

## Heart Failure and Disease Management

Based on a presentation by Harry L. Leider, MD, MBA

### *Presentation Summary*

Disease management is a comprehensive program that identifies a population of patients at risk, provides a coherent framework of coordinated care for these patients, and demonstrates improved outcomes. In applying disease management strategies to heart failure, there is clearly the technology to improve outcomes. The two main issues involved are influencing physician practice patterns and improving patient compliance. A successful disease management program in heart failure should include patient iden-

tification, patient assessment, patient education and training, patient monitoring, and triage and acute intervention.

With the advances in treatment of heart failure, we have the means to keep patients out of the hospital, maintain their functionality, and decrease mortality. The real issue, which is where disease management can help, is how to apply technology in an effective way to turn potential gains into real gains. The key is not to develop more technology, but to implement effectively the technology that exists.

The term "disease management" was coined by Boston Consulting Group about 10 years ago. Although the term was new, the concept was not; staff-model and group-model health maintenance organizations (HMOs) have been using this strategy for many years. There is now an increased interest in this strategy for a number of reasons:

- The growth of managed care; as managed care has grown, the interest in controlling costs and being more cost-effective has also increased
- Aggressive marketing by vendors and consultants

- The increasing importance of quality as a competitive advantage for managed care organizations

The term "disease management" is often used to cover a wide range of initiatives, including: (1) increasing compliance with drug regimens; (2) converting from high-cost to low-cost drugs; (3) providing intensive patient education; and (4) offering comprehensive programs to identify high-risk individuals and manage their care.

However, a more useful definition of disease management is that of a *comprehensive* program that identifies a population of patients with a disease or at risk for a disease, provides a coherent frame-

work for delivering and coordinating care to these patients, and demonstrates improved outcomes. Such outcomes should include cost, quality, satisfaction, and health status. Using this definition, a compartmentalized program designed to educate patients about their diabetes and how to manage their disease and diet would not qualify as a disease management program. Education alone is not disease management because it is not a comprehensive program that identifies a certain population, coordinates the care, and shows improved outcomes.

All disease management programs include some fundamental elements in common:

- Use of the "20/80" rule, that is, 20% of the population is using 80% of the resources, so most disease management programs focus their efforts on that 20% that drives the negative outcomes and high cost.
- Use of clinical guidelines
- Coordination and monitoring of care by physicians and nurses or other allied health professionals
- Empowering patients through education
- Measuring outcomes

The diseases on which disease management programs focus are chosen for a number of reasons. From a quality perspective, common diseases should be targeted—those in which there is high variability in care processes and in which an opportunity exists to improve quality. From a managed care perspective, diseases that represent a high cost to the managed care organization, those in which an opportunity exists to improve quality, and especially those in which savings can accrue in the short term (ie, months) are the best choices. The last point is critical, given the industrywide 20% or greater member turnover each year (this may be less of an issue with older Medicare populations).

In applying disease management strategies to heart failure, there is clearly the technology to improve outcomes.

Consensus guidelines from the ACC/AHA [American College of Cardiology/American Heart Association] and AHCPR [Agency for Health Care Policy and Research] are continuously being updated and revised. A number of effective therapies are available, including angiotensin-converting enzyme (ACE) inhibitors, digoxin, diuretics, carvedilol, anticoagulants, cardiac rehabilitation, smoking cessation, and other lifestyle modifications.

However, applying this technology is not that easy because there are two issues involved: physician practice patterns and patient compliance. Influencing physician practice patterns is really a two-step process that involves knowledge and understanding of the guidelines and adherence to them. A necessary follow-up to this process involves close monitoring of patients to assess compliance and detect early signs of worsening heart failure.

Patient compliance is a huge issue. Drug regimens can be complicated, and there can be unwanted side effects. Dietary restrictions can be difficult, as can other lifestyle modifications. Also, this is a long-term challenge: These patients must follow their drug regimens and lifestyle changes for the rest of their lives. One way of influencing compliance is close follow-up between visits. Intervention is needed whenever patients begin to decompensate; but if they start to decompensate at home, it may not be apparent, so this involves access to acute interventions 24 hours a day, 365 days a year.

Cardiovascular disease was one of the most commonly targeted diseases for disease management. In 1995, cardiovascular disease accounted for \$110 billion of the estimated \$1 trillion national healthcare budget.<sup>1</sup> Only diabetes, at \$113 billion, had a larger share of the total healthcare budget. Of the disease management initiatives created by managed care organizations in 1996, programs for heart failure were implemented in 14.1% and developed in 26.7% of organizations; only programs

for diabetes (43.4% implemented and 53.4% developed) and asthma (50.4% implemented and 61.3% developed) were more frequent.<sup>2</sup>

Disease management in heart failure involves several key components; the first is patient identification. The goal is to ensure that the sicker patients get into the program, as well as the class I and II patients, for whom there will be less intervention. Claims data can be used to identify patients who were hospitalized or seen in the emergency department in the past. Patients can also be identified through case management referral, in which case the disease management program can be alerted as soon as a patient is admitted rather than waiting several months for claims data. Physician referrals can also be used to identify patients for the program. It is important to get primary care physicians and cardiologists to refer their more problematic and sicker patients to the program proactively. Finally, pharmacy data can be used to identify heart failure patients, for instance, by tracking carvedilol prescriptions.

The second key component is patient assessment, which is usually achieved through a standardized questionnaire administered at home to assess symptoms, medication compliance, diet, and the patient's understanding of the disease and its treatment. This assessment is followed by an individual care plan, which is usually developed by a nurse who works with the physician. Such a care plan is constructed by comparing the patient's status (stage of disease, current therapies, compliance) with the recommendations based on national guidelines and providing specific recommendations for any changes in the care plan.

The third component of disease management in heart failure is patient education and training, which involves understanding the disease, the treatment regimen and any side effects, and lifestyle modifications. Training can include specific rehabilitation exercises, such as teaching a patient how to self-

monitor by weighing him or herself, and instructing a caregiver in how to look for specific signs and symptoms of worsening failure.

The fourth component in heart failure disease management programs is patient monitoring. Once the assessment is completed and the care plan developed, a regular schedule of patient monitoring must be established, with routine contact between the nurse and the patient. This can be accomplished over the phone or through home visits,

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and it should be modified if the patient improves or worsens. At every monitoring visit, the nurse case manager evaluates the health status and compliance and then discusses the patient's progress with the physician. If necessary, the treatment plan can be modified.

The final component is triage and acute intervention, which involves a 24-hour, on-call phone support system staffed by trained nurses who can activate emergency unscheduled home visits. A good heart failure program can get a trained cardiovascular nurse to a patient's home within an hour. Intervention for many of these patients actually occurs in the home (eg, with intravenous lasix), rather than in the emergency department.

Disease management in heart failure really involves a care management system to effectively implement technology to influence outcomes. A recent

survey of four disease management program providers, with 39 to 902 patients in each program, showed a 56% to 70% reduction in heart failure-related hospital admissions, a 52% to 74% reduction in hospital days, and a 15% to 68% reduction in emergency department visits. Physician visits in one program were increased by 142%; and patient satisfaction in one program was 93%, whereas another program reported an improvement in 90-day quality-of-life scores.<sup>2</sup>

This is what Dr. Mackowiak was discussing earlier, when he modeled the effect of an increase in one category of utilization. These companies are doing all the things being discussed: compliance, monitoring, and education. These companies are so confident that they can achieve this kind of reduction they will enter into full-risk contracts in which they guarantee a certain percentage reduction in hospitalization and emergency department use for heart failure.

The compelling thing about these types of programs is that they actually get doctors and patients to do what they're supposed to do. If we could do that, we wouldn't need these programs. But patients aren't doing everything they are supposed to do, and doctors aren't following everything the guidelines say. A disease management program for heart failure will result in: (1) improved health status; (2) reduced hospital admissions; (3) reduced emergency department visits; (4) good patient satisfaction; and (5) possible improved functional outcomes.

The exciting thing about disease management in heart failure is that saving money translates into improved quality for the patient.

There is a great deal of debate about which model to use in developing these programs. Should a managed care organization work with an academic center in building a program, purchase a program from an outside vendor, or develop its own program internally? Part of this may depend on whether the data generated are easy to obtain and valu-

able. An academic center may be more interested in making the effort to collect the data, because that data can then be used in publications and research. Another factor may be the kind of managed care organization involved. A staff-model HMO can maintain much better control over communication between the pharmacist, nurse, physician, and patient, and it may decide to build its own programs. In a network of individual practices, the coordination of care is much more complex, so the vendor approach is often more attractive.

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... DISCUSSION HIGHLIGHTS ...

### Disease Management

**Dr. Gheorghiadu:** One thing you have to be very careful about when looking at the data for these disease management programs is the patient types that are included. We have about 200,000 patients with advanced heart failure in this country; these are the patients toward whom these programs are targeted, and where such dramatic reductions in utilization can be seen. For most heart failure patients, a very complex system is not necessary to prevent hospitalization; the most remarkable thing about these patients is that they are normal. So before entering a patient in a full-blown disease management program, we had better make sure that he or she needs it.

**Dr. Leider:** When these disease management companies enter into a full-risk contract, they have a lot at stake, and it is costing them \$2,000 to \$3,000 per case, so they are going to get very good at finding the small number of patients for whom this approach makes sense.

**Dr. Mackowiak:** You also won't see a 70% reduction in utilization for the whole heart failure population; those data are just for the small group of patients at the top end.

**Dr. Leider:** Right. The regression of the mean numbers for most chronic diseases is on the order of 30%.

**Dr. Gheorghade:** Another issue in these patients is undertreatment. Many heart failure patients get into trouble with an extra salt load, but they could be adequately controlled with stronger diuretics, digoxin, and ACE inhibitors. For example, less than 5% of patients with advanced heart failure are receiving two diuretics, although there is good evidence that adding a thiazide diuretic to a loop diuretic will effectively prevent edema. Again, we have strong evidence for the effectiveness of ACE inhibitors, but many patients are not receiving this therapy. The problem is inadequate therapy.

**Ms. Southwell:** That's where disease management programs can help, by identifying those patients who are not being treated appropriately or where therapy is not being maximized.

**Dr. Leider:** One key element in these programs is the inclusion of practicing cardiologists as advisors to the medical plan, to reinforce the message about therapy. In situations where a change in therapy is recommended, these advisors can discuss the recommendations in a peer dialogue with the physician, which is usually a much more effective approach.

**Dr. Kasper:** We also have to realize that these patients have multiple comorbidities, so are we also going to have multiple disease management programs, or are we going to have to begin integrating these approaches?

**Dr. Leider:** That's a huge issue that hasn't been resolved yet. Another issue is the role of the primary care physician versus the specialist. The third is the long-term issue: Is this a 1-year phenomenon, where we have a big gain, and if so, where do we go from here? Finally, we know that this approach works for

four or five diseases in which the economics support short-term interventions, but what do we do about other diseases where the economics aren't there?

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— Mihai Gheorghade, MD

**Dr. Brunton:** The argument is similar to the one that occurred in the 1950s, when family practice was developed as a means of treating the whole person. We need to optimize the medical therapy, but we also need to treat the person in the context of his or her environment, including community issues, family issues, psychological issues, and so on. Perhaps the primary care physician should serve as the focus of coordination.

**Dr. Leider:** Good programs do see the primary care physician as the core.

**Dr. Kasper:** Disease management can play a real role, both in moving physicians in the right direction in terms of appropriate therapy and in getting an accurate picture of what's really happening. However, the thing that bothers me about these programs is that we wait until patients are hospitalized before the program kicks in, after we've already spent \$7,000, on average, at that point. If there was a way to identify patients who are at risk before hospitalization, it would be the best of all possible worlds.

*Dr. Gheorghiade:* My theory is that hospitalization is preventable in most heart failure patients, perhaps 90% of the time, if we can maximize therapy and management.

*Dr. Wendt:* I think you're right, but it will take more than medical management alone to achieve those kinds of numbers; it will take integrated care, including psychological care, physical rehabilitation, and other lifestyle modifications.

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