

DM is God's gift to managed care. Or is it? Here is a discussion of areas that make evaluating a DM program a complex, if not ineffable, proposition.

Measuring DM's Net Effect Is Harder Than You Might Think

By Alison Johnson, RN, MBA

Disease management, embraced by both Wall Street and the medical world, is the most rapidly growing sector of the medical management industry. There are approximately 150 vendors currently providing disease management programs in the marketplace and many Medicaid, Medicare, and commercial insurance carriers all list their services among their offerings.

Why are DM programs flourishing?

Medical care and health care insurance premiums are skyrocketing yet again even as insurers and providers alike diligently search for effective strategies to control costs. Shorter hospital stays, fears about patient safety, and the rise of interest in consumers directing their own care have created an atmosphere where new ideas for care delivery and medical management can be considered.

The chief driver in the growth of DM programs is the dramatic rise in chronic diseases and the need for methods to coordinate and sustain effective medical care for people with chronic illnesses. The Health Policy Studies Division of the National Governors Association Center for Best Practices reports that 78 percent of the nation's total medical care costs can be attributed to the treatment of patients with chronic conditions who represent:

- 76 percent of all hospital admissions,
- 88 percent of all drug prescriptions, and
- 72 percent of all physician visits.

Such alarming statistics illustrate the need to measure and prove the efficacy of new approaches to medical management. A good idea that makes sense is not enough basis for launching innovative management programs, or even for sustaining old ones. Rigorous measurement of results, including cost, utilization, clinical improvement, functional status, and patient satisfaction must be undertaken. At their most

basic, DM programs strive to help chronic disease patients manage their condition in ways that reduce or delay the detrimental effects of the disease, and diminish the need for, and cost of, medical care. Reputably, DM programs achieve this either by delaying or avoiding complications of the disease or preventing acute flare-ups. Emphasis is also placed on wellness and self care, and enrollees are encouraged to be key participants in improving their health status.

Can DM programs reduce the cost of care delivery, produce superior clinical results, improve functional status and satisfy members and providers?

It depends. DM programs have reported remarkable early results, including slashing hospitalization rates and emergency department visits by as much as half of the baseline rate. But, so far, anecdotal evidence suggests that the effect on overall health plan costs is negligible.

Savings don't always affect the plan's bottom line immediately and maybe not for years. DM programs can report cost reductions based on positive patient outcomes for a particular year, whereas the health plan may see this benefit eroded by the next wave of chronically ill DM enrollees. The success of many DM programs is also contextual, and dependent on the business model of the health plan that engages the service and the structure of the contract.



It is simply too early to tell if DM programs work, says Alison Johnson, RN, MBA, of Milliman USA.

Lack of credible data

The Pacific Business Group on Health recently concluded that there was a "lack of credible and comparable population-based outcomes data on which to evaluate [health] plans' disease management programs."

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It is simply too early to tell if DM programs work, that is, if they reduce the financial and human cost of disease. One needs to evaluate an interrelated set of variables. However, we do have a clear picture of how vendors and providers are currently measuring results, and what the strengths and problems are with their methods.

Three Ways To Calculate DM savings

Milliman USA's recent survey of DM companies, *Disease Management: The Programs and the Promise*, identified three methods used to calculate cost savings:

1) Compare pre-enrollment to post-enrollment medical expenses.

Disease management companies may calculate the total cost of medical claims for all enrollees for the year prior to enrollment in their program and compare it with the same enrollees' medical claims during the first year of DM services. A variation on the method is to adjust post-enrollment claims so that the numbers are more comparable. They may include:

- Adjustments for change in contracted payment amounts to providers.
- Adjustments for change in benefits.

2) Compare the DM group to a control group.

The medical claims experience of disease management enrollees is compared to that of a group of patients who have not enrolled in disease management, but have the same health problems as enrollees. The control group may be people whose insurance benefit does not include disease management, or it may comprise those who do not wish to participate.

3) Compare requested services to approved services.

Some companies offer disease management along with their utilization management program. During the course of managing a member's disease, they also approve or deny payment requests for medical services, using internal protocols.

Confounding factors

These companies measure savings by comparing services requested for enrollees to services approved. For example, if a provider requests 10 physical therapy visits for an enrollee, but the protocol indicates that after six visits no further improvement can be expected, the program nurse will approve six visits. The expense of the nonapproved visits is counted as a cost savings by the program. As expected, all programs

report cost savings regardless of their method for calculating those cost figures.

There are several issues that make these types of cost analysis problematic:

Regression to the mean. Simply stated, this is the tendency for things to return to normal. Disease management programs may identify members when they have incurred significant health care costs, for example after a hospitalization, or after several emergency department visits. Utilization of these services can return to normal without any intervention. If those members are enrolled in a DM program, the reduction in utilization can be attributed to both regression to the mean and to the efforts of the program. Claiming all differences in cost as the effect of the disease management program would overstate the financial and utilization impact. While the magnitude of regression to the mean is uncertain, it may be considerable if enrollees are identified at the peak of expensive treatment.

Selection bias. Enrollees who agree to participate in a disease management program may be different from members who decline. A disease management program might analyze the difference in cost of treatment and utilization between the enrollees and the nonparticipating group (Method 2), and attribute lower costs of the disease management enrollees to the program. The difference could have more to do with underlying variations between the groups, such as readiness to manage their own care.

Projecting utilization. Estimating utilization of services based on provider requests for services may overstate savings, as providers could routinely request the highest number of services they think an enrollee might need. In actual practice, they may expect the enrollee to need fewer services. The provider requests the higher number to avoid the administrative need to re-request additional services for the member.

Methods for measuring other effects

DM programs also report gains in the functional status of patients (such as ability to perform activities of daily living, and increased enjoyment of life), and improved clinical parameters (such as hemoglobin A1c results for diabetics). The chart on Page 31 illustrates some of the areas where various companies are measuring the outcomes of their efforts.

Producing results in these areas is dependent on the DM program's abilities to provide services and affect the enrollee's medical care. While the interaction of all factors is not yet clear, we do have a good idea of the typical problems that can affect results and their measurement.

Many difficulties with the accurate measurement of

Nonfinancial outcome measures as identified by DM companies

- Clinical (lab values, physiologic measurements)
- Utilization (ER visits, hospital admissions)
- Lost work or school time
- Functional status
- Enrollee and provider satisfaction
- Relationship with community providers
- Patient compliance with treatment regimen
- Physician or provider adherence to guidelines
- Prevention (diet, exercise)
- Smoking and alcohol use
- Vaccination rates
- Community services used
- Psychosocial (emotional function, mood disturbance)
- Symptoms (breathlessness, activity restriction)
- Quality of life
- HEDIS (Health Plan Employer Data and Information Set) scores

the effect of disease management programs relate to operational problems.

Solving measurement problems

Difficulty identifying and enrolling members. Disease management companies generally use health risk assessment forms, predictive modeling, referrals, and claims analysis to identify members.

DM programs have found these identification methods problematic in accurately determining who will benefit from DM. Data from claims can be misleading and incomplete; health risk assessments have a poor rate of return; and predictive models can't always identify members at risk for costly health care events.

Lack of pertinent information. It is difficult to obtain, easily and accurately, the information that nurses need for effective disease management. Information from claims does not include lab values, and details about pharmacy utilization are rarely integrated with medical claim data.

Other important facts, such as a member's visual status, nutritional state, or living arrangements, may only be determined from a conversation with the member. Capturing this information is important for two reasons: the outcome measures can show the effect of a DM program, especially in the case of lab value information; and the information may be critical to effective interventions. The fact that a member's sight is limited may explain why that member has not managed a chronic illness effectively. Health plans and others intending to measure the outcomes of DM programs must evaluate the need for this type of information, and develop ways to collect it.

Operational and infrastructure issues. The recent Milliman USA survey of DM companies revealed wide variation in program operations and infrastructure. DM requires the coordination of services across many health care settings. This approach is best implemented when the DM company has certain key functions and tools in place, including: information technology that provides the company with the ability to aggregate and analyze claims and other data to identify members for enrollment; an interactive medical management system, an important accuracy and efficiency tool that provides automatic reminders and cues to nurses about when to offer services; and Web site services for physicians and/or enrollees. These tools require a significant capital investment in hardware and software.

Shifts in utilization. Disease management programs may drive utilization of some services down. Emergency room visits and hospitalizations can drop as members gain control over their chronic illness. However, the utilization of other services may rise. Typical methods for supporting members in the control of chronic illness include: more physician office visits for symptom monitoring, education, and support; increased lab tests to monitor disease and medication use; and increased medication use, as members become more compliant.

Prediction and measurement of cost and utilization must include both expected savings from reduced utilization and the offset for increased utilization of other services. Medication and physician visits may also be more costly per unit. New medications might offer more acceptable dosing schedules. For example, the patient could be required to take medication just once a day instead of several times a day, taking advantage of new drug formulations or capsule designs. Medication may be available in easier-to-use vehicles, such as patches or inhalers, possibly producing fewer side effects. While these enhancements can boost patient compliance with a medication regimen, they frequently carry a higher price tag.

The cost of physician office visits might also increase if patients seek services from more highly paid specialists rather than from their primary care physician.

Management of comorbidities. The most costly and complex patients are those suffering from multiple chronic and acute illnesses. Approximately 60 million Americans have two or more chronic illnesses.

Measuring the effect of DM programs on these members is especially difficult. They could be enrolled in several programs for various diseases, and

Strategies for managing comorbidities

Strategy	Explanation
Complex case management	Enrollees with very complex or aggressive care for more than one disease may be assigned to nurse case managers rather than disease managers for more coordination of therapies and education.
"Hierarchy of needs" approach	The needs of all diseases are prioritized and the enrollee's care plan is developed to address urgent needs first from any disease, comorbidity or complication.
Screen for/manage psychosocial issues	Chronic illness can precipitate depression, or be precipitated by social factors such as poverty. This approach includes screening for and managing those issues.
Medication screen/management	Chronic medication use can cause the development of secondary health conditions. Management of medication's effects is part of managing the disease.
Nursing comanagement	Enrollees with two or more chronic diseases are managed by a nursing team skilled in various specialties.

thus be counted more than once. They might need a more customized (and therefore more expensive) approach to management, or require closer medication supervision, as drug treatment for multiple conditions may create side effects and compliance issues. The chart above summarizes some of the approaches used by DM companies with these members.

The type of interventions used and the number of members with comorbid conditions will influence how outcomes are measured and what goals are set.

Time frame for outcomes. Typically, program effect is measured annually. This is appropriate for some diseases where an immediate decrease in services, especially emergency services, is expected. For example, a DM program may aim at better recognition of symptoms of fluid overload in patients with congestive heart failure, and treatment in the outpatient setting. If successful, this would reduce emergency department visits and hospitalizations for fluid overload.

Other programs are aimed at longer-term results. DM for diabetics is intended to improve lasting control of blood glucose levels and eventual reductions in the complications of diabetes, such as vision loss and circulation problems. In this instance, the control achieved this year is expected to result in better functional status and fewer expensive complications many years in the future. In fact, patients may incur higher expenses for medications, doctor's visits, and supplies as part of achieving better control of their blood glucose levels. They could even suffer a decrease in functional status, due to noncompliance brought on by the inconvenience of frequent monitoring of their glucose levels.

Effect on physician practice. Many DM programs depend on their ability to influence primary care physicians to provide services or to contact and guide

the patient. They may especially rely on physicians to provide additional monitoring, patient and family education, and to change and monitor medication regimens. A recent study by the Pacific Business Group on Health showed little evidence that contacts from DM nurses were influential with physicians. Outcomes that rely on changing physician behavior in this manner may not be realized.

Self-management status. Some DM programs "graduate" members who have demonstrated the ability to self manage their disease. Their cases are closed and they are no longer included in the pool of open cases used to calculate cost savings and other outcomes. Other DM companies maintain enrollment for all members unless they change insurance coverage, contending that chronic disease patients are always in need of services.

The inclusion of stable members in the analysis pool will affect the calculation of outcomes. We can reasonably expect that these stable patients will have better functional status.

Their cost and utilization profile would depend on the number and cost of services required to support them in their self-managed category. An additional consideration is that if enrollees never disenroll, the insurance company or employer will continue to pay fees for DM services.

The verdict, please

So do DM programs work?

The jury is still out. However, health plan and disease management vendor attention to implementation concerns, especially enrollment and monitoring systems, and their rigorous scrutiny of cost analysis and utilization will provide a definitive answer in the near future. **MC**