Reconceiving Disease Management: A Technology Perspective

Executive Summary

Disease management entered onto the healthcare scene with the hope and promise of helping physicians, patients, and managed care organizations improve outcomes and control costs through coordinated and proactive interventions. That promise is still to be realized, as the inevitable challenges of our complex healthcare system have proven to be difficult to overcome.

There are several core issues that disease management professionals deal with: engaging patients in their health management, handling multiple and coexisting chronic disease states, supporting physician decision-making, and using data to identify early and appropriate interventions. And, all of this needs to lead to more efficient utilization of resources and, eventually, cost savings. That is the goal: healthier patients and more appropriate use of resources, resulting in system-wide cost benefits.

Some disease management programs have encountered obstacles to achieving their goals. These obstacles have included the following: significant growth in the number of patients in need; limitations of traditional communications methods, such as phone calls and letters; challenges of sharing data among care team members; personnel shortages (nursing shortages in particular); difficulties in finding a cost-effective alternative to the 1:1 nurse call model. On the positive side, much of this is now changing.

Technological advances are now helping to make the disease management concept more achievable. What has been missing is a way for data to be more easily shared and used so that the right information gets to the right people at the right time. New remote patient monitoring technology allows the real possibility of providing easy, interactive, up-to-the-minute, and even real-time links between doctor, patient, care manager, and family caregiver. By bringing user-friendly technology that engages the patient right in the home and allows for timely medical and educational interventions, disease management can move closer to that ideal upon which it was founded.

Introduction

Disease management has been around since at least the early 1990s. It is the systematic approach to delivering healthcare that stresses the coordination of health services and health communications for groups of patients who have particular medical conditions or who are at risk for developing them. Disease management programs place a high value on educating patients about their conditions and entail a corresponding expectation that those patients will play an active and engaged role in their own care. Such programs stress the prevention and mitigation of disease in the populations they oversee. (Disease Management Association of America).

The concept certainly seems sound: by knowing how particular conditions progress, and how resources are typically used to treat those conditions, healthcare professionals should be able to work more closely with patients to improve outcomes, reduce costs, and improve overall efficiencies. Results did not always conform to expectations, however, and over time some disease management professionals grew disenchanted with the concept when the gap between the early expectations and the actual results remained frustratingly wide. In part, this may have been due to the fact that, in the early stages of disease management, people who designed these programs could only make educated guesses about what worked, since there wasn't any long-term evidence. Studies sponsored by the Centers for Medicare & Medicaid Services (CMS) have shown that most successful DM programs share a number of features, such as a strong patient education component, an emphasis on care planning, sound relationships between patients and case managers, a proactive approach to preventing medical problems, reliance on evidence-based guidelines, and using nurses to coordinate care. (Mathematica 2007).

Disease management programs that were missing these elements generally fared worse than those that included them, but this was not known early on. In addition, a lack of common standards also contributed to a skepticism about the ability to be open and transparent in reporting on outcomes. These feelings contributed to skepticism within the market as well. Under these circumstances, disease management professionals looked to identify areas where success could be more easily defined and attained. As a result, some disease management initiatives have focused on the 'low hanging fruit'—medical conditions that cost a lot of money to treat and therefore had a greater potential for cost savings.

Disease Management's Focus

Not all diseases or conditions benefit from a disease management approach equally. Chronic conditions—illnesses or impairments expected to last at least one year that limit

a person's ability to function or require ongoing medical care—are more likely to benefit from this approach partially because their care is ongoing. Even among chronic conditions, disease management programs have generally focused on a group of chronic conditions—the "big five"—that are associated with high overall costs and which benefit from the coordinated and collaborative approach favored by disease management programs: asthma, diabetes, chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), and coronary artery disease (CAD). Because savings from preventive care often are slowly realized, efforts to curtail healthcare spending quickly are believed to rest first upon identifying the small minority of patients who consume a disproportionate amount of healthcare resources.

Why the DM focus on Chronic Conditions?

As of 2001, patients with chronic conditions accounted for (Anderson 2004):

- 83% of US healthcare spending
- 81% of inpatient stays
- 91% of prescriptions
- 76% of physician visits
- 98% of home healthcare visits

Achieving the Promise of Disease Management

In disease management, once high-risk patients have been identified, timely intervention is the key to optimal and lower cost outcomes, and that depends upon the ability of healthcare personnel to monitor and assess patients. Four factors are connected in this process, and the absence of any one of them can reduce the likelihood of achieving an optimal outcome:

- The monitoring must be *timely*, conducted regularly and often
- The monitoring must be *comprehensive*, covering all necessary vital signs and symptoms
- The data must be *shared appropriately* with the care team
- The data must be *meaningful and actionable* for the patient

But if the monitoring and assessment are too labor-intensive, their costs can offset some or all of the savings expected from the disease management program. Regardless of how well a nurse, or physician, or other healthcare professional conducts monitoring, its ultimate success lies with one individual on the care team: the patient. Involving patients actively in their own care is critical for controlling disease management costs associated with monitoring and assessment. Encouraging and supporting patients to become more engaged in their own healthcare will simultaneously encourage and support the goals of disease management. In this approach to healthcare, the more the patient becomes an equal partner in his or her own care team, the more efficiently and effectively programs are likely to run.

Using Technology to Strengthen Patient Engagement

For disease management programs, long-term patient engagement has been a key issue, a highly valued but often unattainable goal. With the application of technology designed both for the healthcare provider and the patient, this goal is within sight. Technology that can deliver accurate, relevant, and timely information to healthcare providers while giving patients an intuitive, enjoyable, and educational means of communication with their care team (including their families) is becoming available—in time, it can contribute to the overall goals of disease management by reducing the limitations of the nurse call model. With this technology, nurses can more effectively and efficiently monitor the cases they have. Another potential benefit is that the care team may have a more reliable set of data to work with because there is simply more of it for any given period of time. Those patients whose blood pressure rises when they see their doctor, or who become anxious during an office visit may have a fuller record that more accurately reflects their daily life by taking advantage of this technology.

For example, the Medicare Coordinated Care Demonstration (MCCD) interim report noted that providing physicians with "patient information obtained during monitoring calls or home visits [has] both reduced medical costs and improved care delivery." Elsewhere, the MCCD report noted that disease management programs that had the most significant reduction in hospital use also had the greatest portion of in-person contacts and were well above average on patient education and in improving communications between physicians and patients. These findings suggest an important role for technologies that can support such initiatives aimed at "identifying looming problems before they become more severe." (Mathematica 2007).

The problem lies in gathering the right information, sharing it with the right people, and acting on it in a timely fashion. That is especially important as we see more people with multiple chronic conditions who are seeing multiple specialists. Fragmented communications in this case is not simply inconvenient: it potentially compromises care. By conceiving and employing technology in new ways, we can also reimagine and strengthen the promise of disease management so that it looks at the patient in a holistic fashion. The big challenge in the treatment of the 'big five' and other chronic medical conditions lies in using technology to support emerging standards of care for both individual conditions, as well as comorbidities.

What might this look like? In general, the focus has shifted from managing diseases to managing patients, and from managing costs in high-risk patients to managing risks in at-risk populations (Foote 2003). But even as they have broadened their scope, disease management programs have not capitalized as much as they could have on advances in technology. Wireless devices are available that can generate alerts around the clock if they detect a deviation in

some physiologic parameter, such as blood pressure, weight, or blood sugar. Today, interactions between patients and disease managers do not need to be limited to periodic mailings and phone calls; they can include video conferences with healthcare personnel, e-mail, Short Message Service (SMS), as well as high quality educational content delivered at the time the patient is engaged with the technology. Touch screens and other user-friendly features may make such devices intuitive and easy to use, even for people with little computer experience. As the portion of healthcare costs represented by people with chronic conditions grows larger, the potential benefits of such enabling technologies will expand.

Reconceiving Disease Management?

Perhaps "disease management" itself needs to be reconceived. One possible solution could be to replace the term "disease management" with "health management," changing the focus to the patients' health, not their disease, offering hope. "Health management" would also refer to an interactive process, one in which patients can become more active participants in their own care. To succeed, such a name change would need to be attached to a solid core—a superficial name change won't suffice. That core is to be found in technology that could foster the creation of an interactive personal health management system. Others have argued for the creation of a "Personal Health Information and Choice" system to foster a renaissance in patient-centered primary care (Showstack 2003). Such an approach could also revolutionize care for patients with chronic conditions, complementing Wagner's Chronic Care Model (as the conduit for the 'productive interactions' between an 'informed activated patient' and a 'prepared, proactive practice team') and serving as an integrating force among disparate elements of an otherwise fragmented healthcare system. (Institute for Healthcare Improvement).

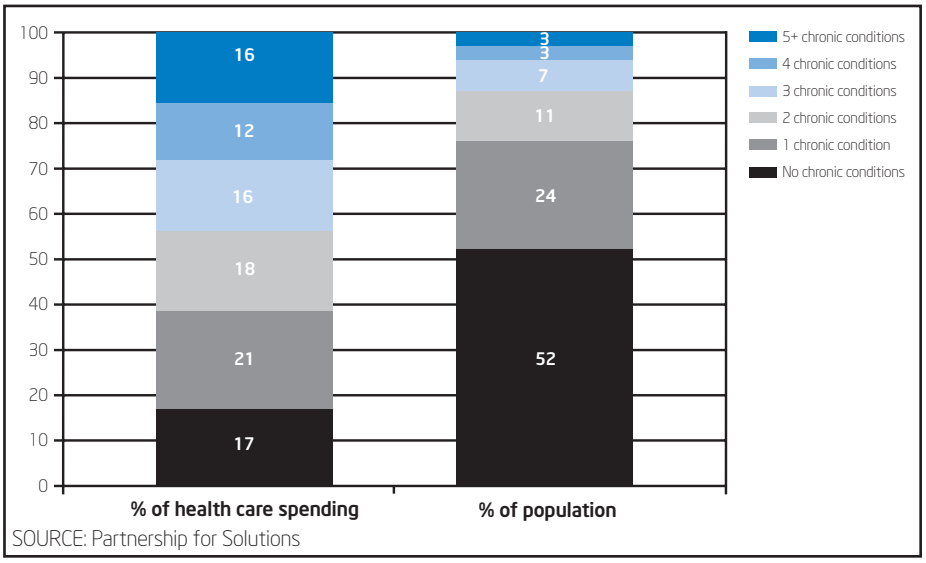
Such systems would be grounded in the belief that well-informed patients will be more motivated patients, more actively involved in their own care and in partnership with their care team. These systems would begin to facilitate the sharing of information among members of the patient's care network healthcare team. But it could go far beyond mere data collection—it would integrate remote patient monitoring with interactive learning and other social aspects of healthcare that patients value. It could connect the patient and the patient's caregivers to a wealth of trustworthy educational resources. On a practical level, it could reduce the need for hospitalizations that result from patients not adhering to their physicians plan. In addition, by regularly monitoring key parameters, it could reduce the frequency of some of the most routine office visits. A personal health management system would always be on duty, making any disease management program a more integral part of a patient's life.

Conclusion

Medical technologies have traditionally focused on diagnosis and treatment. The communication of patients' healthcare information, which must be timely, accurate, relevant, and networked, has not received the same attention. Disease Management programs have generally focused on the "big five" chronic illnesses, and for these conditions, diagnosis is comparatively straightforward and the treatment protocols are well established and accepted. Under these circumstances, technologies that help connect the members of a care network and foster interaction assume a greater role in achieving better outcomes and in reducing inefficient and unnecessary use of resources. With overall trends toward greater patient involvement in all aspects of their own care, technologies that encourage patient engagement are likely to foster sustained success compared to those that treat patients as passive players in their own care.

The time has arrived to pursue a systematic approach to the integration of technologies that can help realize and even transform the promise of disease management. One very important measure of success will be seen in the impact those technologies have on extending and sustaining behavioral change.

FIGURE 1. Concentration of healthcare spending in people with multiple chronic conditions (US)



SOURCE: Partnership for Solutions

Chronic conditions, accounting for less than 50 percent of the population but more than 80 percent of healthcare spending, are a major focus for disease management programs.

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