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Summary

The following article summarizes a survey conducted by the American Association of Managed Care Nurses (AAMCN) of its members during May of 2017. The survey focused on two questions: ‘Where do you think the future of managed care nursing is leading?’ and ‘What challenges do you foresee for yourself and your company?’.

Key Points

• In general, members of AAMCN anticipate many changes and challenges to come from new legislation.

WITH THE POLITICAL CHANGES IN WASHINGTON, uncertainty surrounds health care and managed care’s role. The proposed changes to the Patient Protection and Affordable Care Act of 2010 (PPACA) the aging population, the growth of chronic disease, and evolving payment systems will impact the health care environment and future roles of nursing.

The American Association of Managed Care Nurses is a networking, educational, and standards resource in managed care nursing. An analysis of its members conducted in 2016 assessed membership composition. Members are registered nurses (RNs), licensed practical nurses (LPNs), nurse practitioners, and other healthcare professionals, working in health plans, hospitals, offices, long term care, academia, and Government. The staff and Board of AAMCN wanted to know how their members viewed the future of managed health care and to assess what challenges nurses in managed care are facing. The results would help to identify trends and guide the development of future educational activities and areas of focus. The survey asked two, open ended questions:

Where do you think the future of managed care nursing is leading?

What challenges do you foresee for yourself and your company?

In May 2017, an invitation to respond to these two questions about managed care nursing was emailed to approximately 2,300 members of the AAMCN, with an electronic link to an online form. Participation was anonymous and optional. Potential participants were offered a free continuing education course on Hepatitis C if they completed the survey. The one time emailing generated 113 responses, a 5% response rate. No demographic or other identifying information was collected, but the respondents’ state locations were captured by the software. Respondents were from 35 states, with every region of the continental USA represented (Figure 1).

The 113 responses to each question were coded. The first grouping of response categories were positive, negative, and uncertain, reflecting the general tenor of the response. A second grouping of responses was based on the main content: role changes, coaching, chronic disease, cost savings, and population health. Responses were then quantified and summarized.

The Future of Managed Care

The majority (73%) of respondents see a growing need for nursing in managed care and an expanded role for nurses. A common theme in the responses is the importance of the services provided by managed care nurses. Cost savings was cited as a benefit of managed care nursing in 22 (19%) of the responses. Many saw expansions in the roles of nurses in population health, chronic disease management, patient education, and coaching. Several suggested that the emphasis will grow in outpatient care, prevention, and care coordination instead of hospitalizations and utilization management. One person recognized the shift from managed care to value-based care, with more emphasis on quality and patient-centeredness. They also predicted that shared decision making in treatment options will require the skills of case management nurses. Sixteen (14%) identified coaching, patient education, prevention, holistic care, and assistance with
self-management of chronic illnesses will be large components of nurses’ roles in managed care. The role of managed care nurses in preventing readmissions was also identified.

However, 6% saw the nursing role declining. Three predicted the care coordination and patient services they provide in managed care might evolve into service-based physician practices. One expressed concern that underfunding of care management will result in overwhelming, unrealistic caseloads and that access to care and underutilization will result in managed care nurses being used more for appeal processes than to help patients navigate care. One respondent wrote, “As the economic and political environment changes over the next few years, it is worrisome that the focus will shift from what is best for our patients, back to what’s best for the pockets of others.” Another raised concern that access will be problematic and patients will not be connected with managed care nurses, resulting in more emergency care, hospitalizations, and rehospitalizations. Two nurses expressed concern that RNs in managed care would be replaced by LPNs, auto-authorizations, and/or non-licensed personnel. Another predicted “more paperwork” and “less people” nursing. One respondent expressed concern that “cookie cutter” care would not meet patients’ needs.

Similarly, 13% expressed uncertainty in the health arena, referring to potential political changes in health care. Several predicted funding cuts, more uninsured people, and more “Government interference”.

Challenges Ahead

One third of respondents expressed concern about funding for nursing services in managed care, especially for government programs Medicaid and Medicare as well as employer groups. Patient needs were a concern for 20% of respondents. These respondents also expressed the need for more care coordination and patient education due to the increasing complexity of patients. They are concerned that copays, deductibles, and other patient costs complicate care and create other needs.

Almost 1 in 5 (18%), pointed to uncertainty in the political environment and pending changes to health care as challenges. Others were concerned that government requirements were disrupting care.

The health care system issues present a range of challenges. Respondents wrote of the need for more physicians to embrace the role of nurse coaches and care managers. They also identified that increasing patient accountability, with a shift from directive approach to more self-care, will require nurse support. Lack of patient knowledge was also seen as a challenge that nurses can address. Respondents expect to see more emphasis on outpatient care, prevention, self-management of chronic conditions, and wellness. Some are concerned that the lack of community resources and the cost of medications will be problematic and contribute to avoidable readmissions.

Respondents saw the evolving need for skills in outpatient case management, analytics, predictive models, and coaching. Hiring nurses with the skills for case management was identified as a challenge by 5% of survey participants.

Conclusion

The AAMCN members anticipate more roles for nursing and more need for patient guidance, but see ongoing challenges with funding, staffing, and the ability to meet patient needs. Respondents recognized the strong role managed care nurses play in improving health outcomes and reducing costs. Nurses will need skills in coaching, patient education, and data analytics to better serve patients in the evolving health care sector. Uncertainty in the role of Government and Government programs is a strong concern for the future.

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NCQA - Population Health Management
Wendy Halloran, RN, MS, CCM

Summary
The National Committee for Quality Assurance (NCQA) has proposed changes to their Health Insurance Company standards for accreditation that if approved will be effective on January 1, 2018. The new standard, Population Health Management (PHM) aligns NCQA with the Institute for Healthcare Improvement’s Triple Aim. The goal of the triple aim is to improve the individual experience of care; improve the health of populations; and reduce the per capita costs of care for populations. Health insurance companies and Managed Care Organizations (MCOs) will have to develop a population health management strategy that defines a specific population and then adapt their care programs that may be siloed based on health condition. In addition, MCOs and providers will have more accountability for Shared Decision Making that will allow patients to be better informed of their healthcare options.

Key Points
- NCQA has proposed a new Population Health Management standard for Health Insurance and Managed Care Organization accreditation that aligns with the Triple Aim.
- Health insurance and MCOs will need to develop a strategy for Population Health Management that avoids a siloed approach to care programs.
- Health insurance and MCOs will need to improve collaboration with members in Shared Decision Making NCQA - Population Health Management.

IN 2008, THE INSTITUTE FOR HEALTHCARE Improvement (IHI) determined that society and the individual needed to make changes in order to meet the newly defined National Institutes of Health’s “Triple Aim”. The intent of the Triple Aim is to improve the individual experience of care; improve the health of populations; and reduce the per capita costs of care for populations. In 2007, the IHI recruited 141 participating health care organizations that included health insurance companies, hospitals and health care systems, public health agencies and other social and community service organizations. The purpose was to develop an understanding of how an organization could successfully pursue the Triple Aim. After seven years of research the outcome was that health care organizations needed to create the appropriate foundation for population health management and be able to deliver and sustain the services over time.

Recently, NCQA has proposed changes to health plan accreditation by introducing Population Health Management standards for Health Insurance Companies that if approved, would become effective in 2018. These changes will better align health care accreditation to the NIH’s Triple Aim by removing a siloed approach to member care management and creating a more holistic approach. Many Managed Care Organizations (MCOs) have well established case and disease management programs for members who require either complex case management or chronic condition management needs. However, the current standards for disease management will be retired. According to the NCQA health plans update accreditation overview, “The PHM standards establish basic expectations for health plans:
1. Organizations must have a population health management strategy, with defined goals.
2. At minimum, organizations must be capable of providing wellness services (i.e., health appraisal administration, self-management tools) and intervene with members at highest risk (i.e., those requiring complex case management).
3. Organizations will have the flexibility to choose members/populations with which to intervene (including the specific population under complex case management)."

Managed Care Organizations typically offer care programs and services to its members with the intent of reducing member and plan costs and delivering improved quality outcomes. In fact, for an MCO to deliver a five-star rating, programs need to be directed toward achieving high performance on The Healthcare Effectiveness Data and Information Set (HEDIS) and Consumer Assessment of Healthcare Providers and Systems (CAHPS). With millions of dollars in Medicare reimbursements at stake, health plans must develop care program priorities that encompass a variety of moving parts; especially those that are accredited by NCQA.

Consider the fact that 17% of the gross domestic product, over $17 trillion, is spent on health care and yet life expectancy in the United States is shorter than other industrialized nations. As health care expenditures rise to 20% by the end of this decade, the US with have the highest health care spending in the world. The NIH and IHI aim to tackle these challenges by shifting the paradigm of accreditation standards for health insurance to one that focuses on the populations at large. For example, the current NCQA standards include elements that address complex case management programs.
and disease management programs. This means that if you are an insurance plan member who had a catastrophic accident, you can receive complex case management support from your plan that includes assessments, interventions and continuity of care that is approved by NCQA. If you have a chronic condition such as diabetes or asthma, your plan likely offers a disease management program that also includes assessments and interventions that are approved by NCQA. These care programs are documented and reported on independently to meet NCQA criteria. But what about the rest of the population, and what will Population Health Management look like for health insurance plans that have separate case and disease management programs, especially those that have disease management programs delegated to vendors? Plans should begin by understanding the foundation of population health management and then develop a strategy that not only meets the NCQA standards but also integrates with the organization’s values.

Population Health Management begins with a partnership between providers, patients and payers or insurance companies, that share the common goal of better outcomes for everyone involved. Defining the population is based on specific patient characteristics that have the greatest potential of successfully achieving the Triple Aim. The use of health analytics helps to identify and stratify the population. See Exhibit 1 for medical conditions with highest spend.

NCQA standards requires the Managed Care Organization (MCO) to have a complex case management program which is most appropriate for members who experience a catastrophic trauma. Heart conditions, pulmonary conditions, diabetes and hypertension are typically defined as the core chronics which are managed in disease management programs. Many MCOs also have pediatric programs, behavioral health programs and oncology care programs among others. The new PHM proposed standards due to become in effect on January 1, 2018, intend for the member to be managed holistically which means that a transformation needs to occur at a rapid pace. If the MCO defines their highest risk population as those with mental health needs, a shift from siloed member management to an integrated care management approach may work. The same holds true for the members with chronic conditions. Integrating case and disease managers with behavioral health specialists, pharmacists and providers to develop evidenced-based interventions that focuses on the member gaining knowledge of how to better manage their conditions should satisfy the new PHM standards. Change also needs to occur in the information management area so that the appropriate reports can be developed to meet the new standards. While this paradigm shift may appear simple in theory, restructuring teams and addressing vendor contracts to accommodate NCQA’s changes takes time.

In addition to internal changes that will occur from a population health management strategic view, the newly proposed standards also include a commitment of Shared Decision Making (SDM) by providers. This concept pairs providers and patients at the decision-making level to ensure that the patient’s values and personal preferences are taken into consideration. Patients need to be better informed about their choices regarding tests, treatments and care plans in order to make more informed healthcare decisions. The MCO needs to ensure that decision tools, such as pamphlets, videos or other media are available to the member and that the provider is participating in the plan of care.

The shift in NCQA to support the IHI’s Triple Aim makes perfect sense in an unstable healthcare economy. MCOs and providers must continue to build and strengthen relationships that will drive down costs, improve the patient’s healthcare experience and improve their overall health.

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### References

A Guide to Care Management: Five Competencies Every Health System Must Have
Russ Staheli, MPH

Summary
The goal of care management is to ensure patients get the right care at the right time. Effective care management enables the care team to identify and group individual patients by current and anticipated levels of need, and then support patients at the appropriate level of care for the situation. Additionally, it is imperative to evaluate the effectiveness of the program and to assess and adjust the care accordingly. The following article describes the five key competencies needed to achieve an effective program.

Key Points

THE IDEA OF CARE MANAGEMENT—MANAGING A selected set of patients to focus on reduced costs and better quality of care—isn’t new to the healthcare industry; it’s been primarily established in the payer space for years. However, with the growth of value-based incentives and risk-based contracting, healthcare provider organizations have started to think of care management, also called “complex care” and “disease management,” in the context of population health strategies.

Ultimately, the goal is to ensure patients get the right care at the right time. To do this, a care management program must be able to answer the following questions:

• Is the program managing the right group of patients?

• Is it having an impact for those patients?

• Is there variation between care teams that may help identify and communicate best practice?

• Is there an opportunity to change how to identify patients or direct them to a different level of support that can positively impact health and program costs?

The Healthcare Delivery Organization’s Case for Care Management
Organizations in risk-based contracts and value-based payment models need a way to reduce the cost and increase the quality of care for patients identified in their care management
programs. Medicare claims data shows that five percent of all patients account for almost 50 percent of utilization and costs, however, organizations need a strategy to identify and work with the patients they will impact the most—going beyond this five percent (Figure 1).

**The Five Core Competencies of Care Management**

The goal and responsibility of every healthcare organization and provider using a care management approach is to deliver the right care at the right time to the right patients. Effective care management enables the care team to identify and group individual patients by current and anticipated level of need, and then support patients at the appropriate level of care for the situation. Additionally, it is imperative to evaluate the effectiveness of the program and to assess and adjust the care accordingly. This standard of care management can only be achieved if five competencies are in place:

- Data Integration
- Patient Stratification and Intake
- Care Coordination
- Patient Engagement
- Performance Measurement

**Data Integration**

Most ACOs, Integrated Delivery Networks, and provider organizations have multiple electronic medical record (EMR) systems and data sources that span across the continuum of care, from post-acute settings to long-term care and more.

Pulling all this data together—EMR, clinical, claims, wearable devices, socioeconomic—has not been a priority for care management programs in the past, but it’s essential to build a robust program that drives outcomes improvement. Organizations also need the ability and flexibility to add custom data feeds to the mix.

KLAS Research’s 2016 report on Population Health Perception demonstrated that as organizations expand the disparate sources of patient data, all with their own methods to identify patients, into a patient centric view, they need to dedicate time and resources to implement an Enterprise Master Patient Index (EMPI) strategy and negotiate member-level data sharing with payers and HIEs (Figure 2).

**Patient Stratification and Patient Intake**

Stratifying patients and identifying those patients who should be part of the care management program occurs in three levels of maturity.
**Stage One Stratification:** Stage one leverages historical data to inform the current state and answer questions such as: Who is at the highest risk today? And who is the costliest? This is a good starting point and provides a path for getting to the next two levels of maturity.

**Stage Two Stratification:** Stage two predicts the future state and allows organizations to ask: Who will be the sickest tomorrow? And who will be the biggest utilizers tomorrow? This stage gets into predictive analytics and finds those patients who might be considered rising risk.

**Stage Three Stratification:** Finally, stage three answers the important question: Who can an organization have the biggest impact upon? It’s not enough to know who is the sickest or costliest today or tomorrow; health systems should be able to identify which patients have the best chance of improving outcomes. This level of maturity allows organizations to find where they will receive the greatest Return on Engagement answering the question: How much will it cost to improve this patient’s health?

A care management program needs to start with stratification, risk, and patient load balancing algorithms that can be customized to fit an organization’s needs and allow it to progress through the three stages of maturity.

**Workflow Optimization: Patient Intake**

As a care management program progresses, the importance of a good patient intake process increases. Healthcare organizations must consider how to enroll those patients in care management programs in a way that doesn’t create an administrative burden on the care management team. The complexity of managing enrollment will grow as the care management program matures and to scale all this work, organizations need tools to optimize that workflow.

**Care Coordination**

When most people think of care management, they are actually thinking of care coordination. This is the day-to-day work of a provider or member of a care management team providing support to the patient. The entire care team needs to be able to communicate with one another, working off the same information, and creating care plans that can be modified. Training should also be formalized to ensure standard team design and strategy for the care management program.

Starter sets for a particular care management program, such as diabetes or heart disease, can set up an organization for early success. Using modifiable evidence-based care plans, assessments, patient-reported outcomes measures (PROMs), and identifying community resources (support groups, etc.) will help the care team do the work involved in this core competency.

**Patient Engagement**

The flip side of care coordination, patient engagement is how the patient and his family communicates back with the care team. Patients need to engage in their own care for a care plan to be successful, and organizations should be providing tools that make this engagement as easy as possible—not only for the patient, but for the patient’s family, friends, and other members of the community that the patient wants involved.

A care management program should include patient-created data, such as data from fitness and medical devices. Additionally, employing a patient-centered algorithm that helps patients find others who have similar diagnoses and circumstances can help increase engagement and foster success among a given patient.
Performance Measurement

Understanding what is spent on a care management program, and how effective that program has been in delivering outcomes improvement will drive better decision making for the next round of patient intake. Program design should be strategic based on the data derived from this core competency. Four measure types that should be considered:

**Outcome Measures:** How are patients doing? These measures will include looking at utilization (ED visits, for example) and drilling into the details for each diagnosis, procedure, etc.

**Process Measures:** What is the organization doing for care management? Monitoring processes, such as enrollments, assessments, and patient workload, an organization looking at these measures can find ways to improve the actual day-to-day work of care management. For example, decreasing or increasing patient loads, mitigating transition/handoff miscommunications, and identifying patients who are stagnant or regressing.

**Balance Measures:** Is the care management program working and is the organization seeing a positive Return on Engagement? For example, for every $5 an organization is spending, do they see a $15 savings in utilization costs, along with improved patient outcomes? An organization looking at balance metrics can see if a patient’s task prioritization needs to change to help improve outcomes, for example.

**Insights Measures:** What should a care management program be doing more of? What should be changing? How does an organization take the next step? Insights measures can use algorithms and machine learning to identify key items for care management program success finding the biggest drivers for patient engagement and the most cost effective activities.

Starting the Care Management Program: Data Integration, Stratification and Intake (Figure 3)

Organizations start by identifying a population for the care management program, sometimes dictated by an at-risk contract, using information from socioeconomic, clinical, claims, EMR, HL7, and other data feeds. These feeds are integrated into an analytics platform that allows for the next step: patient stratification.

**Configurable Patient Stratification**

Using a configurable score, health systems identify the first round of patients for the care management program. This score can be based on utilization algorithms, be disease or chronic-condition specific, use medicine lists, or evaluate social determinants of health—or employ a combination of those things.

**Rightsizing the Patient List**

Not every patient pulled in via this data will be right for the program, so the organization needs a method for rightsizing the list based on things like care manager availability.

**Patient Intake**

Next, many health systems benefit from the ability to manually add and remove patients based on other factors like discussions
with primary care providers. This final list can be attributed to a care management program, and patients can be assigned to their final care teams and primary care providers (if necessary).

**Working with the Data to Improve Patient Outcomes: Care Coordination and Patient Engagement**

Now that patients have been assigned care teams, the work of care coordination and patient engagement begins. The care manager meets with the patient and agrees to patient-centered goals and activities to drive those goals. Some of these goals can be preset based on a diagnosis or condition, but they should be customizable.

The activities in the patient’s care plan are prioritized and scheduled or dispersed with the members of the care management team. This may involve a nutritionist, a pharmacist, a physical therapist, etc. It’s important the care team, along with the patient and whomever the patient wants to participate in their care, be able to communicate quickly and effectively through a common, easy-to-use framework. This will allow ongoing care management activities like care plan updates, adding or removing members of the team, check-ins, and education to occur in an efficient and effective manner. Additionally, when an event such as the patient returning to the emergency room occurs, the care team can be altered and investigate how to best assist.

Finally, a patient who is actively and well-managed can be discharged from the program or placed in maintenance mode.

**Improving the Care Management Program: Performance Measurement**

Health systems need to be able to evaluate their care management programs and determine effectiveness and Return on Engagement. Dashboards can show the impact programs have on a group of enrolled patients versus a control group of patients who are outside of the care management program. While not a double-blinded study, the information can be directionally correct and help inform the next round of decision making. Also, benchmark data from across multiple health systems with a similar group of patients and programs can add to the measurement of the program.

**Care Management: Improving Patient Lives and Reducing Costs**

Imagine a patient struggling to manage multiple medical conditions and this happened:

*The patient receives an invitation from her doctor explaining how a team of healthcare professionals is contacting her to craft and coordinate a personal plan of care that includes help addressing the struggles she’s facing with selfcare at home. Then they give her access to this plan through an app on her phone so she can see key medical information and communicate with her team. They ask her to participate to make this a successful experience. She’s feeling excited and empowered to do so.*

This is how healthcare should be delivered. This care management model is what healthcare providers must do to improve the healthcare industry as whole, and truly help people have better outcomes at a lower cost and with a better experience.

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Survey of Rehabilitation and Return-to-Work (RTW) Practices Among US Disability Carriers

Robert Beal, FSA

Summary

Disability insurance provides financial protection for workers who become disabled and are unable to perform their occupations. It is beneficial to both disabled employees and their employers to have their employees return to work as soon as they are able to do so. For disabled employees, benefits are typically 60% to 66 2/3% of their pre-disability income. For employers, an employee’s indefinite absence due to a disability involves the loss of productivity and the extra cost of training a new employee. In addition, the disabled employee often has on-the-job knowledge that may take a new employee many years to acquire. Many employees who receive disability benefits subsequently recover and return to work. Frequently, the cause of disablement is successfully treated with appropriate medical care, and the employees are able to return to their jobs with no additional assistance. However, for some claimants, the nature of their disability is severe enough to require extra support to facilitate their return.

Key Points

• Rehabilitation and RTW programs provide important benefits to employers and to disabled employees. The rehabilitation and RTW programs offered by disability insurers very often play the key role in returning disabled employees to productivity and financial independence.
• For reporting insurers, RTW closures represented 29% of all claim closures in 2005 and 42% of all closures excluding claims closed due to death or the end of the maximum benefit period.
• The participating companies reported annual budgets dedicated to RTW and rehabilitation that range from $450,000 to over $10 million.
• On average, participating LTD carriers spent $3,200 on each disabled employee receiving rehabilitation and RTW services. The range of disability insurer investment extended as high as $7,600 per return-to-work client.
• Rehabilitation and RTW programs offer a wide range of services to disabled employees. A number of provisions in disability insurance policies play a role in supporting claimant rehabilitation and RTW.

INTRODUCTION

Disability insurance provides financial protection for workers who become disabled and are unable to perform their occupations. It is beneficial to both disabled employees and their employers to have their employees return to work as soon as they are able to do so. For disabled employees, benefits are typically 60% to 66 2/3% of their pre-disability income. For employers, an employee’s indefinite absence due to a disability involves the loss of productivity and the extra cost of training a new employee. In addition, the disabled employee often has on-the-job knowledge that may take a new employee many years to acquire.

Many employees who receive disability benefits subsequently recover and return to work. Frequently, the cause of disablement is successfully treated with appropriate medical care, and the employees are able to return to their jobs with no additional assistance. However, for some claimants, the nature of their disability is severe enough to require extra support to facilitate their return.

In the late 1970’s, several large group long-term disability (LTD) carriers introduced formal programs with the objective of identifying claimants who could benefit from special support services that would facilitate their return to work. These programs were staffed with credentialed professionals trained in rehabilitation and counseling and offer a range of medical, psychological, and vocational services designed to assist the disabled employee return to work.

The popularity of these programs has grown among group LTD carriers. Our survey confirmed that most now offer rehabilitation and RTW programs, which provide a range of services to disabled employees such as:

• Medical case management,
• Vocational and employment assessment,
• Worksite modification,
• Purchasing adaptive equipment,
Disability carriers are in a unique position to provide this support. In order to pay disability benefits, they develop a thorough understanding of the claimants’ medical conditions and the limitations they create in preventing the claimants from fully performing their occupations.

On behalf of America’s Health Insurance Plans (AHIP), Milliman conducted a written and telephone survey of group disability carriers regarding their rehabilitation and return-to-work (RTW) practices. Despite extensive disability insurer investment in rehabilitation and RTW efforts – and the importance of RTW to employees and employers – these efforts receive little public attention. This survey was intended to help quantify disability insurance carrier investment in rehabilitation and RTW; identify key industry practices that support return to work; and highlight the factors that are the most crucial to successful return to work.

Ten group disability carriers, representing 60% of the 12/31/2004 long-term disability (LTD) premium in force (based on the JHA 2005 U.S. Group Disability Market Survey), were surveyed. A list of the participating group disability carriers is provided in Appendix A.

Appendix A

Participating Group LTD Carriers:

- Aetna
- Assurant
- CIGNA
- Guardian
- Lincoln Financial
- Mutual of Omaha
- Principal Financial
- Prudential
- Standard
- Unum

The focus of the survey is primarily LTD plans, although many carriers apply practices in short-term disability (STD) plans, particularly when the STD coverage is followed by LTD coverage. Many individual disability carriers also offer return-to-work rehabilitation programs.

We have relied upon the responses and data provided by the disability carriers participating in the survey. We did not audit or independently verify the survey responses, except that we did review the responses for reasonableness and consistency. To the extent that any of the data or other information supplied was incorrect or inaccurate, the results of our analysis could be affected. Milliman does not intend to benefit any third party recipient of its work product.

The Definition of Disability

LTD contracts specify the definition of disability that covered employees must satisfy in order to receive disability benefits. Definitions of disability may vary among disability carriers, and each carrier may offer a variety of definitions to employers. However, a typical requirement during the “own occupation” period, which is often 24 months following the elimination period, is that the employee must be unable to perform most of the material and substantial duties of his or her own occupation and is unable to earn more than a specified percent (e.g., 80%) of his or her pre-disability income due to an accident or sickness. After the own occupation period, the definition of disability typically changes to an “any occupation” definition. That is, the claimant continues to be eligible for disability benefits if he or she is unable to perform the material and substantial duties of any occupation for which the claimant is or may reasonably become qualified based on education, training, or experience.

The definition of disability typically allows the disabled employee to work part-time and still receive benefits, if the employee is able to perform some but not all of the material and substantial duties of the occupation (or for not as long as usual) due to the accident or sickness. In these situations, the disability benefits are reduced by earned income by various formulas offered by the disability carrier. However, the combined disability benefit and earned income are generally greater than if the employee remained totally disabled.

The Value of Rehabilitation and RTW Programs

Rehabilitation and RTW programs provide important benefits to employers and disabled employees. Employers’ productivity improves when disabled employees are able to return to their occupations. Disabled employees, who are motivated to work but unable to do so because of the limitations of their disabilities, may lead productive lives once again through the assistance offered by the trained staff of these programs.

Appendix B summarizes representative examples of successful return-to-work through insurer rehabilitation and RTW programs.

Appendix B

Examples of Successful Return to Work:

These examples illustrate how the rehabilitation and RTW programs of private disability insurers can serve the best interests of employees and employers as well as insurers – and why they have become a key component of effective disability claims management programs.

1. A foreman in a large factory developed severe arthritis in his legs, which prevented him from walking the long distances around the factory needed to perform his work. The disability carrier purchased an electronic cart to give the employee the mobility he needed around the factory. With the employer’s agreement, the claimant was able to resume his foreman duties.

2. A highly paid professional in an educational setting had coronary by-pass surgery. Following surgery, the employee was reluctant to return to work although his medical condition allowed it. From discussions with the attending physician, the carrier identified that the claimant had a developed fear of doing anything strenuous that might endanger his health. With agreement from the attending physician, the disability carrier introduced the claimant to a psychologist who helped the claimant address these fears. Subsequently, a RTW plan was developed whereby the claimant returned to work initially for a few hours a day, gradually increasing to full-time.

3. A manager was going blind from a medical condition. Although reasonable accommodations were being made by the employer to assist the employee, she was ultimately unable to perform her duties. A nurse rehabilitation specialist interviewed...
the employee, employer, and the attending physician. Through her research, the nurse was able to identify a new surgery by which the employee could regain her sight. Following this surgery, the employee was able to return to work full-time.

4. An engineer had a heart and lung transplant. The disability carrier worked closely with the attending physician and the employer. A gradual RTW schedule was developed. Initially the employee was able to work out of his home. In six months, the employee had returned to work full time.

5. A customer service representative for a medical laboratory lost the use of her arms and legs as a result of a blood infection. The rehabilitation specialist for the disability carrier worked with the claimant to use prosthetic limbs, and a rehabilitation engineer performed an ergonomic evaluation to bring the demands of the job within the physical capability of the employee. The disability carrier paid for the physical therapy and counseling and the employee returned work at her occupation after one year.

6. A farmer working in the agricultural department of a large university lost his hearing. The employee’s medical insurance did not cover hearing aids, so the disability carrier purchased them. This allowed the employee to return to his work.

**Likelihood of Return to Work**

Claims close and disability benefits cease for a number of reasons. The primary reasons include death, recovery, and end of maximum benefit period. Of the companies participating in the survey, six were able to separate their total 2005 LTD claim closures (including both approved and unapproved claims) into these categories. RTW closures represented 29% of all claim closures in 2005 for these six companies and 42% of all closures excluding deaths and claims reaching the end of their maximum benefit periods.

**The Investment and Return in Rehabilitation and RTW Services**

Effective rehabilitation and RTW programs require upfront and ongoing investments of time and resources from both disability carriers and employers. Disability carriers must hire professionals with the appropriate backgrounds who can deliver valuable services to claimants directed toward assisting their return to work. They must integrate these resources into their claim management teams and be willing to pay for the necessary outside resources in support of these objectives.

The participating companies reported annual budgets dedicated to RTW and rehabilitation that range from $450,000 to over $10 million. These budgets depend on the size of each company’s claim block as well as on the types of services they provide. Seven of the participating disability carriers provided information regarding their average cost for rehabilitation and RTW services in 2005 per client (i.e., disabled employee receiving rehabilitation and RTW services). These results are summarized in Table 1.

The reported rehabilitation and RTW costs per client ranged from $475 to $7,600 with an overall average of $3,200. The outlay for rehabilitation and RTW services per client is significant.

Employers invest in rehabilitation and RTW programs that coordinate with the efforts of the disability carriers by developing a corporate culture that supports continued productivity and guides employees and management, creating a flexible work site that allows for continued productivity as temporary work restrictions and limitations arise, and assigning specific accountability for RTW planning within the management of the organization.

Measuring the investment as well as the return associated with rehabilitation and RTW programs can be a daunting task because much of the investment and benefits do not lend themselves to precise quantification. Some disability carriers have attempted to calculate the ROI from their RTW programs. Research and analysis conducted at one company found the following outcomes resulting from the application of a well defined RTW program:

- A 7:1 ROI with the application of a transitional work program.
- A 25% to 30% reduction in lost work days per claim.
- A 40% to 60% reduction in short term disability claims that go on long term disability.
- A 20% to 25% reduction in repeat short term disability claims.
- A 35% reduction in lost work days on work related lost time claims.
- A 40% reduction in healthcare costs for individuals on short term disability.

Although this research was directed primarily to the impact of rehabilitation and RTW programs on STD results, many of these results can be extended to LTD.

**RTW and Rehabilitation Programs Among Group Disability Carriers**

All ten group disability companies participating in the survey have formal rehabilitation and RTW and programs. These programs typically include the following components:

1. Rehabilitation and vocational counselors
2. Rehabilitation and vocational services
3. External vendors
4. Contractual policy provisions supporting the RTW and rehabilitation efforts
5. Early intervention
6. Employer partnerships

**Rehabilitation and Vocational Counselors**

These staff members are trained in rehabilitation and vocational counseling. Counselors have often earned a masters degree in vocational counseling or earned professional credentials such
1. Work incentive benefit

During the first 12 months that the claimant returns to work, disability income benefits will be reduced by earned income only to the extent that the combined benefit and earned income exceed 100% of the pre-disability income.

2. Rehabilitation services

A claimant may qualify to participate in a rehabilitation program. The disability carrier will work with the employee, employer, and the employee’s attending physician to develop an individualized rehabilitation program intended to assist the employee to return to work. The disability carrier will pay a reasonable portion, if not all, of the expenses.

3. Child-care and dependent care while in rehabilitation

This benefit will provide an additional benefit while the claimant is in a qualified rehabilitation program to cover child-care and dependent care.

4. An increase in benefits (e.g., 5%) while in a qualified rehabilitation program and before returning to work

To encourage a claimant to participate in a rehabilitation plan, the benefit will be increased once he or she begins the rehabilitation plan and prior to returning to work.

5. Workplace accommodation benefit

The company will reimburse an employer or the employee for expenses incurred to modify the workplace to allow the employee to return to work, subject to a maximum dollar amount specified in the LTD plan. Expenses may include the cost of tools, equipment, furniture, or any other changes to the worksite or environment that the company agrees will allow the disabled employee to return to work.

6. Pre-disability intervention services

The company may offer to pay reasonable work accommodation benefits to the employer in the case of an employee who is currently working but who has a medical condition that may likely lead to his or her inability to perform the important duties of the occupation.

7. Mandatory participation in a rehabilitation plan

The company may require a disabled employee to participate in an individualized rehabilitation plan at the expense of the company. If the employee refuses to participate in the plan or does not comply with it, without good cause, all benefits will cease to be payable, where “good cause” means a medical reason that prevents implementation of the rehabilitation plan.

A disability carrier may not offer all of the above benefits or provisions. The work incentives and rehabilitation services benefits are generally standard in most LTD contracts today. Of the ten companies participating in the survey, seven include the mandatory participation in a rehabilitation plan provision in their standard LTD contracts. The others may offer this provision if an employer requests it.

Early Intervention

Early intervention means identifying appropriate candidates for participation in rehabilitation plans as early as possible during their disablement. Table 2 shows the distribution of expected distribution of recoveries during the first ten years of disablement.

External Vendors

All ten participating carriers utilize external vendors, in addition to their home office staffs, to provide some of these services. Some of these vendors provide vocational case management to claimants at their homes or places of employment. Some companies use executive placement firms to assist claimants who are pursuing other occupations or to perform labor market surveys. Some companies hire ergonomic experts to design office equipment that will allow a claimant to return to work. Nurse case managers are used by some carriers as intermediaries between the disability carrier and the attending physician to ensure that the medical treatment is appropriate for the condition causing the disability and is designed to return the employee to work.

Contractual Policy Provisions

Group disability contracts may offer a variety of provisions or benefits intended to assist and encourage claimants to return to work as soon as they are able, including the following:

1. Work incentive benefit

During the first 12 months that the claimant returns to work during a disability, disability income benefits will be reduced by earned income only to the extent that the combined benefit and earned income exceed 100% of the pre-disability income.
for a male disabled at age 42, with a 90-day elimination period, based on an industry table (Table 2).

Given the very high percentage of expected recoveries occurring in the first year of disablement, identification of potential candidates early in the disablement is a critical factor to achieving a successful rehabilitation.

RTW and rehabilitation staff members work with the disability benefit specialists to identify candidates for whom participation in a rehabilitation plan will increase the likelihood that they can return to work. At that time, the disabled employee, the employer, and the attending physician are brought into the discussion to develop an individualized plan for the employee. In LTD plans where the disability carriers also provide the STD plans, the early intervention process may begin while STD benefits are payable.

### Employer Partnerships

The employer’s willingness to participate in a disabled employee’s rehabilitation plan is a crucial factor in achieving a successful return to work. For the four participating disability carriers who were able to provide the necessary statistics, 89% of all claimants who returned to work returned to their own employer while the other 11% went to a new employer.

Disability carriers face a wide range of cooperation among employers. Some are more than willing to bring back disabled employees and make the necessary accommodations, while other employers are only interested if the employee can return on a full-time basis. The level of employer partnership also depends on the nature of the work and the ability of employers to support rehabilitation or part-time solutions. Of course, employers must be cognizant of the requirements related to disabled employees from the Americans with Disabilities Act (ADA) and Family and Medical Leave Act (FMLA).

The RTW and rehabilitation staffs of disability carriers spend considerable effort in educating employers on the benefits of bringing disabled employees back. One of the carriers participating in the survey indicated that they educate all new employers with over 1000 covered employees even before a disability occurs. As a result, employers understand the carrier’s philosophy with respect to rehabilitation and RTW and the employer’s expected role.

### Relative Effectiveness of Aspects of RTW and Rehabilitation Programs

Disability carriers participating in the survey were asked to rank the relative effectiveness of various tools comprising rehabilitation and RTW programs. The ranking was from 1 to 6 with 1 representing the most effective tool and 6 the least effective. Table 3 shows the listing of each of the six tools and the average rank given to it.

The development of employee-specific RTW plans is considered the most important on average. Plan development involves the teamwork of the disability benefit specialist managing the claim, the rehabilitation and RTW staff members and vendors, the employer, and the claimant’s attending physician. With respect to overall effectiveness, development of employee specific RTW plans was followed by supportive LTD plan designs and early intervention.

The least important tool, on average, was the mandatory rehabilitation provision. Many of the representatives from the participating companies pointed out that a successful rehabilitation and RTW depends heavily on the motivation of the disabled employee to return to work. If that motivation is not present, the disabled employee will find some way not to cooperate with the specific plan developed for him or her, in spite of the existence of a mandatory rehabilitation provision.

On the other hand, several company representatives indicated that it was their experience that the mandatory rehabilitation provision could be very effective if used correctly. Once a well-thought out rehabilitation plan exists, the company lays the groundwork by explaining its expectations for the employee upfront. Benefit reduction occurs only after a stated number of instances of non-compliance with the program.

### Conclusions

Group LTD carriers have invested significant resources and developed a variety of tools to provide rehabilitation services to disability claimants and to assist their return to work. The

### Table 3

<table>
<thead>
<tr>
<th>Relative Ranking of the Effectiveness of Specific Rehabilitation and RTW Tools</th>
<th>Average Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of employee specific RTW plans</td>
<td>2.0</td>
</tr>
<tr>
<td>LTD plan design with provisions supporting rehabilitation and RTW</td>
<td>2.5</td>
</tr>
<tr>
<td>Early intervention</td>
<td>2.8</td>
</tr>
<tr>
<td>Medical case management</td>
<td>3.6</td>
</tr>
<tr>
<td>Mandatory rehabilitation provision</td>
<td>4.1</td>
</tr>
</tbody>
</table>
rehabilitation and RTW programs of all ten participating companies shared essentially the same key components, e.g., rehabilitation and vocational counselors and services, the use of external vendors, supporting contractual policy provisions, early intervention and the employer partnerships.

To achieve effective results, a carrier’s dedicated and trained rehabilitation staff must work closely with the claimant, the attending physician, external vendors, and the employer. As a result of these efforts, many disabled employees have been able to return to productive positions in the work force.

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Patient-Centered Telehealth for Heart Disease Management

David Taylor, RN

Summary

An oft quoted “heart fact” is that heart disease is the number one cause of death in the United States. While this is true, it also fails to do justice to the full extent of the problem, both on the patient and provider sides of the equation. The extensive nature of heart failure places a tremendous burden on the healthcare system: heart failure costs the nation approximately $32 billion every year (including the costs of healthcare services, heart failure medications and days of work missed), with that number trending upward on an annual basis.

A 2017 report from the American Heart Association (AHA) estimates heart failure treatment costs could potentially double by 2030. This is due in large part to an aging population, with Baby Boomers reaching elderly status, as well as increasing secondary causes, such as obesity.

Key Points

This paper examines:

- The need for strategies to prevent and treat heart failure to help curb the rise in congestive heart failure (CHF) and its reciprocal costs
- While there are more treatments for heart failure than ever before, many of the treatments are symptom specific, rather than addressing the root causes for the disease itself, or providing long-term structure around disease management
- The new technology solutions hold promise in helping patients and providers address heart disease prevention and maintenance in the long term.

EVERY DAY, HEALTHCARE PRACTITIONERS LIVE the reality of the harsh statistic that heart disease is the number one cause of death in the United States. We also know all too well the tremendous burden it places on the healthcare system: a 2017 American Heart Association (AHA) report estimates cardiovascular disease (CVD) treatment costs (currently coming in at around $400 billion) could rise to more than $900 billion by 2030, with more than 40 percent of the patient population projected to have some form of CVD.

The AHA study highlights the need to create strategies to prevent and treat heart failure to help expand the reach of care, as well as curb the rise in costs. Fortunately, new technology solutions hold promise in helping patients and providers address heart disease prevention and maintenance in the long term.

Problems with Current Treatment Methods

The aforementioned study hits on a major problem with the current state of heart disease treatment (especially among congestive heart failure (CHF) patients) in the United States. While there are more treatments for heart failure than ever before, many of them are symptom-specific, rather than addressing the root causes for the disease itself, or providing long-term structure around disease management.

The Telehealth Model as a Solution

One potential solution is in the proven foundation of telehealth technology. Generally defined as the delivery of services related to healthcare across telecommunications technologies, the primary benefit of telehealth is it allows a patient to interact with and receive information from a healthcare provider without actually having to set up an in-person appointment.

Incorporating telehealth in the care continuum could ease a significant amount of the financial pressure facing the healthcare industry. In-patient care accounts for a significant portion of overall medical expenses, so reducing the amount of inpatient stays would therefore have a significant impact on overall healthcare costs.

Telehealth also allows patients to receive personalized care for their long-term conditions from the comfort of their home, which can help to prevent hospital admissions and readmissions. Studies consistently indicate telehealth monitoring for heart failure patients drastically reduces hospital admissions. One 2009 study by the University of Ottawa Heart Institute saw heart failure readmissions cut by 54 percent, with patients each saving up to $20,000 in overall health care.
That said, the study also references the many barriers that exist to the more widespread use of telehealth, including:

- **Lack of understanding of the technology.** Integration with primary care can be a challenge if the people using the equipment (patient or provider) do not understand what it is and how it works.
- **Lack of resources.** Consistent monitoring of the data is necessary – be either the provider or patient – to ensure results can be made actionable. Provider organizations do not always have the resources available to monitor data points for their patients.
- **Lack of capital resources.** According to a recent survey conducted by the company MobileHelp, more than 80 percent of healthcare providers are concerned about increasing operational costs, and have been reluctant to invest in telehealth due to the additional high initial cost outlay.

Patient-Driven Telehealth as a Solution

Considering the barriers to telehealth utilization, new solutions have emerged in the marketplace that focus on giving the patient more control (or sole control) over managing the telehealth system.

Patients who use these systems take their vital signs with peripherals such as weight scale, oximeter and blood pressure monitor, and that vital sign data is then collected by base hub and/or a smart device. Once this information is collected, it can then be stored, tabulated and presented to the patient (and anyone else to whom the patient provides access) through a secure online portal.

This type of system allows patients to monitor their own health from the comfort of their own home, where they can observe trends in their vital signs. In so doing, the patient is also being further educated on vital sign abnormalities and can then begin using the system to detect any potential issues that need to be addressed – before they become emergency issues.

And because these devices work to educate patients about elements of monitoring their congestive heart failure, it has the potential to drastically reduce hospital admission rates. As a result, there is less stress placed on the healthcare system as a whole.

This is the type of patient-centric approach the world of telehealth has been missing. Healthcare providers have been slow to adopt telehealth solutions because of the potential strain it could place upon their organizations. But when much of the responsibility is placed on the patient, and when the equipment itself is extremely intuitive, that barrier can be removed. It is a system that benefits doctors and patients alike, and could help to bring down the costs of heart disease treatment in the United States. By creating more independent and educated patients, providers are able to work toward curbing the incidence of heart failure as a whole.

David Taylor, RN is a Supervisor of Telehealth Services for the VNA of the Rockford Area.

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3. Cadet, Justine; Telehealth monitoring cuts heart failure readmissions by 54%, $20,000 per patient, Cardiovascular Business, July 2009.
Leveraging Health-Related Quality of Life in Population Health Management: 
The Case for Healthy Days
S. Lane Slabaugh, PharmD, MBA, Mona Shah, MPH, PhD, Matthew Zack, MD, MPH, Laura Happe, PharmD, MPH, Tristan Cordier, MPH, Eric Havens, MA, Evan Davidson, MD, Michael Miao, MD, Todd Prewitt, MD, Haomiao Jia, PhD

Summary
Measuring population health with morbidity and mortality data, often collected at the site of care, fails to capture the individual’s perspective on health and well-being. Because health happens outside the walls of medical facilities, a holistic and singular measure of health that can easily be captured for an entire population could aid in understanding the well-being of communities. A systematic literature review was conducted and revealed a strong evidence base using Healthy Days with significant correlations to chronic disease conditions. As the health care system faces increasing costs and constrained resources, the Healthy Days survey instrument can be used to inform public policies and allocate health service resources. Because Healthy Days captures broad dimensions of health from the individual’s perspective, it is a simple way to holistically measure the health and well-being of a population and its trend over time.

Key Points
• This paper postulates that Healthy Days, a health-related quality of life measure developed and validated by the Centers for Disease Control and Prevention (CDC), is an ideal survey instrument to advance population health.
• Building on the literature base and experience, methods for analyzing Healthy Days data are discussed, including stratified sampling techniques, statistical measures to account for variance, and modeling techniques for skewed distributions.
• Using such analytic techniques, Healthy Days has been used extensively in national health surveillance.
• Expanded use of Healthy Days can aid population health managers and contribute to the understanding of the broader determinants of the nation’s and individual community’s health and aid in evaluating progress toward health goals.

INTRODUCTION
Several different groups are accountable for the health and medical care of communities. Some, such as the Indian Health Service, have wide responsibility to provide all health programs for a distinct population. Most, however, manage only certain aspects of health programs or work within less defined communities. For example, state or local health departments greatly influence public health initiatives but generally are not responsible for directly providing health care. Health care providers, on the other hand, provide medical care to their patients but usually cannot affect social determinants of health in their communities. Given this fragmented system of responsibility for overall health in the United States, it can be difficult for any of these groups that are accountable for community medical care to get a complete look at the health of their community.1,2

Traditional measures of health, such as morbidity and mortality, are important health indicators but fall short of incorporating the voice of individuals. Health-related quality of life (HRQOL)—a multidimensional concept encompassing physical, mental, emotional, and social functioning—is widely accepted as a valid measure of the burden of disease as experienced directly by individuals, providing a more holistic view of overall health.3-5 Furthermore, HRQOL is highly correlated with traditional measures of health, including morbidity, mortality, and health care costs.6-10

Given its multidimensional nature, HRQOL is an important measure of population health.3 When applied to a population, HRQOL assessment provides the global picture that is missing from the somewhat limited perspective of various agencies and professionals. HRQOL is one of the 4 Foundation Health Measures used by Healthy People 2020 to assess the health of communities.11 HRQOL can be used to measure health disparities, track the influence of social determinants on overall health, and shed light on the ultimate impact of the health care system. However, it can
be challenging to select the right HRQOL instrument. Although several available instruments have demonstrated validity and reliability, they vary in scope, intended purpose, applicability, and general ease of use. To measure HRQOL, the ideal instrument for those who manage population health would be holistic and easy to administer, and would measure the individual’s perspective while being understandable to health care providers and the general public alike.

**Healthy Days**

During the late 1980s, the Centers for Disease Control and Prevention (CDC) sought to develop a survey instrument to capture self-perceived HRQOL in a short questionnaire that was easy for people to understand and answer. The resulting tool—the CDC-HRQOL-4, or “Healthy Days”—consists of 4 questions that ask people about how they perceive their own recent health (Table 1). Answers to the second question about recent physical health and the third question about recent mental health provide a summary index of unhealthy days (UHD) for an individual. When a respondent replies with zero days to questions 2 and 3, the respondent is not asked the final question on activity limitation, which is imputed as zero.

<table>
<thead>
<tr>
<th>Table 1. CDC-HRQOL-4 (Centers for Disease Control and Prevention Health-Related Quality of Life) Survey Instrument—Healthy Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would you say that in general your health is excellent, very good, good, fair, or poor?</td>
</tr>
<tr>
<td>2. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?</td>
</tr>
<tr>
<td>3. Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?</td>
</tr>
<tr>
<td>4. During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?</td>
</tr>
</tbody>
</table>

The CDC developed this questionnaire as an alternative to other, longer HRQOL measures for large population-based surveys; it is easily understood by the public and policy makers. Its value lies in its simplicity. It is also unique in that it measures physical and mental health as separate domains. Starting in 1993, Healthy Days was incorporated into the state-based Behavioral Risk Factor Surveillance System (BRFSS), a continuous, state-based, random telephone survey of community-dwelling US adults aged 18 and older. The inclusion of Healthy Days in the BRFSS survey has become one of the greatest strengths of the instrument, as this survey provides health-related information for a multi-year sample across the US population. A response rate of >98% to the Healthy Days questions demonstrates that these questions are easy for people to answer.12 No other measures of HRQOL, such as the Medical Outcomes Study Short-forms (SF-12 and SF-36) or the EuroQol Group’s EQ-5D, are available in a similarly large annual sample as in the BRFSS, which tracks trends over time and in different geographic areas. Another national survey, the National Health and Nutrition Examination Survey (NHANES), also included the Healthy Days questions from 2000 through 2011, and the Medicare Health Outcomes Survey has included them since 2003.

In 2000 the CDC National Center for Chronic Disease Prevention and Health Promotion’s Division of Adult and Community Health published a report, *Measuring Healthy Days: Population Assessment of Health-Related Quality of Life*.11 This report describes the aims of the Healthy Days survey instrument and the research that has demonstrated its validity and reliability. This research shows that the questions have high construct validity (do a good job of measuring the intended concepts) and concurrent validity (its results align with other validated instruments that measure the same concepts). The validity of Healthy Days has been confirmed across elderly, adolescent, and disabled population segments, as well as in specific clinical populations such as those with spinal cord injuries.9,15–17 Furthermore, the Healthy Days questions are a valid and reliable measure of population health in distinct geographic areas including Canada and Puerto Rico, as well as at the state and local level within the United States.18–20 Healthy Days was recently suggested as a potential measure of population health within the Triple Aim (population health, patient experience, and per capita cost).21

Given its demonstrated validity and reliability, its unique simplicity, and its ability to reflect people’s perceptions of their own health, Healthy Days can be an effective metric of overall health for those who manage the health of population groups, whether an organization’s responsibilities involve community interventions, disease management, or delivery of clinical care. This paper will review the existing published research using Healthy Days as a measure of HRQOL, describe practical considerations in collection and analysis of the data, and show how the survey instrument can be used to inform public policy.

**Use of Healthy Days in the Literature**

To quantify the scope and current use of the Healthy Days survey instrument, a systematic literature review was conducted using the PubMed and Google Scholar databases and the following search terms Healthy Days, Unhealthy Days, HRQOL-4, and the 4 questions. The search was limited to English, and no constraints were placed on publication date. Two independent reviewers screened the publications retrieved and excluded publications of study populations younger than 18 years of age or in other than North American populations, method or review studies, non–peer-reviewed studies, and non–Healthy Days-related studies. The reviewers assessed the included studies for their characteristics and classified them into studies of specific diseases, general health, prevention, and socioeconomic characteristics.

This search strategy identified 211 studies, 110 of which met the inclusion criteria (see online Appendix A, available in the online article at www.liebertpub.com/pop). Ninety-one studies were excluded for the following reason(s): The study focused on populations younger than 18 years of age (n=10); the study focused on other than North American populations (n=28); the study focused only on methods or was a review (n=18); the study was not peer reviewed (n=12); or the study was unrelated to Healthy Days measurements (n=23) (Figure 1).

Of the 110 studies included in the review, the strongest similarity among the articles was that most (80.9%, n=89) used Healthy Days data from a secondary data source, most commonly BRFSS (n=66), the NHANES (n=7), and the California Health...
Interview Survey (n=4). Only 19.1% (n=21) of the studies collected Healthy Days as primary data for their studies. Most (53.6%, n=59) of the studies evaluated Healthy Days in the context of a specific disease state, including mental disorders (n=12), diabetes (n=8), arthritis (n=7), cardiovascular disease (n=6), obesity (n=6), and pulmonary disease (n=5). General health studies assessing HRQOL vs. mortality or covering multiple chronic conditions accounted for 21.8% (n=24) of the included studies, followed by socioeconomic characteristics (13.6%, n=15) and lifestyle factors (10.9%, n=12). There were no observed trends geographically, as only California (n=5) and North Carolina (n=5) had 5 or more regionally focused studies.

How the studies reported UHD varied by the type of study. The studies that evaluated specific health conditions usually contrasted the mean numbers of physically UHD and mentally UHD for people with the condition to those for people without the condition (Table 2). Although less common, several studies summed the number of physically and mentally UHD, with a maximum of 30 days, to report total UHD. Other studies converted the number of UHD into a binary variable using a threshold of 14 UHD. This 14-day threshold was first reported in the late 1990s as a way to analyze the third Healthy Day question on mental distress. Fourteen days, originally selected because clinicians and clinical researchers had used a similar duration as a marker for depression and anxiety disorders, is now a generally accepted threshold used by the CDC for longitudinal tracking and ranking states. Finally, several studies used multivariate regression modeling to understand the association between disease states and having 14 or more UHD. Although these reporting consistencies allow for comparisons between studies, such comparisons require caution to account for baseline differences in the study populations and the methods of statistical analyses.
<table>
<thead>
<tr>
<th>Study</th>
<th>Study Overview</th>
<th>Data Source</th>
<th>Disease State</th>
<th>Physical Unhealthy Days</th>
<th>Mental Unhealthy Days</th>
<th>Total Unhealthy Days</th>
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<tbody>
<tr>
<td>Austin S, 2012</td>
<td>Retrospective, cross-sectional study of respondents age &gt;45 years with self-reported arthritis</td>
<td>BRFSS, 2007</td>
<td>Arthritis</td>
<td>Arthritis: 7.7 days</td>
<td>Arthritis: 4.4 days</td>
<td>—</td>
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<td>Arthritis, physically active: 5.3 days</td>
<td>Arthritis, physically active: 3.3 days</td>
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<td>Arthritis, not physically active: 9.3 days</td>
<td>Arthritis, not physically active: 5.1 days</td>
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<td></td>
<td></td>
<td></td>
<td>No arthritis: 7.5 days*</td>
<td>No arthritis: 3.7 days</td>
<td></td>
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<tr>
<td>Abell JE, 2005</td>
<td>Retrospective study of 212,000 respondents aged &gt;18 years</td>
<td>BRFSS, 2001</td>
<td>Arthritis</td>
<td>Arthritis: 6.7 days</td>
<td>Arthritis: 4.9 days</td>
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<td></td>
<td>No arthritis: 1.8 days</td>
<td>No arthritis: 2.7 days</td>
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<td>Shih M, 2008</td>
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<td>No bowel condition: 6.0 days</td>
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<td>Richardson LC, 2011</td>
<td>Retrospective study of 12,191 respondents living in North Carolina</td>
<td>BRFSS, 2001–2002</td>
<td>Cancer</td>
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<td>BRFSS, 2001</td>
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<td>Diabetes: 12.3 days</td>
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<td>BRFSS, 2006, 2008, 2010</td>
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<td>Los Angeles County Healthy Survey, 2005</td>
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<td>Retrospective, cross-sectional study of 921 HIV+ women</td>
<td>Women of Color Initiative</td>
<td>HIV</td>
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<td>Urban: 9.1 days</td>
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<td></td>
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<td></td>
<td></td>
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<td>Rural: 9.1 days</td>
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<td>NHANES, 2003–2004</td>
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<td>Hypertension: 12.2 days</td>
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<td>Los Angeles County Healthy Survey, 2005</td>
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<td>Los Angeles County Healthy Survey, 2005</td>
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<td>Serious psychologic disorder: 8.4 days</td>
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<td>Cook EL, 2008</td>
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<td>Mental health disorder: 17.6 days</td>
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<td>No mental health disorder: not reported</td>
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<td>Hassan MK, 2003</td>
<td>Retrospective, cross-sectional study of 182,372 respondents</td>
<td>BRFSS, 2000</td>
<td>Obesity</td>
<td>Severely obese: 6.5 days</td>
<td>Severely obese: 5.2 days</td>
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<td>Obese: 4.3 days</td>
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<td>Overweight 3.3 days</td>
<td>Overweight: 2.9 days</td>
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<td>Non-obese: 3.0 days</td>
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<td>Retrospective study of 109,076 respondents</td>
<td>BRFSS, 1996</td>
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<td>&lt;18.5: 6.0 days</td>
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<td>18.5 to &lt;25: 2.5 days</td>
<td>18.5 to &lt;25: 2.8 days</td>
<td>18.5 to &lt;25: 4.9 days</td>
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<td>25 to &lt;30: 5.1</td>
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<td>30 to &lt;35: 3.8 day</td>
<td>30 to &lt;35: 3.3</td>
<td>30 to &lt;35: 5.9</td>
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<td>≥40: 8.3 days</td>
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<td>Retrospective study of 4833 respondents aged &gt;18 years</td>
<td>NHANES, 2003–2004</td>
<td>Pain</td>
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<td>—</td>
<td>Back and neck pain: 12.2 days</td>
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<td>Study</td>
<td>Study Overview</td>
<td>Data Source</td>
<td>Disease State</td>
<td>Physical Unhealthy Days</td>
<td>Mental Unhealthy Days</td>
<td>Total Unhealthy Days</td>
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<td>Ford ES, 2004</td>
<td>Retrospective study of 12,111 participants with asthma</td>
<td>BRFSS, 2000</td>
<td>Pulmonary Disease</td>
<td>Asthma: 6.5 days</td>
<td>Asthma: 5.3 days</td>
<td>Asthma: 10.1 days</td>
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<td>No back and neck pain:</td>
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<td>Retrospective, cross-sectional study of 13,887 respondents aged &gt;18 years living in North Carolina</td>
<td>BRFSS, 2007</td>
<td>Pulmonary Disease</td>
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<td>—</td>
<td>COPD: 13.7 days</td>
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<td>Ford ES, 2003</td>
<td>Retrospective study of 163,773 respondents aged &gt;18 years</td>
<td>BRFSS, 2000</td>
<td>Pulmonary Disease</td>
<td>Current asthma: 6.5 days</td>
<td>Current asthma: 5.2</td>
<td>Current asthma: 10.0</td>
</tr>
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<td>Former asthma: 3.8 days</td>
<td>Former asthma: 3.8</td>
<td>Former asthma: 6.8</td>
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<td></td>
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<td>No asthma: 2.9 days</td>
<td>No asthma: 3.0</td>
<td>No asthma: 5.4 days</td>
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<td>Shih M, 2008</td>
<td>Retrospective study of 8648 households in California</td>
<td>Los Angeles County Healthy Survey, 2005</td>
<td>Pulmonary disease</td>
<td>Chronic respiratory conditions: 6.0 days</td>
<td>Chronic respiratory conditions: 4.5 days</td>
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<td>No chronic respiratory conditions: 3.8 days</td>
<td>No chronic respiratory conditions: 3.4 days</td>
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<td>Current asthma: 5.6 days</td>
<td>Current asthma: 3.6</td>
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<td></td>
<td>No current asthma: 3.7 days</td>
<td>No current asthma: 3.4 days</td>
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<td>No substance use: 3.5 days</td>
<td>No substance use: 3.3 days</td>
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</table>

*Subset of population aged >65 years
BMI = body mass index; BRFSS = Behavioral Risk Factor Surveillance System; COPD = chronic obstructive pulmonary disorder; HIV = human immunodeficiency disorder; NHANES = National Health and Nutrition Examination Survey.
Besides reporting UHD from the second and third questions on the survey instrument, 72% (n=79) of the studies reported the responses to the fourth question, which addresses activity limitations. The CDC describes question 4 as a “global indicator of perceived disability as well as an indicator of productive human limitations. The CDC describes question 4 as a "global indicator of perceived disability as well as an indicator of productive human limitations. The responses to the fourth question, which addresses activity limitation related to physical, mental, or emotional problems were more than twice as likely to have FMD (adjusted odds ratio = 2.59, 95% confidence interval [CI], 2.33–2.87)."

This systematic review reveals strong literature support for using Healthy Days to measure HRQOL among comparative populations, including those with and without health conditions. Most of the studies relied on secondary analysis of existing data, suggesting that barriers may exist to primary collection of Healthy Days data. As the CDC itself is the primary producer of research studies using Healthy Days, there is substantial opportunity for expanded research contributions.

### Practical Considerations for Data Collection and Analysis of Healthy Days

CMS and other payers typically draw from large populations when conducting Healthy Days surveys. Collecting data from the entire population of interest is ideal but can be resource-intensive. Sample surveys provide an alternative for estimating Healthy Days across a population. Different techniques can be used to estimate the sample size needed to generate precise estimates and detect small differences (eg, ≤5% absolute difference). Because of the large variance associated with the highly skewed distribution of the Healthy Days metric, large survey samples are needed, particularly if the underlying population is large.

### Table 2 References


An approach that randomly samples different subpopulations separately yielding a stratified random sample, may be used to assure that the study sample includes sufficient numbers of participants in each stratum, or subgroup, to allow separate estimates at the desired level of precision. For instance, private payer organizations may wish to sample and analyze according to participation in Medicare, Medicaid, Affordable Care Act exchanges, and/or employer plans. Subgroup analysis acknowledges the inherent and substantial demographic, behavioral, and clinical differences between subpopulations. However, stratified random sampling may result in oversampling of some subpopulations (ie, recruitment of participants in proportions that do not reflect the population distribution of characteristics).

Adjustments for differential sampling probabilities driven by stratified random sampling and adjustment for nonresponse must be considered for sample surveys so that aggregate results can be considered representative of the underlying population. Adjustments for oversampling typically present little issue when the base population is known. In this case, each participant’s response can be weighted according to the relative size, in the underlying population, of the stratum (subgroup) to which that participant belongs. However, adjustments for nonresponse can present a larger challenge. If survey non-response within each stratum is associated with particular participant characteristics, then further adjustment, or reweighting, is necessary after adjustment for oversampling so that the reweighted survey results are fully applicable to the underlying population. Iterative proportional fitting is the technique currently used in the BRFSS survey to adjust for nonresponse. Numerous additional methods can be considered to adjust for nonresponse including poststratification, such as weighting using logistic regression and replicate weighting. Ultimately the decision is driven by available data for the survey sample and the target population, in addition to the volume of the observed differences. Data necessary for weighting may have to be drawn from outside sources. For example, organizations conducting surveys in Medicare populations can obtain data such as race/ethnicity or income from the Centers for Medicare & Medicaid Services (CMS).

Once results have been weighted, researchers need to consider several factors in analyzing Healthy Days data. Mean UHD values and percentages for response categories for the target population can be estimated along with 95% confidence intervals accounting for the survey design using variance estimation techniques now available in most standard statistical software packages.

As an alternative to a mean value for each Healthy Days measure, many researchers construct “total” UHD as a sum of mentally UHD and physically UHD. Although the calculated sum of UHD can exceed 30 days, most investigators cap this sum at 30 days for purposes of interpretability. However, capping in this way can be misleading. Capping precludes identification of those with the poorest health (ie, those with the equivalent of more than 30 overall UHD). As an example, the response of 15 physically UHD and 16 mentally UHD implies an overlap of between 1 day (minimal overlap) and 15 days (maximal overlap). In other words, the respondent experienced anywhere from 1 to 15 days that were both physically and mentally unhealthy and 1 day that was only mentally unhealthy. A cap of 30 would not reflect the fact that at least 1 day was characterized by both physical and mental poor health.

For more complex analysis of the factors associated with UHD, different forms of multivariate regression allow researchers to simultaneously take into account numerous factors and to estimate the degree of impact for each factor. Generalized linear modeling (GLM) using ordinary least squares regression has been used in several published studies to examine mean UHD. However, each Healthy Days question has a highly skewed distribution, with zero being the most common response in most populations. Because of the nature of the question requiring recall, many respondents report Healthy Days in intervals of 5. The resulting distribution has peaks and therefore may violate the assumption of normal residuals in the GLM. Converting UHD data into a binary (frequently <14 UHD or ≥14 UHD), ordinal, or categorical variable to perform logistic, multinomial, or ordinal regression can be a helpful way to relax assumptions regarding the distribution of UHD in continuous form. Many popular software packages today include a survey GLM and logistic regression procedures, making these an attractive option.

Less well-known modeling techniques also can be considered. One option is the zero-inflated negative binomial (ZINB) regression model, which was developed for count variables with excessive zero-value observations. Although one published study has shown the skewed nature of Healthy Days to fit well to the ZINB,25 none of the popular software packages (at the time of writing) have this capability built in for survey data. The ZINB model also is complicated to communicate, and makes several underlying assumptions that do not apply to UHD; for example, the data range from zero to infinity. Additionally, ZINB does not present a uniform solution, as some subpopulations, particularly those with disability or chronic disease, will not present with the excess zeroes seen in healthier populations. Tobit and Spline censored least absolute deviations models make no assumptions regarding the underlying distribution and both are commonly used to analyze HRQOL scores, particularly in studies with censored/truncated data or data with strong ceiling/floor effects.26-28 The type of censoring addressed by these models occurs with use of a scale in which all values above or below a threshold value are counted as equal to the threshold. Ceiling/floor effects occur when the bulk of values are at either end of the scale, which would be the case in very healthy or very unhealthy populations. Although these models have not been used in the published literature to analyze Healthy Days, their use is plausible as the scores can be considered censored at zero and 30 days and responses are often skewed toward zero. However, few software packages have these methods available.

An alternative modeling approach is use of regression methodologies that do not make assumptions regarding the underlying distribution. The bootstrap method provides results that are at once robust and easy to explain.29 Bootstrapping is a nonparametric approach that uses simulated resampling of the study sample and recalculation of the estimate many times to replace the traditional distributional assumptions when calculating a confidence interval or other measure of the variance in estimate. Complications related to the survey design can be accounted for using estimates from survey regression procedures as the basis of the simulation. One shortcoming that may be encountered in more complex regression models such as bootstrapping is their computationally intensive nature, which can slow the modeling process if multiple simulations are required.

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If variance estimation is less important and the analyst is primarily concerned with understanding what factors are associated with increased or decreased UHD, decision tree regression provides an alternative for analysis without assumptions regarding underlying distribution. In decision tree regression, a large number of factors with potential association with UHD can be considered simultaneously and ranked according to their prevalence in the population and the extent to which they differentiate between individuals with more or fewer UHD. For trend analysis, structured time-series autoregressive integrated moving average modeling has been used successfully to highlight the seasonal effect associated with Healthy Days data while accounting for worsening physical and mental health over time.30

As with all instruments, the Healthy Days survey instrument has limitations that should be noted. First, the instrument was validated for each question individually. Thus, although the sum of mentally UHD and physically UHD is commonly used to summarize overall health in a single value, this application has not yet been fully validated. Furthermore, unlike other preference-based HRQOL measures such as EQ-5D and SF-6D, total UHD cannot be used directly to calculate quality-adjusted life-years (QALYs). However, regression analysis using physically and mentally UHD as explanatory variables can be used to predict measures like the EQ-5D, which can in turn be converted to QALYs for cost-utility studies.31,26 Another limitation is that Healthy Days has not been validated in languages other than English. Syntax and diction varies between languages. Non–English speakers can potentially respond differently to a translated HRQOL-4, especially the first question assessing general health. Lastly, wording changes and question order could affect responses; thus, enforcing the standardization of HRQOL-4 is important.

**Using Healthy Days to Inform Public Policy**

The Institute of Medicine’s 2012 Living Well with Chronic Illness report concluded that it is critical to implement new public policies to promote living well with chronic illnesses.32 Accordingly, the Healthy Days measures have broad applications for federal, state, and local governments to better understand the needs of their communities and to identify vulnerable subpopulations. Several groups are using Healthy Days to inform such policy efforts. For more than a decade, CMS has included the Healthy Days questions in the Medicare Health Outcomes Survey, a longitudinal patient-reported outcomes tool used to measure the quality of care provided by Medicare Advantage organizations.53 The National Women’s Law Center also uses this measure in its report card on women’s health to advocate on behalf of women’s health and corresponding policy blueprints.34 Similarly, the University of Wisconsin’s Mobilizing Action Toward Community Health (MATCH) project uses the Healthy Days measures in its county-level health rankings and uses the information to implement programs and policies addressing community health needs.35

Now more than ever, the health care system is focused on finding ways to improve well-being from the limited resources available. In January of 2015, US Secretary of Health and Human Services Sylvia M. Burwell announced a goal to have 50% of all Medicare payments tied to quality or value through alternative payment models by the end of 2018.36 As the health care systems shifts to a value-based purchasing model, individuals’ perceptions of their health are a critical element of defining value. Patient-reported assessments of their health such as Healthy Days should play an important role in determining where value is being delivered and should be reflected in reimbursement models. Accurate, reliable, and consistent measurement of quality of life using a validated measure like Healthy Days will help to identify promising payment solutions going forward.

Given that quality of life is closely associated to measurable health outcomes, policy makers may find Healthy Days a powerful tool for predicting the needs and use of health care in a community. Expanded utilization of Healthy Days measures as an indicator of the current perceived health of communities could help health planners and legislators allocate resources for health services and assess impact of population-based policies or interventions.

**Opportunity for Broader Use of Healthy Days**

The Healthy Days survey instrument offers several strengths for measuring population health:

- has demonstrated validity and reliability,
- incorporates the individual’s current perspective of health and well-being,
- is easy to administer and respond to, allowing for large population-based surveys,
- produces interpretable and meaningful results that are easily understood by policy makers and the public,
- is correlated to health outcomes, and
- can be tracked over time and compared to national and state benchmarks.

Given these merits, several organizations with important roles in managing and improving population health have adopted Healthy Days as a measurement instrument. Such entities are actively using the data collected to advocate on behalf of the health care needs of their communities. Despite these adopters, great opportunity remains across a wide range of settings for those who manage population health to leverage the Healthy Days tool to track and improve health within their settings. In this time of exponential growth in biometric data collection and the digitization of health records, the addition of data related to the individual’s perception of health and well-being fills an important gap in what can be gathered from electronic health records and billing data. Such a holistic view can more accurately isolate the most pressing health care needs of a population, measure improvements resulting from interventions that may otherwise take years to realize the outcomes benefits, and allocate the provision of health care services toward those that improve not only outcomes, but also quality of life.

**Author Disclosure Statement**

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Drs. Davidson, Happe, Miao, Prewitt, and Slabaugh, Mr. Cordier and Mr. Havens are employees of Humana Inc. Drs. Happe and Slabaugh own Humana stock. No external financial support was provided to Humana for this research. Dr. Jia received compensation from Humana for his contributions. Drs. Shah and Zack report no conflict of interest.

The investigators retained full independence in the conduct of this research. The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
S. Lane Slabaugh, PharmD, MBA, Laura Happe, PharmD, MPH, Tristan Cordier, MPH, Eric Havens, MA, Evan Davidson, MD, Michael Miao, MD, and Todd Prewitt, MD are associated with Humana. Mona Shah, MPH, PhD is associated with the Robert Wood Johnson Foundation. Matthew Zack, MD, MPH is associated with the Centers for Disease Control and Prevention. Haomiao Jia, PhD is associated with the Mailman School of Public Health and the School of Nursing, Columbia University.

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References:

www.aamcn.org | Vol. 4, No. 3 | Journal of Managed Care Nursing
NEARLY 2 MILLION PEOPLE SUFFER FROM PRESCRIPTION OPIOID USE DISORDER*  
Opioid fraud, waste, and abuse endangers lives, causes untold suffering and costs the healthcare system billions each year.

START WITH THESE HFPP OPIOIDS WHITE PAPER ACTION STEPS

- Train health care providers on the CDC Guideline for Prescribing Opioids for Chronic Pain
- Promote access to and usage of medication-assisted treatment (MAT)
- Promote the availability of Naloxone
- Use data to identify fraudulent, wasteful, or abusive practices associated with opioids and take corrective actions
- Identify and share best practices across the healthcare sector

HOW THE HFPP IS HELPING FIGHT THE OPIOID CRISIS:

- Sharing resources, policies, and practices that connect patients to care that is best suited to their needs and achieves optimal outcomes, ultimately reducing opportunities for fraud, waste, and abuse related to opioids.
- Identifying and mitigating potentially fraudulent, abusive, or wasteful activities related to opioids.
- Engaging in innovative studies and information sharing techniques within the HFPP to identify and share effective opioid misuse and opioid use disorder mitigation strategies.

JOIN THE HFPP TO FIGHT HEALTHCARE FRAUD, WASTE AND ABUSE

The HFPP is a voluntary, public-private partnership between the federal government, state agencies, law enforcement, private health insurance plans, employer organizations, and healthcare anti-fraud associations to identify and reduce fraud, waste, and abuse across the healthcare sector.

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Summary

Current uncertainty for the future of the health care landscape is placing an increasing amount of pressure on leadership teams to be prepared to steer their organization forward in a number of potential directions. It is commonly recognized among health care leaders that culture will either enable or disable organizational success. However, very few studies empirically link culture to health care-specific performance outcomes. Nearly every health care organization in the US specifies its cultural aspirations through mission and vision statements and values. Ambitions of patient-centeredness, care for the community, workplace of choice, and world-class quality are frequently cited; yet, little definitive research exists to quantify the importance of building high-performing cultures. Our study examined the impact of cultural attributes defined by a culture index (Cronbach’s alpha = 0.88) on corresponding performance with key health care measures. We mapped results of the culture index across data sets, compared results, and evaluated variations in performance among key indicators for leaders. Our findings demonstrate a meaningful connection between performance in the culture index and organizational performance.

Key Points

- Organizations that perform in the top quartile for our culture index statistically significantly outperformed those in the bottom quartile on all but one key performance indicator tested.
- The culture top quartile organizations outperformed every domain for employee engagement, physician engagement, patient experience, and overall value-based purchasing performance with statistical significance. Culture index top quartile performers also had a 3.4% lower turnover rate than the bottom quartile performers.
- Culture index top quartile performers earned an additional 1% on value-based purchasing.
- To best impact these key performance outcomes, health care leaders should pay attention to culture and actively steer workforce engagement in attributes that represent the culture index, such as treating patients as valued customers, having congruency between employee and organizational values, promoting employee pride, and encouraging the feeling that being a member of the organization is rewarding, in order to leverage culture as a competitive advantage.

INTRODUCTION

There is a common colloquialism that culture eats strategy for lunch; yet, few studies have concretely identified cultural attributes or linked culture to producing outcomes in health care. Many definitions of and perspectives on culture exist, ranging from complex theory to simple articulations such as “the way things are around here”. After reviewing many positions and definitions of culture, we propose a working definition of culture to guide our research: Culture is an integrated system of learned patterns of behavior, ideas, and products that result in shared philosophies, values, assumptions, beliefs, and attitudes that knit the organizational members together and define the characteristics of everyday life.

Most employees have personally experienced, at various points across their career, the difference between feeling engaged and disengaged within their organization’s culture. The sheer magnitude of the complexity of the health care environment requires a constant focus on producing the very best outcomes. Organizational mission and vision statements are likely the single biggest stake in the ground for the cultural aspirations of each organization. Rarely do we see organizations strive for mediocrity. Instead, mission, vision, and value declarations create inspiration to point the workforce toward creating environments that heal, serve the community, educate, research, provide leading edge quality, and more.

Stubblefield stated that “Culture will drive strategy or culture will drag strategy”. The Baldrige Performance Excellence Program and Just Culture are two examples of frameworks for organizations to leverage their culture to improve organizational performance. Since most senior teams create accountability for
translating their mission and vision into execution via a balanced scorecard and organizational goals, we wanted to understand the interconnected nature of key outcome measures and learn the role that culture can play in driving outcomes.10,11

**Background/Review of Literature**

Culture and workforce engagement in health care are intuitively linked to creating environments of patient-centered care. However, there is insufficient research pointing to demonstrable outcomes associated with high-performing cultures and engaged employees on key health care outcome metrics, including safety, patient experience, physician engagement, and value-based purchasing (VBP). We have uncovered several studies that document the interplay among key metrics.

**Patient Experience**

It is fair to say there is room for America’s hospitals and health systems to improve the patient experience. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), the nationwide hospital survey, was implemented in 2006 by Centers for Medicare and Medicaid Services (CMS). Intended to increase hospital accountability and incentives for quality improvement across the country, the survey gives an “apples to apples” comparison of patients’ perspectives on inpatient hospitalizations.12 According to the Hospital Compare website, only 72% of patients report receiving the best possible care during their hospital stay as measured by the HCAHPS survey.13 To improve transparency, in 2015, CMS launched a Star Program assigning a star rating between one and five stars. In the most recent CMS Hospital Compare release (October 2016) of Star Ratings, there are only 177 out of 4,818 hospitals with five stars.14 Emerging research is shedding light into the connection between patient experiences and quality outcomes. For instance, researchers found statistically significant associations between higher star ratings and lower rates of in-hospital complications, as well as lower rates of unplanned 30-day readmissions to the hospital.15 However, our team could not pinpoint specific research quantifying the connection between an organization’s culture and the patient experience.

**Employee Engagement**

While academics and leaders largely agree that engaged employees have advanced levels of organizational commitment and alignment with their organization and roles, understanding a clear definition of employee engagement in health care is relatively limited.16–18 Systematic reviews of engagement definitions have yielded themes representing employee engagement including: employee support to help the organization succeed, degree of enthusiasm for work, discretionary effort, and a positive relationship between an employee and the mission of the organization.19 More studies have focused on understanding nurse engagement and the linkages to safety and turnover.20 For the purposes of our study, we established a working definition of employee/workforce engagement as an individual’s cognitive, emotional, and behavioral connection with an organization’s mission, vision, and values.

**Physician/Provider Engagement**

Similar to employee engagement, physician and provider engagement is typically measured via a questionnaire administered to the workforce. The topics of provider engagement, and in particular burnout, have increasingly become a part of dialogue by providers and physician/administrative leaders. A 2015 study documented that 46% of physicians reported experiencing burnout (up from 40% in 2013).21 Physician engagement is also cited as a top challenge to improve quality objectives.22 According to a study by Gallup, fully engaged and engaged physicians gave the hospital an average of 3% more outpatient referrals and 51% more inpatient referrals than physicians who were not engaged or who were actively disengaged. Engaged physicians were 26% more productive than their less engaged counterparts, which amounts to an additional $460,000 on average in patient revenue per physician per year.23 Additionally, physician engagement may influence patient compliance and outcomes, as a 2013 study found that patients were much more likely to take their prescribed medications when they were cared for by doctors who are satisfied with their jobs and lives.24

**Value-Based Purchasing (VBP)**

The US health care system exhausts 17% of the country’s gross domestic product (GDP) – exceeding the expenditures of any other developed country. Due to factors including the high and growing costs of health care, as well as lower than expected quality outcomes, public and private payers are increasingly shifting to value-based payment models.25 Presently, many indicators demonstrate that health care organizations will become

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**Table 1: Value-based Purchasing FY2016 Domains and Measures**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Measures included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient experience of care</td>
<td>HCAHPS domains: communication with nurses, communication with doctors, responsiveness of hospital staff, hospital cleanliness and quietness, pain management, communication about medicines, discharge information, overall rating of hospital; consistency</td>
</tr>
<tr>
<td>Clinical process of care</td>
<td>Fibrinolytic therapy received within 30 minutes of hospital arrival, influenza immunization, initial antibiotic selection for community-acquired pneumonia in immunocompetent patients, prophylactic antibiotic selection for surgical patients, prophylactic antibiotics discontinued within 24 hours after surgery end time, urinary catheter removal on postoperative day 1 or 2, surgery patients on a beta-blocker prior to arrival who received a beta-blocker during the perioperative period, surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery</td>
</tr>
<tr>
<td>Efficiency Outcomes</td>
<td>Medicare spending per beneficiary</td>
</tr>
<tr>
<td></td>
<td>30-day mortality for acute myocardial infarction, heart failure, and pneumonia, complication/patient safety for selected indicators, catheter-associated urinary tract infection, central line-associated blood stream infection, and surgical site infection for colon and abdominal hysterectomy</td>
</tr>
</tbody>
</table>
increasingly accountable to performance measures. CMS has outlined goals that by 2018, 50% of Medicare payments and 90% of Medicare Fee For Service payments will be tied to performance with value and quality measures.26

According to CMS, VBP financially incentivizes hospitals and health systems for the value of the care provided. In 2016, the VBP program withheld 1.75% of base operating diagnosis-related group payments to hospitals. Hospitals had the opportunity to earn back up to 3.5% based on their total performance score, which is comprised of four domains (Table 1): patient experience of care, clinical process of care, efficiency, and outcomes.27,28

Turnover

Health care turnover (or retention as the inverse of turnover) is often cited as a key balanced scorecard metric and organizational challenge for health care leadership teams.29 Typically defined as the percentage of employees/providers leaving voluntarily or involuntarily in a given time period. Some studies have linked employee and provider turnover to patient experience of care.30 Nurse turnover has also been linked to quality and patient safety.9 Additionally, there is an economic consequence of turnover in terms of replacing staff members who have left the organization. As a case in point, Robert Wood Johnson Foundation estimates the average cost of replacing one nurse between $22,000 and $64,000.31 Some estimates evaluate the cost of turnover on health care between $10,696 and $18,178 per employee.32

Methodology

Each year, HealthStream surveys various people from the health care community: employees, physicians/providers, and patients. We have nationally representative databases and statistically validated surveys allowing benchmarking for employee engagement, patient experience, and physician engagement. Our research team sought to test the impact of culture on these outcome measures, along with VBP and turnover. Due to the size and magnitude of our national databases, we are able to map hospital results across various data sets, compare results, and evaluate performance variations.

One way of comparing is through national percentile rankings. The percentile indicates a hospital’s relative position within a benchmark group in terms of the percentage of hospitals it scores higher than (ranging from the 1st to the 99th percentile). For example, a hospital that is ranked at the 80th percentile of the HealthStream Database for a given measure indicates that this hospital has received a score that is higher than the scores of 80%

### Table 2: Comparisons of culture index top and bottom quartile performers and national ranking performance on employee engagement survey domains

<table>
<thead>
<tr>
<th>HealthStream Employee Engagement Survey</th>
<th>Top quartile, n = 30,817</th>
<th>Bottom quartile, n = 44,855</th>
<th>Difference in national ranking</th>
<th>Cronbach’s alpha reliability</th>
<th>Significance testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your immediate supervisor</td>
<td>73</td>
<td>14</td>
<td>59</td>
<td>0.945</td>
<td>t = 48.12, p &lt; 0.01b</td>
</tr>
<tr>
<td>Pay and benefits</td>
<td>79</td>
<td>10</td>
<td>69</td>
<td>0.764</td>
<td>t = 80.75, p &lt; 0.01b</td>
</tr>
<tr>
<td>Hiring, promotion, and opportunity</td>
<td>83</td>
<td>7</td>
<td>76</td>
<td>0.903</td>
<td>t = 98.71, p &lt; 0.01b</td>
</tr>
<tr>
<td>Upper management</td>
<td>83</td>
<td>5</td>
<td>78</td>
<td>0.956</td>
<td>t = 105.30, p &lt; 0.01b</td>
</tr>
<tr>
<td>Quality and competence</td>
<td>86</td>
<td>5</td>
<td>81</td>
<td>0.851</td>
<td>t = 86.66, p &lt; 0.01b</td>
</tr>
<tr>
<td>Job engagement</td>
<td>78</td>
<td>12</td>
<td>66</td>
<td>0.895</td>
<td>t = 46.12, p &lt; 0.01b</td>
</tr>
<tr>
<td>Organizational engagement</td>
<td>89</td>
<td>6</td>
<td>83</td>
<td>0.923</td>
<td>t = 96.60, p &lt; 0.01b</td>
</tr>
<tr>
<td>Outcomes</td>
<td>88</td>
<td>4</td>
<td>84</td>
<td>0.931</td>
<td>t = 113.94, p &lt; 0.01b</td>
</tr>
</tbody>
</table>

Notes: “n” = number of employees in the HealthStream Employee Engagement Survey database responding from hospitals in the top and bottom quartiles of the culture index. Differences are statistically significant at the level noted.

### Table 3: Comparisons of Culture Index Top and Bottom Quartile Performers and National Ranking Performance on Physician Engagement Survey Domains

<table>
<thead>
<tr>
<th>HealthStream Physician Engagement Survey</th>
<th>Top quartile, n = 1,278</th>
<th>Bottom quartile, n = 2,791</th>
<th>Difference in national ranking</th>
<th>Cronbach’s alpha reliability</th>
<th>Significance testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative team</td>
<td>68</td>
<td>22</td>
<td>46</td>
<td>0.910</td>
<td>t = 16.90, p &lt; 0.01b</td>
</tr>
<tr>
<td>Overall nursing staff</td>
<td>74</td>
<td>13</td>
<td>61</td>
<td>0.911</td>
<td>t = 19.23, p &lt; 0.01b</td>
</tr>
<tr>
<td>Hospital efficiency</td>
<td>76</td>
<td>23</td>
<td>53</td>
<td>0.805</td>
<td>t = 16.89, p &lt; 0.01b</td>
</tr>
<tr>
<td>Medical records and clinical Information</td>
<td>49</td>
<td>31</td>
<td>18</td>
<td>0.765</td>
<td>t = 5.77, p &lt; 0.01b</td>
</tr>
<tr>
<td>Admission and discharge processes</td>
<td>72</td>
<td>25</td>
<td>47</td>
<td>0.852</td>
<td>t = 11.33, p &lt; 0.01b</td>
</tr>
<tr>
<td>Hospital environment</td>
<td>73</td>
<td>14</td>
<td>59</td>
<td>0.591</td>
<td>t = 21.67, p &lt; 0.01b</td>
</tr>
<tr>
<td>Hospital quality</td>
<td>74</td>
<td>16</td>
<td>58</td>
<td>0.852</td>
<td>t = 18.82, p &lt; 0.01b</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>74</td>
<td>16</td>
<td>58</td>
<td>–</td>
<td>t = 21.16, p &lt; 0.01b</td>
</tr>
<tr>
<td>Overall satisfaction with nurses</td>
<td>76</td>
<td>15</td>
<td>61</td>
<td>–</td>
<td>t = 18.81, p &lt; 0.01b</td>
</tr>
<tr>
<td>Recommendation</td>
<td>74</td>
<td>17</td>
<td>57</td>
<td>–</td>
<td>t = 19.29, p &lt; 0.01b</td>
</tr>
</tbody>
</table>

Notes: “n” = number of physicians and providers in the HealthStream Physician Engagement Survey database responding from hospitals in the top and bottom quartiles of the culture index. Differences are statistically significant at the level noted.
of the hospitals within the HealthStream Database.

Measuring Culture

Based on a review of health care mission statements and studies of health care organizations who have won the Malcolm Baldrige Award, we selected the following items to create a culture index measured through self-reported employee feedback from the HealthStream Employee Engagement Survey:

- The extent to which patients are treated as valued customers.
- You find that your values are very similar to the values of this organization.
- You feel that being a member of this organization is very rewarding.
- You are proud to be a part of this organization.

We confirmed the integrity of the culture index using the Cronbach’s alpha test, which measures internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. The four-item culture index appears to have good internal consistency, α = 0.88. This score gave our team confidence that these four items measure the same construct of culture.

We then examined hospital level data by comparing those in the top quartile of the database (84 organizations) and the bottom quartile of the database (81 organizations) against metrics for employee engagement, physician engagement, patient experience, value-based purchasing, and turnover.

FINDINGS

Employee Engagement

Organizations performing in the top quartile for the culture index outperformed the bottom quartile in every domain of our HealthStream Employee Engagement Survey database with statistical significance (Table 2). Organizations in the top quartile for culture performed above the top 25% of hospitals in every domain – except your immediate supervisor and in the top 15% of the database in the following domains: quality and competence, organizational engagement.

Physician Engagement

We then compared the top and bottom quartile culture index performers against our HealthStream Physician Engagement Survey database (Table 3). Those organizations in the top quartile for culture outperform those in the bottom quartile for every physician engagement domain with statistical significance; most domains outperform those in the bottom quartile by three to four times according to national ranking (the only exceptions being Admission and Discharge Process and Medical Records and Clinical Information).

Patient Experience

For our purposes, we used the HCAHPS survey to measure the patient experience. Hospitals in the cultural index top quartile outperformed the bottom quartile in every single HCAHPS domain with statistical significance (Table 4). The largest areas of positive variance include communication with nurses – 51 percentile points, communication about medicines – 53 percentile points, and overall rating of hospital – 53 percentile points.

Value-Based Purchasing

We examined the difference between the culture index top quartile and bottom quartile performers and their facility’s performance across each of the domains that represent VBP. In all but one domain, outcomes, the cultural top quartile exceeded performance of the bottom quartile with statistical significance (Table 5). While the bottom quartile performers for the outcomes score had a higher national ranking by 8 points (top performers: 41st percentile vs bottom performers: 49th percentile) the difference was not statistically significant.

Additionally, hospitals in the cultural top quartile achieved an average earn-back of 2.4% of their VBP withholding compared with an average of only 1.4% for the bottom quartile. Performance across the top and bottom quartiles equates to being profitable or unprofitable, respectively, with VBP.

Turnover

Our research found a 3.2% favorable difference (Figure 1)
between the average turnover rates for the cultural top and bottom quartile performers (since lower levels of turnover are more closely linked to positive quality and financial performance). If you are an organization with 4,000 employees, moving from a 17.9% turnover rate to a 14.7% turnover rate could save your organization an average of $2,326,784.32

Recommendations for Future Study

Our study compares performance across cultural attributes among four nationally representative databases (employee engagement, physician engagement, HCAHPS, and VBP), as well as variance in organizational turnover for these organizations. While HealthStream’s surveys are validated and nationally representative, there may be limited extrapolation to the entire health care workforce due to various ways health systems measure and analyze employee and physician engagement. Since HCAHPS and VBP are nationally comparable “apples to apples” measures, all participating hospitals follow the same standards but the results are focused on the acute care environment. Nevertheless, we do believe leaders should take note of these findings to elevate their focus on leveraging culture to drive outcomes, creating accountability for workforce engagement, and aligning performance standards. As more data becomes publically available, it will grow our capabilities to assess the impact that culture plays – especially across the continuum of care.

Significance and Conclusion

Our team was in a position to establish statistically significant differences in national performance among key indicators of employee engagement, physician/provider engagement, patient experience, VBP, and turnover based on creating top and bottom quartiles for a validated culture index. Our research indicates that attributes of culture can serve as a master lever to steer organizational performance. Cultural attributes representing the degree to which employees believe patients are treated as valued customers, their values are very similar to the values of the organization, being a member of the organization is very rewarding, and they are proud to be a part of this organization are critical to achieving top quartile results across key balanced scorecard metrics. One certainty about health care is its uncertainty – health care will increasingly be a complex and challenging environment. For health care leaders to be successful in the present and future, it is not a matter of “white knitting” or “holding on tight” through change, they need to harness the power of the people who represent their culture. Culture can seem like an inconvenient truth because it can feel messy, abstract, or difficult to change; however, our findings suggest that leaders should pay close attention to the cultures they are fostering to achieve performance gains. For those who have sought care and been met with employees and providers who have palpable energy, demonstrate compassion, and go above and beyond, those individuals meant the difference between a good or bad experience. Our intent is that these findings will stir a conversation across leadership tables to be intentional about culture. Where hiring and retaining the right individuals, creating clarity of purpose, establishing systems of recognition and performance management, and providing training opportunities to develop the very best workforce are no longer “nice to dos” but performance achievement imperative.
Disclosure
The authors report no conflicts of interest in this work.

Katie Owens, Stephanie Keller, and Audrey McDonald are associated with the HealthStream Engagement Institute. Jim Eggers is associated with Analytics, HealthStream.

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References:
An Innovative Approach to Health Care Delivery for Patients with Chronic Conditions
Janice Clarke, RN, Scott Bourn, PhD, RN, EMT-P, Alexis Skoufalos, EdD, Eric Beck, DO, MPH, NREMT-P, Daniel Castillo, MD, MBA

Summary

Although the health care reform movement has brought about positive changes, lingering inefficiencies and communication gaps continue to hamper system-wide progress toward achieving the overarching goal—higher quality health care and improved population health outcomes at a lower cost. The multiple interrelated barriers to improvement are most evident in care for the population of patients with multiple chronic conditions. During transitions of care, the lack of integration among various silos and inadequate communication among providers cause delays in delivering appropriate health care services to these vulnerable patients and their caregivers, diminishing positive health outcomes and driving costs ever higher. Long-entrenched acute care-focused treatment and reimbursement paradigms hamper more effective deployment of existing resources to improve the ongoing care of these patients.

Key Points

- Assuring access to high-quality, safe, integrated, and well-coordinated care is tantamount to improving population health outcomes, reducing wasteful spending, and reversing the spiraling cost curve.
- New models for care coordination during transitions, longitudinal high-risk care management, and unplanned acute episodic care have been conceived and piloted with promising results.
- Utilizing existing resources, Mobile Integrated Healthcare (MIH) is an emerging model focused on closing these care gaps by means of a round-the-clock, technologically sophisticated, physician-led interprofessional team to manage care transitions and chronic care services on-site in patients’ homes or workplaces.

INTRODUCTION

Since its implementation in 2010, the Patient Protection and Affordable Care Act (ACA) has succeeded in providing more people with access to care and improving value on a number of fronts (ie, banning preexisting conditions as a reason to deny health insurance coverage, instituting exchanges that enable consumers to comparison shop for health insurance plans, allowing adult children up to age 26 coverage under their parents’ health insurance). However, the complexity of the large, fragmented, and uncoordinated US health care system continues to prove challenging, despite ongoing efforts to address escalating health care costs and suboptimal quality outcomes.

The Problem

Persistent inefficiencies, resistance to change, and multiple interrelated issues across the system prevent critical information and resources from reaching providers and patients in a timely manner. Strategic vision, coupled with the ability to mobilize and deliver appropriate resources to patients in the community, is needed so that health care professionals can provide accessible, safe, well-coordinated, cost-effective, high-quality care.

Access to Healthcare Services

Continued barriers to access range from lack of availability to high prices to lack of insurance coverage. In the nation’s 4 largest states, 12%–30% of residents lacked health insurance coverage or experienced problems getting needed care in 2014. In many rural areas, an inadequate supply of health care professionals restricts access to needed services, challenging the health care system to utilize and deploy clinical and material resources in different ways. A major weakness in typical outpatient and inpatient care delivery systems is that primary care professionals, paramedics, emergency physicians, and hospitalists function in unintegrated silos that impede care coordination, inhibit communication, compromise quality, and raise costs. These and other modifiable barriers to access lead invariably to unmet health needs, delays in receiving appropriate care, and preventable hospitalizations.

Cost of Care Issues

Although the rate of escalation has diminished recently, health care costs remain high. In a recent Gallup survey, 42% of Americans named either the cost of health care or access to health care as the top US health issues. According to one recent projection, the rate
of increase in the cost of employer-sponsored health care benefits in 2015 will equal about 4.1%. Equally troubling are estimates that up to one third of the more than $2.8 trillion spent on health in the United States each year may be classified as waste—waste that is related largely to failures of care delivery, care coordination, and overuse.

Health Care Quality and Safety Issues

Serious gaps in care guidelines and processes continue to have an adverse impact on the quality and safety of care, particularly in outpatient settings. Specifically, poor care coordination processes lead to failures in transmitting critical patient information, adverse drug interactions, conflicting treatment plans, and/or lapses in necessary treatment. Failures in patient communication and patient education were among the root causes of 197 sentinel events (ie, suicide, falls, wrong-side surgery) compiled by The Joint Commission from January 2014 to October 2015.

Health Information Technology (HIT) Issues

Although health care communities across the country have made some strides in adopting, implementing, and using HIT to share relevant patient information, the lack of widespread adoption of a reliable system that can share and integrate communication across institutional and organizational boundaries is a significant hindrance to efforts to improve care coordination.

Chief among these issues that hamper progress are persistent inefficiencies and wasted resources that compromise access, health outcomes, and value. These interrelated problems occur with alarming regularity:

• during transitions of care,
• in the longitudinal management of medically complex patients, and
• when individuals with chronic disease have clinical episodes that require acute intervention.

Clearly, there is a critical need for innovative solutions that improve care coordination and communication among clinicians, patients, and their families/caregivers during these high-risk intervals, facilitating medically appropriate just-in-time care delivery by interprofessional teams.

Pivotal Role of Coordinated Care Transitions

The term transitions of care refers to the movement of patients—between health care locations, providers, or levels of care as their conditions and care needs change—and the set of actions designed to ensure coordination and continuity. Effective transitional care can prevent medical errors, identify issues for early intervention, avert unnecessary hospitalizations and readmissions, support consumers’ preferences and choices, and avoid duplication of services, thereby improving the quality of care while utilizing resources more effectively. Ideally, care transition activities are based on a comprehensive care plan and the availability of well-trained practitioners who have current information about the patient’s treatment goals, preferences, and health or clinical status.

In reality, a large and growing evidence base raises serious concerns for patients undergoing transitions across care settings, especially those with continuous complex needs, who are particularly vulnerable to experiencing the poor-quality outcomes associated with failures in provider communication and fragmentation in care. A 2011 report revealed that poorly coordinated transitions from the hospital to other care settings cost an estimated $12 billion to $44 billion per year and often result in adverse health outcomes (ie, injuries related to medication errors, postmedical procedure complications, infections, falls).

In 2012, under the terms of the ACA, the Centers for Medicare & Medicaid Services (CMS) launched an initiative to improve care transitions, offering technical assistance, tools, and other resources for states and their providers and instituting penalties for hospitals with high rates of hospital readmission for 3 conditions: myocardial infarction, heart failure, and pneumonia. Created under Section 3026 of the ACA, the CMS Community-based Care Transitions Program has 72 test sites across the country. Although hospitals faced reimbursement reductions and new value-based payment models (ie, bundled payments) under the law, they also became eligible for incentives by effectively coordinating transitions, providing appropriate levels of care, and ensuring safe transitions.

Research and Results

A variety of interventions have been tested to improve transitions of care, including the Care Transitions Intervention Model, Project Better Outcomes for Older adults through Safe Transitions (Project BOOST), and the Transitional Care Model. In well-constructed studies, these programs demonstrated reduced rehospitalization rates at 30, 60, and 90 days; lengthening the interval between hospitalizations; lower hospital costs; and a reduction in total health care costs. While each of the interventions described was unique, they shared a number of successful strategies:

• Transitional care coordination utilizing a transitional coach or coordinator (a nurse, social worker, community health worker, transitions coach, or other health professional) who performs a comprehensive patient/family assessment before discharge, leads the development of a discharge plan, delivers patient and family education, and helps patients to take a more active and informed role in their transition.

• Enhanced communication between acute care and post-acute care providers to assure critical information follows the patient through the transition (ie, facilitation of a discharge conference between acute and post-acute teams to assure that discharge records are complete and received by post-acute care providers).

• Increased patient and family engagement and participation in the discharge plan.

• Support in execution of the postdischarge plan, including assistance with making follow-up appointments, home visits to assess the home environment and provide feedback to family and caregivers on their delivery of care, and care coordination between multiple providers.

Longitudinal High-Risk Care

The size of the chronic disease population—particularly patients with multiple comorbidities that require more health care resources—is projected to grow, reaching 157 million Americans by 2020. Various provisions of the ACA encourage chronic disease management (DM) by incentivizing self-management by patients, offering some reimbursement opportunities for providers

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of chronic DM services, and/or providing Government support for
the development of chronic DM programs, but substantial barriers
to optimal care remain.16

There are significant differences between acute and chronic
disease that require different approaches to care. The American
health care system is built on an acute care paradigm; in general,
acute care problems have a rapid onset, are short in duration, and
result from a single cause. Chronic care problems are slower to
develop, longer in duration, and have multiple causes, some of
which occur years before the onset of symptoms. These differences
limit the current system’s ability to deal effectively with a number
of unique challenges in managing chronic disease:

- The social, behavioral, and psychosocial elements
  associated with chronic disease (ie, the often
  unrecognized elements of self-image related to being a
  person with disease).
- The need for continuing care, often throughout the
  remainder of the patient’s life.
- The influence of chronic disease on the patient’s extended
  family and the very real need for the family’s ongoing
  support for long-term success.
- The influence of lifestyle factors in both the causation and
  long-term management of chronic disease.
- Caring for the population of patients with chronic
  conditions requires a new paradigm—one that
  encompasses longitudinal care and unplanned episodes
  of care. To a large extent, the development and
  implementation of such a system will hinge on addressing
  4 specific challenges:17

  1. **Realigned Reimbursement**—In general, payment
     for health care services is triggered by acute care
     episodes. There must be a mechanism whereby
     providers are compensated to manage a broad
     range of chronic conditions that never resolve and
     that are not characterized by episodes of care.

  2. **Team-Based Care**—An adequate number
     of nonphysician health care team members
     in disciplines such as nursing, social work,
     community health coaching, and pharmacy must
     be trained and available to coordinate proven
     team-based care.

  3. **Patient and Family Engagement**—Expanded
     opportunities for patient and family engagement
     in self-management programs are essential
     for improving patients’ ability to manage their
     conditions and adhere to treatment plans.

  4. **Information Sharing**—The current acute episode-
     focused medical record system must be redesigned
     to improve clinicians’ ability to share information
     regarding patients with chronic disease and
     facilitate the use of evidence-based decision
     support in their care.

**Research and Results**

A number of strategies have demonstrated an ability to improve
health status and reduce utilization of health care resources for
the population of patients with chronic conditions.

For instance, DM programs were pioneered in the 1990s
during the managed care era and have since been widely adopted
by health care delivery systems and public and private payers.
DM programs are designed to improve the health of persons with
specific chronic conditions, thereby reducing health care service
use and the costs associated with avoidable complications (ie,
emergency department [ED] use, hospitalizations). The typical
DM program features a number of important elements:

- Robust population identification processes used to
  target individuals with single or multiple costly chronic
  conditions.
- Evidence-based clinical practice guidelines to ensure
  consistency in treatment across the targeted population
  and for use by providers to educate patients.
- Collaborative practice models (ie, interprofessional
  practice, team-based care) to help patients manage their
  conditions.
- Patient self-management education, including additional
  support for adhering to medication regimes, counseling,
  home visits, 24-hour call centers, and appointment
  reminder systems.
- Methods for measuring both process and clinical
  outcomes, including patient satisfaction in addition to
  health care service use and expenditures.
- Routine communication among treatment teams, patients,
  and program sponsors to track progress in condition
  management.

Common among both government programs and private
health plans for 2 decades, DM programs have been shown to
reduce costs,18 generate modest improvements in quality of life,19
and elevate the level of patient satisfaction.20

Developed by researchers at Johns Hopkins University, the
Guided Care model assists primary care practices in meeting
the complex needs of patients with multiple chronic conditions
(MCCs) by means of a Guided Care nurse who works closely with
patients, physicians, and others to provide coordinated patient-
centered care.21 Studies have indicated that Guided Care:

- improved patients’ perception of the quality of their care,22
- improved family and caregivers’ perceptions of care
  quality,23
- improved physicians’ satisfaction with chronic care,24
- produced high job satisfaction among nurses,25
- helped reduce the use of expensive services (ie, 29%
  fewer home health visits, 13% fewer hospitalizations),26
  and
- reduced the use of services in an Integrated Delivery
  System (eg, 47% fewer skilled nursing facility
  admissions, 17% fewer ED admissions).25

**Unplanned Episodic Care**

Generally, patients with comorbid physical and mental health
problems require more unscheduled episodic care, especially if
they are elderly, increasing unplanned utilization of health care
resources and their associated costs. Data from a 2012 CMS report
shows that Medicare beneficiaries with MCCs were significantly
more likely to have multiple hospital admissions and readmissions,
ED visits, and home health visits than a comparable population
without 0–1 chronic conditions.28 Low levels of health literacy
and patient activation also have been documented in this patient
population, further increasing the potential for acute care service utilization.\textsuperscript{27}

A unique subset of this population, sometimes referred to as super-utilizers, visits the ED 10 or more times each year, with an associated high frequency of hospital admissions.\textsuperscript{28,29} A longitudinal analysis of 4774 publicly insured or uninsured patients found that the 3% of adult patients who met superutilizer criteria accounted for 30% of adult care costs.\textsuperscript{29}

The Clinically Appropriate and Cost-Effective Placement Project undertaken by the Alliance for Home Health Quality determined that Medicare beneficiaries with chronic conditions are more likely to be readmitted to inpatient care settings within 60 days of discharge. Of all post-acute care readmissions, 60% of episodes are readmitted directly from the community. Further analysis suggested that there may be great potential for strategies that provide ongoing, clinically appropriate chronic care management to reduce the frequency of avoidable admissions and readmissions across all episode types.\textsuperscript{30}

Unplanned utilization of health care resources has substantial cost implications; for instance, the 3 conditions with the greatest number of 30-day all-cause readmissions for Medicare patients resulted in $4.3 billion in hospital costs.\textsuperscript{31,32}

Research and Results

A systematic review of 35 studies examining the relationship between MCCs and health care utilization outcomes (ie, physician, hospital, and medication use) and costs outcomes (ie, medication costs, out-of-pocket costs, total health care costs) for elderly general populations revealed a positive association of MCCs and significantly increased use/costs with each incremental condition.\textsuperscript{27}

Several of the studies indicated a near exponential relationship between MCCs and costs. The rising prevalence of MCCs, their substantial costs, and concerns that current care approaches may be inappropriate for many such patients raise important questions for providers, payers, and policy makers alike.\textsuperscript{27}

Another recent study comparing the characteristics of US adults by the frequency of ED utilization—specifically the prevalence of chronic diseases, outpatient primary care, and mental health utilization—concluded that frequent ED users had a large burden of chronic diseases (ie, coronary artery disease, stroke, asthma) that also required a high number of outpatient resources. The authors concluded that interventions designed to divert frequent ED use should focus on chronic DM and access to outpatient services, particularly for Medicaid beneficiaries and other high-risk subpopulations.\textsuperscript{28}

Evidence-based strategies have demonstrated an ability to reduce the frequency of unplanned episodes of care and to decrease preventable ED use and inpatient hospitalization when they occur. For instance, North Carolina instituted a statewide, population-based transitional care initiative to prevent recurrent hospitalization among high-risk Medicaid recipients with complex chronic medical conditions. A study of patients hospitalized during 2010–2011 found that those who received transitional care were 20% less likely to experience readmission during the subsequent year compared with clinically similar patients who received usual care. The authors concluded that such locally embedded, targeted care coordination interventions can effectively reduce hospitalizations for high-risk populations.\textsuperscript{33}

Although the existing health care delivery system addresses some of the aforementioned elements, serious gaps in care remain. In particular, uncoordinated discharge processes and shortcomings in the availability of and access to home care and visiting nurse services continue to impede improvement efforts. In some instances, existing reimbursement policies preclude the management of episodes in the most appropriate setting. One study revealed that among Medicare beneficiaries who placed 911 calls to request an ambulance, 34.5% had a low acuity diagnosis that might have been managed outside the ED. If Medicare had the flexibility to reimburse emergency medical services (EMS) to provide necessary medical management for select 911 calls, the authors estimated that the federal government could save $283–$560 million or more per year while improving continuity of patient care.\textsuperscript{34}

Mobile Integrated Healthcare: An Emerging Model Focused on Closing Gaps and Improving Health Outcomes

The preceding discussion telegraphs certain elements that are essential to an effective solution (ie, improving care transitions, managing longitudinal high-risk patients, and reducing unplanned episodes of care require an interdisciplinary team that specializes in transition management, is available and deployable on demand, and is in constant contact with all stakeholders). The capacity to coordinate care of multiple patients with unique problems who receive regular care from diverse and disconnected providers—and to do so on demand at the level required—is challenging. However, most communities have an EMS system, an often untapped resource that regularly performs comparable tasks as follows:

- Receiving incoming requests for emergency services through the 911 system and requests for nonemergency medical transportation through the phone or online ordering services.
- Using validated, physician-developed evidence-based criteria to prioritize requests to ensure that resources are dispatched according to the degree of urgency within minutes for emergent and urgent needs in most instances.
- Matching resources to patient needs.
- Deploying resources geographically to reduce transit time and assure prompt and efficient response.
- Ensuring system status and staffing to support appropriate and efficient utilization.
- Tracking resources in real time, 24/7, to assure geographic availability of resources and maintain safety of responding professionals.

A community EMS system’s ability to manage, prioritize, schedule, and respond to clinical requests, as well as track community health resources, makes it an ideal partner for pioneering new approaches to caring for chronically ill patients and tending to nonurgent events outside of hospital EDs. Historically EMS and public safety have not been meaningfully linked to post-acute and transitional care initiatives.

The concept of mobile integrated healthcare (MIH) and community paramedicine has emerged as a promising framework for more complex and comprehensive medical care delivery. Using a broad variety of resources and clinical professionals—including community health workers, traditional emergency medicine personnel, as well as nurses, social workers, pharmacists,
advanced practice providers, and physicians—these programs address wellness, prevention, care for chronically ill patients, posthospital discharge care, social support networks, and patient education/engagement for a locally defined population.35

MIH is an innovative approach aimed at closing these gaps by utilizing the core competencies of a professional staff of clinical specialists who are already available within a community providing community health, post-acute care, and EMS. Originally designed as a paramedicine program to address health care needs in rural areas where there are fewer physicians and residents tend to display poorer health outcomes (ie, higher rates of substance use, infant and adolescent mortality, self-reported obesity), an expanded MIH concept has been used in nonrural areas since 2012.36 In addition to broadening the provider scope of practice to cover chronic disease surveillance, community health education, and prevention, the new MIH model expanded the role of EMS providers and incorporated primary care teams, hospice and palliative care providers, and other home care and community-based service organizations. Already accustomed to working in and with the communities it serves, MIH provides comprehensive, physician-led, patient-centered population management solutions across the care continuum, including mobile integrated comprehensive care coordination, telehealth and telemedicine, in-home and mobile care, and longitudinal risk management. Importantly, the model is locally adaptable for both disease-specific interventions and more broadly defined patient populations.

Community-based and technologically sophisticated, the MIH model focuses on delivering necessary services at the most appropriate level of care and specializes in the care and management of complex patient populations at home and in other community-based settings. It accomplishes this by means of integrating clinical, logistical, analytical, and educational competencies in a collaborative effort that provides patient-centered, team-based population-oriented care.

Central Elements of an MIH Model

A 24/7/365 Interprofessional Approach

A physician-led interprofessional care team is tailored to a defined population and individual patient needs within that population. The team may draw on pre-acute, acute, and post-acute care expertise of an emergency, hospitalist, primary care, or behavioral health provider, a clinical specialist trained in transitional care, a pharmacist, a mobile, telehealth, or in-home team member. The interprofessional approach facilitates safer, higher quality, and more cost-effective care (ie, needs-matched care by the most appropriate provider in the most appropriate setting).

Command Center (CC)

The aforementioned resources can provide value to patients and the community only if incoming requests for service are received, accurately matched to appropriate resources, and tracked on a 24-hour basis. A core competency of public safety and EMS systems within communities is management and/or coordination of an operational dispatch and communications center that performs the following:

• Receives incoming 911 and nonemergency requests for medical and social services.
• Matches or navigates requests to available, proximate, and/or appropriate resources.
• Actively tracks and manages resources throughout the system to best optimize delivery.

In most successful MIH programs, this capability is expanded to include management of incoming requests for MIH services such as home visits, hospice services, medication delivery, and/or referral of requests to the most appropriate local organization. The MIH program’s ability to coordinate requests for service and to match and track resources is critical to achieving coordination of services.

Transitional Care

Like hospitalist, the relatively new term transitionalist is still unfamiliar, even for many in the health care field. A transitionalist team focuses on improving care transitions by assessing, managing, and providing support for clinical and psychosocial risk factors. Transitionalist teams excel in needs matching, patient education, information sharing, and handoff communication with other stakeholders in care.37

The well-documented Care Transitions Intervention21 and Transitional Care Model14 use different approaches, but both provide patients with tools and the necessary support to manage their own conditions.38 Coordinated by the CC, multiprofessional transitionalist teams are critical to the successful transition of patients and the associated reduction in complications and readmissions.

Longitudinal High-Risk Care

Wide variability in the quality of care for the high-risk patient population accounts for the largest percentage of health care costs. To effectively address this issue, a physician or other member of the interprofessional team conducts in-home/at-work visits for vulnerable patients, providing comanagement on behalf of/in communication with primary care providers, health plan care managers, and/or specialists for medically complex, highest risk, highest cost, and highest touch patients.

Longitudinal high-risk interventions target self-management of chronic diseases with the goal of minimizing exacerbations, reducing hospital (re)admissions, and decreasing preventable ED and 911 call utilization. MIH programs close unaddressed gaps (ie, access to transportation, declining functional status, community support, safe independence at home), thereby avoiding diversions that delay necessary care and improving quality and cost outcomes. Tangentially, these interventions ease the demand on first responders by reducing nonemergent calls.

Advanced Illness Management

Respectful coaching and care are provided for patients with advanced chronic illnesses and functional decline (ie, advanced-stage congestive heart failure) with a focus on managing symptoms and medication, providing comfort, coordinating care, planning for the future, and improving quality of life. This holistic approach includes the patient’s family and caregivers as goals of care change from curative to palliative in orientation.

Unplanned Acute Care

Even fully engaged patients with well-managed chronic diseases occasionally need additional support; thus, effective
population health management must encompass both planned and unplanned care. The CC coordinates care for unanticipated needs using mobile clinicians and telemedicine capabilities with all services delivered by physicians in collaboration with other members of the MIH team.

Discussion

New models for transitions of care, longitudinal care, and unplanned episodes of care have proven effective in coordinating care between settings, improving the quality and efficiency of care, and reducing the overall cost of care. The MIH model described herein builds on these models in several ways.

Working in conjunction with rather than competing with existing community health care services, MIH uses previously untapped capacity of medical transport services to avert nonacute ED visits. Analyses reveal that of 136.3 million ED visits, only 11.9% result in a hospital admission.39 These unnecessary ED visits cost the US health care system more than $4.4 billion annually. Studies vary, but inappropriate ED visits account for 8%39–27%40 of total visits. Few dispute that more appropriate, less expensive care could be received in an alternate setting (ie, the patient’s home). By mobilizing all existing resources more efficiently and effectively—including mobile health services—the MIH model enables active patient management in the most appropriate setting (ie, many patients with chronic conditions do not require ED-level care when their conditions begin to exacerbate).

The MIH model dovetails with the ongoing transformation in health care delivery brought about by the implementation of the ACA—from acute/inpatient centered to managed/outpatient centered. The new care paradigm is one in which care is delivered directly to patients in their homes and/or work environments, and clinical and social interventions are provided before conditions become acute. This translates into a clinically appropriate reduction in ED and hospital utilization—a distinct advantage for providers delivering chronic urgent care whenever and wherever needed.

Population Health Implications

Delivering appropriate care that is high quality and cost-effective is an imperative. For vulnerable populations (ie, chronic and complex conditions, frail and elderly, Medicaid, behavioral health conditions), it presents a substantial challenge. A major weakness in the typical care delivery system is that emergency physicians, hospitalists, paramedics, primary care physicians, and home care and social service providers function independently in unintegrated silos that are associated with fragmentation, lack of coordination, variability in quality and health outcomes, and unnecessary costs. An overarching goal of health care reform is to dismantle the silos—more precisely, to evolve from a fragmented system to an integrated model that shares crucial information and provides services more efficiently at a lower cost. Emerging MIH models seek to change this dynamic, capitalizing on improved synergy to improve the quality and safety of care, reduce waste and inefficiency, and realize cost savings.

The term clinical integration is generally described as the extent to which patient care services are coordinated across the spectrum of functions, activities, and sites over time to maximize the value of services delivered to a defined population. Most health care experts now agree that breaking down the clinical silos of complex health care organizations (ie, integration) is beneficial. MIH is one of a growing number of integrated models that are proving the hypothesis.

Conclusion

Assuring access to high-quality, safe, integrated, and well-coordinated care is tantamount to improving population health outcomes, reducing wasteful spending, and reversing the spiraling cost curve. Unfortunately, a multitude of interrelated problems continue to impede progress toward these goals, and these considerable issues are most evident in caring for the growing population of patients with multiple, complex chronic conditions. MIH is an emerging model that leverages EMS systems to effectively address the key issues of care transitions, longitudinal care, and unplanned episodes of care by using existing resources more efficiently and enabling data and information sharing among health systems and other providers. Readily adaptable to meet the health needs of populations in any locality, the model is designed to deliver chronic and urgent care whenever and wherever needed.

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County by County Analysis of Current Projected Insurer Participation in Health Insurance Exchanges

The Centers for Medicare & Medicaid Services (CMS) is releasing a county-level map of 2018 projected Health Insurance Exchanges participation based on the known issuer participation public announcements through June 9, 2017. This map shows that insurance options on the Exchanges continue to disappear. Plan options are down from last year and, in some areas, Americans will have no coverage options on the Exchanges, based on the current data. “This is yet another failing report card for the Exchanges. The American people have fewer insurance choices and in some counties no choice at all... Read more at www.goo.gl/WuSu3B

Healthcare Payer Strategies to Reduce the Harms of Opioids

Prescription opioid misuse and opioid use disorder (OUD) are significant and growing public health problems in the United States (U.S.) that impact stakeholders across the healthcare sector, including private, employer-sponsored, and public health plans. Healthcare payers (herein, payers), employer organizations, and law enforcement all have strong motivations to combat the inappropriate prescribing of opioids to improve patient health and reduce expenditures for medically unnecessary services and therapies. These are large-scale problems for which payers play a critical role in reducing fraud, waste, and abuse while ensuring... Read more at www.goo.gl/udm1zU

FDA Approves First Cancer Treatment for Any Solid Tumor with a Specific Genetic Feature

The U.S. Food and Drug Administration today granted accelerated approval to a treatment for patients whose cancers have a specific genetic feature (biomarker). This is the first time the agency has approved a cancer treatment based on a common biomarker rather than the location in the body where the tumor originated. Keytruda (pembrolizumab) is indicated for the treatment of adult and pediatric patients with unresectable or metastatic solid tumors that have been identified as having a biomarker referred to as microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR)... Read more at www.goo.gl/32S2rf

Skilled Nursing Facility Quality Reporting Program Measure Calculations and Reporting User’s Manual

The purpose of this manual is to present the methods used to calculate quality measures that are included in the Centers for Medicare & Medicaid Services (CMS) Skilled Nursing Facility (SNF) Quality Reporting Program (QRP). Quality measures are tools that help measure or quantify healthcare processes, outcomes, patient or resident perceptions and organizational structure/systems that are associated with the ability to provide high-quality services related to one or more quality goals. This manual provides detailed information for each quality measure, including quality measure definitions, inclusion and... Read more at www.goo.gl/NbajtZ

FDA Approves Drug to Treat ALS

The U.S. Food and Drug Administration today approved Radicava (edaravone) to treat patients with amyotrophic lateral sclerosis (ALS), commonly referred to as Lou Gehrig’s disease. “After learning about the use of edaravone to treat ALS in Japan, we rapidly engaged with the drug developer about filing a marketing application in the United States,” said Eric Bastings, M.D., deputy director of the Division of Neurology Products in the FDA’s Center for Drug Evaluation and Research. “This is the first new treatment approved by the FDA for ALS in many years, and we are pleased that people with ALS will now have an additional option.”... Read more at www.goo.gl/OBoQLJ

CMS Announces Extension for States under Medicaid Home and Community-Based Settings Criteria

The Centers for Medicare & Medicaid Services (CMS) announced a three-year extension for state Medicaid programs to meet the Home and Community Based Services (HCBS) settings requirements for settings operating before March 17, 2014. This extension is in response to states’ request for more time to demonstrate compliance with the regulatory requirements and ensure compliance activities are collaborative, transparent, and timely. “Medicaid programs are strongest when states have time to engage with beneficiaries and their families to ensure these programs fit their choices and needs,” said CMS Administrator Seema Verma... Read more at www.goo.gl/5Cv0KQ
Do you have a question regarding the managed care nursing industry, the American Association of Managed Care Nurses (AAMCN), obtaining certification in managed care or other related questions? Send them in and members of the AAMCN Councils will guide you in the right direction! Inquires can be emailed to April Snyder, Vice President of AAMCN Member Services, at asnyder@aamcn.org.

**Question:** I have been a critical care nurse for 14 years now and plan to pursue my career as a case manager. I just accepted a hospital case manager position and would like your input on hospital “real life” case management.

**Answer:** The “real” world will depend a lot on your employer’s expectations, the amount of resources you have available, and the type of hospital case management you will be performing. Your employer’s expectations of your job can be determined by asking your managers and your co-workers directly. The amount of resources you will have access to will depend on your community, contracts between your employer and/or insurance companies and vendors and/or other organizations, your management team’s ability to manage a case management department, and your co-workers abilities to perform his/her job functions.

The type of job you will be performing will depend on the type of case manager you will be. For example, hospital case management can mean you are a Chronic Conditions/Disease Case Manager, a Medical Specialty Case Manager (like Nephrology or Cardiac), a Transitions Case Manager, an Inpatient/Observational (OB) Case Manager (Some hospitals have OBs units within the hospitals not attached to the Emergency Dept.), a Utilization Review-only Case Manager, an Inpatient Psych Case Manager (Some hospitals have inpatient psych units), an Outpatient Case Manager (Some hospitals have outpatient clinics attached to the hospital), an Employee Health case manager, or others...

**Question:** My question is to hiring managers, existing managers, or those who transitioned into management. Would you consider a candidate with a multitude of informal leadership experience? How might I augment my resume to reflect I am capable of a formal leadership role? Do you have any advice?

**Answer:** To answer your question, add very good references to your arsenal (preferably other managers), network and meet hiring managers, practice interviewing at the manager level, have an open mind/be flexible about your first management position, and have a thick skin because you may receive a multitude of rejections before you land your first entry level management position.

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