the procedure, with double checks to ensure that all required supplies were present before the surgery.
- Management purchased and installed high-grade ventilation systems with a high-efficiency particulate air filter in each OR.
- OR times are measured for surgeons with similar procedures and benchmarked both locally and nationally, with mutually agreed-on limits (two standard deviations above the mean).
- Surgeons are managed assertively through performance improvement initiatives and, if necessary, excluded from the program.

The outcome was a reduction in SSIs from 1.3 percent to 0.6 percent, which doesn't seem significant until you consider the financial impact of each SSI (\$16,051 per infection × 280 fewer infections annually = savings of \$4,494,280). The project was such a success that the organization extended it to many other surgical programs throughout its system, gaining savings in the tens of millions of dollars—not to mention more than a thousand fewer potentially fatal infections.

To summarize, disease management represents a multidisciplinary, team-based approach to standardizing both clinical and operational processes. In addition, interdisciplinary teams develop a best-practice approach and benchmark it against a traditional

approach with metrics for both clinical and business processes. This transformation requires active participation by both physicians and management, who should fill in a matrix like the one in exhibit 11.7. This enables strategically important clinical processes to improve as the organization focuses on optimizing both quality and business outcomes collaboratively.

Post-acute Care

Post-acute care is an essential element of the population health infrastructure. It has the greatest impact on healthcare outcomes because a hospitalization only treats acute episodes of care and has little, if anything, to do with the thousands of day-to-day decisions that individuals make about their healthcare that affect their long-term morbidity and mortality. The decisions to take medications (or not), exercise (or not), observe a healthy lifestyle (or not), comply with evidence-based recommendations (or not), and eat healthy food (or not) are personal choices that have little to do with the influence of healthcare providers or organizations and everything to do with the personal perspectives and values of patients and their families. Therefore, what happens outside of a hospital or physician’s office is of paramount importance if healthcare organizations want to have a meaningful impact on outcomes and costs.

At the heart of post-acute care is readmission prevention. The Centers for Medicare & Medicaid Services (2018) penalizes healthcare

Exhibit 11.7: Processes and Metrics Template

Processes	Metrics
Clinical processes	Key clinical metrics
Operational processes	Key operational metrics
Business processes	Key business metrics

organizations for unnecessary readmissions by 3 percent, and these standards were established for good reason:

- Of readmissions within 30 days after discharge, 75–85 percent are preventable.
- Of discharges, 51 percent do not have follow-up within 30 days (and they are 1,000 percent more likely to be readmitted).

Opinions within the healthcare field on the root causes of high readmission rates are diverse. Some point to failures in follow-up. Some care teams neglect to develop meaningful follow-up plans (e.g., they instruct patients to “see your regular physician” when the person may not have one). In fact, in approximately two-thirds of cases, no follow-up occurs. Moreover, organizations sometimes experience a delay in dictation of discharge summaries, or the summaries never reach the primary care or follow-up physician. Some problems may center on medications and discharge instructions—up to two-thirds of individuals are unable to understand the instructions provided, particularly with regard to their medications, and up to 70 percent are unable to afford (or choose not to pay for) expensive medications. Perhaps one of the major issues is that the healthcare system lacks patient and family incentives to participate fully in care. Some commentators, however, point to a lack of standardized discharge processes in hospitals, with significant variation in how they are handled throughout the nation. Regardless of the root causes, healthcare organizations that are serious about improving this failure-riddled process must redesign care for the twenty-first century in order to participate in at-risk or global budget agreements.

Yale New Haven Health System’s structured transition care rounds and post-acute care program constitute an excellent example of readmission prevention and management of the post-acute process. The health system is made up of five hospitals (including its flagship, Yale New Haven Medical Center) and Northeast Medical Group, a large, physician-run foundation of primary care and medical

specialists. Its staff no longer speaks in terms of “admissions” or “discharges,” which imply the beginning and end of its responsibility, but rather says “transitions of care” from one venue to another. Its post-acute care programs consist of the following elements.

The health system has developed a standardized process that takes place with every patient every day of the year. Transition planning no longer takes place Monday through Friday from 9 a.m. to 5 p.m.; it is a daily, around-the-clock process. The post-acute process begins prior to every elective inpatient episode through both a risk assessment and proactive planning. Most elective inpatient episodes are predictable in their LOS, based on initial diagnosis and comorbidities, to within a fraction of a day, and thus post-acute planning takes place prior to hospitalization and can be adjusted as needed. The system also has adopted preoperative risk assessment for elective procedures of varying severity. This evaluation involves a pediatrician or an internist, supported by an anesthesiologist (or nurse anesthetist) and a care manager, to assess potential issues. Common clinical comorbidities discovered during this process include difficult airways, sleep apnea, diabetes, atrial fibrillation and other arrhythmias, and cardiac valve issues. This process reduces the cost per case, LOS, likelihood of readmission, ED visits, and risk- and severity-adjusted morbidity and mortality rates.

The transition planning process is a team activity led by a care coordinator (typically an APN with a deep knowledge and understanding of the internal and external system, including all relevant payer contracts). The team includes a physician, nurse practitioner, nurse, case manager, risk manager, and pharmacist. The pharmacist plays an essential role in medication reconciliation, determining whether the patient can afford the medications, drug interactions, potential allergies, follow-up counseling regarding medications, and assessment of patient and family understanding of medications. Yale’s staff engages in structured discussions with patients and their family every afternoon throughout the planning process.

Documentation is completed in real time. This means that operative notes are completed as the procedure is finished, post-acute

care unit notes are done on transfer to the floor, and discharge (or transition of care) notes are completed the day of transfer to an ambulatory facility or home. All relevant clinical and business information is up-to-date and shared with all relevant care providers and managers. Members of the staff make routine posttransition phone calls to ensure understanding of the plan, satisfaction with the service, and compliance with and understanding of all recommended treatments and medications.

Patients are stratified (red, yellow, green) according to risk factors, clinical and nonclinical determinants, and other socioeconomic factors so that additional resources and time can be devoted to working with those in greatest need and at greatest risk of relapse or return. Yale's metrics include rate of on-time transition, LOS reduction, readmission rate (adjusted by risk and severity), ED utilization rate, patient satisfaction, adjusted cost per case, and compliance with the Healthcare Effectiveness Data and Information Set and ambulatory metrics. It also monitors the functional recovery improvement index (actual vs. expected), pain control, bed days per 1,000 patients, averted admissions or ED visits, and overall adjusted cost of care—of each patient and in aggregate—over a rolling period.

The health system maintains collaborative risk-sharing agreements with key ambulatory facilities, including skilled nursing centers, retail pharmacies, urgent care centers, home health agencies, nursing homes, outpatient rehabilitation facilities, FQHCs, and ambulatory procedure centers. It also has contracts with large employers and relevant payers and health plans. These agreements ensure alignment. All clinical and business analytics are shared with all relevant providers and facilities to ensure transparency and integrity.

Yale also holds monthly meetings with aligned collaborators to discuss specific case reviews, comparative data and analytics, process improvement initiatives, and interfacility challenges. These meetings are essential to supporting partners, and they maintain both transparency and accountability.

Fee-for-service contracts will not incentivize the type of policies that Yale has adopted. For instance, St. Luke's was able to reduce

unnecessary readmissions by 92 percent and reduce unnecessary ED visits by 75 percent—two improvements that would pose financial problems under fee-for-service. Thus, these programs must be done with other payment models (e.g., risk-based capitation, global budgets) so that they make good business and good clinical sense.

Retail Medicine

As access to routine care became more problematic over the 2010s, with average waits of several months in certain metropolitan areas, retail medicine through big-box retailers and pharmacies became a natural disruptive solution. It has the potential to plug this hole in the population health infrastructure. Patients have become consumers through the increasing use of high-deductible healthcare policies that increased out-of-pocket expenses and through the creation of health savings accounts. In addition, they have been squeezed out of the traditional market because of ever-increasing costs and cost shifting and are starved for low-cost options of acceptable quality.

Disruptive innovation takes place when an industry becomes squeezed and abandons the low end of its own market (i.e., low-margin services), allowing new entrants to work their way upstream. As hospitals and physicians were squeezed by low reimbursement and high costs in the late 1990s and early 2000s, they turned to high-margin work (e.g., elective, high-end procedures) instead of changing the business model. Thus, millions of Americans were left with little immediate access to routine care except through EDs or urgent care clinics, which are all relatively expensive and, in many cases, inconvenient and cost-ineffective.

By 2015, there were almost 3,000 retail clinics in the United States, with plans for almost 50,000 such facilities worldwide by 2020. These clinics are typically staffed by APNs under medical direction and focus primarily on urgent care and on treating 36 predefined, high-volume, low-risk conditions, carefully proscribed by clinic policies, with evidence-based, standardized approaches. Any potentially significant or serious condition is immediately referred, without charge, to a regular physician or an ED for definitive

management and treatment. These clinics increasingly use low-cost diagnostics, and most have affiliation agreements with hospitals and physicians to ensure ready availability of consultations and higher levels of care if needed. They provide retail amenities, such as wellness checks, appointment reminders, and follow-up calls, and their costs are significantly lower than most urgent care centers, EDs, or even physicians' offices.

The benefit for the retailer is to combine multiple businesses (pharmacy, supermarket, department store, pharmacy benefits plan) under one roof, which dilutes fixed costs, lowers cost structure, and creates a more consumer-friendly environment in which to provide routine healthcare services for low-risk conditions. Walmart is currently adding telemedicine capabilities to its retail clinics to enable immediate medical consultation when needed through its Teladoc program. Walgreens treats many common diseases, such as diabetes and hypertension, through its retail outlets, and it plans to add many more through the use of evidence-based algorithms with physician oversight.

From a population health perspective, this means that healthy individuals now have a lower-cost option to receive treatment for minor, commonly occurring acute conditions such as ear infections, sore throats, rash without fever, minor lacerations, and sprained ankles. This alternative reduces cost, improves access and convenience, and relieves EDs and urgent care centers from nonemergencies that can be cared for in much lower-cost settings. Many retailers look to healthcare organizations to provide clinical consultation and expertise, covered lives, compatible electronic health records (EHRs) and HIEs, and strategic alignment. In addition, many organizations create retail facilities of their own as an essential element of comprehensive clinical integration services.

E-Health

One essential element of population health infrastructure is also a remarkable disruptive innovation: e-health. This expansion of telemedicine enables routine healthcare services to be accessible

through an iPhone, personal computer, iPad, or other device. Many pundits feel that the primary access point to healthcare in the twenty-first century will be applications on smartphones. American Well, the largest e-health platform in the United States, reports that more than 100 million Americans accessed healthcare services via phones, computers, mobile devices, or retail kiosks in 2016. Many large employers now provide e-health applications to not only provide services but also monitor their health plans, pharmacy benefits management program, and employees' compliance with basic health recommendations (in exchange for a lower premium or deductible).

As of June 2016, e-health visits ran approximately \$59 and are staffed by a physician or by an APN with medical direction. Services consist mainly of urgent care. Consumers can choose between a variety of clinicians, access their credentials and backgrounds, undergo a diagnostic exam using their phone or a retail kiosk, receive recommended treatment and prescription delivery via an affiliated pharmacy, and participate in follow-up care.

Although urgent care is the most common use of e-health, alternative applications for this new technology include on-demand inpatient consultations; ED case flow augmentation for low-risk, fast-track patients; home health care services; routine postdischarge and postoperative care; and behavioral health care. It also contributes physicians to the national pool, particularly for difficult-to-recruit specialists in geographic areas of scarcity.

Management of chronic conditions is another promising use. Many people with diabetes, hypertension, chronic obstructive lung disease or asthma, congestive heart failure, and similar chronic conditions can safely monitor their own diseases and be managed by practitioners. Using wireless technology and wearable devices, individuals can keep track of their health at home. The use of wireless technology enables practitioners to receive decision alerts that may result in an early, home-based intervention. E-health platforms can interface with physicians' offices, EHRs, HIEs, and healthcare organizations to communicate PHI freely and confidentially. This collaboration between care coordinators, primary care clinicians, and

patients helps to manage long-term conditions in a more convenient and cost-effective way.

Many healthcare facilities (particularly in rural areas) lack a full complement of clinical specialists and subspecialists. E-health platforms enable any specialist (assuming a valid state medical license where the patient is located), from any venue, to evaluate and potentially treat a patient. The ultimate example of this is the e-ICU, which enables intensivists to care for patients throughout a geographic region, enabling the patient to remain in his community hospital and be cared for by qualified clinical personnel in local centers with the oversight of highly skilled specialists and subspecialists who work out of centralized tertiary and quaternary centers.

Families often seek care in EDs after hours because of lack of access, insurance, or financial means. E-health platforms provide a way to assess and manage stable patients with minor acute conditions, who often wait for hours to be seen after triage. Redirecting these patients often relieves the ED of backlog and the family of unnecessary waiting, and it provides a significantly lower-cost alternative for everyone concerned.

One of the key success factors for post-acute care is timely follow-up, and many private practices and clinics are not set up to handle routine transitions of care in a seamless manner. E-health platforms provide a way of managing routine, low-risk follow-ups for nonacute conditions without having to make appointments at a physician's office. E-health can be done at the patient's convenience. Routine examinations can be performed through a smartphone, giving practitioners a sense of whether this approach is sufficient or whether the patient needs to be referred for more traditional evaluation.

E-health may also affect behavioral health, a long-neglected component of the US healthcare system. It is often the root cause of many chronic diseases such as obesity, diabetes, alcoholism, opioid addiction, and smoking. E-health platforms provide convenient, low-cost colocation services (primary specialty care integrated with complementary care) that promote the effective treatment of chronic diseases.

With the persistent geographic maldistribution of physicians, APN, and physician assistants, e-health can provide an alternative source of qualified healthcare practitioners in rural and inner-city areas. The distribution of healthcare personnel will never be even, but e-health platforms provide a way of leveling the field so that everyone can access less costly, more convenient care, with any kind of medical or surgical specialist, at any time, from anywhere.

PUTTING IT ALL TOGETHER: MAKING THE TRANSITION FROM FEE-FOR-SERVICE TO RISK-BASED CONTRACTING

As mentioned earlier in this chapter, fee-for-service reimbursement is incompatible with a fully operative population health program. When a healthcare system successfully implements a population health program, costly care events decrease—because inpatient admissions, elective procedures, inpatient ancillary services, ED visits, and physicians’ office visits all decrease. Such a paradigm shift in the model of clinical care requires a significantly different business model.

Many alternative payment models are, in effect, fee-for-service with a lower cost structure. These include the following:

- Pay for performance (top-decile performers subsidized by bottom-decile performers, based on performance metrics)
- Shared savings
- Bundled-payment programs for defined episodes of care (e.g., orthopedic, cardiac, and cancer service lines involving discrete procedures that meet quality metrics and reduce the cost of care)

These models promote lower costs, more standardized care, and adherence to quality metrics. However, they still fundamentally incentivize

volume-based care, particularly with regard to high-margin elective procedures and high-cost therapies (e.g., chemotherapy).

What health systems truly need is some form of risk-based, capitated (per member per month), or global payment option that rewards the maintenance of health, prevention of disease, and provision of cost-effective interventions with positive outcomes. This transition will be difficult—it involves the transformation of a \$3.2 trillion industry into a very different clinical and business model. Payers are beginning to make the adjustment through value-based at-risk contracts, large employers are creating significant incentives for employees to become more engaged in managing their own healthcare costs and outcomes, and many healthcare organizations are committed to making this change over a defined period.

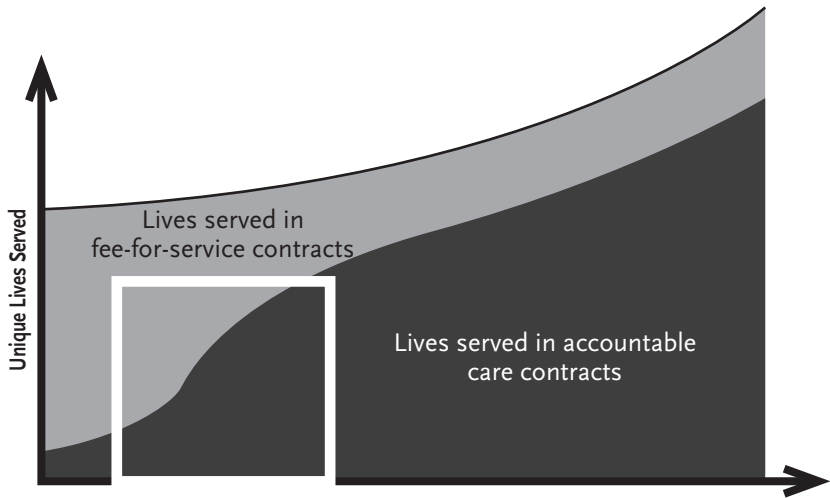
David Pate, president and CEO of St. Luke's Health System, calls this transition the *yellow box*. His conception of it looks something like exhibit 11.8. The graph shows that fee-for-service will probably not disappear altogether. Rather, it will likely become an increasingly minor form of contracting compared with at-risk contracts that are based on defined healthcare outcomes and costs.

The transition requires a thoughtful strategic plan aligning transformation of the clinical care model with the business model so that a sustainable margin can be made throughout this time frame. But putting it all together requires a multistep process.

Step 1: Align All Key Facilities and Practitioners

The foundation for any transformational change in a healthcare system is complete alignment with facilities and practitioners who are willing to work with the organization to make the transition. Those who can't or won't make the transition cannot be aligned with this effort but can continue to contribute to the system in a

Exhibit 11.8: The Yellow Box



more individualized way, as long as they do not undermine the organization's effort or outcomes.

As mentioned earlier, at-risk contracts require clinical and business analytics to provide real-time, role-based information to both track and monitor individual and aggregate performance. These analytics are essential in any aligned relationship, whether between a healthcare system and an individual or a healthcare system and other aligned facilities.

Step 2: Build the Integrated Network Together

Each person or facility in a network brings a unique perspective and expertise to the table, and organizations that take advantage of the diverse talents within any integrated network will build more functional systems. Every system component should add both clinical and operational value to the system as a whole.

Step 3: Focus on Opportunities to Lower Cost Structure First

As covered in chapter 10, working with a physician–management collaboration to lower the labor and supply chain ratios is an obvious way for healthcare organizations to lower their cost structure. Doing so effectively can build a capital reserve that is necessary for investment in a population health infrastructure. Other significant opportunities include the transfer of care from high-cost venues (e.g., EDs, primary care clinics) to low-cost venues (e.g., retail medicine outlets, e-health visits) where appropriate. Again, these efforts are possible with traditional silos, but they work more effectively with aligned relationships that promote mutual clinical and business success.

Step 4: Focus on Palliative Care and Inpatient Disease Management

This step is listed first for the population health initiatives as it focuses on the top 1 percent of covered lives that make up 23 percent of costs. Improving both services will provide the most immediate and greatest cost reductions with the least amount of investment and effort. As Geisinger Health (Danville, Pennsylvania) has demonstrated, initiatives that focus on patients with the greatest risk, cost, and acuity provide the quickest return on investment. Healthy individuals with minor chronic conditions often take the longest to produce any return, if at all. Therefore, within either a capitated model or a traditional fee-for-service model, palliative care and inpatient disease management will improve margins significantly, regardless of the payment methodology.

Step 5: Build New Sources of Revenue

Any margin improvement program will ultimately fail if the sole focus is on lowering costs. Long-term margin can only be sustained

with revenue growth, and healthcare has abundant opportunities to do so, such as e-health solutions, retail medicine, direct-to-employer contracting, and innovative reimbursement models designed to increase revenues and lower costs (e.g., bundled-payment models). Revenue growth is the engine that fuels every enterprise, and without it, waste-reduction programs (e.g., Lean, Six Sigma) will never realize their full potential. However, recall that effective population health programs for post-acute care may undermine inpatient volume and revenues. Healthcare must find new areas of growth to compensate for this loss and to fund transformation.

Step 6: Develop an Infrastructure for Ambulatory Population Health

Building a population health infrastructure should not be pursued seriously until an organization has an exit strategy for most fee-for-service contracts—effective post-acute care programs will cut deeply into pay-for-volume revenues. Careful coordination between clinical and contracting units must be maintained so that the transition can be appropriately synchronized. Many organizations attempt to balance avoidance of readmission penalties (3 percent of Medicare Part A funds) with maintenance of volumes, and now that pay-for-value contracts have emerged, this balance is ultimately unsustainable. Effective post-acute care, retail medicine, and e-health will significantly lower inpatient, ED, and physicians' office volumes. The shift must be planned so that the organization can be paid to avoid these cost centers in favor of optimizing health.

Step 7: Exit Fee-for-Service Last

As mentioned earlier in the chapter, no organization will eliminate fee-for-service contracts. However, they will not be the dominant payment model in the twenty-first century. Organizations that linger

in fee-for-service arrangements will see their margins erode as most payers move to more profitable models. Thus, change should not be done for its own sake but for the betterment of clinical outcomes and business margins.

CONCLUSION

Population health will become the dominant care and business model of the twenty-first century because it represents the rationalization and more effective distribution of increasingly scarce resources. The model directs resources to those with the greatest needs (and costs), lowering the cost of the entire system while focusing on the optimization of outcomes. The traditional, one-size-fits-all model deprived the sickest minority of resources and gave the healthy majority too much, so rightsizing our industry will provide better performance at a far lower cost for all. Reimbursement methodologies that support preventive measures, lifelong health maintenance, and early interventions for life-threatening conditions and that eliminate wasteful or non-value-added services will support healthcare organizations in their move toward fulfilling their mission to optimize healthcare and not merely treat injury and disease.

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