

# ISSUE BRIEF

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## REFORMING HEALTH CARE

### Disease Management: Does It Work?

by Jill Bernstein, Deborah Chollet, and G. Gregory Peterson

*Disease management (DM) programs are a common feature of both private and public health plans. In 2008, 59 percent of large employers offering coverage included at least one DM program in their most popular health plans.<sup>1</sup> At least 20 Medicaid agencies and a number of state high-risk pools also have instituted DM.<sup>2,3</sup> This brief looks at the research evidence on the effectiveness of DM programs and emphasis on DM in health care reform.*

#### Better Outcomes at Lower Cost

DM programs identify patients with costly chronic conditions, such as diabetes or asthma, and encourage them to follow recommended self-care and coordinated care regimens. DM strategies range from educating patients about appropriate self-care (such as self-monitoring, keeping medical appointments, taking prescribed medications, maintaining healthy diets, and exercising) to developing customized plans coordinating care for patients with multiple chronic conditions. Some DM programs also try to improve providers' adherence to evidence-based care guidelines. DM programs seek to control health care costs by focusing on two major drivers:

- **High-cost chronic conditions.** A relatively small number of people with chronic illnesses account for most health care costs. In 2004, more than 75 percent of all medical spending was attributed to the roughly 50 percent of the noninstitutionalized population with one or more chronic conditions.<sup>4</sup>

## ABOUT THIS SERIES

This brief is the fourth in a series highlighting issues related to health care reform that policymakers may want to consider as they implement the federal health reform law. The list of forthcoming titles is on page 3. For more information, contact Deborah Chollet at [dchollet@mathematica-mpr.com](mailto:dchollet@mathematica-mpr.com).

In Medicare, the picture is similar: one-fourth of beneficiaries with five or more chronic conditions account for more than two-thirds of program spending.<sup>5</sup>

- **Hospitalizations.** Inpatient hospitalizations for acute conditions are major drivers of health care expenditures. Many patients with chronic diseases are hospitalized for acute events that might have been avoided with appropriate treatment or recommended self-care.<sup>6,7</sup>

#### Not Yet Consensus that DM Works

In 2007, more than half of U.S. employers offering health insurance said that DM programs in general were effective in reducing health costs.<sup>8</sup> However, the research evidence on DM's impacts on cost, quality of care, and health outcomes has been inconclusive. For example, programs aiming to implement widely accepted, evidence-based guidelines for the care of patients with congestive heart failure have had mixed results:

- Some DM programs reduced hospitalization rates and post-discharge mortality for congestive heart failure by 5 to 25 percent, but others showed no positive impacts on post-hospital mortality.<sup>9,10,11</sup>
- Although some such programs produced enough savings by reducing hospitalizations to cover program costs, others have not.<sup>12,13,14</sup>

Similarly, a review of disease management programs for heart disease, diabetes, asthma, and other conditions found that some programs generated no savings, but others saved payers up to \$6.50 for each dollar they invested.<sup>15, 16</sup>

Evaluations of Medicare DM programs have also been mixed:

- A review of 35 Medicare-funded DM pilot projects in 22 states involving approximately 300,000 beneficiaries showed that most did not substantially improve quality of care or reduce treatment costs. However, seven projects reduced treatment costs enough to cover the costs of the interventions.<sup>17</sup>
- In a recent demonstration involving nearly 20,000 Medicare beneficiaries in 15 programs throughout the country, DM increased costs on average by 11 percent. None of the sites produced savings net of the average cost of \$155 per enrollee per month for care coordination services.<sup>18</sup>
- However, at least two recent analyses concluded that some programs have been more successful with subgroups of enrollees at particularly high risk of future hospitalizations—suggesting that well-targeted DM efforts can be cost-effective.<sup>19</sup>

In 2004, the Congressional Budget Office concluded that evidence was insufficient to discern whether chronic disease management reduces costs.<sup>20</sup> A more recent systematic review conducted for the Agency for Healthcare Research and Quality also concluded that more evidence is needed.<sup>21</sup>

### Why the Inconsistency?

Conclusions about the effectiveness of DM programs are inconsistent for least two reasons. First, the programs have focused on different populations and interventions, and so the quality of implementation or replication of the program model may be uneven.<sup>22</sup> Second, the studies have used varying methods and measures, some more valid than others, to estimate program effects.<sup>22</sup> To help address the second problem, the National Committee for Quality Assurance recently developed standards for reporting DM performance and built them into its accreditation process.<sup>23</sup>

### WHAT THE RESEARCH SHOWS

Evidence indicates that relatively effective disease management programs have some characteristics in common:

- They use individualized case management.
- They contact patients in person, not just by phone.
- They focus on hospital discharges as key opportunities to improve health outcomes.
- They encourage patients to use effective treatments by reducing cost-sharing for these treatments.

### Some Features Seem Effective

While differences in both the implementation and targeting of DM programs can affect their results, four DM program features appear to improve their relative effectiveness:

- **Individualized case management.** Successful programs follow a common strategy in planning care.<sup>24</sup> They conduct an initial assessment with the patient to develop a clear, practical plan addressing the patient's chronic illnesses; they implement the plan with a focus on patient education, relationship-building with physicians, and monitoring to ensure each step of the plan is completed; and they periodically assess the status of the intervention and adjust the plan as necessary.
- **In-person contacts.** In more successful DM programs, care managers meet in person with their patients to coordinate care, rather than communicating only by phone.<sup>25</sup> In-person contact may promote more thorough initial evaluations and care plans, as well as more trusting relationships between care managers and patients.
- **Focus on hospital discharges.** Many chronically ill patients who experience an unplanned hospitalization return to the hospital or the emergency room within months of discharge. This pattern may reflect a number of problems: the patients' acute problems were not resolved by the time of discharge; they lack sufficient self-care skills or social support; or they are seeing multiple providers who do not communicate with one another. Interventions that reduce the likelihood a patient will return

to the hospital within six months of being discharged include coaching of patients about appropriate self-care and enhanced discharge planning with clinical follow-up by, for example, a clinical pharmacist or advanced-practice nurse.<sup>25, 26, 27, 28</sup>

- **Low out-of-pocket expenses for recommended care.** Patients with chronic illnesses characteristically have high out-of-pocket expenses.<sup>29</sup> Reducing cost sharing for services or medications in a patient's DM plan can significantly increase adherence to the plan.<sup>30</sup>

## Considerations for Policymakers

The Patient Protection and Affordable Care Act (P.L. 111-148) or ACA, enacted in March 2010, emphasizes chronic disease management to improve the quality of care and address cost. For example:

- It requires health plans to publicly report chronic disease management as an indicator of the quality of care by 2012, and to include chronic disease management as an essential benefit by 2014.
- It directs the Center for Medicare and Medicaid Innovations (at the Centers for Medicare & Medicaid Services) to focus on developing models for improving the efficiency and quality of health care—including care coordination for chronically ill individuals at high risk of hospitalization, provider networks that employ health information technology and care coordinators, a chronic disease registry, and home telehealth technology.<sup>31</sup>
- It creates a financial incentive for states to develop primary care-centered medical homes for Medicaid enrollees with chronic conditions by increasing the federal contribution rate when they do.
- It establishes a program of community-based, interdisciplinary professional teams to help primary care practices develop more effective systems for managing an array of health care problems in children and adults.

ACA offers states and communities important roles in designing, implementing, and evaluating DM programs in public and private health plans. For example, state and local public health agencies can work with local health plans to design DM programs that focus on the specific needs of their populations, providers, and local systems of care. States also can lead in evaluating the effectiveness of DM programs

in qualified private plans available through their health insurance exchanges, as well as the medical home models of chronic disease management that ACA encourages them to develop in their Medicaid programs. Understanding what does or does not work in private and public plans, for different populations and in different circumstances, will be essential to improving both the quality and efficiency of care for chronic disease.

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## Notes

<sup>1</sup>For example, while more than three-fourths of physicians have adopted DM in their practices, implementation tends to vary by practice size, with larger practices more likely to use resource-intensive strategies such as hiring nurse managers. See Carrier, E., and J. Reschovsky, "Expectations Outpace Reality: Physicians' Use of Care Management Tools for Patients with Chronic Conditions." Center for Health Systems Change Issue Brief No. 129. Washington, DC: HSC, December 2009.

<sup>2</sup>For example, Washington State offers a chronic care management program to Medicaid patients. Although preliminary results suggested that the program may reduce hospital admissions and associated costs, these effects were not statistically significant. See Mancuso, D., and B. Court. "Chronic Care Management Pilots Show Early Promise." Washington State Department of Social and Health Services Publication No. 8.28. November 2009. Available at [<http://publications.rda.dshs.wa.gov/1396/>]. See also Holmes, A., R. Ackermann, A. Zillich, B. Katz, S. Downs, and T. Inui. "The Net Fiscal Impact of a Chronic Disease Management Program: Indiana Medicaid." *Health Affairs*, vol. 27, no. 3, 2008, pp. 855–864.

- <sup>3</sup>For example, the Washington State Health Insurance Pool (WSHIP) has expanded its DM programs to cover diabetes, asthma, coronary artery disease, and congestive heart failure. Washington State Health Insurance Pool. “WSHIP Care Management Programs.” July 2008. Available at [https://www.wship.org/Docs/WSHIP%20Care%20Management%20Program%20Description%2006-30-08%20AM%20proofed%20\_3.pdf].
- <sup>4</sup>Centers for Disease Control and Prevention. *The Burden of Chronic Diseases and Their Risk Factors*. Atlanta, GA: CDC, 2004.
- <sup>5</sup>Anderson, G.F. “Medicare and Chronic Conditions.” *New England Journal of Medicine*, vol. 353, no. 3, July 21, 2005, pp. 305–309.
- <sup>6</sup>Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press, 2001.
- <sup>7</sup>Russo, A., H.J. Jiang, and M. Barrett. “Trends in Potentially Preventable Hospitalizations Among Adults and Children, 1997–2004.” AHRQ Healthcare Cost and Utilization Project Statistical Brief No. 36. Rockville, MD: AHRQ, August 2007. Available at [http://www.hcup-us.ahrq.gov/reports/statbriefs/sb36.pdf].
- <sup>8</sup>Henry J. Kaiser Family Foundation and Health Research and Educational Trust. *Employer Health Benefits Annual Survey*. Washington, DC: KFF, 2007.
- <sup>9</sup>Holland, R., J. Battersby, K. Hegarty, E. Lenaghan, J. Smith, and L. Hay. “A Systematic Review of Multidisciplinary Interventions in Heart Failure.” *Heart*, vol. 91, no. 7, July 2005, pp. 899–906.
- <sup>10</sup>Clark, R., S. Inglis, F. McAlister, J. Cleland, and S. Stewart. “Telemonitoring or Structured Telephone Support Programmes for Patients with Chronic Heart Failure: Systematic Review and Meta-Analysis.” *British Medical Journal*, vol. 334, no. 7600, May 2007, pp. 942–952.
- <sup>11</sup>DeBusk, R., N. Miller, K. Parker, A. Brandura, H. Kraemer, D. Cher, J. West, M. Fowler, and G. Greenwald. “Care Management for Low-Risk Patients with Heart Failure: A Randomized Controlled Trial.” *Annals of Internal Medicine*, vol. 141, no. 8, October 2004, pp. 606–613.
- <sup>12</sup>Rich, M., V. Beckham, C. Wittenberg, C. Leven, K. Freedland, R. Carney. “A Multidisciplinary Intervention to Prevent the Readmission of Elderly Patients with Congestive Heart Failure.” *The New England Journal of Medicine*, vol. 333, no. 18, November 2, 1995, pp. 1190–1195.
- <sup>13</sup>Laramee, A.S., S. Levinsky, J. Sargent, R. Ross, P. Callas. “Case Management in a Heterogeneous Congestive Heart Failure Population: A Randomized Controlled Trial.” *Archives of Internal Medicine*, vol. 163, no. 7, April 2003, pp. 809–817.
- <sup>14</sup>Chen, A., and M. Au. “Medicaid Evidence-Based Decisions Project (MED): Rapid Review of the Disease Management Literature.” Princeton, NJ: Mathematica Policy Research, February 6, 2008.
- <sup>15</sup>Dove, H., and I. Duncan. “Paper 3: Estimating Savings, Utilization Rate Changes, and Return on Investment: Selective Literature Review of Care Management Interventions.” Schaumburg, IL: Society of Actuaries, 2005.
- <sup>16</sup>A recent review of the DM and chronic care literature concluded that interventions integrated with primary care and those focusing on the hospital–home transition are more likely to be successful than those that are only home-based or provide services remotely by third-party vendors. See Bodenheimer, T., and R. Berry-Millett. “Care Management of Patients with Complex Health Needs.” Robert Wood Johnson Foundation Synthesis Report No. 19. Princeton, NJ: RWJF, December 2009.
- <sup>17</sup>Bott, D., M. Kapp, L. Johnson, L. Magno. “Disease Management for Chronically Ill Beneficiaries in Traditional Medicare.” *Health Affairs*, vol. 28, no. 1. January/February 2009, pp. 86–98.
- <sup>18</sup>Peikes, D., A. Chen, J. Schore, and R. Brown. “Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care Expenditures Among Medicare Beneficiaries: 15 Randomized Trials.” *JAMA*, vol. 301, no. 6, February 2009, pp. 603–618; and Peikes, D., R. Brown, A. Chen, and J. Schore. “Third Report to Congress on the Evaluation of the Medicare Coordinated Care Demonstration.” Washington, DC: Mathematica Policy Research, January 2008.
- <sup>19</sup>Brown, R. “Strategies for Reining in Medicare Spending Through Delivery System Reforms: Assessing the Evidence and Opportunities.” Washington, DC: The Henry J. Kaiser Family Foundation, September 2009; and Peikes, D., G. Peterson, and R. Brown. “Analyses of the Medicare Coordinated Care Demonstration for the Medicare Chronic Care Practice Research Network (MCCPRN):” Report prepared for Centers for Medicare & Medicaid Services. Princeton, NJ: Mathematica Policy Research, June 24, 2009.
- <sup>20</sup>Congressional Budget Office. “An Analysis of the Literature on Disease Management Programs.” Washington, DC: CBO, 2004.
- <sup>21</sup>McDonald, K., V. Sundaram, D. Bravata, R. Lewis, N. Lin, S. Kraft, M. McKinnon, H. Paguntalan, and D. Owens. “Closing the Quality Gap: A Critical Analysis of Quality Improvement Strategies: Volume 7: Care Coordination.” Agency for Healthcare Research and Quality Publication No. 04(07)-0051-7. Rockville, MD: AHRQ, June 2007. Available at [http://www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=hstechrev&part=A25236].
- <sup>22</sup>Measuring the true effects of a DM program is complicated by the difficulty of calculating an appropriate benchmark against which to compare actual medical expenditures. The most robust designs for evaluations randomly assign beneficiaries to treatment groups that receive care coordination and to control groups that do not, and compare expenditures for these two groups. However, these methods can be expensive and time consuming, and commercial DM vendors rarely have used them.
- <sup>23</sup>National Committee for Quality Assurance. “Changes to NCQA’s Disease Management Accreditation and Certification Standards Released.” Washington, DC: NCQA, December 14, 2009. Available at [http://www.news-medical.net/news/20091214/Changes-to-NCQAs-disease-management-Accreditation-and-Certification-standards-released.aspx].
- <sup>24</sup>Brown, R., and A. Chen. “Disease Management Options: Issues for State Medicaid Programs to Consider.” Princeton, NJ: Mathematica Policy Research, April 2004.
- <sup>25</sup>Bodenheimer, T. and R. Berry-Millett. “Care Management of Patients with Complex Health Needs.” Robert Wood Johnson Foundation Synthesis Report No. 19. Princeton, NJ: RWJF, December, 2009.
- <sup>26</sup>Jack, B., V. Chetty, D. Anthony, J. Greenwald, et. al. “A Re-Engineered Hospital Discharge Program to Decrease Rehospitalization.” *Annals of Internal Medicine*, vol. 150, no. 3, February 2009, pp. 178–187
- <sup>27</sup>Coleman, E.A., C. Parry, S. Chalmers, and M. Sung-joon. “The Care Transitions Intervention: Results of a Randomized Controlled Trial.” *Archives of Internal Medicine*, vol. 166, no. 17, September 2006, pp. 1822–1828,
- <sup>28</sup>Naylor, M., D. Brooten, R. Campbell, B. Jacobsen, M. Mezey, M. Pauly, and J. Schwartz. “Comprehensive Discharge Planning and Home Follow-Up of Hospitalized Elders.” *JAMA*, vol. 281, no. 7, February 1999, pp. 613–620.
- <sup>29</sup>Among patients with chronic illnesses, average out-of-pocket expenses, already high, have grown sharply over the last decade. See Paez, K.A., L. Zhao, W. Hwang. “Rising Out-

of-Pocket Spending for Chronic Conditions: A Ten-Year Trend." *Health Affairs*, vol. 28, no. 1, January/February 2009, pp. 15–25.

<sup>30</sup>For example, reducing copayments for medications can increase adherence by 7 to 14 percent. See Chernew, M., M. Shah, A. Wegh, S. Rosenberg, I. Juster, A. Rosen, M. Sokol, K. Yu-Isenberg, and M. Fendrick. "Impact of Decreasing Copayments on Medication Adherence Within a Disease Management Environment." *Health Affairs*, vol. 27, no. 1, 2008, pp. 103–112.

<sup>31</sup>The Institute of Medicine defines telemedicine as the "use of electronic information and telecommunications technologies to provide and support health care when distance separates the participants." Home telehealth is an expansion of the basic definition of telemedicine to include the use of telecommunications to provide care services to a patient at home. Kinsella, A. *The Home Telehealth Primer*. July 2008. Available at [[http://tic.telemed.org/articles/article.asp?path=homehealth&article=homeTelehealthPrimer\\_ak\\_tic08.xml](http://tic.telemed.org/articles/article.asp?path=homehealth&article=homeTelehealthPrimer_ak_tic08.xml)].

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