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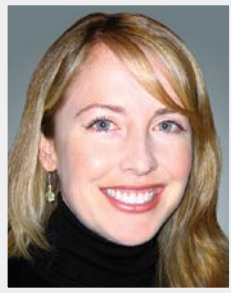
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Courage

Healthcare executive compensation has been in the news lately. We work in an industry that requires top talent to see our organizations through some of the most difficult transitions any industry has ever or will ever face. In our industry, human lives are at stake every day, with thousands of decisions made by thousands of people affecting those lives directly or indirectly. It goes without saying that to be the top executive responsible for this takes exceptional skill, experience, and courage, a potentially rare combination. And the thinking goes that to attract and retain the right person for this kind of job, compensation must be at a commensurate level. While this may be true, are we caught in a vicious cycle of increase? At what amount does the increase in benefit level off or diminish? When is too much simply too much? I challenge our board member readers to consider their own role in setting executive compensation and think with courage about this question.

Articles in this issue are geared towards helping members respond with courage to some of these most difficult strategic issues that require the best leaders: enabling health systems to retain critical connections to and an understanding of their local communities; helping everyone better understand the signs of care provider burnout and install protections to diminish this (no longer so) hidden concern; challenging boards to take a look at their gaps in diversity and background to determine if/how/why a nurse(s) will help fill the gap; and the future importance of predictive care models for precision medicine to manage value-/risk-based care of populations over time. We toe the line of balance in our jobs every day. Where is the balance? Do we have the courage to do the right thing?

Kathryn C. Peisert

Kathryn C. Peisert, *Managing Editor*

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EDUCATION CALENDAR

Mark your calendar for these upcoming Governance Institute conferences. For more information, please call us at (877) 712-8778.

LEADERSHIP CONFERENCE
The Broadmoor
Colorado Springs, Colorado
September 8–11, 2019

LEADERSHIP CONFERENCE
Grand Hyatt Washington
Washington, D.C.
October 27–29, 2019

LEADERSHIP CONFERENCE
The Ritz-Carlton, Naples
Naples, Florida
January 19–22, 2020

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Successful System Community Councils: Three Examples

By Pamela R. Knecht, **ACCORD** LIMITED

Health systems across the country are attempting to realize the full benefits of increased "systemness." For instance, they are standardizing processes to improve quality and decrease costs and streamlining management and governance structures to increase decision-making nimbleness. However, as systems become more centralized (e.g., eliminating hospital boards), they run the risk of losing the unique "voice" of each community they serve.

To ensure they retain critical connections to and an understanding of their local communities, some systems have taken a new approach. They have created "councils" that are focused on understanding and addressing the health needs of each community and building relationships with community leaders. This article describes three examples of "community councils" and includes advice for others that are considering similar models.

Pamela R. Knecht
President and CEO
ACCORD LIMITED

Amita Health St. Joseph Hospital Elgin's Community Leadership Board

Amita Health St. Joseph Hospital Elgin (AHSJHE) in Illinois has been through many transitions over the last 10 years. The hospital has been part of three different systems: Provena Health, Presence Health, and Amita Health. Under Provena, the St. Joseph Elgin hospital board's fiduciary authority was narrowed to approval of minutes, budgets, medical staff credentialing, and few other items. When Presence Health became AHSJHE's parent, the system restructured its governance and created community leadership boards (CLBs) to replace hospital boards. (Although the CLBs are called "boards," they are advisory, not fiduciary entities.) The CLBs continue under Amita Health because they have been successful engaging a broader group in the community.

The AHSJHE CLB's role is to understand the health needs of the Elgin region; this includes overseeing the community health needs assessment (CHNA) and helping management develop initiatives to address the most critical needs. During the CLB's quarterly meetings, management shares information about the system's strategies, finances, and services. Most of the meeting time, however, is spent in deep dives on the CHNA's results and possible initiatives.

The composition of the CLB is significantly different than the previous hospital board, which was primarily comprised of business leaders. The 10–12 member CLB includes a wider range of individuals such as the county's head of public health, a local college president, the fire chief, a minister who works with the homeless, a VNA representative, and a park district executive.

The chair of the AHSJHE CLB, Pat Szpekowski, has been on the board through all these changes and is most excited about this model (versus other approaches). "We now see the puzzle coming together," she said. For example, the CLB joined partners who, working as a group, are making progress addressing obesity and diabetes in Elgin. Szpekowski shared that compared to the previous hospital board meetings, CLB meetings now have a different focus and are "very productive and much more interactive, where people ask many more questions and make important contacts." She and her colleagues feel they are on track to making a real difference in improving their community's health.

Baystate Health's Community Advisory Councils

Baystate Health (BH) is a four-hospital system in Massachusetts. BH's governance restructuring journey went in the opposite direction from Presence Health's. BH has used a centralized governance system with a "mirror board" overseeing its original three hospitals since 2004. Over a two-year period starting in 2014, BH acquired two additional community hospitals and converted one of its existing community hospitals into an outpatient center. (One

new hospital has a fiduciary board due to its recent affiliation agreement.)

With new senior leadership in place and new communities added to BH's service area, the BH board and executive leaders realized it would be helpful to have groups of community leaders and influencers that were connected to BH. The lack of community representation and support was highlighted when one hospital had labor relations issues and when the hospital that converted to an outpatient center held a public hearing regarding the change, a required step in the regulatory process. The system did not want to lose the efficiency and effectiveness of the centralized governance structure. Instead of creating hospital boards, the BH board developed community advisory councils (CAC). Each CAC is chaired by a BH board member and is a committee of the BH board. The CACs each have seven to 15 members, the majority of whom are external community leaders such as the director of a local senior citizens' center, the police chief, and the president of the local bank. The CACs are advisory to the BH board (they do not have final decision authority).

Kristin Delaney, Director, Corporate Governance at BH, said, "The main

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Key Board Takeaways

The interviewees' advice for systems considering "community councils" includes:

- Talk to others who have been through this transition; maybe attend a council meeting.
- Decide which governance model is best for your system (e.g., fiduciary or advisory).
- Ensure both the hospital president and council chair understand their community and support the council's role and responsibilities.
- Set clear, focused, specific expectations of the council.
- Develop meeting agendas and materials carefully to ensure councils are prepared to focus on their work.
- Require that supported community initiatives have metrics and clear outcomes.
- Provide system-level information so councils have context for their discussions.
- Include council members in system-wide governance retreats/education.
- Let councils make their own decisions, supported by staff.
- Emphasize that the role of volunteers has been changed to help improve their community's health.

Involving Nurse Leaders in Governance Roles

By Lawrence Prybil, Ph.D., and Gabriel Popa, M.D., M.H.A., University of Kentucky, and Lisa Sundean, Ph.D., M.H.A., RN, University of Massachusetts Boston

Background

America's health sector is in the midst of the most transformative period since Public Law 89–97, the Social Security Amendments of 1965, created the Medicare and Medicaid programs. The impact of an aging and increasingly diverse population on health needs, continuous advances in medical science and technology, the ongoing shift from traditional fee-for-service to various forms of value-based payment systems, growing consumer demands, and growing attention on population health are among the powerful forces impacting all segments of the health sector.

These forces complicate the roles and responsibilities of hospital and health system boards. In today's turbulent environment, the issues they must address in charting their organization's strategic direction are increasingly difficult. Moreover, most boards realize that key stakeholders—including government regulators, payers, rating agencies, the media, and the communities they serve—are expecting more transparency and better performance by America's hospitals and systems. Further, these parties are holding boards accountable for the performance of organizations they govern.[1] All stakeholders and the public at large are calling for hospitals and health systems to improve patient care quality and safety while concurrently doing more to contain healthcare costs.

Board Effectiveness

In the health field as well as other sectors, there is increasing evidence that board effectiveness has material impact on the success of organizations for which they have governance responsibility.[2] Recognizing the growing challenges they face, it is a *core* duty of every board to regularly assess its structure, composition, and practices and identify steps to take to improve its effectiveness.

Many factors contribute, directly or indirectly, to the effectiveness of corporate boards in performing organizational assessment and their other duties. Among those factors are how well the board and its committees are organized, the caliber of board leadership, the staffing support provided for the board, and the extent to which the board's culture enables healthy dialogue and debate.[3]

All of these factors have an impact on how a board functions and, thus, its effectiveness. However, there is widespread accord among governance experts that the *composition* of boards—their collective commitment, diversity, and expertise—is perhaps the most important of all.[4] Good structures, practices, and staff support simply cannot produce effective board deliberations and decision making without a well-balanced mix of dedicated and expert board members.

Some Reasons to Consider Involving Nurse Leaders in Governance

In this context, it is surprising that the nursing profession—the largest and one of the most important components of the health sector workforce—has a small presence on the boards of hospitals, health systems, and academic medical centers. Despite strong advocacy by AARP, the Institute of Medicine, the National Association of Corporate Directors, the Robert Wood Johnson Foundation, and numerous other authorities, a series of 10 studies conducted since 2005 has shown the proportion of nurses as voting members of hospital, health system, and medical center boards consistently has been

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> ### Key Board Takeaways
> - Board effectiveness has a major impact on the performance and long-term success of organizations they govern. Many factors contribute to the effectiveness of boards. Of these, none is more important than the board's composition.
> - As an integral part of board succession planning, the board should regularly review its current composition—that is, its collective commitment, diversity, and expertise—in relation to the rapidly changing environment and the board's evolving needs for talent.
> - Experienced leaders in the nursing profession represent a large and virtually untapped pool of dedicated and highly qualified board candidates. Healthcare organizations that have not already taken this step are encouraged to consider nurse leaders as candidates for future board appointments.

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1   Mary Totten, "Survey Results Show Health Care Governance in Transition," *Great Boards*, Spring 2015; Kevin Barnett and Stephanie Sario, "Alignment of Governance and Leadership in Healthcare: Building a Roadmap to Transformation," *BoardRoom Press*, The Governance Institute, December 2017.
2   Hongjin Zhu, Pengji Wang, and Chris Bart, "Board Processes, Board Strategic Involvement, and Organizational Performance in For-Profit and Non-Profit Organizations," *Journal of Business Ethics*, June 2016; Thomas Tsai et al., "Hospital Board and Management Practices are Strongly Related to Hospital Performance on Clinical Quality Metrics," *Health Affairs*, August 2015.
3   Lawrence Prybil et al., *Governance in Large Nonprofit Health Systems: Current Profile and Emerging Patterns*, Commonwealth Center for Governance Studies, Lexington, KY, 2012; Ram Charan, *Owning Up: The 14 Questions Every Board Member Needs to Ask,* San Francisco: Jossey-Bass, 2009.
4   Guhan Subramanian, "Corporate Governance 2.0," *Harvard Business Review*, March 2015.

Predictive Medical Care Models Improve Patient Experience and Outcomes

By Marshall Ruffin, M.D., Progknowse, Inc., and Guy Masters, M.P.A., Premier, Inc.

Medical Care on the Threshold of Change

What would an accurate prediction of your medical future mean to you? How would this knowledge change the way you make decisions? What would it mean in the lives of your family members and others in your community?

Medical care is entering a new era of predictive, preventative, personalized, and participatory medicine, where the capability to accurately identify future medical needs of individuals is becoming a reality. Medical care is crossing the threshold of innovation where predictive algorithms, machine learning, genetic profiles, and mega-databases are intersecting to make it possible for hospitals and health systems, physicians, and others to prospectively improve the health of individuals and populations, which is the essence of precision medicine and value-based care.

Accurate Predictions Provide Benefits for Value-Based Care

- Precisely identifies total costs of care
- Foresees many aspects of care, including:
  - » Unplanned readmissions
  - » Complexity of care—need for dedicated care manager(s)
  - » Complications of care
  - » Adverse drug events—need for pharmacogenomic testing
- Helps identify the best physician(s) and facility(ies) to treat a given patient for best outcome
- Allows for differential diagnoses ranked by probabilities

Board Concerns: Opportunities or Disruptive Threats?

This article will explain why precision and personalized medicine involve more than the application of genetics to clinical practice and detail how hospitals and health systems can achieve predictive, preventive, personalized, and participatory medical care. We will identify what governing boards of hospitals and health systems can do now to prepare for this transition by sharing data and leveraging collective resources to accelerate the development and application of precision and personalized medicine to enhance wellness and improve patient, clinical, and financial outcomes.

Boards will find that precision and personalized medicine will have significant financial and clinical effects on accountable care organizations (ACOs) that your organization may already sponsor. This also holds true for clinically integrated networks (CINs), narrow physician networks, and bundled payment arrangements across service lines. These innovations have the potential to create immediate and future opportunities that alter virtually every aspect of care delivery. Or if ignored, they may be disruptive threats.

Key Board Takeaways

- Health systems that want to spend hundreds of thousands to millions of dollars on data warehousing and predictive modeling with machine learning need to ask if they have enough patients to make the investment worthwhile. Health systems will be prudent to invest in a facilitated network of health systems that share data storage and predictive analytics instead.
- Plan for the genetics revolution and plan to store genetic test results in a digital coded format so that they can be used in predictive modeling.
- Remember that precision medicine is more than genetics. Genes are influenced by our habits of living and our clinical outcomes are also affected by the skills of the clinicians who treat us and the facilities in which we receive our care—so data about all of those characteristics of our patients need to be included in machine learning models that predict their outcomes of care.
- Ensure that board members and executives understand that precision medicine will be indispensable for health systems to manage value-based, or risk-based, contracts for the care of populations of people over time.

> *Innovations in precision and personalized medicine have the potential to create immediate and future opportunities that alter virtually every aspect of care delivery. Or if ignored, they may be disruptive threats.*

Defining Terms: What Is Precision Medicine? (Does It Only Apply to Cancer?)

Most people have a very narrow definition of precision medicine as the use of genetic testing of tumors to select the best medications for cancer patients. For a small minority of patients with cancer, genetic testing of tumors can be lifesaving, matching the right patient to the right treatment for optimal outcomes (see sidebar "Targeted Therapies in Precision Medicine").

Targeted Therapies in Precision Medicine

Examples of targeted therapies include:

- Herceptin for breast cancer and stomach cancer with mutations that overexpress the HER2 protein
- Zelboraf to treat melanoma cells with mutations that overexpress the BRAF V600E protein
- Gleevec that treats chronic myelogenous leukemia cells that produce the fusion protein BCR-ABL

There are many other "precision medications" under development or recently approved by the Food and Drug Administration to treat cancer. Most of these new and expensive drugs are based on immunological therapies. All of them promise to reduce the toxicity of cancer treatment because, unlike standard chemotherapy that kills all rapidly growing cells, including those in normal tissue, these new cancer therapies target specific abnormal proteins associated with mutant genes in cancer cells, and kill the cancer cells while sparing rapidly growing normal cells.

Precision and personalized medicine is the process of enabling hospitals and health systems and pharmaceutical and medical device manufacturers to use predictive algorithms applied to large datasets to accurately predict best diagnoses, treatments, and outcomes for patients. To make these predictions for individual people, precision medicine equations require matching the individual against the histories of many millions of people.

What Data Are Used to Predict an Individual's Medical Future?

Patients are complicated, and predicting their medical future requires a lot of data. Thousands of predictors, including demographic data and social determinants of health, medical and family histories, diagnoses, procedures, vital signs, laboratory results, and 20,000 genes—each with dozens to hundreds of possible alleles—require hundreds of millions of patients to build the most accurate equations. The more accurate the equations, the more precise and accurate the predictions will be for each patient.

Given the complexity and richness of medical data, no one health system, even the largest in the U.S., has enough patients to build the best equations. Consequently, "facilitated networks" of multiple medical care organizations are needed to make data about their patients available to build predictive equations.

Precision and personalized medicine must involve chronic diseases that are multifactorial, affected by the patient's environment, prior medical history, and habits of living in addition to genetic predisposition. Predicting outcomes from these chronic diseases involves data about genes, other concurrent diseases, treatments, habits of living, environmental factors, education, intelligence, motivation to return to health, and many other factors.

Pooling Data to Leverage Health System Resources: Fleet Learning for Medical Care

How do we consider all the factors that may affect a person's health in order to accurately predict clinical and financial outcomes related to that individual's health? To deal with all those factors, we need more data about more patients than any one hospital or health system has, and machine learning is essential to find patterns in those data. We need the equivalent of "fleet learning" for medical care.

Case Example of Fleet Learning: Tesla Automobiles

Tesla cars are equipped with software and technology that networks them. The data collected from the self-driving software from each car is uploaded frequently to Tesla from its entire fleet of tens of thousands of cars on the road to permit the company to improve the predictive capabilities of its software. For Tesla, fleet learning is the key to improving the accuracy of its self-driving software.

With fleet learning, myriads of circumstances that will never occur to any one car will occur to a fleet of cars, and those various circumstances help Tesla to refine its software to anticipate and deal with all the circumstances that any one car may experience.

Application to Medical Care

In like manner, better models to accurately predict the clinical and financial outcomes of care for any one person must be based on the data from millions of people, treated by tens of thousands of unique physicians at thousands of unique medical care facilities. This large dataset allows for the development of accurate predictive software that can see through the enormous variation in patients and providers to predict outcomes accurately.

Predictive algorithms currently used in many daily applications:

- Airline auto-pilots
- Self-driving automobiles
- Language translation
- Trading stocks and bonds
- Searching data and knowledge bases
- Weather patterns and forecasts
- Network security and penetration detection
- Predicting voting patterns and purchasing patterns
- Predicting hemorrhage, respiratory failure, and sepsis in the ICU
- Radiology image interpretation

As with cars, so with people, the edge cases are the biggest challenge. Edge cases, whether situations that an autonomously driving car might find itself in or a patient may find himself/herself in, are the out-of-the-ordinary, unexpected, unusual cases that tax the car's self-driving software and the physician's intuition. When you think about it, every traffic situation is unique—the combination of automobile, location, road, surrounding traffic, weather, and driver never occurs twice, but what happens next usually can be predicted accurately based on common patterns.

Self-driving cars depend on the ability of their software to predict the future—to know when it is safe to turn, speed up, brake, and change lanes. The more cars that contribute their data to develop the self-driving software they share, the more unusual situations the self-driving software learns to manage safely. Tesla estimates that its autonomous driving software, called Autopilot, will be successful for safe fully autonomous driving after it has been trained on data from thousands of its cars that have covered more than six billion miles of driving. Tesla collects data from Autopilot at a rate of many millions of miles every month and passed one billion miles driven in late 2018.

"Perhaps the greatest long-term potential of AI in health systems is the development of a massive data infrastructure to support nearest-neighbor analysis, another application of AI used to identify 'digital twins.' If each person's comprehensive biologic, anatomic, physiologic, environmental, socioeconomic, and behavioral data, including treatment and outcomes, were entered, an extraordinary learning system would be created."

—Eric Topol, M.D., Executive Vice President and Professor, Molecular Medicine, Scripps Research

Value of Predictive Algorithms for Physicians

- Supplement the intuition and guidance of physicians
- Are built on data from more patients than any physician has treated
- Give more accurate predictions than most people can give
- Produce realistic probabilities of outcomes that can help with "crucial conversations" about hard choices patients are facing
- Produce accurate predictions of costs of care

Value of Predictive Algorithms for Patients

- Reduces their dependence on unreliable intuition and wishful thinking
- Clarifies their options
- Makes choices of diagnosis and treatment easier
- Permits closer relationships with family and clinicians
- Relieves some of the burden of prediction from the physician
- Reduces unrealistic expectations of patients
- Allows for more careful planning and fewer surprises
- May help to reduce the intrusion of technology at the end of life

Unique Patients and Unique Physicians and Providers

In a similar way, every patient is unique, as is every physician, nurse, hospital, and period of time, but usually a physician's experience will help him or her give their patient good advice about what to do next. However, each physician's intuition is limited by their own experience, including experience gleaned from reading a relatively small number of clinical research studies.

Now imagine we want to build software to predict the probabilities of specific diagnoses and the most effective treatments for any patient. We would want the software to have access to the EMR details, including genomic details, from many millions of patients, and consider the socioeconomic status, medical history, medications, prior treatments, laboratory and imaging results, and other diagnostic studies, of millions of people.

Precision medicine software is being developed by a facilitated network of health systems right now, while protecting the privacy of individual patients and providers.

Three Business Models in Medical Care; One Business Model for High-Performance Medicine

Clayton Christensen, the Harvard Business School Professor who wrote *The Innovator's Prescription* and "The Real Power of Precision," describes three types of business models in medical care.[1] He states that only one of them is likely to lead to the creation of the technologies for precision medicine. Most medical care organizations are **solution shops**, Christensen writes, meaning physicians' offices, urgent care centers, and hospitals where they care for patients' problems one at a time, with little or no integration of information systems and no predictive modeling.

A second and growing type of medical care organization is the **value-adding process business**, which offers a narrow range of standardized services to groups of patients with similar medical conditions. These businesses include laser eye surgery centers, dialysis centers, and chemotherapy infusion centers. Their services are standardized, and diagnosis is not one of their services. They treat patients with standardized and limited products and services.

The last type of business model holds great promise for precision medicine, Christensen argues. These are the **facilitated networks**, such as ACOs, that are made up of collections of providers of care that share a clinical and financial purpose to care for a defined population of people over time under a budget. These ACOs have a strong clinical and financial incentive to predict the best diagnosis and treatment, avoid costly illness or injury, and predict the future health needs of each person they serve.

In other words, ACOs that take financial risk for the care of populations of people over time, will invest in the most effective medical assessments in order to anticipate which patients will suffer from disease, disability, or injury, and how to avoid having these turn into expensive conditions.

Facilitated Networks and the Curse of Dimensionality

The Curse of Dimensionality is a general heuristic that states that as the number of dimensions in a machine learning equation grows, the more data will be needed to fill the multi-dimensional matrix of examples. In other words, as we add more models predicting clinical and financial outcomes, our patient data needs grow exponentially. Once we add detailed data about socioeconomic, historical, physiological, anatomical, therapeutic, and genomic characteristics of each patient, as well as detailed data about their providers, we have hundreds to thousands of predictors to consider.

Anyone can build a predictive model on one patient's data, but the model will not be relevant to a different patient. A predictive model for length of stay or total cost of care for a young woman with a normal pregnancy will not be useful in predicting financial and clinical outcomes for an elderly man with prostate cancer. For predictive models to be useful, they must be built on enough predictors from enough patients to permit multiple patients in the database to be nearly digital twins of the patient whose outcomes are being predicted. The more data, the better.

No one medical care organization has access to enough data to build accurate predictive models meeting these criteria. Consequently, the best models will come from networks of provider organizations that share their data and have data scientists to analyze and build predictive models—a much more efficient use of resources than trying to build homegrown assets.

Participants in a Facilitated Network

What types of medical care organizations join a facilitated network dedicated to building and sharing the most accurate predictive models for clinical and financial outcomes of patients? Clearly, the data needs to come from health systems, shared in a way that protects the privacy of individual patients and clinicians.

Where do the data scientists come from? They are in short supply and high demand in all western countries, especially in the U.S. Those data scientists can come from universities with strong academic data science departments. Those data scientists can build predictive models from the shared data, the architecture of which we will elaborate on in this article, and use those models for publications and license those models to health systems that may want to use them to predict specific outcomes for patients.

Employers may want to join the facilitated network, since increasingly they are interested in the health and welfare of their employees and want to organize preventive health programs for the right employees. What about manufacturers

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1   Clayton M. Christensen, Jerome H. Grossman, and Jason Hwang, *The Innovator's Prescription: A Disruptive Solution for Health Care*, McGraw-Hill, 2009; Spencer H. Nam and Clayton M. Christensen, "The Real Power of Precision: Redefining the Precision Medicine Initiative," *Harvard Health Policy Review,* October 30, 2016.

Exhibit 1: Facilitated Network Participants
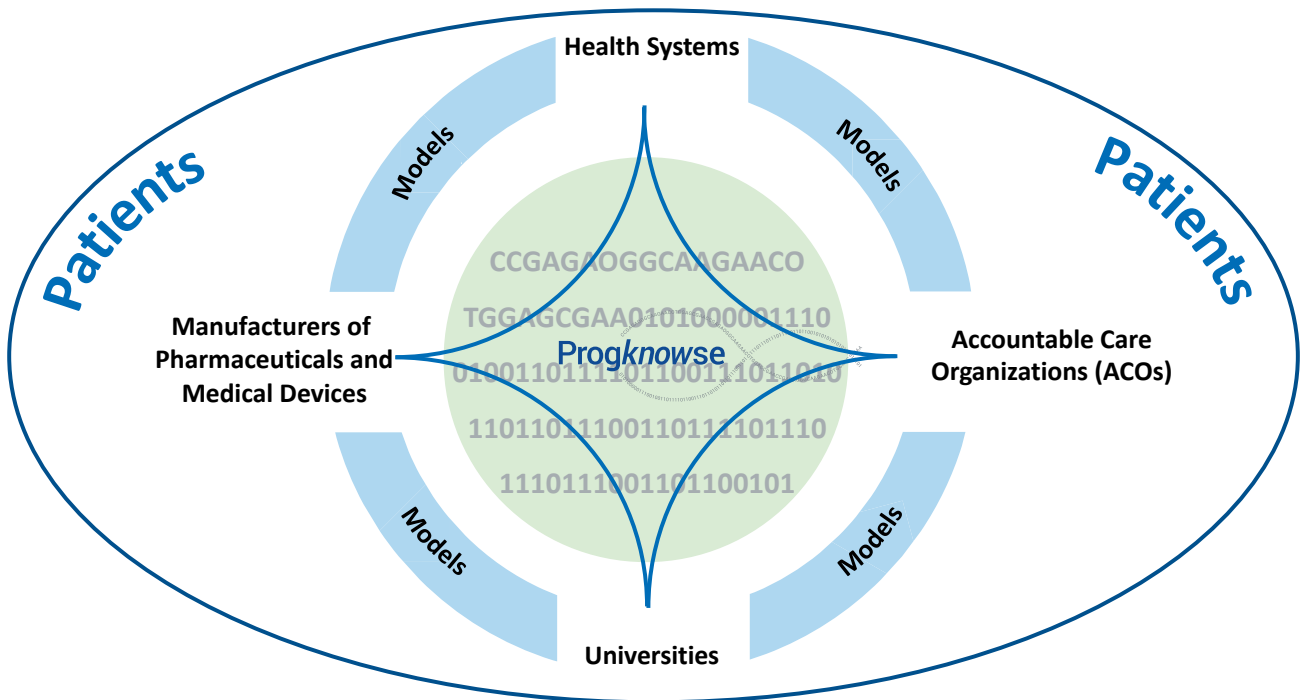
Source: Progknowse, Inc.

of medical products—devices, supplies, and pharmaceuticals that providers' care depends on to treat their patients?

We believe manufacturers of medical products, including pharmaceutical firms, will join these facilitated networks in order to pay for and benefit from predictive models that identify the patients who will benefit the most from the use of their products and the patients most suitable for clinical trials of their products.

Organizing clinical trials, especially randomized controlled trials, is exorbitantly expensive because of the costs of identifying and recruiting patients to participate in them. Randomized registry trials cost much less because they make recruitment of patients far easier, and the shared database of a facilitated network can produce predictive models to identify patients who would be most suitable to participate in randomized registry trials.

Exhibit 1 shows the relationships between manufacturers (which can also be sources of valuable data for predictive models of outcomes), health systems, ACOs, employers, and university data science departments all participating in a facilitated network to build and share predictive models of clinical and financial outcomes of care.

Risk-Adjustment

The heart of a risk-adjustment method is a predictive model for the outcome for which we want to anticipate risk. When we compare physicians' or hospitals' performance on any specific outcome, we need to adjust for the risk, the prior probability of the outcome of interest, before treatment. In other words, we need to adjust for the fact that every patient is unique, and some patients have much higher prior probabilities of a specific outcome than others, whether it is cost of care, length of inpatient stay, or unplanned readmission shortly after discharge.

Some patients are "sicker" than others and more likely to die in hospital than others. To compare the mortality rates of two hospitals or two physicians we need to adjust for the probability of mortality before treatment among the patients of the two hospitals or the two physicians. Patients who are octogenarians are more likely to die in hospital than patients in their 30s, all else being equal. Patients who are much older than another group of patients are more likely to suffer adverse outcomes than the other group of patients simply because they are older, all else being equal.

The best risk-adjustment method is the best method at predicting the outcome of interest before treatment. The more accurate the model to predict a specific outcome, the more accurate the risk adjustment based on that model. A model that explains 85 percent of the variation of the outcome of interest is a more accurate model than one that explains only 35 percent of the variation of the outcome of interest. The model that explains 85 percent of the variation of the outcome of interest is a better model for risk-adjustment of patients for that outcome.

When we compare clinical performance of physicians, or hospitals, or ACOs, or treatment regimens, we must use the most accurate risk-adjustment model to calculate the expected outcomes for the specific population of patients they treat, in order to compare their actual with their expected outcomes. The more accurate the model to predict outcomes, the more meaningful the comparison of expected to actual outcomes will be.

The Architecture for State-of-the-Art Predictive Modeling and Risk-Adjustment

Below is a list of the elements of state-of-the-art predictive modeling and risk-adjustment for a medical care organization. Board members should read these descriptions with a strategic frame of reference as to how the elements fit into the hospital or health system's mission and future vision and its strategic priorities and initiatives for embracing precision medicine.

Technical architecture: Medical care organizations that want to build a state-of-the-art technical architecture for sharing data, data scientists, and predictive algorithms will operate as a facilitated network that shares the technical and human resources for predictive modeling. Each organization must have the conviction that it needs to share resources because it cannot build the best predictive models with the relatively small number of patients it serves, the small number of data scientists it can employ, and the small number of predictive algorithms it can produce. Each hospital or health system must understand that a consortium will be more productive than any organization by itself—supporting shared data-as-a-service, data-science-as-a-service, and predictive-models-as-a-service. Facilitated networks can be created by health systems on their own without government support or mandate, and do not need interoperability because the members of the network are not sending data to each other. Each health system would send data from its EMR in a file format such as C-CDA (Consolidated Clinical Document Architecture), which all EMRs, to meet meaningful use criteria, must be able to produce.

Shared data repository: A shared data repository is indispensable, but one that does not require commingling the data from multiple hospitals and health systems. A better approach, because it is simpler to design and execute and includes richer data, is to keep the data from each participating organization separate, and train algorithms across the data from each institution by federated inference, by training the predictive models on one institution's data at a time, in series. The data can be kept private by differential privacy, a technique of adding "noise" in the data to protect the privacy of each patient's record. Data scientists associated with the facilitated network oversee the gathering and analytical processes.

Data scientists: A consortium of data scientists affiliated with leading health systems and universities need access to the data repository in order to build the models and test their accuracy in clinical trials. The predictive models ought not be the proprietary property of a single data warehousing vendor. The predictive models need scrutiny by clinicians and data scientists independent of those who build the models. These models need to be tested and critiqued in the clinical literature if they are to be relied upon by clinicians to predict outcomes and, in some circumstances, influence the choices of physicians, patients, and their families.

Library of predictive algorithms: The resulting work of the consortium will produce a library of predictive algorithms that health systems can also share. Some of the algorithms will be made by data scientists employed by the health systems, some will be made by data scientists employed at universities, and some will be created by data scientists employed by the facilitated network itself. Data scientists earn large salaries, and the staff and facilities to support their work add to their cost. A common estimate is that a single data scientist costs his or her institution about $1,000,000 per year in salary, benefits, infrastructure, and support staff. No single business can employ enough data scientists to build and maintain the tens of thousands of predictive models that medical care institutions will want to make the calculations.

Technical platform: The technical platform for delivering outcomes probabilities must be presented in the right context, at the right time, to be useful and actionable. In near real time,

patients and clinicians need to know the outcomes they want to predict, and the platform must produce those calculations and display them in ways that are helpful to those making clinical practice decisions. The technical platform, including integration with electronic medical record systems, will take years to develop in a sophisticated way. At first, the platform will produce calculations of probabilities of key outcomes daily, from the day of admission, but the platform will evolve to near real-time calculations as it obtains access to EMR details. The facilitated network must lead the effort to build this platform because it is shared among the health systems. The data come from the health systems in standard form, are cleaned by the facilitated network and housed in the OMOP (Observational Medical

Outcomes Partnership) Common Data Model by the facilitated network, and analyzed by data scientists working for the facilitated network or by universities permitted to access the OMOP data model to train machine learning algorithms across it.

Genetic test results: The platform must permit incorporation of genetic testing results into the predictive models of clinical outcomes. Every patient is unique, and their genes, especially those that produce the proteins that metabolize drugs and nutrients, are hidden from physicians. Physicians ultimately will be able to choose more precise medications and dosing based on specific genetic markers to achieve the best physiological and symptomatic results for their patients.

Pharmacogenomic testing: Today, the Food and Drug Administration (FDA), in its Table of Pharmacogenomic Biomarkers in Drug Labeling, lists more than 200 medications that should only be prescribed after pharmacogenomic testing that can predict outcomes, such as adverse drug events. As the costs of genetic sequencing drop and the accuracy increases, we expect genetic testing and incorporation of genes and alleles as predictors in deep learning models will grow rapidly and become standard practice. ACOs will fund this genetic testing by themselves in order to predict clinical outcomes more accurately and identify the people who need the closest preventive attention. Facilitated networks will negotiate with genetics laboratories for best prices, best turn-around times, and standardized genetic testing results in machine-readable format to be included in their predictive models of clinical outcomes.

Precision medicine advisory boards: These facilitated networks will govern their investment in data collection, data storage, and machine learning with precision medicine advisory boards, made up of hospital and health system leaders who approve the processes of data collection, analysis, and reporting to protect the interests of patients and the integrity of the analyses performed. These studies to predict outcomes will complement the intuition of physicians, nurses, and managers; inform patients about their choices and results of treatment; and guide clinical research. As such, they are consistent with primary use of clinical data as defined by HIPAA.

Summary of Benefits of a Facilitated Network in Its Support of Precision Medicine

Facilitated networks help offset some of the enormous expense of precision medicine. They bring economies of scale to the hospitals and health systems that participate in them by sharing data, data scientists, and predictive models that they could not afford to assemble on their own. They create a ready marketplace for those algorithms and a shared mechanism to study and improve on those predictive models.

One important outcome are models that are more accurate than a single hospital or health system can create on its own. Most single medical care organizations do not have the experience of a million joint arthroplasties, but a facilitated network can find 1,000,000 joint arthroplasties in the last three years, and build their predictive models using a subset of that data, testing the models they build on a set of control data.

Board Conclusions and Next Steps: Why Precision Medicine Matters

Precision medicine, driven by facilitated networks of medical care systems that share their data, data scientists, and predictive models, will define the highest-performing medical care organizations. These hospitals and health systems will prevent disease more accurately and achieve greater benefits for quality and outcome improvement than those that build their own precision medicine infrastructures.

First steps for boards of health systems to take:
- Schedule board time to learn about and discuss the current state of precision medicine in their organization and how they can join a facilitated network of like-minded health systems to share a platform to take advantage of these opportunities.
- Explore the potential applications of predictive algorithms and machine learning to permit more accurate prediction of diagnoses, proper treatments and outcomes of patients to key service lines and patient populations that you currently serve, including those involved with value-based contracts.

Progknowse, Inc., is a facilitated network supported, in part, by Premier, Inc. Progknowse builds its predictive models on de-identified charge master data from more than 215,000,000 patients treated at over 1,000 hospitals and refines its models by federated inference on the clinical details of multiple individual health systems, without merging their EMR data with those of any other organization.

With a model built to predict on admission the patients with high risk of unplanned readmissions after discharge, Progknowse can reduce the false negative and false positive predictions of unplanned readmission and permit health systems to focus their resources on the patients actually at highest risk, saving total costs and improving the ROI on money spent on prevention.

- Identify physicians and nurses who lead quality improvement, clinical research, and value-based contracting and invite them to identify cohorts of patients for whom they want to predict outcomes better than they have been able to do to date.
- Identify and interview facilitated networks of health systems that are sharing data and data scientists to build predictive models, which they also share, and consider joining it to acquire the tools of precision medicine more quickly, at a lower cost, and with better performance than most health systems can achieve on their own.

Accurately predicting the future is the first step to improving it, and hospitals and health systems that participate in a facilitated network for precision medicine will garner the benefits of high-performance medicine by collaborating in ways that single institutions acting alone will not be able to achieve. ◗

The Hidden Healthcare Issue: Burnout

By Jen Volland, RN, D.H.A., CPHQ, NEA-BC, FACHE, NRC Health

Burnout is defined as "a long-term stress reaction marked by emotional exhaustion, depersonalization, and a lack of personal accomplishment."[1] In 2015, physician engagement was identified as the number one opportunity to improve the U.S. healthcare system and CEOs' top strategic priority. In contrast, today it has become a focus on provider burnout. Clinicians are becoming increasingly apathetic during interactions due to caregiver fatigue and subsequently burnout. This leads to an inability to fully engage with patients.

While burnout is recognized within healthcare as important, the national trends show that the issue is on the rise—not improving. One in three physicians are experiencing burnout at any given time.[2] One in four Americans have multiple chronic conditions,[3] and older adults with multiple chronic conditions see 14 different providers per year on average.[4] This equates to patients requiring the highest levels of medical management for complex conditions having on average at least four providers among their care team potentially experiencing burnout simultaneously. Additionally,

a clinician's ability to reliability determine their level of distress is poor.[5] Among those with the lowest levels of well-being, most believed their well-being was at or above average levels. This lack of awareness can cause clinicians to ignore signs of burnout when it occurs.

The signs of burnout closely mirror chronic stress and other disorders (see sidebar "Signs of Burnout"). It also puts your organization at risk for lower satisfaction and quality of care, higher medical-error rates and malpractice risk, higher physician and staff turnover, alcohol/drug abuse and addiction, and clinician suicide.[6]

Burnout beyond Clinicians to the Boardroom

Recently, at ACHE's Congress on Healthcare Leadership, NRC Health had the opportunity to collect data from both senior executives and members of healthcare boards. The aggregated results are quite telling that burnout is a serious issue, not only for clinicians today but also for those serving on a board of directors (see **Exhibit 1**). While burnout is happening daily, we need to find ways to bring joy and well-being back to work for clinicians of all types, administrators, and board members.

What Can Be Done to Bring Back Well-Being to the Healthcare Setting?

From the board level through the front-line staff, there are items that can help build well-being:

- **Engage**: Clinicians need to be able to collaborate and have a sense of purpose in their work. Physician engagement should be fostered within the organization—it doesn't happen on its own. A simple way to start is to create board–administration and administration–provider co-commitments. This helps reduce the

Signs of Burnout

- Constant fatigue despite adequate sleep
- Increased sickness due to weakened immune system
- Chronic headaches and pain
- Increased/decreased sleep and/or appetite
- Feelings of self-doubt, helplessness, feeling trapped, or a sense of failure
- Emotional detachment and feelings of isolation
- Lack of motivation
- Decreased satisfaction in once pleasurable activities
- Withdrawal from social obligations and personal responsibilities
- Negative attitude and increased frustration
- Using food, drugs, or alcohol to cope

Key Board Takeaways

Questions that board members and senior leaders should be asking include:

- What new processes are being adopted within each board member's industry that can help healthcare shift from a setting of burnout to a culture focused on well-being?
- Is well-being an ongoing topic at the committee level? For example, the quality committee could ask: How does burnout affect quality? What are the top themes that the organization has seen? Which direction are they trending? Are the results similar between staff and physicians? Is this measured more than once per year?
- What types of remediation does the organization have for burned out physicians to help them live a healthier lifestyle?
- Are there specific high-risk pockets where managers and directors can help watch for burnout (e.g., family practice or emergency room settings). How can everyone help to identify when someone is nearing a point of burnout before it affects patient interaction, impacts safety or daily operations, or percolates into board meetings by not everyone being fully present?

1   AHRQ, "Physician Burnout," July 2017.
2   Tait D. Shanafelt, "Enhancing Meaning in Work: A Prescription for Preventing Physician Burnout and Promoting Patient-Centered Care," *JAMA*, September 23, 2009.
3   Partnership for Solutions, Johns Hopkins University, "Chronic Conditions: Making the Case for Ongoing Care," September 2004.
4   Medscape, "Physician Lifestyle Report, 2015."
5   Tait D. Shanafelt et al., "An Interactive Individualized Intervention to Promote Behavioral Change to Increase Personal Well-Being in U.S. Surgeons," *Annals of Surgery*, 2014.
6   Dike Drummond, "Physician Burnout: Its Origin, Symptoms, and Five Main Causes," Family Practice Management, September/October 2015.

Exhibit 1: Physician Well-Being Index

Question	Yes	No
Have you felt burned out from your work?	83%	17%
Have you worried that your work is hardening you emotionally?	61%	39%
Have you often been bothered by feeling down, depressed, or hopeless?	42%	58%
Have you fallen asleep in traffic?	24%	76%
Have you felt that all the things you had to do were piling up so high that you could not overcome them?	51%	49%
Have you been bothered by emotional problems (such as feeling anxious, depressed, or irritable)?	57%	43%
Has your physical health interfered with your ability to do your daily work at home and/or away from home?	12%	88%

Source: Results of NRC Health polling executives and board members at the ACHE Congress on Healthcare Leadership, March 2019.

feeling of hierarchy and embraces the relationships as a partnership. The co-commitments are documents that outline the organizational values and align the commitment of each group as a whole (e.g., administration and physicians). Individuals review and sign the document every one to two years as part of the promise to themselves, each other, and the organization, by aligning behavior with values.

- **Measure**: Employee and physician engagement surveys are a start, but they unfortunately are only one-point-in-time metrics. Important processes are monitored continuously throughout the year, and we should be thinking similarly when it comes to clinicians and patients. NRC Health recommends doing a well-being survey at least six months after a physician/employee engagement survey to ensure you're making improvements and that clinicians feel empowered and heard. The metrics used should align with both the organizational strategy and values.

- **Act**: If you do nothing with the results because you're waiting until there's a unified plan, you lose precious time. To foster collaboration, clinicians need to be part of the building stage of the action plan. Delaying communication about the results does more damage to engagement than not surveying at all. Therefore, it's important to get the results back to the individuals right away and enlist their help in creating the action steps towards an organization that provides better work–life balance and addresses well-being. This can also be included in board assessments. With the rate of burnout today, fostering well-being should be an item on everyone's mind—including the board for ensuring everyone is engaged and not just "going through the motions."

- **Help**: Look for healthy ways to allow for decompression. Some organizations have adopted what's termed a "code lavender." This can be called by anyone when there are times of extreme stress such as a patient death. It's the healing equivalent of a code blue that consists of a team of specialists who are called upon when an individual (patient, family, or employee) has reached their limit. Code lavender not only ensures an ability to move forward after a difficult case, diagnosis, or loss, it helps individuals cope with those situations.[7] A code lavender may also include the board if it was, for example, a prominent individual in the community. The board can also help play a role by bringing forward additional ideas for ways to decompress or foster well-being that are emerging in areas outside of healthcare.

Shifting from burnout to well-being starts at the top with the board and includes every level and area of the organization. When individuals lack a sense of purpose and an ability to deliver upon the reasons they went into healthcare, the ability to be fully present with patients and others quickly declines. Rather than annual surveys and hoping burnout will resolve itself, it starts with an accountability at the board level that maintaining well-being is everyone's responsibility in healthcare, as much as casting a leg or making a diagnosis. Only by intentionally focusing on well-being as a part of the organizational culture that is owned by all, can individuals start to regain their joy and purpose while delivering exceptional care. ◉

7   M. Bridget Duffy, "Code Lavender: Transforming the Human Experience in Healthcare," Vocera, 2010.

Involving Nurse Leaders in Governance Roles

around 4 percent. There has been no indication of growth over this 14-year period. These studies also have found that a majority of these institutions have *no* nurses on their boards. A national study of 1,316 hospitals and health systems completed in 2019 found that 63 percent do not include nurses as voting members of their boards.[5] This figure is consistent with the results of previous studies.[6]

So, most hospital, health system, and academic medical center boards presently do not include nurses. Should they? If they haven't already done so, are there reasons why governance and executive leaders should consider adding nurse leaders to their board's composition as voting members? We believe there are.

First, nurses comprise approximately half of the workforce in healthcare organizations and have enormous impact on healthcare quality, cost, and the patient experience. There is a large body of evidence showing that boards need a *blend* of expertise in *multiple* key disciplines to function effectively.[7] It seems the perspectives of leaders in the nursing profession could make valuable contributions to the mix as

boards address patient care quality and costs and ways to improve the health of the communities the organization serves.

Second, a broad range of studies have shown that *diversity* in board composition—in experience, gender, and racial makeup—has a positive impact on board deliberations and practices. High-performing boards, in effect, perform as teams and studies indicate that teams address and resolve problems more effectively when they are experientially and cognitively diverse.[8] About 90 percent of registered nurses in the United States are women compared to 28 percent of hospital and health system board members.[9] The nursing profession includes experienced leaders who could add diversity in perspectives *and* gender and, by doing so, enhance the deliberations and performance of healthcare boards.

Third, it is well-known that the public's trust and confidence in America's large institutions—governmental and non-governmental—has declined significantly in recent years and this poses serious challenges for the leaders of these organizations. For healthcare organizations, community understanding, trust, and support is utterly essential.

Nursing has been ranked as the nation's most-trusted profession for nearly two decades.[10] As candidates for board roles, highly qualified nurse leaders—along with pertinent expertise, perspectives, and diversity—bring public respect and trust that is unmatched in our society.

Fourth, the nursing profession is large (over four million women and men) including many highly qualified and experienced nurse leaders. Numerous studies show they largely are untapped

as a pool of talent for potential board nominations. In an era when identifying individuals with the experience, expertise, and willingness to serve on the boards of non-profit healthcare organizations is challenging, nurse leaders collectively represent an invaluable source of candidates for board appointments. Of course, it is well understood that board candidates will rarely, if ever, be employees of that organization. Instead, nominations can be sought from nurses who have leadership roles in other organizations, such as educational institutions, public health agencies, other healthcare organizations, and consulting firms. There are many strong nurse leaders in all of these settings who could be excellent board members.

Closing Remarks
For these reasons, there is a solid basis to believe experienced nurse leaders have the capability to make valuable contributions as voting members of healthcare organization boards. If they have not already done so, we encourage boards and their nominating committees to identify and consider nurse leaders as candidates for future board appointments. Their presence can enrich board composition and deliberations. ◉

5   Lawrence Prybil, "Nursing Engagement in Governing Health Care Organizations: Past, Present, and Future," *Journal of Nursing Care Quality,* October/December 2016; Kathryn C. Peisert and Kayla Wagner, *The Governance Evolution: Meeting New Industry Demands,* 2017 Biennial Survey of Hospitals and Healthcare Systems, The Governance Institute; American Hospital Association, *National Health Care Governance Survey Report,* 2019.
6   Marilyn Szekendi et al., "Governance Practices and Performance in U.S. Academic Medical Centers," *American Journal of Medical Quality*, November/December 2015; Diana Mason et al., "The Representation of Health Professionals on Governing Boards of Health Care Organizations in New York City," *Journal of Urban Health*, October 2013.
7   Jana Oehmichen, Sebastian Schrapp, and Michael Wolff, "Who Needs Experts Most? Board Industry Expertise and Strategic Change—A Contingency Perspective," *Strategic Management Journal*, March 2016; R. Millar et al., "Hospital Board Oversight of Quality and Patient Safety: A Narrative Review and Synthesis of Recent Empirical Research," *Millbank Quarterly*, December 2013.
8   Alison Reynolds and David Lewis, "Teams Solve Problems Faster When They're More Cognitively Diverse," *Harvard Business Review*, March 2017; Michael Peregrine, "Current Standards for Board Diversity," *BoardRoom Press*, The Governance Institute, December 2018.
9   *National Health Care Governing Survey Report*, 2019.
10 Megan Brenan, "Nurses Again Outpace Other Professions for Honesty, Ethics," Gallup News, December 20, 2018.

Successful System Community Councils…

roles of the CACs are to provide advice regarding the health-related needs within the community and to build relationships between leaders in the community and the Baystate system." The CACs also assist with legislative and public policy initiatives, support philanthropic activities, and receive reports on the performance of the hospital and its providers. "CAC members were very helpful in advocating on behalf of the hospital for legislative and public policy initiatives such as the nurse staffing bill that was on the November 2018 ballot in Massachusetts," Delaney said. "They also provide needed communication linkages to each community."

Texas Health Resources' Community Impact Board and Leadership Councils
Texas Health Resources' (THR) governance journey included some components from the other two examples. In October 2017, THR concluded a governance restructuring that converted their 14 separate hospital boards to "mirror boards" of the parent board. In other words, the exact same individuals serve as the fiduciaries for all the boards.

The work of the hospital boards (e.g., credentialing) is now done through the system board's committee structure. As a result, the governance structure is designed to improve nimbleness and advance systemness across a continually growing and diversified enterprise.

However, the THR board wanted to stay relevant in local communities and to retain the committed community leaders that served on the hospital boards, so it created a subsidiary corporation to be overseen by a new community impact board (CIB). The CIB, a fiduciary board, was granted $5.2 million dollars. The CIB created leadership councils (LC)—one in each of the five geographic regions served by THR. The LCs are comprised of community leaders who recommend outcome-driven programs and partnerships to receive funds based on an extensive request for proposal (RFP) process. After analyzing CHNA data, all five LCs chose to initially focus on behavioral health projects (e.g., teen suicide prevention, elderly depression, etc.).

Stacy Cantu, Chief Governance Officer, said, "Those involved feel they are doing far more for their community now

than when they were hospital boards." She also noted that "the membership of the CIB is intentionally more diverse in terms of gender, age, and ethnicity."

Conclusion
Health systems across the country are using different structures (other than typical hospital boards) to retain and build connections to their local communities. Whether they are called councils, boards, or something else, they intentionally include individuals with diverse perspectives on the health needs of their community. These "community councils" are intensely focused on improving their community's health, and they rely on the system's other governance structures to perform the rest of the fiduciary duties. In this way, each partner has a valuable role to play in ensuring achievement of the mission. ◉

Governance Best Practices…

operations needs to support value-based care delivery are different than what is needed for fee-for-service. Data analytics can be used to stratify risk by population and other data types integrated to refine risk adjustment. Predictive modeling is essential for anticipating community needs and prioritizing intervention.

The Risk Management Approach
Compounding the challenges posed by population health management is the simple fact that hospitals and health systems do not manage a single population, but rather multiple populations with different levels of risk under myriad reimbursement models; providers must manage the business paradox posed by engaging in both fee-for-service and value-based care contracts and care delivery. Adding new services to improve patient health, such as care management, without a clear value-based reimbursement mechanism

to support these services can lead to increases in operating costs. Meanwhile, resulting improvements to patient health can ultimately lower utilization of some services. Both dynamics may be good for patient health but can create challenging economics for the organization.

While there is no single prescriptive methodology for managing risk around population health, there are some key activities that healthcare organizations need to perform well. Effective population segmentation and stratification must be performed to determine how best to engage or intervene with each cluster of patients. Clinical management and care models have to advance in order to develop a proactive patient-centric care system. Strategically engaging provider and community partners while also promoting consumer engagement and access combine to guide high-risk individuals toward

better health before chronic conditions advance. Economics need to be aligned through a strategic payer portfolio strategy, with contracting that provides incentives to all parties and proper resource management. Providers need a strong foundation in IT, workflow applications, data, and the analytic capabilities to utilize and manage data to drive outcomes. It is critical that boards have a competent management team in place to take these actions or a focus on hiring staff that can execute on these strategies. Another opportunity is to hire advisors as a stopgap or to supplement the team. ◉

Governance Best Practices for Managing Risk around Population Health

By Brian Silverstein, M.D., The Chartis Group

The emergence of population health management over the past several years has introduced new economic dynamics and governance considerations within the healthcare market. Increasingly, healthcare providers are attempting to advance the health of the populations they serve through coordinated programs and activities that address both clinical and social determinants of health, incentivized by value-based payment models that reward high-value care delivery and improvements to specific populations' health.

Multiple factors are driving the adoption of new payment models. Insurers are opting to move toward population health management to reduce the total cost of care and associated economics. State regulations can also push payers and providers in this direction. Healthcare organizations and physician groups that excel at proactive patient care may opt for this sort of value-based contracting to align incentives to reward the high-value care they seek to provide and, in turn, improve their financial performance. Employers seeking direct health system contracts and consumers demanding increased value and convenience are also forcing moves in this direction.

While fee-for-service reimbursement is still highly prevalent, several different value-based payment models have emerged that in many cases complement fee-for-service models. The pay-for-performance model typically lays atop a fee-for-service scheme, with some portion of provider reimbursement tied to specific metrics. Bundled payments group specific services

for which providers agree to take responsibility for service costs. Several accountable care organization (ACO) models are also employed. ACO shared savings plans, which are often combined with some degree of fee-for-service, analyze actual spending compared to a specified target for a defined population over a set period; providers and payers then share in the savings realized. Under a capitation model, a provider group receives prospective fixed payments and takes responsibility for managing all associated costs.

Guidance for Governance

Clearly, hospitals and health systems making the move toward population health management-based payment models need to have strong governance and a robust strategy to succeed. As has proven to be the case with ACOs, clinicians are critical to the governance of population health efforts. The governing board should be clinician-led, with physicians and other practitioners actively involved in designing and implementing clinical programs. The governance structure should balance clinician leadership and involvement in decision making with owners' own reserve powers, providing the entity with the appropriate protections and governance rights for owners. Beyond the board, targeted committees and *ad hoc* workgroups featuring additional clinicians may address specific aspects like performance management, contracting, information technology (IT), and network development.

Providers seek to proactively develop a contracting strategy and product portfolio approach with an incentive model that is closely aligned with the overall clinical strategy. Metrics need to be carefully chosen to reflect and reinforce the goals of the organization's population health management endeavors. Steps should be taken to monitor the financial performance of value-based contracts in real time to surface any issues as they arise.

Network configuration and management also require careful consideration. Advanced approaches are needed

Key Board Takeaways

Managing risk around population health requires:

- The active involvement of clinicians in tandem with hospital/health system owners
- Contracts and financial models that balance risk and reward
- Well-thought-out network configuration and management
- Close attention to care management and clinical collaboration to create a seamless patient care process
- Business intelligence, analytics, and connectivity to drive and support the effort
- Awareness of the need to manage a range of populations
- Coordination between system-level and practice-level operations

to attract clinicians and build a high-value network positioned to manage the targeted population. The network of owned and contracted services must be optimized in order to provide full access across the continuum to high-value services. The primary care network, which in many ACO models is the basis for population attribution and management, is particularly critical to be aligned and integrated to best attract and serve target populations.

Creating a seamless patient care process over the full continuum of care necessitates close attention to care management and clinical collaboration. Evidence-based systems of care based on specific target populations need to be developed. Performance improvement must be embedded in operations, supported by performance management processes and systems. Care management for at-risk individuals should also be proactively implemented to help keep them healthy.

As in most aspects of healthcare, data and technology—specifically around business intelligence, analytics, and connectivity—play critical roles in population health management. The electronic health record system and other systems must be able to support the value-based model, with ties to a single comprehensive data warehouse accompanied by robust policies and procedures for governance. All of the human and electronic infrastructure and