



issue brief

Disease Management: Findings from Leading State Programs

by Ben Wheatley

Disease management programs are designed to contain costs by improving health among the chronically ill. More than 20 states are now engaged in developing and implementing Medicaid disease management programs for their primary care case management and fee-for-service populations.

Amid rising health care expenditures and declining tax revenues, state efforts to expand access to health insurance coverage have been put on hold in many parts of the country. Recently, states have had to take a number of difficult steps to reduce program expenditures, including restricting eligibility, reducing benefits, and cutting provider payments. These measures generate cost savings but also restrict access to care. Another option, which is now being more widely adopted by states, is to develop disease management (DM) programs that are designed to contain costs by improving health among the chronically ill.

More than 20 states are now engaged in developing and implementing Medicaid DM programs for their primary care case management (PCCM) and fee-for-service populations.¹ While most of these programs are in an early stage of development, a small number of states began implementing these programs in the 1990s and have already gained several years of experience.

This issue brief, which follows an earlier SCI report on state DM programs,² describes the experience of eight states—Florida, Maryland, Mississippi, North Carolina, Texas, Utah, Virginia, and West Virginia—that were early adopters of Medicaid DM and highlights some of the key challenges they have encountered.

Medicaid Disease Management Models

The DM programs developed by states in recent years vary in several respects. In addition to the specific diseases that states have elected to target, these programs have differed in terms of how they are administered and which medical services and medical professionals they include.

Program Administration

A number of states have elected to work with disease management organizations (DMOs) in administering DM programs for Medicaid enrollees. Washington recently completed contracts with two DM vendors to provide services to members with asthma, diabetes, congestive heart failure, and renal disease. Florida is currently contracting with six DM vendors to manage care services for Medicaid enrollees with nine different medical conditions.³

Several states have also designed DM programs that have been administered in-house. For example, in the 1990s, Maryland created the Diabetes Care Program as an adjunct to their existing PCCM program. Physicians and nurses who completed a five-hour continuing education course could qualify to receive a \$20 monthly care management fee per member served.⁴ Virginia and West Virginia created pilot programs for asthma and diabetes (respectively) and received financial support from the National



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Pharmaceutical Council to assist with program costs, including physician training in state-of-the-art treatment protocols and patient communication strategies.⁵

Medical Services

The DM programs in Florida, North Carolina, Texas, and West Virginia have focused broadly on patient care management, which includes all medical services and relevant lifestyle counseling for patients with specific diseases. Others, such as the current programs in Virginia and Mississippi, focus primarily on managing pharmaceutical services.⁶ In Mississippi, pharmacists are reimbursed by Medicaid for performing patient assessments, drug therapy reviews, and patient education. The goal is to establish care coordination, reduce duplicate and contraindicated drug prescriptions, and increase adherence to clinical guidelines.⁷ Pharmaceutical DM programs are less labor intensive (and less costly) than comprehensive DM programs, but may also offer less potential for care improvements and savings unless they take a broader perspective.

Medical Professionals

DM programs provide a care management function that is performed by various professionals in different states. Virginia and Mississippi have pharmacists serving in that role. West Virginia qualifies physicians, nurse midwives, certified registered nurse anesthetists, and family and pediatric nurse practitioners to become managing providers.⁸ Private DM vendors typically hire RNs to serve as care managers and may add others to the care team, such as dietitians to ensure that diabetics and heart patients are following appropriate dietary restrictions.

In addition, DM care teams must work in conjunction with patients' existing physicians. DMOs collaborate with physicians to develop and implement patient care plans, and they often provide feedback reports on patients' health status or health care utilization patterns (e.g., number of emergency room visits by asthma patients). Vendors often produce "exception reports" to direct the attention of physicians to patients with flagging clinical indicators (e.g., rising hemoglobin A1c [HbA1c] levels). In addition, DM programs seek to inform physicians about state-of-the-art treatment protocols through continuing education classes or dissemination of current guidelines.

DM Program Outcomes

States began implementing Medicaid DM programs fairly recently and, to date, there has been limited quantitative research conducted to assess their impact. Only a handful of early adaptors have completed formal program evaluations, while several others have provided qualitative information on their experience. These early reports indicate that disease management has contributed to quality improvements in Medicaid, but it has not produced overwhelming savings (at least not in the short term). Nevertheless, one indication of program success is that virtually all of the early DM states have elected to continue and even expand their DM programs.

Performance Indicators

The types of measures that states can use to assess the effectiveness of their DM programs include:

- Overall cost savings (usually based on the amount spent per member per month as compared to some baseline);
- Component cost savings (e.g., reductions in emergency room visits or hospital admissions, as compared to the baseline);
- Return on investment (which accounts for DM program costs as well as medical savings);
- Secondary prevention activities (e.g., weight monitoring, exercise, or reductions in salt intake);
- Clinical measures (e.g., changes in weight or HbA1c levels);
- Adherence to clinical guidelines (e.g., percentage of heart failure patients receiving ACE inhibitors); and
- Education of providers and patients (e.g., treatment protocol education classes, health fairs, counseling for smoking cessation).

The emphasis on particular measures varies by state. For example, Florida's evaluations focused primarily on cost savings, while North Carolina's focused heavily on health and clinical indicators.

Evaluation Challenges

Measuring the fiscal impact of Medicaid disease management is extremely difficult.⁹ To calculate program savings, states must compare actual expenditures for DM enrollees against the amount that would have been spent if the program had not been in operation. To estimate this baseline

figure, states can calculate last year's spending (e.g., for enrollees with asthma) and then make an inflation adjustment to predict spending in the current year. Alternatively, states can compare expenditures for DM program participants in the present year against expenditures for non-participants who have the same condition. Florida used both of these baselines to evaluate its DM programs.

These baselines can be misleading, however. Medicaid case mix changes frequently as enrollees cycle on and off the program. Spending levels in any given year (or for any given comparison group) may be more reflective of which patients are enrolled in the program during that time than of the care management provided by the DMO. In addition, savings to the program that result from public policy changes (e.g., Florida Medicaid's implementation of a supplemental drug rebate and prior authorization for hospital services) may be inappropriately credited to the DMO. On the other hand, efforts that DMOs make to educate providers on state-of-the-art treatment guidelines or to help patients make healthy lifestyle changes may produce longer term budget savings that are not captured during the 12-month evaluation period.

In assessing the impact of its case management program for hemophilia, Utah found that a number of confounding variables influenced the results. While the case management program was working to reduce utilization of (and expenditures for) blood factor, developments in the private market were pushing in the opposite direction. Treatment patterns were changing as more doctors began using blood factor prophylactically; the costs of blood factor were increasing

overall; and a product shortage resulted in greater utilization of a particularly expensive blood product.¹⁰ This example shows that there are any number of variables that make measuring the impact of DM difficult.

Preliminary Outcomes

States that have conducted DM program evaluations to date include Florida, Maryland, North Carolina, and Virginia. Other states, including Mississippi and West Virginia, are working on their evaluations and should have them completed in the next several months.

The Florida Experience

Florida, which operates one of the oldest—and by far the largest—Medicaid disease management program in the country, has now completed evaluations for four diseases: asthma, diabetes, hemophilia, and HIV/AIDS.¹¹ In general, Florida officials believe that the programs have been successful in generating improvements in care quality and expenditure reductions (e.g., unnecessary emergency room visits), but that DM program costs have generally offset these savings.

An evaluation of Florida's small initial asthma program indicated that DM led to a net savings in Medicaid costs. Although prescription drug costs increased by an average of \$125 per person per year, inpatient and outpatient costs decreased by \$200 per person per year. However, these savings estimates do not factor in the costs of conducting the DM program (which included six health fairs that instructed asthma patients on how to manage their condition).¹²

Florida's DM programs for diabetes, hemophilia, and HIV/AIDS (which remain in operation) provide more direct support to enrollees, assigning care nurses to patients and coordinating their care. State officials believe that these programs have been successful in reducing preventable health problems and service costs, but independent evaluations have shown mixed results in terms of overall cost savings (see Table 1).

Both the hemophilia and HIV/AIDS programs showed overall savings of approximately 40 percent against the previous year's baseline. However, spending reductions for DM participants relative to non-participants were not statistically significant for either program.¹³ These results illustrate the importance of baseline selection in assessing program outcomes.

The evaluations showed conclusive savings in some categories of spending. The hemophilia program produced substantial savings for medical services against both baselines, and the HIV/AIDS program demonstrated significant inpatient savings. However, while medical and pharmacy costs in the HIV/AIDS program both showed savings against the prior year baseline, they showed losses when compared to non-participants in the program.

In May 2001, a Florida legislative audit was released criticizing the DM program for having gotten off to a sluggish start.¹⁴ The legislature had projected to save \$113 million over four years (1998 to 2001) but the program was not close to producing that level of savings at the time the audit was conducted.¹⁵

Table 1: Savings Estimates from Three Florida DM Programs¹⁶

	Diabetes		Hemophilia		HIV/AIDS	
	Baseline ^a	Non-participants ^b	Baseline	Non-participants	Baseline	Non-participants
Overall	NS	NS	-38%*	NS	-40%***	NS
Medical	NS	NS	-151%***	-102%***	-21%***	+8%*
Inpatient	-17%**	NS	+26%***	NS	-94%***	-28%***
Outpatient	+11%**	+13%***	-100%***	NS	+11%***	+11%*
Pharmacy	+31%**	+21%***	-41%*	NS	-12%***	+13%***

^a Spending per DM enrollee as compared to prior year's baseline (adjusted for inflation).

^b Spending per DM enrollee as compared to (eligible) non-participants in the DM program (same year).

NS = Not statistically significant.

*** P < .0001

** P < .001

* P < .05

The audit also charged that, by establishing separate DM programs for so many different diseases, the state had created a siloed system that was inefficiently serving patients with comorbidities.

In June 2001, Florida reached an agreement with Pfizer Health Solutions to operate a new DM program for Medicaid patients with asthma, diabetes, hypertension, and congestive heart failure. In exchange for allowing all Pfizer drugs to be placed on the Medicaid preferred drug list without supplemental

price rebates, Pfizer agreed to provide DM services and to guarantee at least \$33 million in Medicaid savings over two years. The state later reached a similar agreement with Bristol-Myers Squibb, with guaranteed savings of \$16 million.¹⁷ For Florida, these DM savings have to be measured against the budget savings not generated through the Medicaid drug list. However, by serving patients with multiple conditions, these new programs addressed some of the concerns relating to program silos.

In-House Models

States that designed in-house DM programs (including Maryland, North Carolina, Virginia, and West Virginia) were able to record some successes in improving care quality and reducing expenditures (see Table 2). Virginia's pilot program, the Virginia Health Outcomes Partnership (VHOP), reported significant gains in an article published in *Inquiry* in 2000. However, this pilot program was expensive to administer and the state later moved to an outsourced DM model focusing on pharmaceutical care management that was much less costly to operate.

Table 2: Findings from Early Medicaid Disease Management Programs¹⁸

State	Disease(s) ¹⁹	Dates	Findings
Florida	Asthma, HIV/AIDS, CHF, Hemophilia, ESRD, Diabetes, Hypertension, Pre-Diabetes, Depression	1998–present	<ul style="list-style-type: none"> • Programs generally reduced inpatient hospital costs but often increased other costs, especially pharmacy spending. • Net reductions in spending were generally offset by DM program costs. • Results vary considerably depending on which baseline measure is used. • Programs produced improvements in care quality.
Maryland	Diabetes	1991–1997	<ul style="list-style-type: none"> • Average annual spending decreased by \$1,738 for AFDC (Aid to Families with Dependent Children) recipients but increased by \$1,147 for those eligible for Supplemental Security Income. • Emergency room (ER) visits declined; physician visits increased (for both). • Program privatized to Medicaid managed care organizations in 1997.
Mississippi	Asthma, Diabetes, Hyperlipidemia, Coagulation Disorders	1998–present	<ul style="list-style-type: none"> • Preliminary findings (very small asthma sample) indicate a 96 percent reduction in hospital costs and a 58 percent reduction in ER costs. • Pharmaceutical and medical costs were not measured. • Diabetic HbA1c levels decreased significantly. • Immediate savings were harder to obtain for other two diseases.
North Carolina	Asthma, Diabetes	1998–present	<ul style="list-style-type: none"> • 67 percent of pediatric asthma patients received asthma control medication in Access II/III programs, versus 53 percent in HMOs. • HbA1c testing increased (83 percent vs. 66 percent in baseline); the percentage with poor glycemic control improved (33 percent vs. 54 percent).
Texas	Diabetes	1999–2001	<ul style="list-style-type: none"> • Cost-effectiveness was not determined due to low participation. • Surveys showed measurable improvements in enrollee self-management skills and lifestyle.
Utah	Hemophilia	1998–present	<ul style="list-style-type: none"> • Blood factor utilization decreased by 134,000 units (first year). • Expenditures increased by \$140,000 during that time. • With case management, ER visits now “minimal.”
Virginia (1)	Asthma	1995–1997	<ul style="list-style-type: none"> • There was a 41 percent reduction in ER visits for patients with DM-trained physicians (vs. an 18 percent reduction for other physicians). • Dispensing of recommended drugs increased by as much as 25 percent. • There was an estimated \$3 in savings per \$1 spent (net \$659 in savings per physician trained vs. \$235 in training costs).
Virginia (2)	Diabetes, CHF/Hypertension, Asthma/COPD, Depression, GERD	1997–2002	<ul style="list-style-type: none"> • Vendor estimated \$700,000 in hospital savings and a sizable reduction in “hits” (indicating problems in patient care). • Overall savings were limited, according to the state. • State will expand the program by adding new diseases. • Request-for-proposal released in Summer 2002.
West Virginia	Diabetes	2000–2001	<ul style="list-style-type: none"> • Participation in pilot was very limited. • Program is now in evaluation phase (due end of 2002). • The state is seeking to extend statewide program with additional diseases in 2003, but the budget is limited.

Pharmaceutical Models

As described above, Mississippi's program has given pharmacists a central role in coordinating patient care, verifying treatment regimens, and educating chronically ill patients about their conditions. Preliminary results show some hospital and emergency room savings for a limited number of asthmatics and diabetics receiving these services, although final evaluation results are not yet completed. Mississippi is now developing a more comprehensive DM program for patients with asthma, diabetes, and hypertension. The program is expected to begin in January 2003 and will place DMOs at risk for achieving program savings.

Virginia began implementing its statewide DM program in 1997. State officials indicate that the program has produced some savings, but not as much as had been hoped. The state is now expanding the program to serve patients with more diseases and is also instituting contracts that will require guaranteed savings from contractors. The expanded program will maintain a focus on pharmaceutical care management.

Key Challenges and Responses by States

States that have been operating disease management programs for a number of years have gained considerable experience in how to run these programs more effectively. The following lessons may be helpful to other states that are developing DM programs.

- **Automatic enrollment**

Some states (including Texas and West Virginia) have struggled with low program enrollment. In order to ensure higher participation, Florida instituted automatic enrollment with a 30-day opt-out period for enrollees identified through claims data as having a particular disease.

- **Outreach**

Locating program eligibles is challenging for DMOs because Medicaid enrollees are mobile and contact information provided by the state is often inaccurate or incomplete.²⁰ Having to track down potential enrollees increases DMO administrative costs and reduces program savings. In response, some DMOs have hired staff to locate particular Medicaid enrollees (rather than having call nurses perform that function). Alternatively,

under the new Pfizer model, care managers work in collaboration with 10 local hospitals to help identify program eligibles. While hospitalization is a good enrollment opportunity for DM companies and a “teachable moment” for Medicaid patients, enrollment comes after major costs to the Medicaid program have already been incurred.

- **Predictive modeling**

Identifying enrollees that have the potential to become high-cost cases is a key challenge for state DM programs, and for the DM industry generally. Accurate risk-assessments are needed in order to target DM resources most effectively. Currently, some DM programs identify high-risk groups based on charges incurred in the prior year, which can lead to inaccurate predictions. However, the industry is working to refine its predictive modeling techniques to help to ensure greater accuracy and more effective risk stratification.

- **Guaranteed savings**

While some of the early Medicaid DM programs did not place DMOs at-risk for savings, more recent outsourced state programs typically include some type of savings guarantee, often between 5 and 6.5 percent (e.g., Florida, Mississippi, and Washington). These savings figures are based on expenditures for all Medicaid enrollees with a particular disease, giving DM companies responsibility for a broad group of patients.

- **Baseline estimates**

Establishing adequate spending baselines is challenging for a number of reasons. Given the potential for changes in medical practice, public policy, and other relevant factors, using a comparison group from the same year (rather than a prior year) may be the more accurate way to measure baseline spending.

- **Comprehensive services**

States have generally found that the more work that they put into provider education and patient case management, the more savings they generate. However, more intensive DM programs are also expensive to operate, reducing their overall budget impact. Given the current budget climate, states such as West Virginia are seeking more cost-effective ways to administer these programs.

- **Multiple vendors**

States have found that contracting with multiple vendors that each manage only one disease can result in silos of care and added administrative complexity, as patients who develop comorbid conditions are frequently required to switch DM programs. The trend now is for states to give vendors responsibility for several disease conditions and to reduce these types of transitions.

- **Working with Medicaid enrollees**

Although the Medicaid population presents a number of administrative challenges, DM vendors have observed that Medicaid patients can be remarkably easy to work with once engaged in the program. Several DMOs have reported that these patients are appreciative of the care they receive and are conscientious about monitoring their conditions.

Conclusion

Disease management is one of the few policy options available to states that offers at least the potential to improve care quality while also containing costs. While the early adopters of Medicaid DM have not found it to be an immediate panacea, they do believe that DM provides a longer-term direction for state Medicaid programs and a potentially significant cost-saving strategy. A key challenge for states, and for the DM industry as a whole, will be to develop common standards for measuring cost and clinical outcomes, which will enable states to evaluate the true impact of these programs.

About the Author

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Endnotes

- 1 The number of states with disease management/case management programs increased from 11 in Fiscal Year (FY) 02 to 21 in FY03. See Smith, V. and V. Wachino, "Medicaid Spending Growth: Results from a 2002 Survey," Kaiser Commission on Medicaid and the Uninsured, September 2002, Appendices D and E.
- 2 Wheatley, B., "Medicaid Disease Management: Seeking to Reduce Spending by Promoting Health," State Coverage Initiatives Issue Brief, AcademyHealth, August 2001. See www.statecoverage.net/pdf/issuebrief0801.pdf.
- 3 Since 1998, Florida has contracted with a number of other DM contractors. However, several of these programs have concluded (e.g., a hemophilia program administered by Accordant Health Services Inc., and Florida's initial asthma program, administered by Integrated Therapeutic Group, the disease management subsidiary of Schering-Plough Corp.).
- 4 This fee was paid monthly regardless of whether the patient was seen by the care manager in that month. Patients enrolled in the program received preventive services (e.g., nutrition counseling and therapeutic footwear) that were not covered in Maryland's other managed care programs. See Stuart, M. "Redefining Boundaries in the Financing and Care of Diabetes: The Maryland Experience," *The Milbank Quarterly* Vol. 72, No. 4, 1994, pp. 679-93.
- 5 Like Virginia, West Virginia originally designed its program as a pilot that would be available only in certain areas of the state (see www.statecoverage.net/statereports/wv1.pdf and www.statecoverage.net/statereports/wv5.pdf). However, the Health Care Financing Administration subsequently ruled that the program had to be extended statewide in order to meet federal law. This limited the state's ability to measure the success of the program against a control group (i.e., Medicaid enrollees in areas of the state without the DM program). Nevertheless, much of the pilot had been completed before the statewide program was implemented, which will allow for some comparisons. Evaluation results are expected by the end of 2002.
- 6 The DM programs in Virginia and Mississippi have both undergone changes over time (see Table 2).
- 7 Carlson, B. "Others Await Promise of Mississippi's Experiment With Pharmaceutical Care," *Managed Care Magazine*, March 1999. Also see www.managedcaremag.com/archives/9903/9903.states.shtml.
- 8 Midwives were included because of the high incidence of gestational diabetes.
- 9 The Disease Management Association of America and National Committee for Quality Assurance are now developing standardized measures to assess DM program outcomes.
- 10 Note that Utah's evaluation simply tracked blood factor utilization and expenditures for hemophilia patients over time. There was no control group. See "Case Management for Utah Medicaid Hemophilia Population Proves Cost-Effective," Utah Department of Health Internal Report, February 2000. Also see www.statecoverage.net/statereports/ut1.pdf.
- 11 The state is not planning to conduct formal evaluations of the other diseases included in the initial DM program (end-stage renal disease, congestive heart failure, and hypertension). However, the state will conduct budget reconciliations with the vendors to determine whether there were net budget savings. The state will evaluate the Pfizer and Bristol Myers Squibb programs, but no date has been set on their release.
- 12 The asthma DM program, which was provided free of charge to the state by Integrated Therapeutic Group, had limited participation. The program ended in February 2001.
- 13 Although the results were statistically insignificant, the results showed overall savings vs. non-participants (-1.1 percent for hemophilia and -2.4 percent for HIV/AIDS).
- 14 "Medicaid Disease Management Initiative Sluggish, Cost Savings Not Determined, Design Changes Needed," Office of Program Policy Analysis and Government Accountability, an office of the Florida Legislature, May 2001 (see www.statecoverage.net/statereports/fl20.pdf).
- 15 In particular, the diabetes program, which was the largest in the state in terms of number of enrollees, struggled to produce savings. The DMO serving this population had entered an at-risk contract and was directed to forfeit an advance payment of \$7.6 million made by the state at the beginning of the year.
- 16 Evaluation results were released in June 2001. See www.nashp.org/Files/Rogers.PDF for a summary. Note: these results do not incorporate program costs; however, state officials report that the hemophilia and HIV/AIDS programs did produce budget savings (against the prior-year baseline) even with program costs factored in.
- 17 For more information on the Pfizer program, see www.statecoverage.net/statereports/fl14.pdf. For more information on the BMS program, see www.nga.org/common/issueBriefDetailPrint/1,1434,2640,00.html.
- 18 Sources: **Florida:** Parker, S. et al. "Evaluation of Disease Management in the Florida Medicaid Program," June 2001 (see also footnote 13); **Maryland:** See footnote 4; **Mississippi:** Personal communication regarding preliminary evaluation results (final results due out by the end of 2002); **North Carolina:** Division of Medical Assistance internal report: "Using HEDIS Measures to Evaluate Medicaid Managed Care Organizational Performance: The Treatment of Persistent Asthma in the Pediatric Medicaid Population," November 2000 (see www.statecoverage.net/statereports/nc7.pdf); and "Managed Care Diabetes Project: Evaluation Report, June 2002 (see www.dhhs.state.nc.us/dma/ca/mcdiabetpro.pdf); **Texas:** Texas Medicaid Managed Care Diabetes Pilot – Final Report, December 31, 2001 (see www.statecoverage.net/statereports/tx15.pdf); **Utah:** See footnote 10, and personal communication with state official (Sept. 2002); **Virginia (1):** Rossiter, L. et al. "The Impact of Disease Management on Outcomes and Cost of Care: A Study of Low-Income Asthma Patients," *Inquiry*, Summer 2000, pp. 188-202; **Virginia (2):** The Virginia Department of Medical Assistance Services Disease Management Program, Six-Month Annual Outcomes Evaluation, June 2002. Heritage Information Systems, Inc.; **West Virginia:** Personal communication with state officials (September 2002).
- 19 CHF = congestive heart failure; ESRD = end-stage renal disease; COPD = chronic obstructive pulmonary disease; GERD = gastroesophageal reflux disease.
- 20 See Connors, S. et al. "Contracting for Chronic Disease Management: The Florida Experience," Center for Health Care Strategies Informed Purchasing Series, March 2001 (www.chcs.org/publications/pdf/ips/cdm-report.pdf). See also, Agency for Health Care Administration, "The Florida Medicaid Disease Management Initiative," February 2000. Also see www.statecoverage.net/statereports/fl2.pdf.



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