Webinar 3 Issue Brief:
Clinical Imperatives of Population Health Management

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Preface

Governance and leadership teams of California’s hospitals and health systems must have the knowledge and skills needed to succeed under population health management (PHM). To help ensure success, California Hospital Association, in collaboration with Kaufman, Hall & Associates, LLC, is offering this five-part program titled “Population Health Management.” The program provides participants with an understanding of the key components of PHM. Each module features an Issue Brief and webinar for executives and professionals in a wide range of organizations.

This is the third Issue Brief and associated webinar in a five-part series. This module addresses three key clinical imperatives that should be considered when implementing PHM strategies. Other modules address a framework for the pursuit of PHM, business imperatives, technology requirements, and leadership and talent considerations.

For additional information about the program visit www.calhospital.org/population-health-web or contact the CHA Education Department at (916) 552-7637 or education@calhospital.org.

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“PHM encompasses the identification and surveillance of individuals at risk of developing disease or those with chronic diseases, and includes interventions in early disease stages to improve health outcomes and reduce costs.”

Anne McLeod
Senior Vice President, Health Policy and Innovation
California Hospital Association
Webinar 3 Issue Brief: **Clinical Imperatives of Population Health Management**

**Introduction**

The first two webinars in this series and their accompanying Issue Briefs provided a framework for population health management (PHM) and described five of PHM’s broad business imperatives — physician and clinical alignment, contracting strategy, network optimization, operational efficiency and enabling infrastructure.

Due to its importance, this Issue Brief addresses the sixth business imperative, focusing specifically on clinical aspects of managing population health.

The clinically oriented definition of PHM suggests specific essential functions of clinical management:

- PHM considers “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.”
- PHM encompasses the identification and surveillance of individuals at risk of developing disease or those with chronic diseases, and interventions in early disease stages to improve health outcomes and reduce costs by preventing illness or slowing progression of chronic illness to acute stages.

For hospitals and health systems, payers and other health care stakeholders, a group of individuals can be described as a patient population whose care has been attributed to an organization through contractual arrangements that define the services to be provided, the associated financial remuneration and other specifics. In the PHM model described in the Webinar 2 Issue Brief, the organization typically is working within a network of health care providers who are responsible for maximizing access, care quality and health outcomes for the patient population, while minimizing service delivery costs.

The role and scope of risk assumed by an organization in managing care influences the depth and breadth of required clinical capabilities. For example, as described in the Webinar 1 Issue Brief, a contracted participant may provide a single clinical service (such as organ transplants) to a broad or small group of patients, while a population health manager may assume clinical responsibility for a full continuum of services, which are provided either directly or through contracting arrangements.

Three clinical imperatives apply to all hospitals and health systems, regardless of the role they assume in PHM. Their overall goal is to provide patients with the right care in the right place with improved quality and lower costs.

>“Three clinical imperatives apply to all hospitals and health systems, whatever role they assume in PHM. Their overall goal is to provide patients with the right care in the right place with improved quality and lower costs.”
As illustrated in Figure 1 and the focus of this Issue Brief, the three clinical imperatives are as follows:

1. **Identify, stratify and prioritize the patient population along the health-risk continuum**
   
   The top arrow and the gray boxes beneath it describe the risk categories for a population’s health, moving from healthy on the left to critically ill on the right. These are the general categories around which organizations will be identifying, stratifying and prioritizing the patient population for which they are responsible.

2. **Develop and implement interventions to improve health, access and outcomes, and to reduce costs**
   
   The light blue section identifies common interventions across the risk continuum, from outreach to patients that occurs in all risk categories, to end-of-life care that occurs for critical-risk patients. As depicted by the thin black arrow, interventions can occur through virtual approaches (such as email, telephone, video, mobile/app-based and others) and/or in physical settings (such as hospitals, clinics, physician offices and other bricks-and-mortar sites).

3. **Evaluate and refine the approaches and interventions**
   
   The orange section identifies common benefits and outcomes of health/health care programs or interventions. These generally represent the measures of success (or not) against which many interventions will be evaluated and refined for continuously improved performance in meeting defined goals.

Voluminous material has been published in professional literature on building healthy communities through specific health care interventions. To bring a few to life, three case studies are included that illustrate innovative approaches to PHM occurring in California health care organizations.
Imperative 1. Patient Identification, Stratification and Prioritization

To manage a population’s health, hospitals and health systems must identify, quantify and assess the health status of their attributed patient base in the community. Figure 2 identifies the key question asked with each process subsequently addressed.

**FIGURE 2: Key Questions for Identification, Stratification and Prioritization of Patient Populations**

Identification

The population health effort for all organizations rests first on a thorough understanding of the population(s) to be served and the continuum of services to be provided.

Historically, hospitals have defined their service area based on the origin of the patients served in their inpatient facilities. As population health evolves, hospitals will assume a broader role in the care of patients across the full continuum of care sites (or a portion thereof) in a region. A provider’s service area and patient population will be defined by the size and scope of the organization’s primary care network and the number of individuals attributed to that network, as described on page 6 of the Webinar 2 Issue Brief.

Current or future value/PHM contracting arrangements quantify the number of patients attributed to a health care organization’s defined network or a portion of that network. Such arrangements provide the basis for understanding the network’s overall essentiality and relevance across different populations and payer segments. Thus, while historical definitions of service area will be relevant to inpatient hospital market performance, network size and scope (especially the physician network) will inform the full definition of the patient population and services provided within a geographic area.

“As population health evolves, hospitals will assume a broader role in the care of patients across the full continuum of care sites (or a portion thereof) in a region. A provider’s service area and patient population will be defined by the size and scope of the organization’s primary care network and the number of individuals attributed to that network.”
Figure 3 provides an example of an academic medical center’s primary care-attributed population, including a total of 250,000 patients covered by both fee-for-service and capitated arrangements.

**FIGURE 3: Attributed Population for a Sample Academic Medical Center**

<table>
<thead>
<tr>
<th>Commercial PPO ACO (Shared Savings)</th>
<th>Medicare MSSP ACO (Shared Savings)</th>
<th>Medicare Advantage (Capitation)</th>
<th>Commercial HMO (Capitation)</th>
<th>Employer Sponsored (FFS)</th>
<th>Other Attributed (FFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,000 lives</td>
<td>25,000 lives</td>
<td>9,000 lives</td>
<td>45,000 lives</td>
<td>60,000 lives</td>
<td>93,000 lives</td>
</tr>
</tbody>
</table>

Source: Kaufman, Hall & Associates, LLC

**Stratification**

The next step is to understand the health and care needs of the patient population overall and, as feasible, as covered under specific contracting arrangements. For example, the average Medicare Advantage beneficiary has a higher health-risk profile and more care and coordination needs than individuals who receive care under commercial insurance provided by their employer. Utilization data related to specific service needs will be helpful, as will information on the general health status and more specific epidemiology of the patient population. Clinical aspects to consider also include diagnoses, procedures, and pharmacy and laboratory data. Without this information, organizations would find it very challenging to determine and target the appropriate strategies and interventions to use to manage the health of the relevant population.

“Digging into” the user/customer population to understand the best strategies for meeting a segment’s needs is not a new concept to health care. Clearly, integrated delivery systems with an early PHM value proposition, such as Kaiser Permanente in California and Intermountain Healthcare in Utah, have been focused on this competency for years.

Segmentation or risk stratification should create a finite number of categories (six to eight is typical) and each category should be materially different from the others. Risk stratification by health status systematically identifies individual patients and plans in order to coordinate their care based on individual needs and on evidence-based guidelines. The overall goal is to identify high-risk or complex patients whose care planning and management requires specific focus due to their high resource use and high “disease burden” or morbidity (defined as illnesses in a defined period) and mortality (defined as deaths in a defined period).

“The overall goal is to identify high-risk or complex patients whose care planning and management requires specific focus due to their high resource use and high ‘disease burden’ or morbidity (defined as illnesses in a defined period) and mortality (defined as deaths in a defined period).”
Different entities define different health-risk status categories, but for the purpose of this publication, Figure 1 (page 3) shows the categories as adapted from those of the American Academy of Family Physicians:

- Healthy: no known diagnoses or complex treatments
- At-risk: no known diagnoses, but at risk for a chronic disease, showing warning signs or having significant risk factors
- Stable: has one or more chronic diseases, but stabilized or in control
- Chronic simple: has one or more chronic diseases, significant risk factors and is unstable
- Chronic complex: has multiple chronic diseases, significant risk factors and/or complex treatment
- Critical: has catastrophic or complex chronic disease condition(s) in which his/her health may not be restorable

Identification criteria for classification of patients into these risk categories include multiple comorbidities, frequent hospitalizations and visits for urgent and emergent care, high level of medication use and/or laboratory studies and/or imaging procedures, noncompliance with prescribed treatments and medications, terminal illness, and psychosocial status that negatively affects health status and health care, among others.

Organizations also will need to consider the current “non-user” population with no history of physician, clinic or hospital visits. This cohort could be at any stage of the health-risk continuum, but, when in need of care, typically is significantly ill and accesses hospital emergency departments (EDs) for care.

Covered California and expanded Medi-Cal are reducing the non-user uninsured population in California, but, due to longtime lack of insurance and still-limited access to primary care practitioners, many of the newly insured are seeking care at hospital EDs, causing a spike in ED use. A recent study found that EDs in California are providing significantly increasing amounts of care for complex emergencies related to chronic conditions and infections, and decreasing amounts of care for injury-related diagnoses. Additionally, the number of patients presenting in the ED with mental health conditions experienced large growth during the past decade, as did overall chronic comorbidities and case-mix index.

As a result of resource consumption, data for this newly insured cohort are now available for stratification in the health-risk categories previously identified.

Clinical input is essential at this juncture to begin to arrange those “health-related states” or conditions in a hierarchy for attention. Knowledge of the epidemiology of the patient population can help inform stratification, prioritization and development of preventive interventions. Epidemiology is “the study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems.”

Prioritization of interventions in the public health community commonly is based on:

- Incidence: the rate of newly diagnosed cases of a disease
- Prevalence: the number of cases of disease existing in a population
- Impact on long-term health
- Preventability
- Availability of effective resources to improve patient conditions

Data available from the California HealthCare Foundation indicate that the prevalence of chronic conditions statewide is 27.2 percent for high blood pressure (7.6 million residents), 8.4 percent for diabetes (2.3 million), 7.9 percent for serious psychological distress (2.2 million), 7.7 percent for asthma (2.1 million) and 6.3 percent for heart disease (1.8 million).
Figure 4 offers a look at the number of chronic conditions in the adult population by region.

**FIGURE 4: Chronic Conditions Among Adults, by Region in California**

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Adult Population</th>
<th>Number/Percentage</th>
<th>Number/Percentage</th>
<th>Number/Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>27,796,000</td>
<td>16,447,000</td>
<td>59.2%</td>
<td>8,187,000</td>
</tr>
<tr>
<td>Northern and Sierra</td>
<td>1,064,000</td>
<td>584,300</td>
<td>54.9%</td>
<td>323,500</td>
</tr>
<tr>
<td>Greater Bay Area</td>
<td>5,543,000</td>
<td>3,322,900</td>
<td>60.0%</td>
<td>1,644,200</td>
</tr>
<tr>
<td>Sacramento Area</td>
<td>1,620,000</td>
<td>951,000</td>
<td>58.7%</td>
<td>469,400</td>
</tr>
<tr>
<td>San Joaquin Valley</td>
<td>2,740,000</td>
<td>1,481,400</td>
<td>54.1%</td>
<td>56,400</td>
</tr>
<tr>
<td>Central Coast</td>
<td>1,658,000</td>
<td>1,018,400</td>
<td>61.4%</td>
<td>477,000</td>
</tr>
<tr>
<td>Los Angeles County</td>
<td>7,402,000</td>
<td>4,469,400</td>
<td>60.4%</td>
<td>2,106,000</td>
</tr>
<tr>
<td>Orange County</td>
<td>2,305,000</td>
<td>1,437,700</td>
<td>64.0%</td>
<td>515,000</td>
</tr>
<tr>
<td>Inland Empire</td>
<td>3,030,000</td>
<td>1,663,000</td>
<td>54.9%</td>
<td>970,000</td>
</tr>
<tr>
<td>San Diego Area</td>
<td>2,435,000</td>
<td>1,482,700</td>
<td>60.9%</td>
<td>725,000</td>
</tr>
</tbody>
</table>


Figure 5 provides California and national data on the prevalence of chronic conditions in the Medicare population. These data are helpful for overview purposes, but data specific to hospitals and health systems are also needed.

**FIGURE 5: Medicare Chronic Conditions Dashboard: California and National**

Prioritization

For prioritization purposes, hospitals and health systems should access different types of data from many different sources.

For data on its own patient populations, a hospital’s “care management platform” (to be described fully in Webinar 4 on Technology for Population Health Management) is built on technology that can deliver the analytics for the patient identification, stratification and prioritization processes. Such technology can separate the population segments into strata based on specified criteria such as age, socioeconomic status, medical conditions, predictive modeling elements (i.e., number of comorbidities), cost/utilization, insurance coverage, behavioral elements and other factors.

An organization’s own administrative, clinical, utilization, insurance network, pharmacy, patient, provider and financial data, among others, provide a starting point. Access to certain specific data for commercially insured populations may be more difficult to obtain in some instances, but under value-based arrangements, payers should be increasingly willing to provide data to contracting organizations.

Prioritization based on PHM opportunity and the organization’s capabilities is essential. Hospitals and health systems should bring the Pareto principle, or “80/20 rule,” to bear in this exercise. This rule holds that in most organizations, 20 percent of the population consumes 80 percent of its health resources. This population can be identified based on data such as hospital admissions and readmissions for ambulatory care-sensitive conditions (ACSCs) — defined as those that would not have occurred if proper care had been provided in the home or outpatient setting — duration and overall cost of care, emergency department and ambulatory visits, and other information.

Almost certainly, the bulk of this population will be individuals covered by Medicare and Medi-Cal. The highest 5 to 6 percent of users among the 12 million Medi-Cal members are estimated to consume 45-55 percent of total expenditures (Figure 6). Individuals with mental health conditions are very common among the highest-cost populations. All types of mental health illness had a treatment prevalence of 59 percent among the 5 percent most costly Medi-Cal patients.

**FIGURE 6: Medi-Cal Population Health Care Expenditure Pyramid**

| Tier 5: Persons with multiple severe, complex or otherwise devastating conditions; typically about 1 percent of the population and 20-25 percent of the total expenditures |
| Tier 4: Persons with multiple serious, chronic conditions, with or without one or more dominant severe conditions; typically 4-5 percent of the population and 25-30 percent of total expenditures |
| Tier 3: Persons with multiple chronic conditions or one dominant severe chronic condition; typically 10-15 percent of the population and 15-20 percent of total expenditures |
| Tier 2: Minor chronic conditions; typically about 30 percent of the population and approximately 25 percent of total expenditures |
| Tier 1: Generally healthy persons having acute illnesses or injuries; typically about 50 percent of the population and approximately 3 percent of total expenditures |

Note: The size of the pieces within the triangle represents each tier’s approximate proportions of the total population.

When organizations analyze the top 5 percent of users (the “critical” patients), a picture typically begins to emerge of potential causative factors, some controllable for the organization and some not. For example, ineffective care management education, as exemplified by frequent readmissions for uncontrolled diabetes, can be reduced by hospitals while socioeconomic issues, such as homelessness, are much more difficult to address.

Developing focused PHM strategies for that top 5 percent will be important, but so will the value of being able to predict those at risk of becoming the next 5 percent. With awareness of causative factors, interventions can be applied to population segments at lower positions on the risk spectrum, as appropriate. Populations with chronic diseases are at greatest risk of moving up the health-risk spectrum. PHM strategies aim to slow or reverse this momentum.

Predictive analytics cannot be accomplished by leveraging traditional data sources used for planning. Such sources do not have the patient-level detail, organizational specificity and timeliness that will enable an organization to develop actionable insights and deliver meaningful PHM strategies to attributed populations. Expanded data and advanced analytics capabilities are required to develop, drive and measure the clinical interventions. Data set size and data integration capabilities through common definitions and mapping will be significant hurdles, but organizations cannot wait for everything to come together perfectly. They need to start somewhere.

Given priority PHM opportunities with high-risk patients, providers will need to leverage the data flowing through the organization. Sources include clinical information from the health system’s electronic medical records (EMRs) and affiliated providers’ EMRs, billing and cost accounting data, and outcomes and patient experience information. Claims and consumer profile data can enhance the picture. Two key themes from a panel convened by the Department of Health and Human Services to discuss challenges in identifying and stratifying high-risk patient populations with multiple chronic conditions were as follows:

- No approach/algorithm will be perfect — start simple with available data and build on the model over time
- Work with willing partners to exchange data and add more clinically relevant and complete data

Many organizations have a more complete data set for their own self-insured employee population, so they commonly start with this population and expand learnings to other segments over time.

“Predictive analytics cannot be accomplished by leveraging traditional data sources used for planning. Such sources do not have the patient-level detail, organizational specificity and timeliness that will enable an organization to develop actionable insights and deliver meaningful PHM strategies to attributed populations. Expanded data and advanced analytics capabilities are required to develop, drive and measure the clinical interventions.”
I. Imperative 2. Develop and Implement Interventions to Improve Health, Access and Outcomes, and Reduce Costs

Prior to describing specific interventions, this section begins with brief discussions of selected issues related to PHM interventions, including:

- Mindset and culture change
- Evolution of care settings and the role of technology
- Consumer engagement
- Collaborative practice models and evidence-based medicine
- Provider types
- The need for parity of mental and physical PHM interventions

**Key Issues Related to PHM Interventions**

**Mindset and Culture Change**

For many executives, trustees, clinicians and non-clinical staff, attitudinal or cultural change will be required to recognize the organization’s new clinical direction — from acute care treatment to proactive prevention and treatment across the acuity spectrum.

A persistent population health outlook recognizes the following:

- Hospitals, health care systems, physicians and other health care providers must work collaboratively to develop new systems to track and manage the care of patients, particularly those with chronic illness
- Health care organizations must operate as efficiently as possible in providing evidence-based services
- Evidence-based services should be provided to all patients regardless of the payer or payer agreements
- In risk arrangements, utilization creates expense, not revenue; hospitals and health care systems become viewed as cost centers

Health care organizations that learn how to operate with a population health mindset will gain critical experience that provides strategic flexibility over time as markets and stakeholders change. The process will be neither quick nor easy, so commitment to the long haul is vital. A significant amount of time and sharp attention to the redesign of care processes are needed to provide the necessary interventions at an earlier phase in the “health care value chain.”
Figure 7 indicates essential differences in the volume-based episodic case management approach to care delivery versus the more longitudinal care coordination and predictive PHM approaches.

Initial investments will be considerable and efficiencies will not be immediate. But it is far better to lead change than to await its impact. The Webinar 5 Issue Brief will address leadership considerations in accomplishing this change.

**FIGURE 7: A Comparison of Three Approaches to Care Delivery**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Case Management</th>
<th>Care Coordination</th>
<th>Population Health Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contain costs</td>
<td>Facilitate</td>
<td>Maintain health, minimize illness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>access/deliver value</td>
<td></td>
</tr>
<tr>
<td>Target Population</td>
<td>High-cost/high-use patients</td>
<td>High-risk populations</td>
<td>At-risk populations</td>
</tr>
<tr>
<td>Tactical Approach</td>
<td>Prior authorization</td>
<td>Problem solving and process improvement</td>
<td>Prevention of acute illness</td>
</tr>
<tr>
<td>Mindset</td>
<td>Episodic</td>
<td>Longitudinal</td>
<td>Predictive</td>
</tr>
<tr>
<td>Setting</td>
<td>Within a single organization providing medical care</td>
<td>Across various organizations/providers providing care</td>
<td>In the community/home</td>
</tr>
</tbody>
</table>

Source: Kaufman, Hall & Associates, LLC

**Care Setting and Technology**

To provide improved access, quality and outcomes at lower cost, the value-based PHM model will shift much of the “action” for services across the acuity spectrum from traditional inpatient facilities to ambulatory and community settings, homes or “anywhere care” — i.e., virtual or mobile (Figure 8).

**FIGURE 8: Health Care Disrupted: From Inpatient-Centric Care to Anywhere Care**

Source: Kaufman, Hall & Associates, LLC
As depicted by the thin black arrow in Figure 1 (page 3), interventions for patients in many health-risk categories are likely to make use of virtual/telehealth technology as well as bricks-and-mortar facilities. Some interventions may continue to be facility-based; others will use both facilities and virtual approaches; still others may be entirely virtual based on potential or proven effectiveness and cost savings.

For example, beginning in April 2012, California Public Employees’ Retirement System (CalPERS) offered telehealth as a covered benefit with no copayment to the approximately 300,000 members enrolled in its Blue Shield of California HMO. During the first year of providing this benefit, the telehealth provider was able to expand access to patients not connected to other providers before (the non-user population) by offering $38 “visits” for a broad range of diagnostic categories, from acute respiratory conditions to skin problems. The results of this intervention indicated that patients who used the telehealth provider were less likely to have a follow-up visit in any setting (a rough proxy for clinical resolution of the treated condition), compared to patients who visited a physician’s office or ED.\(^9\)

Kaiser Permanente has been a leader for many years in the provision of virtual services. Kaiser Permanente Northern California had 10.5 million virtual visits in 2013 through secure email, telephone, or video, and expects virtual visits to surpass the number of in-person office visits by 2016.\(^10\)

Telehealth applications extend to community and rural hospitals, which enables them to benefit from coverage that would be prohibitively expensive otherwise. For example, teleICU provides full-time coverage by intensivists at Dignity Health’s Woodland Memorial Hospital, a 108-bed community medical center in Woodland, Calif. Teleintensivists monitor ICU patients and “meet” to discuss all cases with hospital staff via video-audio connection twice daily.\(^11\)

Most states, including California, permit physician-to-physician consultations without requiring the consulting physician to be licensed in the same state as the physician with whom he/she is consulting.\(^12\) California is among about one-half of those states with no restrictions on the frequency of such consultations. According to a state telemedicine gap analysis by the American Telemedicine Association, California allows establishment of physician-patient relationships via telehealth technologies, but is one of 26 states and the District of Columbia that have room for improvement in their policy landscape that accommodates telemedicine adoption and usage.\(^13\)

“To provide improved access, quality and outcomes at lower cost, the value-based PHM model will shift much of the ‘action’ for services across the acuity spectrum from traditional inpatient facilities to ambulatory and community settings, homes or ‘anywhere care’ — i.e., virtual or mobile.”
Consumer Engagement

A new generation of consumers expects to use virtual and physical services in an integrated way. Looking for a seamless digital-physical experience, these consumers will access services from organizations that relate to them through mechanisms that are comfortable and convenient.

Multichannel health care offerings by hospitals and health systems will be necessary, with consumer access points including web, mobile, telephone and email, in addition to inpatient and ambulatory facilities. Proactive consumer-driven organizations will have a diverse complement of services distributed over a broad geography. Care coordination and timely provision of information will be important to consumer satisfaction and loyalty.

One size will not fit all, especially given generational differences in the way people consume information. Retail companies, such as Walgreens, have extensive experience in probing consumer behavior and market segmentation. Similar research will enable health care organizations to understand what drives consumer behaviors and decision-making in their markets.

Beyond access, organizations will need to strengthen linkages in the patient/consumer experience. Untapped potential exists for relationship management as the mechanism by which health care organizations build and retain “stickiness” with consumers going forward.

“Our most important asset is our relationships. Can we foster relationships in which people feel known, cared for, and that their priorities are understood?” asks Atul Gawande, MD, MPH, surgeon, author, and professor with the Harvard School of Public Health and Harvard Medical School. “The competitive space is not going to be just technologies, but whether we have teams of people that feel invested in being part of those teams, and in developing the relationships that matter so much.”

“Beyond access, organizations will need to strengthen linkages in the patient/consumer experience. Untapped potential exists for relationship management as the mechanism by which health care organizations build and retain stickiness with consumers going forward.”
Hospitals and physician organizations should assess whether their current patient/physician relationships are more “transactional” than relational. Transactional interactions are not uncommon due to physician practice preferences for patient coverage by other physicians, particularly with hospitalizations. Hospitalized patients may be cared for by a number of providers beyond their primary physician, including other members of their physician’s group practice, hospitalists and other clinicians. In addition, the physician-patient encounter time is shrinking under the revenue pressure for physicians to see more patients, making communication and coordination that much more difficult.

Physician-patient relationships are likely to be present and stronger with a medical home model, particularly with high-risk patients. Strong relationships should be the goal of providing care to attributed patient populations under value-based PHM arrangements.

Collaborative Practice Models
Team-based models of care are no longer nice to have, but are must-have components of value-based care delivery. Today, dozens of people and clinicians are needed to make care successful. Teams commonly include a wide range of practitioners, including nurses, pharmacists and social workers, as well as pastoral, mental health, medical, surgical and other professionals.

Aggregating different specialists and other clinicians and calling it a team doesn’t suffice. Collaborative and team-based approaches require time and investment in culture change, education, team training, and care redesign. Payment must incentivize the collaborative approach. At this point, some capitated arrangements with high-risk patients, such as that described on page 29 with Sharp HealthCare’s Transitions Program, provide the best examples of the proper alignment of payment and team-based care delivery.

Evidence-Based Medicine
High-performing hospitals and health systems focus on standardization, and their clinicians use evidence-based practices to close gaps in care across their patient populations. Evidence-based care is based on the best available scientific evidence of appropriateness and effectiveness. Providers across the continuum of services must agree on a set of science-based standards and protocols for care of a given population. And they must understand and agree on the evidence-based quality and financial metrics used as incentives with performance-based contracts.

Provider Types
The growing need for coordinated care and rapid technological advances is enabling a larger role for non-physician team members, including nurses, physician’s assistants (PAs), pharmacists and others.

In a seminal 2011 report, the Institute of Medicine called for nurses to practice to the full extent of their education and training, and recommended removing scope-of-practice barriers that prevent such practice:

“Nurses have the opportunity to play a central role in transforming the health care system to create a more accessible, high-quality, and value-driven environment for patients. If the system is to capitalize on this opportunity, however, the constraints of outdated policies, regulations, and cultural barriers, including those related to scope of practice, will have to be lifted, most notably for advanced practice registered nurses.”

Four years later, progress is being made in this regard. Nurse practitioners (NPs), one of numerous types of advance practice nurses, are staffing primary care clinics, urgent care centers and other outpatient facilities — and directing such facilities in some of the 20 states and the District of Columbia that permit them full independent practice rights. California is not one such state. Empowered by “store and forward” telemedicine models that use asynchronous interactions between providers and patients, advance practice nurses make diagnoses, develop a treatment plan and send a prescription if needed. Nurse specialists, such as certified nurse midwives, manage care for specific patient populations during care episodes or longitudinally.
Pharmacists’ roles also are changing nationwide to include the provision of direct patient care. This is particularly significant to a key PHM goal — medication management therapy for patients with chronic diseases. California Senate Bill 493, signed into law in 2013, allows pharmacists to practice more independently as providers, and gives them expanded scope of practice in disease prevention. It also creates a new licensed category of Advanced Practice Pharmacist, which allows qualifying pharmacists to perform patient assessments, refer patients to other health care providers, and participate in the evaluation and management of diseases and conditions, among other responsibilities.

New roles specific to population health objectives are emerging. For example, UCLA now has more than 20 “care coordinators” in its ambulatory primary-care practices to help patients with their primary care and disease management needs. The overall goals are to improve patient outcomes and prevent more expensive downstream utilization in EDs and hospitals.

Parity in Addressing Mental and Physical Health
As previously cited, mental health issues pervade high-risk patient populations, driving significant suffering, utilization and costs. According to a new report on the state of mental health in the U.S., California ranks 13th of 50 states plus the District of Columbia on total number of adults with any mental illness (4.9 million), and 26th on adult dependence or abuse of illicit drugs or alcohol (approximately 2.5 million). California's ranking is 15th of 50 states plus the District of Columbia on readmissions, with a state hospital 180-day readmission rate of 11.9 percent and a median length of stay of 150 days with an average of 32 readmissions.

These data “speak volumes.” Hospitals and health systems should target and treat PHM-focused behavioral health interventions with close attention to parity with physical health interventions.

The American Hospital Association’s Recommendations to Address Mental Health Needs in Your Communities

- Ensure that assessments of the health needs and resources in the community include specific attention to behavioral illness.
- Review and evaluate the organization’s behavioral plan in light of identified community needs, patient needs and available community resources.
- Use a comprehensive financial and operational assessment to evaluate the benefits and value of behavioral health services to all operational components of the hospital.
- Encourage and participate in developing a community-wide plan for people with behavioral health disorders and in coordinating community agencies that address behavioral health needs.
- Work with community agencies and with state and local governments to ensure that patients are treated in the most appropriate setting so that the hospital's backstop role is appropriately limited.
- Create a formal plan that clearly defines the hospital's role and its established relationships for behavioral health with other providers, practitioners, and government and community agencies.
- Clearly communicate to public and private payers the costs required to care for behavioral health patients and the cost to society of not treating those patients.

Health and Health Care Interventions

With the key PHM considerations just discussed in mind, and based on identification, stratification and prioritization of patient population segments, hospitals and health systems can develop clinical strategies to manage population health. The population health approach can be defined in terms of primary, secondary and tertiary prevention and interventions.25

Based on the risk categories previously described in the Identification, Stratification and Prioritization sections, the American Academy of Family Physicians identifies primary prevention efforts as appropriate for Healthy and At-Risk populations, secondary prevention initiatives as appropriate for Stable and Chronic Simple populations, and tertiary prevention efforts as appropriate for Chronic Complex and Critical populations.

Primary prevention would include education and advocacy in areas such as nutrition, the benefit of regular exercise, the untoward effects of tobacco, alcohol and substance abuse, as well as a focus on safety measures in the workplace, home and in leisure activities (for example, use of seatbelts when driving and helmets when bike riding). The encouragement of regular screening for certain illnesses such as breast and colon cancer, and the importance of childhood vaccinations would be included. Each area allows the organization to partner with existing agencies and entities, such as schools, employers, community physicians and public health organizations to deliver a consistent and effective message. Resource requirements are relatively low and effectiveness is gauged by measurable results, such as a decline in the number of unvaccinated children or lower tobacco use rates. Perhaps the greatest benefit of such involvement is that the public begins to view the organization as both involved and committed to a program of population health.

Secondary prevention would begin once a patient develops a particular illness or when significant risk factors are identified. Often, such patients receive expert treatment in the acute care environment and then return to the community with follow-up through a community physician or clinic. Care may be significantly compromised by the socioeconomic conditions in which the person lives, and certainly by age and the existence of associated chronic conditions. For a subset of patients, illnesses are recurrent and, due to inadequate resources, never appropriately managed. This leads to frequent hospital readmissions or ED visits. Appropriate ambulatory care management can be extremely beneficial and mitigate further episodes of illness.

Organizations should keep in mind that the race and ethnicity of most physicians does not mirror the minority communities they serve. Clinicians’ cultural sensitivity/compatibility will be extremely important in gaining trust and compliance in such communities. “In an ideal world, the race of the patient or physician wouldn’t matter; we would all treat each other strictly as individuals,” writes Damon Tweedy, MD, in a recent New York Times editorial. “But we’re quite a ways from reaching that exalted goal. For now, we have to attack the problem of racial health disparities from as many angles as possible. Black doctors are an important part of this mission.”26

Tertiary prevention focuses on the chronically ill or individuals who suffered an event that left them disabled and vulnerable to continued deterioration of their physical condition. Such patients include, for example, those with chronic obstructive pulmonary disease (COPD), diabetes, cognitive deterioration and continued malignant disease. This population also contains a subgroup that uses resources at a much higher rate than the population at-large and is unable to access necessary resources in a timely manner. Addressing the issue of palliative care is of particular importance, not only for those with terminal illnesses, but also when effective interventions are limited, such as in patients with chronic pain.
An organization embarking on a PHM program must include all three elements of prevention to be effective. It also must understand its capabilities and basic performance related to measures of clinical care, and the ability to improve it. Selected areas of clinical assessment are summarized below.

Execution of an effective PHM program would be difficult in the face of deficiencies in key metrics of safe and effective health care delivery. Efforts to improve problematic areas can occur while advancing a PHM strategy.

The sixth clinical assessment area in the list below is essential for a robust PHM strategy to collect and analyze data across the population served and define the effectiveness of current programs and interventions, make necessary adjustments and convey that information to those responsible for the both the administrative and clinical elements of the program. With respect to the issue of attributed lives, tracking of patient treatment is especially important in that such patients may receive care from any provider within or beyond the organization.

Descriptions follow of selected interventions shown on Figure 1 (page 3), with the caveat that no single publication could do justice to all the types of programs used in improving population health.

**Wellness/Prevention/Health Coaching**

Wellness and health coaching programs have been popular with employers, including hospitals. Some use incentives for employees to enroll and stay in a program, such as a discount on health insurance premiums or a higher level of coverage. Others may exert penalties for employees with poor health habits, such as smoking, or conditions, such as obesity, that may impact health status. A Rand Corporation study indicated that 50 percent of organizations with 50 or more employees have wellness programs.

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**Clinical Assessment Areas**

1. Attitudes about safety, including those from physicians, nurses, employees, administrators and board members

2. Incidence of adverse outcomes, such as medication errors, falls, nosocomial infections, surgical wound infections, sentinel events, decubitus ulcers and hospital readmissions

3. The extent to which evidence-based medicine is practiced within the organization

4. The extent to which procedures are standardized across the organization

5. Capabilities to track and correct adverse events in the ambulatory environment, and inappropriate or inadequate treatment leading to unnecessary readmissions or admission of individuals with ambulatory care sensitive conditions (ACSCs), such as uncontrolled diabetes or asthma

6. The extent to which the organization’s electronic medical record (EMR) allows rapid distribution to physicians and other clinicians of information necessary to advance safety and quality (e.g., alerts regarding abnormal laboratory or radiographic results, etc.)

*Source: Kaufman, Hall & Associates, LLC*
The components of wellness programs vary by employer, but types usually include lifestyle management approaches intended to reduce employees’ health risk, such as educational programs and telephonic coaching on healthy living habits, and disease management approaches, such as those to support employees in their management of a chronic disease or illness.28

For example, St. Joseph Hoag Health in Orange County offers employers “Wellness Corners,” which provide services spanning primary care, treatment of minor illnesses, lab services, fitness training, wellness coaching, sports physicals, nutrition counseling and stress management. Annette Walker, Executive Vice President of Strategic Services said, “We have a goal to have the community see us as their health partner, not their sick partner.”29 Typically operating between 8 a.m. – 5 p.m., the centers are staffed by an NP and medical assistant.

A wellness program with a track record — PepsiCo’s “Healthy Living” — found that seven years of continuous participation in the program’s disease management component returned nearly $4 for every $1 invested in the program when both health care cost reductions and reduced absenteeism impacts were included. The health care return on investment piece was mostly due to a 30 percent decline in hospital admissions. The lifestyle management component was not associated with a reduction in costs. The Rand Corporation study found statistically significant and clinically meaningful improvements among all types of wellness program participants in areas including exercise frequency, smoking behavior and weight control.30

Care Transitions
Hospitals and health systems nationwide are focusing on improving patient transitions following hospital discharge, whether to patients’ homes or to other care facilities/settings. The reasons to improve the discharge process include problems related to delayed transfer of discharge summaries, unknown test results, lack of follow-up by patients and confusion about medications.31 Patients may be cognitively impaired at discharge and often don’t remember details communicated by their physicians. Also, discharge instructions may be overly complex, particularly for those with low health literacy.32

Hundreds of articles in industry journals cover best practices or protocols for integrated care transitions that will help prevent hospital readmissions, better manage utilization and cost, and ensure patients are discharged to the right setting. Strategies include:

• Re-engineering the discharge process
• Improving discharge tools
• Enhanced communication/coordination with the patient, family and receiving facility
• Placing care-coordination professionals in post-acute care (PAC) facilities

“Hospitals and health systems nationwide are focusing on improving patient transitions following hospital discharge, whether to patients’ homes or to other care facilities/settings. The reasons to improve the discharge process include problems related to delayed transfer of discharge summaries, unknown test results, lack of follow-up by patients and confusion about medications.”
Some providers are using new clinical staff to enhance patient transitions. For example, one health system assigned “SNF-ists” to round two to three times per week with patients discharged to its 35 non-owned skilled-nursing facilities and owned and non-owned home health agencies in its PAC network. The system manages more than 30,000 Medicare Advantage lives and 120,000 Medicare accountable care organization lives. Early results are encouraging — average length of stay in the PAC facilities in 2014 was 17.3 days, significantly less than the average Medicare average length of stay of 27 days.33

The first of two case studies from Greater Newport Physicians (GNP) describes a post-discharge center. GNP is the Independent Physicians Association (IPA) that is an affiliate of MemorialCare Health System, an integrated delivery system in Southern California.

**Case Study: Special Care Center, Greater Newport Physicians**

Headquartered in Fountain Valley, GNP developed a multidisciplinary team approach to help senior patients transition to home safely following an inpatient stay.

**The Need**

GNP interviewed a sample of senior patients who were readmitted to hospitals within 30 days of discharge and identified recurrent issues including:34

- Patients and family members did not understand their disease processes or remember all of their discharge instructions
- The discharge medication list was not patient-friendly and/or was not consistently accurate
- Home services may not have been ordered or consistently provided
- Social factors may not have been recognized or addressed during the first hospitalization
- GNP primary care physicians were not always aware that their patients had been hospitalized
- Primary care physicians did not always have ample time to address all discharge issues

Additionally, the GNP hospitalist team that managed senior inpatients was not always confident that some of the higher-risk patients would be able to get in to see their primary care physician in a timely manner following discharge. Reasons included lack of available appointment times or patient transportation challenges. Without this timely physician follow-up, patient vulnerability to readmission would be higher. Diane Laird, founding CEO of GNP and MemorialCare’s Chief Strategy Officer, also noted the challenge of providing patients at discharge with test results, discharge plan information and education related to medication adherence and/or other high-risk issues before they returned to their primary care doctor.

**The Program**

To meet these needs, GNP created a centralized post-discharge clinic called the GNP Special Care Center (SCC). The SCC was staffed originally by a hospitalist, clinical pharmacist, nurse case manager, social worker and medical assistant.

At the time of discharge, an appointment for the patient and his/her family at the SCC is scheduled for two to three days following discharge. The patient is specifically instructed to bring all discharge information, the medication list and all bottles of medications, vitamins, herbal drugs and other over-the-counter products he/she takes. Patients are also encouraged to bring a family member or caregiver to the visit, as home support is an important factor to good outcomes.
The program is focused primarily on Medicare Advantage patients where the organization is at risk for institutional costs and, therefore, can justify an investment in these programs and realize the savings of providing better-coordinated, lower-cost care. While discharge planners are encouraged to refer all senior patients, certain categories of healthy patients receiving elective surgeries are not prioritized.

Even with this targeted approach, 40 percent of patients decline to schedule an appointment in the SCC. The primary reasons are the patient has transportation issues, was able to see his/her doctor within that time frame or doesn’t understand the value of the visit.

“Over time, we have learned that the message upon discharge needs to be that the SCC visit is part of our standard discharge process,” says Laird. “This has improved the number of patients keeping scheduled appointments.”

Patients who do not keep their appointment are automatically enrolled in the case management bridging program, which is centered on telephonic outreach to the patient who is contacted by a case manager. It is designed to assess the patient’s needs, close any outstanding issues and to further coordinate care back to the primary care physician.

Patients spend two hours for the SCC visit and are seen by each care team member, starting with the medical assistant and followed by the hospitalist, the pharmacist, and the nurse and social worker case managers.35 During the visit:

- The hospitalist reviews hospital stay history, past medical history, and outstanding lab and procedure results with the patient and family members. Patients receive individualized education.

- The pharmacist reconciles the hospital discharge medication list with the medications brought by the patient, looking specifically for duplications of therapy, omissions, drug interactions, cost and compliance issues. The pharmacist documents findings and creates a patient-friendly medication list for both the patient and the primary care physician.

- The nurse and social work case managers discuss and resolve medical equipment, home health, and as possible, social and emotional issues that may interfere with the patient’s recovery. Caregiver needs are also discussed.

- Follow-up primary care appointments and any needed specialist appointments are scheduled, and a composite team progress note is sent electronically to the patient’s primary care physician.

Kristi March, PharmD, BCPS, CDE, Manager of Clinical Pharmacy Ambulatory Care Services at GNP, describes the specific importance of the pharmacist’s role in transitions of care. She cites studies that show that in those patients who suffer an adverse event post-discharge, 66 percent of the events are drug-related, and nearly half of hospital-related medication errors are attributed to poor communication at transitions of care.37

To improve medication reconciliation, a website was designed for SCC pharmacists, enabling them to access pharmacy claims data, create an easy-to-read, legible medication list for the patient and track pharmacist interventions.

Dr. March describes an SCC example case of a 65-year old female patient with diagnoses of type 2 diabetes, hypertension, sleep apnea and gastroesophageal reflux disease. Her primary discharge diagnosis was atypical pneumonia. Sixteen discharge medications, including three new ones, were noted in the discharge summary along with pulmonary, endocrinology and cardiology specialist and primary care physician follow-up appointments. During the patient’s visit at SCC, depression was identified as an additional diagnosis and the patient received education in use of inhalers, and how to monitor glucose and inject insulin. The pharmacist updated the medications list, provided a copy to the patient and faxed a visit note to all physicians involved in follow-up.
The Results
Early intervention data for all SCC patients showed:

• A 68 percent discrepancy rate between the discharge medication list and what the patient was actually taking

• 25 percent of patients were taking medications to be avoided in the elderly

• Drug interactions were discovered in 17 percent of patient cases

• The pharmacist intervened in 51 percent of cases for high-risk medications, such as antiplatelets, anticoagulants, insulin and others

Managing the transition outcomes, experience and costs of patient care through the SCC has yielded impressive results. The 30-day readmission rate for seniors who go through the SCC has dropped to 7 percent from about 14 percent for patients not participating in the program. Overall patient satisfaction is rated 4.85 on a 5-point scale. The cost of the program for the approximately 1,000 patients each year is well-justified based on the savings accrued from reduced readmissions and improved care coordination.

“In a perfect world where the discharge process ensured that all of the transition details were handled in an optimal manner, a discharge clinic would be unnecessary for the majority of seniors,” says Laird. “However, because most hospitals have a variety of payers, types of payments, and medical group partners, a standardized approach is not always feasible.” As standard processes continue to be improved, Laird anticipates an ability to scale down this resource-intensive program; however, she believes that there will always be a subset of high-risk or fragile patients who would benefit from a transition-of-care program.

Disease Management Programs
Disease management programs target specific chronic diseases with goals of slowing their progression, reducing complications and eliminating unnecessary medical care, thereby improving the patient’s quality of life and reducing the overall cost of illness. Components of such programs typically include use of evidence-based practice guidelines, collaborative practice models, extensive patient and family education, and well-defined process and outcomes measurement and monitoring.

The continuity of care that can be provided by such programs has been shown to be associated with sizable differences in costs, use and complications among Medicare beneficiaries with chronic heart failure (CHF), COPD and type 2 diabetes. Reflecting the importance of coordinated care for high-risk populations, Medicare began reimbursing physicians, NPs and PAs in January 2015 for non-face-to-face care coordination for patients with two or more chronic conditions associated with significant risk of exacerbation, decompensation, functional decline or death. The clinician or his/her supervised staff must provide a specified amount of coordination for a specified period. They also must provide services related to seven components of care coordination management, including the provision of 24/7 telephone coverage and multiple ways for the patient or caregiver to communicate with the clinician.

“Disease management programs target specific chronic diseases with goals of slowing their progression, reducing complications and eliminating unnecessary medical care, thereby improving the patient’s quality of life and reducing the overall cost of illness.”
The second case study from Greater Newport Physicians, a diabetes management program, provides an example of such a program.

**Case Study: The ACTIVE Diabetes Management Program, Greater Newport Physicians**

**The Need**
Diabetes is one of the most prevalent chronic diseases nationwide and in California. One in seven adults in California has diabetes. Cases of diabetes have increased 32 percent over the past decade, such that among U.S. states, California has the greatest number of new diabetes cases, with more than 200,000 adults diagnosed each year. Additionally, approximately 11.4 million people (41 percent of the adult population) in California have prediabetes. The total annual health care and related costs for the treatment of diabetes in California are approximately $24.5 billion.40

The California Diabetes Program comments, “Preventing and controlling diabetes in California requires multi-pronged efforts to improve access to comprehensive health care and promote strategies that support and reinforce healthy behaviors and improve the environments where people live, work, learn, and play.”41

**The Program**
One such initiative is a unique diabetes management program created in 2012 by GNP, which is comprised of 1,000 independent physicians and has been devoted exclusively to risk-based HMO contracting for the past 30 years. It currently serves 68,000 patients with commercial insurance and 18,000 seniors. GNP offers community-based physicians the ability to serve HMO patients through a larger medical group contract while remaining in private practice.

Education of patients with diabetes is critical to the management of their disease. “For the good majority of patients, a regular visit with a primary care physician who provides disease-specific education and nutritional counseling is sufficient,” notes Diane Laird, founding CEO of GNP and MemorialCare’s Chief Strategy Officer. “And a good majority of the patients follow guidelines about diet and exercise, monitor their blood sugar levels, and comply with their insulin therapy.”

However, a cohort of patients has uncontrolled diabetes because, due to social, cultural or a host of other reasons, they do not understand their disease or engage in its management, and feel overwhelmed by the requirements. Identification, stratification and prioritization of this patient population are necessary activities for all California hospitals and health systems.

GNP developed the ACTIVE Diabetes Management Program to provide comprehensive, individualized education and care for this complex population. The goals are to identify barriers and provide support through time-intensive education and care for improved diabetes management.

Andrea De Coro, PharmD, Executive Director of Clinical Pharmacy Services of MemorialCare Medical Foundation, and Adam Solomon, MD, MMM, FACP, Chief Medical Officer of MemorialCare Medical Foundation, describe the team-based approach that allows professionals, including a medical social worker, clinical pharmacist and dietitian, “to do what they do best” as an extension of services and support to primary care and specialist physicians (Figure 10, page 23).42
For example, the clinical pharmacist improves medication management by adjusting medications and helping the patient understand why he/she should take his/her insulin when needed. The medical social worker empowers self-care and goal-setting, and screens and refers patients for depression. The dietitian educates on healthy eating, develops a personalized food plan and directly addresses patient weight issues.

The HbA1c test helps determine the average glucose level in the blood over weeks or months. The higher the HbA1c, the greater the risk of developing diabetes-related complications, such as stroke, heart attack, kidney disease, nerve damage and amputation, incontinence and vision impairment, among other problems.

The American Diabetes Association indicates that diabetes is diagnosed at an HbA1c of greater than or equal to 6.5 percent. For every percentage point of HbA1c lowered, diabetes complication-related deaths, hospitalizations, amputations and other serious complications can be reduced significantly,” says Laird.

Criteria for enrollment in ACTIVE originally focused on patients with an HbA1c of 9 percent or greater. Currently, the program focuses on those with an HbA1c of 8 percent or greater and who are “struggling to manage their diabetes,” specifically evidenced by:

- Persistently elevated HbA1c
- Need for individualized education on diet/exercise
- Barriers to monitoring sugar/insulin therapy
- Psychosocial issues/barriers
- Medications issues

Patients can be referred if also receiving care from an endocrinologist.
Initial program funding came from a $650,000 Blue Shield HMO contract-related grant. Approximately 400 patients participate in the program each year. The first visit lasts about two hours. “Clearly, a physician in a busy private practice typically cannot provide that kind of time to a patient,” says Laird. “Nor do physicians typically have the resources to offer in-depth nutritional counseling.”

The program has achieved strong results related to success metrics for diabetic patients:

- Average participants’ HbA1c levels dropped from 9.8 percent to 7.7 percent in the first 180 days in ACTIVE in 2012; for every 1 percent decrease in HbA1c, an estimated 40 percent fewer microvascular complications would be expected.

- Despite the initial entry criterion of HbA1c>9 (the most complex patients) for the ACTIVE population, post-intervention results for this population are above the Integrated Healthcare Association (IHA) 90th percentile for the diabetes care measure of all patients with HbA1c<9. This is a particularly stunning achievement when compared to an average population of diabetics in which many are already well-controlled, but do not meet the IHA 90th percentile.

- Blood pressure and cholesterol controls in this population also exceeded IHA 90th percentile results.

- Patient satisfaction ratings with all ACTIVE team members averaged 4.6 on a 5-point scale.

Laird cites the importance of two critical efforts — having a plan to engage physicians around why they should refer their patients to this center and getting patients to show up for their first appointment.

To educate and engage physicians, staff presented the program at monthly meetings and reached out to specific physicians to ask them about particular high-risk patients identified in the database based on abnormal lab results. “On a case-by-case basis, we offered the program’s assistance and asked them to give the program a shot, pointing out the absence of a downside to it,” said Laird.

Although fully staffed, it took more than a year to get the kind of volume the program now experiences. “We underestimated the amount of effort required to ramp up the program’s referral volume,” says Laird. “We had about 80 enrollees in the first year, but we were investing in this population health management program for the long-term to decrease the adverse events of heart surgeries and amputations experienced by patients who have sustained uncontrolled diabetes,” says Laird. Positive outcomes and patient experiences would increase and total cost of care would decline. “Patients typically want to stay with our group and their specific doctors so the investment makes sense as the right thing to do clinically and financially.” Costs to develop and implement the program were justified by the results and savings.

Once success stories could be shared with patients and physicians, referral and enrollment numbers grew steadily, as did recognition of the program’s performance. Greater Newport Physician’s ACTIVE Diabetes Management Program won the California Department of Managed Health Care’s 2013 and 2014 Right Care Initiative Bronze Award.
End-of-Life Care

Many people recognize that the current approach to end-of-life care in the U.S. is not what it should be. While surveys indicate that the majority of people would prefer to die at home, approximately one-third of deaths in the U.S. occur in short-stay hospitals.

End-of-life care must become more patient-centered by honoring patient wishes based on honest discussions between the patient, family, and provider. Truthful conversations about death are missing in many instances. “We need help breaking bad news,” comment two oncologists. “This is not one hard conversation for which we can muster our courage, but a series of conversations over time from the first existential threat to life.” Providers also lack education about appropriate end-of-life care options and how to enable patients to make good choices about such options.

Educating providers, patients, and families about having end-of-life conversations should be a priority for hospitals. One major initiative, The Conversation Project, offers guidance for the general public on discussing end-of-life wishes with loved ones and providers. The project also works with health care organizations to ensure their providers are “conversation ready,” with skills to elicit, document and carry out patients’ and families’ end-of-life preferences. General principles include:

- Developing systems and tools to prompt patients to express their wishes and ensure that providers receive, record, access and respect those preferences
- Integration of end-of-life preferences as part of the electronic health record

Hospitals play a major role in improving end-of-life care through providing compassionate, patient-centered, realistic services in a cost-effective manner as part of their overall PHM strategy. Program elements include palliative care as an integral part of services for medically complex and chronically ill patients, and for advanced illness management programs.

According to the Center to Advance Palliative Care (CAPC), “Palliative care is specialized care for people with serious illness that focuses on improving quality of life for patients and their families. It provides patients of any age with relief from the symptoms, pain, and stress of a serious illness — whatever the diagnosis. Palliative care is provided by a team of doctors, nurses and other specialists who work together with a patient’s other doctors to provide an extra layer of support. Palliative care can be provided along with curative treatment.”

The CAPC’s most recent report card indicates that palliative care programs are present in 67 percent of California hospitals responding to a survey. If an organization is among the 33 percent, leaders should consider putting a palliative care program in place as part of PHM efforts. Education for physicians, nurses, other care providers, patients and families will be required, as will structural elements, including:

- An interdisciplinary team of clinical staff (physician, nurse and social worker, at a minimum)
- Staff trained, credentialed and/or certified in palliative care
- 24/7/365 access and responsiveness
Figure 11 shows the growth in number of palliative care teams in U.S. hospitals. CAPC provides tools, training and technical assistance for building and implementing a high-quality program in hospitals and other health care settings.51

**FIGURE 11:** Number of U.S. Hospital Palliative Care Teams

Source: Center to Advance Palliative Care: “National Palliative Care Registry — Results of the 2012 National Palliative Care Registry, as of July 2014.”
The California HealthCare Foundation has mapped for each California county:

- The need for palliative care for patients in the last year of life
- The number of palliative care programs
- The number of patients served annually (capacity)
- The sufficiency of supply (need divided by capacity)

More than an estimated 10,000 patients need palliative care in each of San Diego, Riverside, Los Angeles and Orange counties (Figure 12).

**FIGURE 12:** Estimated Palliative Care Need: Patients Needing Palliative Care in the Last Year of Life

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Advanced illness management (AIM) services for patients across the care continuum also should be considered by hospitals. Gaining ground under the aegis of the American Hospital Association, this model takes a care-continuum approach to advanced care planning and management. It commences when an individual is healthy or with reversible illness, and continues to the point when he or she is hospice-eligible (Figure 13, page 28). AIM objectives for patients span multiple care settings and focus on matching the nature, scope and goals of care with the patient’s physical and/or mental condition.
A report of the Dartmouth Atlas Project indicated the progress that needs to be made nationally with end-of-life care. It quantified care received by Medicare beneficiaries with severe chronic illness during the last month of life by looking at data such as hospital, ICU and hospice days by hospital referral region. The takeaway is that for the majority of elderly patients approaching death in the U.S., the care focus remains on treatment and interventions, even when a terminal illness may be obvious and treatment is ineffective or futile in reversing the course of an illness.

To illustrate an effective alternative, the third case study highlights Transitions, a proactive, palliative care-driven, advanced illness management program developed by Sharp HealthCare in San Diego.

**Case Study: The Transitions Program, Sharp HealthCare**

**The Need**
Hospitalization of patients with diseases such as chronic heart failure, COPD, dementia, advanced stage cancer and end-stage liver disease place an overwhelming burden on patients, families and the health care system, yet are preventable in a significant proportion of cases. Individuals with advanced chronic diseases are at risk for admissions and readmissions due to social and functional issues, such as cognitive impairments, socioeconomic status, depression and comorbidities.

Managing patients with advanced chronic diseases is an imperative for all provider organizations as a core PHM intervention. "There is an increasing demand for health care systems to develop new models of care delivery that better guide patients and their families through chronic disease progression, and minimize the occurrence of preventable adverse events," notes Daniel R. Hoefer, MD, Suzi K. Johnson, MPH, RN, and Miriam Bender, PhD, RN, of Sharp HealthCare, San Diego. "New models should provide cost-effective, patient-centered care coordination that not only reduces the risk for readmission after a chronic disease exacerbation, but prevents the exacerbation necessitating a hospitalization from occurring in the first place."
The Program

The Transitions program at Sharp HealthCare addresses the weaknesses of traditional hospital-centric models of chronic disease care. A home-based program, it is designed for patients with advanced chronic illness who would benefit from the services of a trained palliative care team comprised of doctors, nurses, spiritual care and social workers, concurrently with “all the usual care” they desire. It is a pre-hospice service that enables patients to prioritize comfort over longevity as they age, and that respects their choices as their disease follows its natural course.

Transitions was developed by Dr. Hoefer and Johnson within Sharp HospiceCare in 2005 and implemented in 2007 in collaboration with Sharp HealthCare’s two medical groups, Sharp Rees-Stealy Medical Group (SRS) and Sharp Community Medical Group (SCMG). Funding for the program comes largely through the volume of capitated arrangements with Medicare Advantage plans, with Sharp HealthCare assuming full provider risk in such plans. Traditional Medicare fee-for-service arrangements do not cover the program, which has 180-250 patients at any point in time.

Eligibility criteria include patients who are likely to or have started to use the hospital as a means to manage their late-stage disease for unplanned “decompensation care” (i.e., non-elective procedures). Decompensation episodes are periods of significant decline in overall condition. Patients should have received maximum medical therapy, as defined by Medicare for each diagnosis, and have a life expectancy of about two years or less. Patients and families should be willing to attempt in-home disease management by the Transitions team instead of first going to the ED, and be willing to participate in advance care planning. The program’s disease-specific focus is on chronic heart failure, COPD, dementia, advanced stage cancer, end-stage liver disease and geriatric frailty syndrome.

The Care Model

Transitions has four evidence-based pillars with active and maintenance intervention phases:

1. **In-home consultation:** The goals are to give the patient, family and caregiver “anticipatory” knowledge about the disease’s progression and a skill set to proactively manage the disease. Improved compliance with the medical plan and the reduction of preventable hospital and ED visits also are goals.

   During the first three months of program participation, the patient receives four to six weekly home visits from an RN, one to three home visits from a social worker and home visits from a spiritual care provider, if desired. Telephone follow-up calls occur between home visits. Education includes disease process and progression, medication management and rationale, diet, exercise, lifestyle considerations, early recognition of signs and symptoms that should be reported and managed, and other practical coping skills. A social worker conducts a complete psychosocial assessment.

   During the ongoing maintenance phase, the patient receives one to two home visits per month, or more if needed, and telephone follow-up between home visits.

2. **Evidence-based prognostication:** The goals are to provide accurate survival and event estimates, which help prepare the patient, family and caregiver for the inevitable disease-manifestation process, and allows the patient to make informed decisions about goals of care while family and caregivers are reconciled and the patient has the capacity.

   During the first three months, the physician provides evidence-based prognostication, giving comprehensive factual information to the patient, family and caregiver around the progressive nature of the disease during clinic visits.

   During the ongoing maintenance phase, care coordination and collaboration with the primary care or specialty physician continue.
3. **Caregiver support:** The goals are to identify caregiver needs and support, reduce emotional and physical strain on the caregiver, improve caregiver quality of life, improve caregiver satisfaction, help the caregiver care for his/her loved one and cope with the often difficult responsibility of doing so, and validate that the caregiver can respect the patient’s wishes.

During the first three months, the family is an integral component of the in-home consultation visits, receiving community resources and counseling. The patient, family and caregiver receive round-the-clock telephone access to a trained RN for help with emergent needs and concerns — and that access continues during the ongoing maintenance phase.

4. **Advance care planning:** The goals are to create a roadmap for all future care and interventions, improve communication and establish agreement among the patient, family and caregiver on end-of-life wishes, and improve surviving family/caregiver satisfaction.

During the first three months, with help from the Transitions social worker, the patient develops an Advance Care Plan, including an Advance Directive and Physician Orders for Life Sustaining Treatment. Advance care planning is based on the patient’s wishes within the framework of the family support system and structure.

**Program Implementation**

Program oversight is provided by the chief medical officer and vice president of Sharp HospiceCare and Palliative Care, the director of clinical nursing and a nurse coordinator. Caseload for the RN is 50 to 60 patients, the social worker’s is 100, and the physician’s is 200+.

The program’s basic premise, says Dr. Hoefer, is to give families, caregivers and the patients themselves the knowledge needed to manage their diseases. “This is distinctly different than the traditional medical model of being the reservoir of information that the patient needs to come to in order to know what to do next.”

For example, about 15 percent of patients with end-stage disease get agitated delirium at home. “Families in the program probably understand delirium better than many physicians,” says Dr. Hoefer. “As a family physician, I used to get calls all the time saying I think my mom had a transient ischemic attack (TIA). Now they say, I think my mom had a delirium episode, and they know how to distinguish between the two. So we can treat that delirium episode either by having them come in to do laboratory testing and going back home, or just treating it empirically at their location.”

To help gain the cohort of patients, Dr. Hoefer and other program staff educate physicians in the two medical groups, teaching them to recognize patients with end-stage chronic diseases who are at risk of using the ED and hospital for decompensation care. Accurate prognostication by skilled providers (which, according to Dr. Hoefer, comes not just from laboratory data or prognostic code, but from functional decline and social support patterns) allows clinicians, patients and families to make informed decisions regarding the type of care patients wish to receive as their disease advances.

Referrals from SRS, Sharp’s medical foundation group, are higher than from the independent practice association, SCMG, but the latter contributes one-third of the patient volume. Dr. Hoefer visited the medical group offices with the highest utilizers of hospital services and described how to look differently at these patients and the kind of care they could receive through Transitions.

Based on Sharp HealthCare’s hospice experience, Johnson knew that Sharp HospiceCare was seeing patients “downstream” who had a predictable course of decline “upstream,” and could be better managed through Transitions and come into hospice earlier. “Getting patients into hospice care is one of our quality metrics,” says Johnson, “and we’ve really moved the needle with this.” The ultimate goal of Transitions is to manage the patient’s advanced chronic illness without hospitalization and maximize patient comfort care prior to a smooth transfer to hospice care.
Program Evaluation

To gauge preliminary program effectiveness and sustainability, researchers measured acute care utilization and cost in patients both before and after enrollment in the Transitions program. Patient data were obtained from Sharp HealthCare EMRs. A three-year study of advanced heart failure patients enrolled in Transitions, as published in the *Journal of Clinical Outcomes Management*, reported four program outcomes:\(^58\)

- **Length of stay (LOS):** Average LOS for Transitions patients was 165 days, with 75 percent transferring to hospice care upon discharge from the program.
- **Hospitalization rate:** The 32 percent pre-Transitions hospitalization rate decreased to 17 percent during Transitions.
- **ED visit rate:** the 57 percent pre-Transitions rate decreased to 31 percent during Transitions.
- **The average total cost of care:** Cost was $73,045 for pre-Transitions care versus $46,588 during enrollment, representing a cost savings of about $26,500 per patient. Care utilization costs included the direct and indirect costs\(^59\) of Sharp hospital claims and were calculated using a ratio of costs to charges for each department that billed in the claim.

Despite the advancing nature of patients’ chronic diseases (which typically leads to greater acute care utilization with traditional care), hospital and ED utilization after enrollment in Transitions declined approximately 50 percent. “We had what we called ‘zero-zeros’ with 42 percent of heart failure patients admitted to the program,” said Dr. Hoefer. “They never once saw the hospital for heart failure, and following enrollment in the program, they were never admitted to the hospital. Sure they saw their cardiologist and had elective outpatient procedures, but decomposition events went away.”

The enrollment rate in hospice care significantly exceeded rates reported in other studies. “The reductions in acute care utilization were greater than the cost of the program, providing preliminary evidence for the sustainability of the Transitions model,” noted Dr. Hoefer, Johnson, and Bender.

Further program evaluation is underway with the California HealthCare Foundation and Virginia Commonwealth University. “I think the cost savings for dementia patients will be jaw-dropping,” Dr. Hoefer says. Because caregivers are provided with thorough anticipatory guidance about what to expect, more dementia patients will be able to be managed at home through the support of their families. Cost savings also accrue to patients and families because they do not have co-pays for unnecessary medications, doctor’s visits, hospitalizations or skilled-nursing care.

“We are working to extend the Transitions model beyond Medicare Advantage contracts to include new payment models, such as coordination of care, pay-for-performance, episodic care and comprehensive care models. However, to align incentives, we may need to restructure reimbursement so that all providers benefit from cost savings, including hospitals,” noted Dr. Hoefer, Johnson and Bender. They conclude that Transitions provides a potentially sustainable, innovative model of health care delivery for the advanced chronic disease population that can be replicated across similar and diverse health care organizations.

“Despite the advancing nature of patients’ chronic diseases (which typically leads to greater acute care utilization with traditional care), hospital and ED utilization after enrollment in Transitions declined approximately 50 percent.”
Imperative 3. Evaluate and Refine the Approaches and Interventions

The “Big Picture”

Hospitals and health systems should develop a consistent, structured process for evaluating their PHM interventions against the targeted benefits or outcomes, such as improved patient experience and quality of life, prevention and management of disease, increased efficiency and reduced costs, and others.

Monitoring PHM interventions is especially important because an attributed population may receive care from providers within or outside the population health manager’s network, with the population health manager responsible for total costs.

Based on evaluation results, organizations then convey that information to those responsible for both the administrative and clinical elements of the program, and make necessary adjustments. Evaluation and improvement should be continuous processes, with a feedback loop to digest and refine clinical and non-clinical elements.

Many evaluation tools whose descriptions are beyond the scope of this publication are available, but one example that is proving particularly helpful in managing population health is disease registries. Registry functions include the following:

• Facilitate the exchange and use of health information for direct patient care and performance measurement and reporting
• Standardize patient identity management
• Standardize data elements and definitions
• Protect privacy and confidentiality
• Collect uniform data on risk factors, treatments and outcomes
• Obtain data from multiple sources and across care settings
• Leverage electronic health records through interoperability and other data sets through linkage

These functions must be supported by an IT platform that has interconnectivity between the registry, an organization’s own EMR/electronic health records, and external laboratory, imaging and other data. The Webinar 4 Issue Brief will provide additional information on technological needs of PHM.
High-quality evaluation of PHM-focused initiatives requires the selection and implementation of high-quality measures. The newly released report of the Committee on Core Metrics for Better Health at Lower Cost, convened by the Institute of Medicine, presents a “parsimonious set of 15 core measures that together constitute the most vital signs for the nation’s health and health care.” For each measure, the Committee identifies a “best current measure” and “related priority measures” (Figure 14).

**FIGURE 14:** Core Measure Set with Related Priority Measures

<table>
<thead>
<tr>
<th>Core Measure Focus</th>
<th>Best Current Measures</th>
<th>Related Priority Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy</td>
<td>Life expectancy at birth</td>
<td>Infant mortality, maternal mortality, violence and injury mortality</td>
</tr>
<tr>
<td>Well-being</td>
<td>Self-reported health</td>
<td>Multiple chronic conditions, depression</td>
</tr>
<tr>
<td>Overweight and obesity</td>
<td>Body mass index</td>
<td>Activity levels, healthy eating patterns</td>
</tr>
<tr>
<td>Addictive behavior</td>
<td>Addiction death rate</td>
<td>Tobacco use, drug dependence/illicit use, alcohol dependence/ misuse</td>
</tr>
<tr>
<td>Unintended pregnancy</td>
<td>Teen pregnancy rate</td>
<td>Contraceptive use</td>
</tr>
<tr>
<td>Healthy communities</td>
<td>High school graduation rate</td>
<td>Childhood poverty rate, childhood asthma, air quality index, drinking water quality index</td>
</tr>
<tr>
<td>Preventive services</td>
<td>Childhood immunization rate</td>
<td>Influenza immunization, colorectal cancer screening, breast cancer screening</td>
</tr>
<tr>
<td>Care access</td>
<td>Unmet care need</td>
<td>Usual source of care, delay of needed care</td>
</tr>
<tr>
<td>Patient safety</td>
<td>Hospital-acquired infection rate</td>
<td>Wrong-site surgery, pressure ulcers, medication reconciliation</td>
</tr>
<tr>
<td>Evidence-based care</td>
<td>Preventable hospitalization rate</td>
<td>Hypertension control, diabetes control composite, heart attack therapy protocol, stroke therapy protocol, unnecessary care composite</td>
</tr>
<tr>
<td>Care match with patient goals</td>
<td>Patient-clinician communication satisfaction</td>
<td>Patient experience, shared decision-making, end-of-life/advanced care planning</td>
</tr>
<tr>
<td>Personal spending burden</td>
<td>High spending relative to income</td>
<td>Health care-related bankruptcies</td>
</tr>
<tr>
<td>Population spending burden</td>
<td>Per capita expenditures on health care</td>
<td>Total cost of care, health care spending growth</td>
</tr>
<tr>
<td>Individual engagement</td>
<td>Health literacy rate</td>
<td>Involvement in health initiatives</td>
</tr>
<tr>
<td>Community engagement</td>
<td>Social support</td>
<td>Availability of healthy food, walkability, community health benefit agenda</td>
</tr>
</tbody>
</table>


For example, with the “care match with patient goals” measure, “patient-clinician communication satisfaction” is the best current measure and “patient experience, shared decision-making and end-of-life/advanced care planning” are the related priority measures. The current national performance data — 92 percent satisfied with provider communication — are also provided.

The Committee highlights the importance of coordinating data collection in standardized ways and providing access to such data. “Approximately four dozen sizable health insurance companies plus Medicare currently operate in the United States, each traditionally collecting data in various ways that are substantially uncoordinated, unavailable for the generation of new knowledge, and certainly unstandardized.” State and regional all-payer claims databases used to aggregate claims data for measurement and reporting represent needed progress toward enhanced availability and use of data.
The Picture “On the Ground”

The value of a PHM program is measured through a combination of quality, cost efficiency and patient satisfaction indicators. To achieve sustainable performance improvement under new payment arrangements, hospitals and health care systems will be required to measure, report and improve care processes. To determine whether performance has improved across Triple Aim goals, health care stakeholders nationwide are wrestling with the questions:

- How do we measure value and population health?
- What measures should be linked to payment and other contractual incentives to improve population health, experience of care and costs?

So far, the array of answers is confounding. Providers, payers, employers and other stakeholders are using different measures, even for particular patient populations or contract types, such as bundled payment or episodes of care.

The Institute for Healthcare Improvement’s A Guide to Measuring the Triple Aim provides a menu of suggested measures for the Triple Aim PHM dimensions and outlines key measurement principles including:

- The need for a defined population (as the denominator of population health)
- The need for data over time, which distinguishes between common cause variation (always present and inherent in all processes) and special cause variation (intermittently present, arising from causes that are not part of the system, as designed)
- The need to distinguish between outcome and process measures, and between population and project measures
- The value of benchmark or comparison data

Identifying the right measures and then linking them to the right payment involve difficult processes, such as attributing a patient’s health outcomes to a specific provider and adjusting risk to account for patient populations with different risk factors, demographics and health conditions. According to Harold Miller, President and CEO of the Center for Healthcare Quality and Payment Reform, “Since different payment systems create different kinds of quality incentives and disincentives, no single set of quality measures and payment adjustments will be appropriate for all payment (systems).”

The measures used and the extent of their use will vary depending on the contracting arrangements. Hospitals and health care systems must have knowledge of and confidence in their ability to meet the required standards of selected measures. In negotiating arrangements, providers should remember that measures may be negotiable and should be regularly reviewed and updated. Detailed analyses of which measures should be linked to what type of payment and to what extent incentives and disincentives should be put in place, are beyond this publication’s scope but are important issues for hospitals and health care systems.
Concluding Comments

The three clinical imperatives of population health management require broad and deep expertise of hospitals and health systems.

To identify, stratify and prioritize the patient population across the health-risk continuum, organizations define the geography they serve and the contracting arrangements for the patient populations within this geography. They then prioritize their PHM efforts for efficiency and effectiveness across patient health-risk categories.

To develop and implement programs and interventions to improve health, access and outcomes, and to reduce costs, hospitals understand the culture change that must be accomplished, and the impact of technology and care settings. They recognize the importance of consumer engagement, new provider types, collaborative practice, care coordination, evidence-based medicine, and parity of mental and physical health. They then design and implement prevention initiatives based on population health risk categories, spanning wellness, care transitions, disease management, care coordination, care navigation and end-of-life, as appropriate.

To evaluate and refine the approaches and interventions, hospitals and health systems understand the big-picture objectives of performance improvement and the on-the-ground challenges of selecting and implementing appropriate measures of PHM progress. They select their targets and start moving toward the end goals of effective and efficient population health management.

None of the above is possible without strong leadership, engaged clinicians and appropriate IT infrastructure. Webinars 4 and 5 Issue Briefs extend the conversation to these topics.

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Endnotes

20. virtuwell website: www.virtuwell.com


37 March, K.: “Special Care Center: A Transitions of Care Clinic.” Presented at California Quality Collaborative (CQC) Take Accountability for Ambulatory Care Transitions (TAACT) seminar, 2013.


51 www.capg.org


59 Direct costs included physician, medications, labs and other costs directly involved in care. Indirect costs included payroll, overhead, facility and costs outside of managed care including claims expenses that Sharp pays outside providers.


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