

Designing and Implementing Medicaid Disease and Care Management Programs: A User's Guide

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Medicaid Care Management Guide

As the health care industry heightens its focus on quality initiatives, chronic illness has become a target for payers and providers seeking to improve care quality. Today in the United States, more than 90 million Americans live with a chronic illness, and many have multiple chronic illnesses. The rate of chronic illness is even higher among Medicaid beneficiaries; approximately 14.4 million Medicaid beneficiaries (30 percent) have a chronic illness. For the individual, the burden of chronic illnesses results in decreased quality of life, lower productivity, and major limitations in activity. For the Nation, the burden of chronic illness is higher costs of care. Currently, the costs of treating chronic illness account for 75 percent of the nation's aggregate health care spending. For Medicaid, approximately 83 percent of spending is dedicated to people with multiple chronic conditions.¹ This Medicaid Care Management Guide is designed to help States design, implement, and evaluate care management programs for the chronically ill.

More than half of the Nation's States have implemented Medicaid care management programs. These programs seek to improve the quality of care for people with chronic conditions. Medicaid beneficiaries receive care management services through the States' contracted managed care organizations (MCO) or as part of the State's fee-for-service (FFS) or primary care case management (PCCM) program. To assist States offering care management to their FFS and PCCM populations, the Agency for Healthcare Research and Quality (AHRQ) developed the Medicaid Care Management Learning Network in 2005.

The Learning Network seeks to provide expertise to participating States in four areas critical to ensuring a quality-driven care management program:

- Helping patients become active in their care
- Encouraging provider participation in care management programs
- Developing program interventions and corresponding measurement strategies that impact patient care
- Designing valid, reliable evaluations to determine the program's success

Since 2005, a total of 18 States have reviewed and analyzed the experiences of other States, best practices, and evaluation methodologies to identify the best solutions for their State. This Medicaid Care Management Guide reflects the experiences of the initial 13 Learning Network States.

The Guide is designed to be a resource for decisionmakers involved with designing and implementing care management programs. These decisionmakers may include care management program directors, Medicaid Medical Directors, program evaluators, program analysts, Governor's office staff, or State legislative staff. Each section of the Guide can be used independently, allowing interested audiences to focus on specific development and implementation activities individually. However, each topic may include references to related sections that can provide context or illustrate examples. In addition, the Guide strives to incorporate as many State examples, lessons learned, and checklists as possible. The Guide is

¹ Chronic Conditions: Making the Case for Ongoing Care, September 2004 Update, Partnership for Solutions.

organized to address five stages of care management program development, supplemented by three key topics that should be considered at every development stage. These topics span all stages of development and are crucial for program success and continuation. Brief descriptions of each section follow.

Planning a Care Management Program. Through dedicated planning, a State reviews various program design options and assesses available options against its particular needs. This section reviews considerations for developing a care management program, readiness for care management, and considerations for program design.

Engaging Stakeholders in a Care Management Program. Stakeholder support, beginning with program design and continuing through the evaluation, is critical to a successful Medicaid care management program. This section provides information about the importance of engaging key stakeholders (such as physicians), strategies for developing relationships with key stakeholder groups, and communication strategies for demonstrating program value.

Selecting and Targeting Populations. When designing a care management program, a State must consider the population the program will affect. Selecting a care management population includes choosing diseases and eligibility groups. This section reviews mechanisms for selecting, identifying, stratifying, and enrolling members.

Selecting Care Management Interventions. When designing a care management program, a State must understand which interventions—the methods used in care management programs to impact member health—are possible, tested, and successful. This section provides information about the different types of interventions, factors for selecting interventions, and considerations for implementing interventions.

Selecting a Care Management Program Model. In designing a care management program, States must consider which type of care management program model is most appropriate. Depending on the availability of State resources and staff, States can choose to contract with a vendor, operate a program internally, or choose a hybrid method to operate its care management program. This section provides information about selecting a care model and considerations for contracting with a vendor.

Operating a Care Management Program. After a State selects an appropriate care management program, it must plan a program implementation strategy. By carefully planning program rollout, identifying eligible members, designing monitoring strategies, and using measurement for program improvement, States will be able to maximize resources and build support for the program. This section provides information about implementation strategies, program monitoring, data systems, and continuous quality improvement.

Measuring Value in Care Management Programs. Demonstrating the value of care management programs is essential, both to ensure that Medicaid recipients are benefiting from the program and to garner support from the State legislature and other stakeholders. This section provides information on measurement strategy design, examples of measures, and strategies for communicating results to stakeholders.

The Care Management Evidence Base. Considering the evidence on efficacy of different care management interventions is important for States as they plan and design their own programs. States can use the evidence base for care management to gain support from stakeholders, choose diseases, and select interventions. This section presents a review of published literature relating to care management programs in the public and private sectors for asthma, coronary artery disease, congestive heart failure, chronic obstructive pulmonary disease, and diabetes.

In this Guide, we share the experiences of the initial 13 Learning Network States from 2005 through 2007. Many of the trends occurring in care management, such as population-based approaches and managing comorbid conditions, are not conveyed throughout the Guide due to limited State experience. Future supplements to the Guide will share State experiences as they implement new program models and interventions.

Section 1: Planning a Care Management Program

In creating new care management programs or considering expansions to current programs, States have a wide variety of options. Dedicated planning can help a State consider various program design options, assess existing internal resources and capacity, and understand the needs of Medicaid members.

This section of the Guide, Planning a Care Management Program, incorporates information from the 13 State Medicaid care management programs in the initial AHRQ Learning Network and additional literature to provide information to State Medicaid staff and policymakers about:

- considerations for developing a care management program,
- readiness for care management, and
- considerations for program design.

Program Development Considerations

Although each State faces a unique environment, all States share several considerations in developing a Medicaid care management program. Medicaid officials and State policymakers should take time to consider each of these issues and evaluate their State’s support, resources, and readiness to design and implement a care management program.

Understand Motivation for Program and Establish Program Goals

States might consider implementing a care management program for a variety of reasons. Most States implement a program based on some combination of the following three reasons:

- **Quality Improvement Effort.** States can use care management as a strategy to improve health care quality, care coordination, and service delivery, especially for beneficiaries with chronic conditions.
- **Cost Savings Effort.** States might focus solely on the cost containment or cost reduction issue when considering a care management program in response to particular budget constraints or other financial concerns.
- **Policymaker Mandate Effort.** In some States, the decision to launch a care management program might originate from the Governor’s office or through a legislative mandate.

Checklist: Program Development Considerations	
<input checked="" type="checkbox"/>	Understand motivations for establishing program
<input checked="" type="checkbox"/>	Establish program goals and identify short- and long-term objectives
<input checked="" type="checkbox"/>	Assess financial environment to determine most appropriate program
<input checked="" type="checkbox"/>	Secure Federal support and approval
<input checked="" type="checkbox"/>	Engage stakeholders to build program support
<input checked="" type="checkbox"/>	Build on lessons learned from other States by attending national meetings and networking with other States

States usually establish care management programs to meet multiple needs. For example, a State might want to improve the quality of care provided to beneficiaries with chronic conditions while containing costs in response to a legislative mandate.

Medicaid programs that implement care management programs to meet multiple needs should understand the probable short-term and long-term results. For example, North Carolina experienced improved outcomes in asthma management more quickly than in diabetes management.¹ In addition, the evidence base suggests that programs might see improvements in process measures such as screening rates more quickly than desired changes in utilization rates, financial outcomes, and health outcomes. Please see Section 8: The Care Management Evidence Base for more information on the related care management literature.

If goals have not been set already by the State legislature or Governor's office, Medicaid program staff should determine program goals based on the motivations for establishing a care management program. Every care management program should have an overarching aim, which might be as simple as "to maximize the quality of life and promote a regular source of care for patients with chronic conditions." However, to track progress on an ongoing basis, staff must identify short-term objectives, such as members selecting a primary care physician or decreased emergency room (ER) utilization. As described later in this section, after establishing program goals, staff must think about a measurement and evaluation strategy as a critical step early in the development process.

Assess Financial Environment

States should explore funding issues during program planning to determine the most appropriate program for their State. To estimate program costs and understand program financing, they should consider the following issues:

- **Program Model and Associated Costs.** Program staff should consider whether they will build, buy, or assemble a care management program and should estimate startup costs, costs associated with data exchange, and ongoing operations costs. Sharing this estimate with senior leadership and other stakeholders is useful to secure program support. Please see Section 5: Selecting a Care Management Program Model for a description of program models.
- **Federal Funding.** Because Medicaid is jointly funded by States and the Federal Government, States should consider their options for requesting Federal match at the administrative or medical match rate.² Although the medical match percentage varies from State to State, the administrative match is 50 percent. Care management programs using medical professionals are eligible for the medical match. State staff should communicate with their Centers for Medicare and Medicaid (CMS) regional office to understand their options and must consider the implications tied to each funding option. For example, CMS requires States operating a care management program under Section 1115 waivers to demonstrate cost neutrality.

¹ Available at: Cecil G. Sheps Center for Health Services Research. Evaluation of Community Care of North Carolina Asthma and Diabetes Management Initiatives. <http://www.communitycarenc.com/PDFDocs/Sheps%20Eval.pdf>. Accessed November 12, 2007.

² The Federal Medical Assistance Percentages (FMAP) are used in determining the amount of Federal matching funds for Medicaid expenditures. Section 1905(b) of the Social Security Act specifies the formula for calculating FMAP. States also receive enhanced FMAPs for the State Children's Health Insurance Program under Title XXI of the Social Security Act. Tables displaying the FMAPs by State and the District of Columbia are available at: <http://aspe.hhs.gov/health/fmap.htm>. Accessed February 11, 2008.

- **Program Expectations.** For either the State or Federal share of funding, program staff should consider whether specific conditions exist that they must take into account when calculating program costs. For example, some State legislatures, such as Illinois and Texas, require cost savings as part of the care management program.
- **Grant Funds.** Local grants might be available from the State, a Federal agency (which cannot be matched with Medicaid funds), or a private foundation. States have used grant funds to support pilot programs and chart reviews for program evaluation.

Secure Federal Support and Approval

Many programs require Federal approval from CMS in the form of a State plan amendment (SPA) or a waiver. Although many States have implemented care management programs, considerable variability exists in program design and Federal authority. Therefore, approval procedures are individualized, usually depending on the care management program model. As a result, during the planning stage, program staff should work with CMS staff, both at the regional and national levels, to solicit feedback and understand the type of authority that must be used to implement certain care management program components versus others. Texas worked closely with its regional and central offices to communicate its care management program design and to identify a model that it could use to seek CMS approval for its program. CMS might also be able to provide points of contact in other States to share their SPA or waiver documents.

Exhibit 1.1, found at the end of this section, provides information on ways to secure CMS approval through waivers, SPAs, and the Deficit Reduction Act.

Engage Stakeholders

Developing relationships with senior Medicaid and agency leadership, the Governor's office, the provider community, the patient and advocacy community, the State legislature and staff, and CMS is critical for the success of a care management program.

States should consider expectations from Medicaid and agency leadership during the initial planning stage to ensure their support. Senior leadership within the Medicaid program, its umbrella agency or department, and the Governor's office might have specific program goals that program staff must understand as they plan and develop the program. Senior leadership might also have areas and directions that they have no interest in pursuing. In situations where Medicaid staff develop the program, program staff should involve senior leadership as early as possible to help shape expectations.

Similar to the Governor's office, the State legislature or individual legislators can greatly influence some of the key questions around a care management program's design, such as whether a mandatory savings requirement exists or whether the program can be operated in-house or with a vendor. States should coordinate and communicate routinely with these stakeholders. For more information on strategies to engage the Governor's office, State legislators, and senior Medicaid and agency leadership, please see Section 2: Engaging Stakeholders in a Care Management Program.

Build on Lessons Learned from Other States

State staff can learn from successes and “productive failures” of other State Medicaid care management programs. States should consider relevant components from multiple States and develop a care management program best suited to that State’s individual needs while building on the experiences of other State Medicaid programs. In planning a care management program, States have found the following strategies helpful:

- Attending national health policy meetings, such as meetings sponsored by the National Association of State Medicaid Directors, National Academy for State Health Policy, National Conference of State Legislatures, National Governors Association, or the Disease Management Association of America
- Speaking with colleagues in other States to better understand their programs
- Reviewing formal evaluations of other States’ programs

Each of these strategies can be useful to learn about other States’ experiences and to understand a care management program’s impact on outcomes.

Readiness for Care Management

After considering each of the issues outlined above, program staff should answer the following questions in determining whether and how to proceed with a care management program.

Are Necessary Staff Available?

States need a variety of staff to oversee and perform care management program operations, identify areas for improvement, and monitor the program. A State administering or operating a care management program should ensure that it has the internal capacity and budget to hire necessary personnel. If appropriate or adequate staff are unavailable, States can contract with a vendor, share staff with other State agencies, or partner with local organizations to perform needed services. Existing staff who can perform certain interventions, such as nurses or care managers, might be available. Please see Section 5: Selecting a Care Management Program Model for more information.

How Does Care Management Fit into the Medicaid Program?

Linking a care management program with other Medicaid initiatives can increase the effectiveness of both programs. Care management programs often are linked with PCCM

Checklist: Readiness for Care Management	
<input checked="" type="checkbox"/>	Availability of necessary staff and resources
<input checked="" type="checkbox"/>	Role of care management in Medicaid program
<input checked="" type="checkbox"/>	Timing of other State initiatives to coordinate outreach and stakeholder support
<input checked="" type="checkbox"/>	Support of potential program partners, such as other State agencies and local organizations
<input checked="" type="checkbox"/>	Support of providers and patients
<input checked="" type="checkbox"/>	Development of relationships with stakeholders, such as State legislators and their staff, the Governor’s office, senior Medicaid leadership, and key Federal government staff

programs or medical home initiatives, because Medicaid FFS might not offer the consistency of care typically provided at medical homes and necessary for successful patient interventions.

Rhode Island, which broadened the American College of Physicians' standards for an advanced medical home for use in its PCCM program, Connect CARRE, has drafted "Connect CARRE Choice Participation Standards." Standards include:

- partnering with patients to ensure that all of their health care is effectively coordinated,
- incorporating the Chronic Care Model³ into community supports and programs through the Department of Health Services, and
- encouraging patients with chronic diseases to enroll in the Connect CARRE Choice program.

Linking the medical home and care management can provide additional benefits to both Medicaid and the care management program, including the following:

- **Impact on the Provider.** Provider efforts within the care management program can be better coordinated if a medical home initiative is already in place and members have an established relationship with a single provider. Through a care management program, the member's primary care provider might have access to member-specific Medicaid data, which would enhance reinforcement of care management program principles. In addition, a medical home enables care management programs to provide physicians with practice or physician profiles. These profiles provide physicians with feedback on their treatment patterns and members' utilization.
- **Impact on the Member.** Because members with a medical home might seek care from their primary care provider before acute care facilities or ERs, the medical home might lead to decreases in inappropriate ER utilization and hospitalizations.
- **Impact on the Medicaid Program.** The medical home model represents an important first step toward creating a patient-centered, primary care-oriented health system. The medical home facilitates partnerships among individual patients, their personal physicians, and care managers. By coordinating care management and medical home programs, Medicaid can benefit from increased communication and care coordination with both providers and members.

Are Other State Initiatives Underway?

Implementation of another State initiative might enhance or hinder implementation of a care management program. Understanding competing priorities will help State staff synchronize efforts between programs and increase program effectiveness.

Indiana implemented the Indiana Chronic Disease Management Program (ICDMP) soon after a statewide PCCM program for the aged, blind, and disabled population. The PCCM program established a medical home for patients. Subsequently, the care management program was able to leverage the new linkages between patients and providers.

³ Available at: Robert Wood Johnson Foundation. Improving Chronic Illness Care. The Chronic Care Model. http://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2. Accessed February 11, 2008.

Understanding the other programs the State is already operating ensures that the care management program is not duplicating efforts and encourages sharing of ideas. Other State agencies, such as the Department of Health or the Department of Education, might be stakeholders. For example, the Department of Education might be interested if the care management program focuses on children’s health, such as environmental management for asthma.

Washington partners with other State agencies that also work on chronic care management. The care management program works with the Aging and Disability Services Administration to develop educational materials, apply similar approaches for members, use equivalent measures related to health outcomes, and employ similar approaches for program evaluation.

Do Potential Program Partners Exist?

Input from potential partners who will assume responsibility for implementing the program should be solicited as early as possible. Their experiences and understanding of their own limitations might help in the early planning stage. For example, if a State plans an external evaluation of the program, having the evaluator provide input as program measures and data collection are discussed might be useful.

Indiana Medicaid invited its evaluator and nurse care managers to participate in planning its care management program, ICDMP, thereby creating an environment that valued the input of individuals experienced in providing a service. This approach also allowed for faster uptake of their roles as vendors to the program.

How Can We Engage the Provider Community?

Engaging providers is an important component of a care management program, because interested providers will endorse the intervention concepts with patients, identify needed interventions for patients, and follow practice guidelines. As well as having ideas to share on clinical aspects of the care management program, large provider groups, hospitals, provider associations, and individual providers can serve as ambassadors to patients for the program.

By involving providers, States can improve program outcomes and physician practice in addition to building support for the care management program. Kansas’ model assists providers in implementing evidence-based treatment plans while supporting members to better manage their health care choices. For more information on strategies to engage providers, please see Section 2: Engaging Stakeholders in a Care Management Program.

Potential Benefits of Provider Engagement
<ul style="list-style-type: none">• Endorse the concepts of the interventions with patients• Encourage members to take advantage of the program• Participate in reporting and data exchange included in the program• Identify interventions needed for patients• Refer patients into program

How Can We Engage the Patient Community?

A significant component of a care management program focuses directly on understanding the patient and his or her needs and subsequently providing appropriate interventions. By securing the patient and patient advocacy community's support, States have received useful input on program design and significant support for program sustainability.

Pennsylvania's vendor assembled Regional Advisory Committees (RACs) in which consumers and physicians met regularly to provide feedback on disease management activities and input on evaluation and selection of potential vendors in the early planning stages. The RACs provide ongoing feedback to the vendor and State.

By involving consumers during the planning, implementation, and evaluation stages, program staff will be better able to gauge the possible impact of certain interventions and will be able to design a better, more effective program overall. Engaging patients also can help program staff understand the program's effects on consumer behavior and identify areas for program improvement. For more information on patient activation strategies, please see Section 2: Engaging Stakeholders in a Care Management Program.

Considerations for Program Design

Program staff also should consider factors such as target population, interventions, resource availability, time for a pilot program, and strategies for measurement and evaluation. Planning these components early will allow staff to design an appropriate care management program for their members.

For more information on these topics, please see Section 3: Selecting and Targeting Populations for a Care Management Program, Section 4: Selecting Care Management Interventions, Section 6: Operating a Care Management Program, and Section 7: Measuring Value in a Care Management Program.

Design Program as Opt-In or Opt-Out

An important consideration that will affect how programs approach and enroll their members is whether the program is opt-in or opt-out. Opt-in programs notify patients of their eligibility for the program; members then must actively choose to enroll. In opt-out programs, members are enrolled automatically but have the option to disenroll themselves. Both enrollment mechanisms have advantages and disadvantages.

Opt-out programs generally have higher member enrollment than opt-in programs. By easing the enrollment process, the opt-out model allows members to try the program even if they are hesitant. However, with an opt-in program, a stronger likelihood exists that the vendor will be able to engage most of the members successfully. In this model, States might assume that all of the members enrolled want to improve their health conditions through program participation.

Please see Section 3: Selecting and Targeting Populations for a Care Management Program for more information on opt-in and opt-out care management programs.

Select, Identify, and Enroll Target Populations

An integral part of any care management program is a thorough understanding of the population it will affect. A key challenge that States must address is targeting resources most effectively for members who are presently high risk and impactable versus members who might be low risk or medium risk currently but who can be prevented from migrating to high risk. As a result, most programs target specific populations because they are more “impactable.”

A State must decide which population to target and how to identify and stratify members for enrollment into the program. In doing so, program staff will be better equipped to tailor appropriate interventions and resources to impact members most effectively.

Please see Section 3: Selecting and Targeting Populations for a Care Management Program for more information on identification and stratification strategies.

Determine Program Interventions

Program staff should assess the type of interventions appropriate for their care management program. When choosing interventions, considering their outcomes, timing, and efficacy in managing certain diseases is important.

After a State targets a specific population for its program, it should consider specific interventions that will prove most effective for that population. Interventions may target the patient or the provider and generally range from “low-touch” interventions, such as mailings, to “high-touch” interventions, such as home visits by nurse care managers. Please see Section 4: Selecting Care Management Interventions for a comprehensive discussion of types of interventions and a comparison of the relative costs of various interventions.

Consider Pilot Testing

States often choose to implement a pilot of their care management program as a way to test the intervention on a smaller scale or if they have limited resources. A smaller, more focused project will allow State staff to thoroughly assess the pilot and make improvements to the program as it is expanded. A pilot can be approached by targeting one location, by using a regional rollout, or by focusing on a specific population. Please see Section 6: Operating a Care Management Program for additional information on pilot care management programs.

Checklist: Considerations for Program Design	
<input checked="" type="checkbox"/>	Determine whether program will be opt-in or opt-out
<input checked="" type="checkbox"/>	Select program model based on available staff and resources
<input checked="" type="checkbox"/>	Select and target populations to allocate resources most effectively
<input checked="" type="checkbox"/>	Determine program interventions that will be most effective for selected populations
<input checked="" type="checkbox"/>	Consider pilot testing to test intervention on a smaller scale
<input checked="" type="checkbox"/>	Develop a measurement and evaluation strategy to demonstrate program value

Develop a Measurement and Evaluation Strategy

Based on program goals, program staff should develop a measurement and evaluation strategy. Staff can demonstrate and communicate results by understanding program goals and identifying early outcomes that key stakeholders would consider a “success.” For example, the goal of the care management program might be to increase the quality of life for program members. Subsequently, staff can define program success as a decrease in the number of school days missed due to illness. As a result, staff would want to track incremental progress in performance measures related to this goal or conduct a formal program evaluation. Please see Section 7: Measuring Value in a Care Management Program for more detailed information.

Conclusion

Careful program planning is critical to the success of the next stages of designing, implementing, and evaluating the impact of a care management program. Understanding available resources and considering program design options will help State Medicaid staff decide whether to move forward with a care management program, determine the most appropriate program design for the Medicaid population, and decrease the need for program refinements. Garnering support from leadership and other stakeholders, developing realistic program expectations early in the process, and designing a strategic evaluation process affect program success and sustainability significantly.

Exhibit 1.1. Federal authority options for operating a disease management or care management program^{4,5,6}

Waiver Type	Description
<p>Research and Demonstration Projects Section 1115</p>	<p>Section 1115 provides the Secretary of Health and Human Services broad authority to approve projects that test policy innovations likely to further Medicaid program objectives.</p> <p>Demonstrations must be "budget neutral" over the life of the project, meaning they cannot be expected to cost the Federal Government more than it would cost without the waiver.</p>
<p>Managed Care/Freedom of Choice Section 1915(b)</p>	<p>This section provides the Secretary of Health and Human Services authority to grant waivers that allow States to implement managed care delivery systems or limit individuals' choice of provider under Medicaid.</p> <p>States may request Section 1915(b) waiver authority to operate programs that impact the delivery system of some or all of the individuals eligible for Medicaid in a State by:</p> <ul style="list-style-type: none"> • mandatory enrollment of beneficiaries into managed care programs (although States have the option, through the Balanced Budget Act of 1997, to enroll certain beneficiaries into mandatory managed care via an SPA), or • creation of a "carve out" delivery system for specialty care, such as behavioral health care. <p>Section 1915(b) waiver programs need not be operated statewide. They may not be used to expand eligibility to individuals ineligible under the approved Medicaid State plan.</p> <p>Four types of authorities exist under Section 1915(b) that States may request:</p> <ul style="list-style-type: none"> • 1915(b)(1): Mandates Medicaid enrollment into managed care • 1915(b)(2): Uses a "central broker" to help individuals select among competing health plans • 1915(b)(3): Uses cost savings resulting from beneficiary use of more cost-effective medical care to provide additional services • 1915(b)(4): Limits the number of providers from which members can obtain services

⁴ Available at: Centers for Medicare and Medicaid Services. Medicaid State Waiver Demonstration Projects – general information. http://www.cms.hhs.gov/MedicaidStWaivProgDemoPGI/01_Overview.asp. Accessed December 11, 2006.

⁵ Available at: National Association of State Medicaid Directors. Medicaid waivers. <http://www.nasmd.org/waivers/waivers.htm#1915b>. Accessed December 11, 2006

⁶ Available at: Centers for Medicare and Medicaid Services. State Medicaid Director Letter: Guidance on how States can cover disease management. <http://www.cms.hhs.gov/smdl/downloads/smdl022504.pdf> Accessed July 26, 2007.

Waiver Type	Description
<p>State Plan Amendment</p>	<p>The State Medicaid plan is a document that defines how the State will operate its Medicaid program. The plan addresses the areas of administration, eligibility, service coverage, and provider reimbursement. After approval of the original State plan, program staff must submit to CMS all relevant changes (required by new statutes, rules, regulations, interpretations, and court decisions) to determine whether the plan continues to meet Federal requirements and policies.</p> <p>An SPA authorized under section 1932(a) of the Social Security Act provides much of the same flexibility available under waivers and also does not require the periodic renewals associated with programs operating under waiver authority. Created by the Balanced Budget Act of 1997, this SPA authority to mandate enrollment applies to primary care case management or MCO-model disease management programs. Similar to waivers, a section 1932(a) SPA authority provides flexibility with respect to limiting providers, eligible populations, and geographic areas that normally is unavailable under traditional SPAs.</p> <p>An SPA may authorize disease management activities through expansions of the covered benefits for “other licensed practitioners” or “preventive services,” as appropriate. A disease management SPA must meet the requirements of section 1902(a) of the Social Security Act, including statewideness, comparability, and freedom of choice. These requirements apply to both capitated and fee-for-service disease management providers.</p>
<p>Deficit Reduction Act</p>	<p>The Deficit Reduction Act (DRA), passed in 2007, provides States additional flexibility to make changes to their Medicaid programs. Mandatory requirements include an increase of the look-back period for long-term care beneficiaries to 5 years and proof of citizenship for all new Medicaid applicants and current Medicaid beneficiaries. Specifically, among other requirements, the DRA allows States to impose cost-sharing requirements on services such as prescriptions, increase copayments on emergency services, and alter existing Medicaid benefits packages to mirror certain commercial insurance packages through use of “benchmark” plans.</p> <p>Some States are using DRA-related SPAs to provide targeted disease management for conditions such as chronic obstructive pulmonary disease, congestive heart failure, coronary artery disease, diabetes, pediatric obesity, and pediatric asthma.</p>

Section 2: Engaging Stakeholders in a Care Management Program

Stakeholder support, beginning with program design and continuing through the evaluation, is critical to a successful Medicaid care management program. Stakeholders should be involved during each stage of the program to build support for it, provide suggestions for its design, and participate in evaluation and continuous quality improvement activities. Stakeholders include senior Medicaid and agency leadership, the Governor’s office, the provider community, the patient and advocacy community, the State legislature, and the Centers for Medicare and Medicaid Services (CMS).

Incorporating information from the 13 State Medicaid care management programs in the initial AHRQ Learning Network and additional literature, this section of the Guide, Engaging Stakeholders in a Care Management Program, provides information to State Medicaid staff and policymakers about the:

- importance of engaging key stakeholders,
- strategies for developing relationships with key stakeholder groups, and
- communication strategies for demonstrating program value.

Importance of Engaging Key Stakeholders

Involving stakeholders during all stages of a care management program can lead to early buy-in, successful program design, and establishment of long-term support for the program. The following subsections outline three strategies to engage stakeholders—identifying “champions,” establishing relationships and communicating regularly with stakeholders, and managing expectations of the care management program.

Identify Champions

One strategy for stakeholder engagement is to identify program “champions” to assist with program rollout or expansion and to build program sustainability. Program champions are stakeholders actively involved in the care management program and influential among their peers. Influential program champions can include State legislators and their staff, staff members from the Governor’s office, senior Medicaid leadership, and providers. Program champions can help program staff plan and design a program, provide expertise based on their experiences, promote program continuation and sustainability, and help manage other stakeholders’ expectations. Moreover, program champions can provide feedback on the program by identifying areas for program refinement and offering comments on new initiatives. Program staff can share preliminary evaluation results with champions to better understand how stakeholders might interpret these results.

North Carolina initially identified program champions through meetings with primary care providers and other community Medicaid providers interested in participating in the program. The State also locates champions through its Physician Advisory Group. North

Carolina engages its program champions regularly by updating its program Web site and soliciting input on proposed initiatives.

Wyoming is piloting an electronic health record, called the Total Health Record, with providers identified by program staff as champions. The champions provided feedback on the ease of use, billing, and the pay-for-participation program associated with the initiative.

Communicate Regularly

Ongoing communication represents another strategy to secure and maintain stakeholder support. By maintaining regular communication with stakeholders, program staff can establish themselves as the key contact or source for information about the program. Serving as the key contact ensures that stakeholders receive recent and correct program information and provides a resource for stakeholders' questions or concerns. Once the program is implemented, communicating routinely with stakeholders regarding program successes, failures, and new initiatives will help manage expectations and build support for the program.

Washington program staff consistently offered feedback and information to the Governor's office during the first 4 years of their care management program. Subsequently, their input influenced the Governor's initiative on chronic care and impacted care management legislation. The Governor of Washington issued a directive on chronic care improvement aiming to develop a new model of chronic care management that supports the medical home model, supports evidence-based medicine and use of information technology, addresses health disparities, improves coordination of care, and applies the principles of continuous quality improvement.

Manage Expectations

States also have maintained stakeholder support effectively by sharing program outcomes early and often. In sharing program successes and outcomes, program staff should consider what types of outcomes stakeholders will find most meaningful. For example, providers and consumer groups might be interested in standardized measures that allow for comparison across providers; meanwhile, the legislature might be interested in cost savings. Program staff should identify early outcomes that key stakeholders would consider a "success" to demonstrate and communicate results.

North Carolina routinely shares successes with program stakeholders through its Web site, annual reports, and a two-page At-A-Glance document. Program staff regularly update the At-A-Glance, which summarizes the program's approach, clinical improvement initiatives, pilot programs, and performance and results.

Strategies for Developing Relationships with Key Stakeholder Groups

Developing relationships with senior Medicaid and agency leadership, other State agencies, the Governor's office, the provider community, the patient and advocacy community, the State legislature and staff, and CMS is critical for a care management program's success. For each stakeholder group, the following subsections outline strategies for stakeholder engagement during the planning, designing, implementation, and evaluation stages of a care management program.

Senior Leadership

Medicaid and senior agency leadership are unique in their capacity to influence program design, staffing, resources, and budget allocation. Program staff should engage senior agency leadership during all stages of a care management program to understand their goals for the program and ensure support.

Planning and designing stages. Program staff should involve senior leadership during the initial planning stage to take advantage of their expertise, as well as to understand their program goals. Senior leadership, including the Medicaid Director, the Secretary of Health, and the Governor's office might have specific program goals or might have areas and directions that they are uninterested in pursuing. For example, senior leadership might be interested in testing electronic medical records through the care management program. In addition, other senior leadership within the State might want to focus the program on a particular population or chronic condition.

Implementation and evaluation stages. Program staff should communicate regularly about program successes and areas for improvement with senior leadership. Keeping senior leaders apprised of issues or situations as they develop will help manage expectations of the care management program and build leaders' support. One strategy for facilitating regular communication is to e-mail regular program updates to senior leaders detailing program successes, issues, and plans. These updates could also serve as talking points if staff are asked to discuss the care management program.

Arkansas is currently linking birth certificate data and Medicaid claims data to analyze the effectiveness of its Antenatal and Neonatal Guidelines, Education and Learning System program, known as ANGELS, on decreased neonatal intensive care unit admissions and complications. State staff meet regularly with the Medicaid Medical Director to communicate early findings and to receive input.

In designing the evaluation strategy and presenting the results, program staff should work with senior leadership to understand their particular interests and program goals and should tailor specific evaluation reports accordingly. Understanding senior leaders' program goals and subsequently tailoring evaluation results is an effective strategy to build support for the program and manage expectations.

Other State Agencies

Coordination and communication with other State and community programs represents a crucial part of Medicaid care management programs. Medicaid beneficiaries are more likely to have issues related to poverty (e.g., transportation or housing needs) and behavioral health that can be met through established programs.

Planning and designing stages. States should communicate with other State agencies, solicit feedback on program design, and identify any potential synergies between the new care management program and established State programs. For example, synergies might exist between an established Department of Public Health diabetes program and the new care management program targeting diabetes. The two programs can potentially share lessons learned. Opportunities might exist to coordinate more directly with established programs.

Washington partners with other State agencies that also work on chronic care management. The care management program works with the Aging and Disability Services Administration to develop educational materials, apply similar approaches for members, use equivalent measures related to health outcomes, and employ similar approaches for program evaluation.

Implementation and evaluation stages. During the implementation and evaluation stages, program staff should work with other State agencies to coordinate interventions and outreach materials.

Pennsylvania's disease management program coordinates with its State-staffed intensive care management unit, which was established in July 2004, nearly a year before the State contracted with a vendor to provide disease management services. Fifteen nurse care managers in the care management unit work with patients having a wide range of conditions (e.g., hemophilia, burns, spinal cord injury, pain management, organ transplant). The care management unit and vendor meet biweekly for "exception meetings," during which they discuss moving patients between the two programs to best meet their needs.

Provider Community

Providers are critical to any care management program; interested providers will endorse the concepts of the interventions with patients, identify interventions needed for patients, and provide valuable program input. By involving providers, States build long-term support for the care management program in addition to improving program outcomes and physician practice. Providers can offer suggestions for program refinements based on their clinical expertise and experience with the care management program. Finally, provider champions can help secure buy-in for the program from other providers and additional stakeholder groups.

States can solicit and garner support from physician and provider organizations and societies (e.g., Pediatric Society, Public Health, Academy of Family Physicians, and Hospital Association). These organizations can endorse the program to their memberships and affiliations

as well as advocate for the care management program to senior leadership, patients, and legislators. Please see Section 4: Selecting Care Management Interventions for more information on provider interventions.

Wyoming's vendor provides two network coordinators to market the care management program to providers. Specifically, the network coordinators serve as the ongoing provider liaison, educate providers about the program, and conduct educational sessions on evidence-based guidelines. The network coordinators also work with State professional societies, including the Wyoming Hospital Association, the Wyoming Primary Care Association, and the Wyoming Nursing Association, to promote the care management program.

In addition to identifying provider champions as described earlier in this section, States have succeeded in establishing standing advisory committees. Both strategies offer an effective way to involve providers in a State's care management program.

Iowa created a clinical advisory committee in a 2-month timeframe in 2006. The standing clinical advisory committee now includes nine members who represent primary care providers throughout the State. Responsibilities of the clinical advisory committee include the following:

- Assess member use of services
- Assess new therapies and technologies
- Review Medicaid policies and recommend changes
- Support member and provider education
- Promote preventive services to members and providers

Checklist: Physician Advisory Group	
<input checked="" type="checkbox"/>	Include representation from varied specialties
<input checked="" type="checkbox"/>	Cover different regions of the State
<input checked="" type="checkbox"/>	Limit the group size
<input checked="" type="checkbox"/>	Work on a clear set of issues

North Carolina's Physician Advisory Group advises the State on its care management program. Since 1997, the Physician Advisory Group has provided input on overall medical policy and Medicaid system reform topics, including the following:

- Development of care and disease management initiatives
- Pharmacy and therapeutics
- Medical coverage
- Cost review and cost containment and effectiveness

Planning and designing stages. During the planning and designing stages, program staff should involve the provider community to garner input on clinical aspects of the care management program and to develop champions and others to serve as ambassadors to patients for the program.

Washington convened a provider focus group in March 2006 to engage providers to offer input on a new care management program design. Providers were chosen to participate based on their previous participation in chronic disease collaboratives and on

their experience with the chronic care model. The State covered several questions in the focus group:

- Does your practice limit the number of Medicaid enrollees?
- What are the challenges of taking care of disabled or chronically ill Medicaid patients?
- What could the State do to support you in taking care of Medicaid patients with chronic illnesses?
- Which services could we provide (e.g., data, nurse call line, care coordination) that would help you?
- Would providers support a system of receiving a bonus for quality improvement?

By involving providers in program planning and design, staff can collect provider feedback and gain provider champions. Early engagement leads to increased ownership and support for the care management program.

Implementation and evaluation stages. Providers should be involved during the implementation stage to achieve early buy-in to the program. To activate providers during the implementation stage, States have formed provider advisory boards or groups to provide feedback on program interventions, measures, guidelines, and strategies.

Indiana's care management program aims to improve quality in primary care practices. During early implementation for Indiana's initial care management program, the State held a series of four quality improvement collaboratives in which provider practices were invited to participate. The collaboratives focused on diabetes, congestive heart failure, and care for children with asthma. The participating practices set quality improvement goals and reported their performance once a month. Ideas were shared during monthly conference calls and via an e-mail listserv. The nurse care managers and telephone center leads also attended the collaborative learning sessions.

Potential Benefits of Provider Engagement
<ul style="list-style-type: none">• Endorse the concepts of the interventions with patients• Encourage members to take advantage of the program• Participate in reporting and data exchange included in the program• Identify interventions needed for patients

Providers also should be involved during the evaluation stage to provide feedback on preliminary results, offer suggestions on areas for program refinement, and comment on new initiatives within the care management program. Finally, providers can advocate for the care management program to State legislators and their staff and agency leadership.

Kansas' care management program was nearly cancelled because of budget restrictions and a new administration. However, local physicians' support of the program created enough pressure to reverse the decision to cancel the program.

States involve providers during the implementation and evaluation stages through their standing advisory committees or targeted outreach to physician and provider organizations and societies, as discussed above.

Patient and Advocacy Community

A significant component of a care management program focuses directly on understanding the patient and his or her needs and subsequently providing appropriate interventions. By securing the patient and patient advocacy community's support, States have received useful input on program design and significant support for program sustainability.

Planning and designing stages. By involving consumers during the planning and designing stages, program staff will be better able to gauge the possible impact of certain interventions and will be able to design a better, more effective program overall. Attaining support from the patient and advocacy community provides insight into the patients' needs and fosters support for program sustainability.

Pennsylvania's vendor assembled Regional Advisory Committees (RAC) in which beneficiaries and physicians met regularly to provide feedback on disease management activities and input on the evaluation and selection of potential vendors in the early planning stages. The RACs provide ongoing feedback to the vendor and State.

Advocates and Lobbyists
Stakeholder lobbying also can influence the legislature and Medicaid agency. A strong lobby might exist for a particular disease (e.g., end stage renal disease or hemophilia) that is vocal enough to convince the legislature or Medicaid agency to include the disease in the care management program.
Communicating routinely with lobbyists regarding program successes, failures, and new initiatives will help manage expectations and build support for the program.
A key ally can be won if program staff identify ways to support advocacy group initiatives through the care management program.

By establishing infrastructure such as standing committees or focus groups, program staff can plan the care management program and identify areas for program improvement.

Implementation and evaluation stages. Engaging patients during the implementation and evaluation stages of a care management program can also help program staff understand the program's effects on patient behavior and identify areas for program improvement. In addition, engaged patients are more likely to follow providers or care managers' recommendations. Finally, patients can advocate for the care management program to State legislators and senior agency leadership.

Involving the patient community through committees and focus groups can represent an effective strategy to build support, increase awareness of the program, and improve program outcomes.

State Legislature

Similar to senior leadership, the State legislature retains the ability to influence the care management program significantly. Legislators are unique in their capacity to influence program design and budget allocation through the legislative cycle. Program staff should work with State legislators and their staff during all stages of a care management program to understand their goals for the program and ensure support.

Planning and designing stages. Since legislators might lack the necessary information to realize the impact of certain design features, program staff should coordinate and communicate regularly regarding the care management program. Specifically, program staff should understand the State legislature’s expectations of the program, program design requirements, and whether a mandatory savings requirement exists. In addition, since State legislators and their staff will not necessarily approach program staff for input, program staff should remain proactive and set up meetings to exchange ideas. Program staff should become the key contact for questions surrounding the care management program for legislators.

Implementation and evaluation stages. Once the program is implemented, program staff should involve the legislators on an ongoing basis; periodic briefings can help build support and manage expectations in case the program progresses more slowly or has different outcomes than anticipated.

State legislatures often require savings guarantees from care management programs. However, because cost savings might be an unrealistic expectation for the program’s first few years, communication with the legislators and senior leadership can help establish realistic expectations for care management programs.

Indiana State legislators, the Medicaid Director, and the Health Commissioner attended a National Governors Association Policy Academy on Chronic Disease while the State was in the planning stage of its former disease management program. Throughout the implementation stage, the Medicaid agency worked with this group and others in the legislature to inform them of key developments, set realistic goals, and share progress. With their comprehensive understanding of program goals and status, the legislators became natural advocates for the program.

Lessons Learned: Communicating with the State Legislature
<ul style="list-style-type: none">• Coordinate and communicate with legislators and their Staff. If legislators understand where the program is going and are involved in its development, they likely will continue supporting it.• Share information about other State’s programs. Because legislators also might communicate regularly with other States, they might be able to provide access to or insight into other States’ programs.

Demonstrated results, such as improved health outcomes, lower program costs, or higher beneficiary satisfaction, can and should be communicated to the legislature and other stakeholders whenever possible. Placing these results within the context of the program and not “overselling” the results is important. Program staff should carefully explain the changes that have occurred and why they matter. When discussing outcomes with elected officials, telling the story succinctly and avoiding jargon is especially important. Moreover, making accomplishments seem “real,” perhaps by illustrating successes with examples of enrollees affected by the program, is critical.

Centers for Medicare and Medicaid Services

Program staff also should work with CMS to obtain Federal approval for the program.

Planning and designing stages. In addition to State approval, the design of the care management program might require CMS formal approval in the form of a State plan amendment or a waiver. Although many States have implemented care management programs, considerable variability exists in program design and Federal authority. Therefore, approval procedures are individualized, usually depending on the program model. As a result, during the planning stage, program staff should work with CMS staff, both at the regional and national levels, even when they are simply soliciting feedback to understand the type of authority that must be used to implement certain care management program components versus others.

Engaging the Media

Medicaid care management program staff and agency leadership should develop relationships with the media as a potential tool for building program support. Agency leaders can position themselves as contact persons for the media in cases of potential negative media coverage.

If desired, the media can publicize the care management program during the planning stage, help make stakeholders aware of the program, and highlight program successes. Encouraging program champions to write opinion articles in the State newspaper, publish case studies, and provide access to “real people” affected by the program has proven a successful State strategy.

Implementation and evaluation stages. Program staff also should maintain contact with CMS after the program is implemented, because CMS can help guide waiver evaluation reports and programmatic changes.

Please see Section 1: Planning a Care Management Program for additional information on types of approval available from CMS.

Communication Strategies for Demonstrating Program Value

A key challenge for Medicaid staff is communicating the value of care management to a variety of stakeholders—all of whom have potentially different interests. Program staff should identify each of their program stakeholders and their interests and construct messages accordingly. State staff should also determine the appropriate opportunities for publicizing their successes. In some States, program staff have found that operating their program “under the radar” is helpful to allow the program an opportunity to generate success.

Who’s Your Audience?

Medicaid leadership and program staff should identify stakeholders, including legislators, senior leadership, providers, and members. Medicaid leadership and program staff should determine what their interests and goals are for the program and provide information accordingly.

What’s Your Message?

After Medicaid leadership and program staff determine their stakeholders’ interests, they should construct messages accordingly, as shown in Exhibit 2.1. Medicaid leadership and program staff should design a message to reflect why a stakeholder should care about the care management program. A message should provide:

- context to the problem,
- story or vivid examples,
- solutions, and
- action the stakeholder can take.

Exhibit 2.1. Examples of messages for care management programs

Message	Potential Stakeholders	Strategies
Cost Containment	<ul style="list-style-type: none"> • Agency leadership • Governor’s office • State legislature 	<ul style="list-style-type: none"> • Set realistic expectations • Discuss slowing growth rate versus decreasing costs • Emphasize improvements in health outcomes • Draw from experiences in other States
Health Outcomes and Improved Quality	<ul style="list-style-type: none"> • Agency leadership • Governor’s office • Other State Agencies • State legislature 	<ul style="list-style-type: none"> • Focus on three to five key measures • Select sound benchmarks • Incorporate within context of overall State chronic disease environment
Provider Satisfaction	<ul style="list-style-type: none"> • Agency leadership • Governor’s office • Media • Providers • State legislature 	<ul style="list-style-type: none"> • Frame care management as a supplemental service for providers • Encourage provider champions to contact their State legislators and Governor’s office
Quality of Life and Patient Satisfaction	<ul style="list-style-type: none"> • Agency leadership • Governor’s office • Media • Patients • State legislature 	<ul style="list-style-type: none"> • Communicate anecdotes • Review CAHPS results for population in care management

Communicating Your Message

Although Medicaid leadership and senior program staff can use many strategies to communicate their message, they should keep in mind that key stakeholders are unable to devote much time to learning about the care management program. Consequently, Medicaid leadership and senior program staff should try to make a positive, memorable impression because they might not receive another opportunity to work with the stakeholders.

To communicate with policymakers, Medicaid leadership and senior program staff should remember to:

- **Be clear about the message.** Medicaid leadership and senior program staff should focus on being memorable, speaking simply and clearly, and avoiding program jargon.
- **Establish relationships.** Medicaid leadership and senior program staff should establish relationships before they need them. If stakeholders already know the staff and find them credible sources of information, and if they know why the information staff are reporting is important, they likely will pay more attention.
- **Communicate regularly with stakeholders.** Medicaid leadership and senior program staff should communicate regularly about program successes as well as about areas that might not be performing as planned. Keeping stakeholders apprised of issues or situations as they develop will help manage expectations of the care management program and build their support.
- **Prepare to compromise on certain issues.** When approaching policymakers, Medicaid leadership and senior program staff should understand their political needs and try to ensure that at least some of their policy objectives are met.
- **Link the care management program to another State initiative that might be more powerful.** When appropriate, Medicaid leadership and senior program staff should link themselves and the care management program to other larger or more powerful programs.
- **Follow up with policymakers and key staff.** After the conclusion of a meeting, Medicaid leadership and senior program staff should follow up promptly with policymakers' key staff to make sure the care management program remains one of their priorities. One way to accomplish this objective is to provide more detailed information in writing about the care management program through brochures and fact sheets.

Conclusion

Engaging key stakeholders is critical to the success of a Medicaid care management program. Involving stakeholders during the planning and designing stages can lead to early buy-in, successful program design, and establishment of long-term support for the program. In many States, stakeholders' long-term support has led to assistance with program expansion and sustainability. Care management program staff and policymakers should not underestimate the value of program champions in designing, implementing, and sustaining a successful program.

Section 3: Selecting and Targeting Populations for a Care Management Program

An integral part of any care management program is a thorough understanding of the population it will affect. A State must decide which populations to target and how to identify and stratify members for enrollment into the program. In doing so, program staff will be better equipped to tailor appropriate interventions and resources to impact members most effectively.

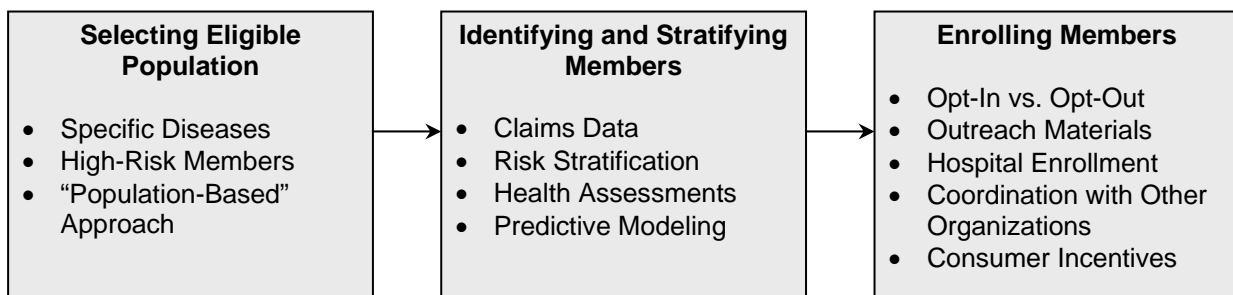
Incorporating information from the 13 State Medicaid care management programs in the initial AHRQ Learning Network and additional literature, this section of the Guide, *Selecting and Targeting Populations for a Care Management Program*, provides information to State Medicaid staff and policymakers about:

- selecting included populations,
- identifying and stratifying eligible members, and
- enrolling members.

Population Selection and Enrollment

The model in Exhibit 3.1 depicts the process a State must consider in selecting members for enrollment in the care management program. States first must select the eligible population that the program will target and then determine how they will identify potential members. States have employed various techniques to identify and stratify members, including claims data analysis, physician referrals, and predictive modeling. Once eligible members have been identified, program staff must begin enrolling members. A program’s enrollment strategy will depend largely on program design, including when and where to enroll members, whether to use consumer incentives, and how to retain enrollees. Careful planning during each step of the process will ensure that a program is targeting the appropriate population, identifying all eligible members, maximizing enrollment efforts, and allocating resources efficiently.

Exhibit 3.1. Care management population selection and enrollment process



Selecting Included Populations

When designing a care management program, a State must decide which populations to include. The populations within a FFS or a PCCM program vary greatly across States. States might have

no full-risk managed care and, therefore, have their entire Temporary Assistance for Needy Families (TANF) and Supplemental Security Income (SSI) populations in FFS or PCCM. Other States might have only the SSI and other special populations in FFS or PCCM.

States have several options in deciding which populations to include in a program. Care management programs can target specific chronic conditions or focus on high-risk and high-cost beneficiaries. Programs can also follow a “population-based” approach by including their entire FFS and PCCM population and providing interventions appropriate for the member’s risk level or disease.

Specific Diseases

In deciding on the appropriate population for their care management programs, States can choose to include members diagnosed with specific chronic diseases, the most common being asthma, diabetes, congestive heart failure (CHF), coronary artery disease (CAD), and chronic obstructive pulmonary disorder (COPD). States also target other conditions, including high-risk obstetrics and, more recently, mental health and obesity. Exhibit 3.2 shows some of the conditions targeted by care management programs in the initial 13 States involved in the AHRQ Learning Network.

Exhibit 3.2. State Chronic Disease Coverage

	Asthma	Diabetes	CHF	CAD	COPD	High Risk Obstetrics
Arkansas						✓
Illinois	✓	✓	✓	✓	✓	
Indiana		✓	✓			
Iowa	✓	✓	✓			
Kansas						
North Carolina	✓	✓	✓			
Oklahoma						
Pennsylvania	✓	✓	✓	✓	✓	✓
Rhode Island						
Texas	✓	✓	✓	✓	✓	
Virginia	✓	✓	✓	✓		
Washington	✓	✓	✓		✓	
Wyoming	✓	✓	✓	✓	✓	✓
Total	8	9	9	5	5	3

Kansas, Rhode Island, and Oklahoma do not target specific diseases through their care management program, but rather target high-risk or high-cost members. Please see the Appendix for more information on specific States’ programs. State staff also can select which conditions to manage based on additional factors, such as disease prevalence within the State and timeframe for cost savings.

Disease prevalence within the State. State staff can analyze data from State-specific or national data sources to identify the most prevalent diseases within their State. States should also consider

using claims analysis to identify the most prevalent diseases specific among their Medicaid population.

North Carolina chose asthma as the first disease for care management based on a review of Medicaid claims data. Some of the key utilization factors included the following:

- In fiscal year 1998, before North Carolina implemented its program, the North Carolina Medicaid program spent more than \$23 million on asthma-related care.¹
- Approximately 14 percent of the Medicaid population was diagnosed with asthma.²
- Analysis of Medicaid claims data from the Community Care of North Carolina (CCNC) sites demonstrated that the primary and secondary reasons for both hospital admissions and emergency room (ER) visits for patients under 21 were asthma.

With these utilization statistics, North Carolina was able to show its physician workgroup that asthma constituted a serious issue within its Medicaid population, thereby building support for asthma care management.

Arkansas' care management program, Antenatal and Neonatal Guidelines, Education and Learning System (ANGELS), was established in 2002. ANGELS provides high-risk obstetrics and neonatology services through telemedicine for Arkansas women in rural areas. The State seeks to work with mothers and physicians to ensure healthy births, thereby reducing the number of medically fragile children. Arkansas Medicaid decided to create this program due to the high cost of medically fragile children, as determined through claims data. It also used statewide data to determine that Arkansas had a high incidence of low birth weight compared with the Nation.

Sources of Disease Statistics
<ul style="list-style-type: none">• AHRQ State Snapshot Web Tool• Centers for Disease Control and Prevention (CDC) – State Data and Trends• State-Based Diabetes Prevention and Control Programs• State Heart Disease and Stroke Prevention Programs• Kaiser Family Foundation, State Health Facts

Timeframe for cost savings. When choosing diseases, a State should consider the timeframe in which it needs outcomes. If a State requires outcomes within a short period, it should choose a set of diseases that can provide initial outcomes quickly. For example, in managing asthma, programs can expect to see outcomes and savings in a relatively short period of time compared with diabetes, which requires behavior change on the member's part and, thus, likely will fail to see substantial savings in the short term. Please see Section 8: The Care Management Evidence Base for additional information. Below are common diseases and considerations, based on literature searches and program examples, which a State should take into account before selection.

¹ North Carolina State Center for Health Statistics (SCHS). Childhood asthma in North Carolina report. ,Raleigh, NC. March 1999. SCHS Study No. 113.

² Ibid.

Asthma. Asthma is a highly prevalent disease among the TANF population, but its costs are relatively low compared with other chronic conditions. Moreover, asthma is relatively easy to manage. With monitoring, proper use of medications, control of the environment, and avoidance of triggers, such as pet dandruff or second-hand smoke, most children and families can be relieved of the burden of asthma. Care management could help prevent ER visits and hospitalizations, but the savings might be lower for this disease than others because its overall costs are lower. An evaluation of North Carolina's program projected cost savings for asthma at \$3.3 million in the program's first 3 years. The projected asthma savings increased every year.

Diabetes. Diabetes is a difficult disease to manage, because it requires behavior change by the member. Furthermore, because many of the outcomes of diabetes care management are seen much later, when complications (e.g., kidney failure) are avoided, diabetes management is unlikely to generate cost savings in the short term. However, evidence suggests that care management programs can reduce members' HbA1c levels and increase their compliance in getting recommended exams.³ North Carolina's evaluation projected cost savings at \$2.1 million in the program's first 3 years. The projected diabetes savings increased after the first year, similar to asthma. An evaluation of Indiana's program found no statistically significant cost savings for diabetes after its first 17 months. Specifically, the data showed an increase in cost among high-risk members and a decrease in cost among low-risk members. Indiana expected no cost savings at such a short time interval, based on articles in the literature on diabetes care management and its evaluator's consulting.

Congestive heart failure. Indiana's program evaluation found statistically significant cost savings for CHF in its random-control trial and time series evaluation. Members in the disease management program had lower hospital and care management services costs but higher drug costs. The net savings found were \$720 PMPM, or \$36 million annually, for 4,300 members statewide. An evaluation of Washington's care management program targeting CHF found no significant benefits.

Coronary artery disease. Highly prevalent among the Medicaid population, CAD is targeted consistently by care management programs. Research indicates that care management interventions for CAD can potentially reduce LDL levels and increase the use of aspirin, beta-blockers, and ACE inhibitors. Additionally, the Congressional Budget Office literature review found that most studies of care management programs for CAD reported improvements in coronary risk factors. However, improvements did not necessarily translate into lower mortality or cost-effectiveness.⁴

Chronic obstructive pulmonary disease. COPD is the general term for chronic bronchitis or emphysema. Prevalent in the United States, COPD is the fourth leading cause of death.⁵ Evidence suggests that care management programs for COPD could decrease

³ Available at: Congressional Budget Office. An analysis of the literature on disease management programs. <http://www.cbo.gov/showdoc.cfm?index=5909&sequence=0#pt3>. Accessed October 22, 2007.

⁴ Ibid.

⁵ National Center for Health Statistics. Report of final mortality statistics Hyattsville, MD, 2003. Volume 55 No. 10

members' ER utilization and potentially save programs significant amounts of money.⁶ In-person care management and decision support for providers are the main interventions employed to decrease ER utilization and increase savings.

In selecting the specific diseases for care management programs, States should consider the following:

- **Stakeholder Input.** Stakeholders might have specific diseases that resonate with them personally. With open lines of communication, States can ensure that they are addressing these diseases, resulting in greater stakeholder support. Please see Section 2: Engaging Stakeholders in a Care Management Program for more information on strategies to engage stakeholders.
- **Available Staff and Resources.** States must ensure that they have the appropriate infrastructure, including resources and qualified staff, to support interventions that impact selected diseases.
- **Concurrent State Initiatives.** Program staff should identify potential overlap between the new care management program and other State programs. States do not want to provide similar services to the same population, so programs might decide to cover different diseases that are not covered in an already established program.

High-Risk, High-Cost, or High-Utilization Members

While early care management programs have targeted members with specific diseases, States are moving toward programs with a more holistic approach to managing diseases. This approach addresses members' multiple physical, mental, and social needs, including comorbidities, which are highly prevalent among the Medicaid population. Members with comorbidities are typically the highest-cost beneficiaries in a Medicaid program. In fact, of the most expensive 10 percent of Medicaid beneficiaries, more than three-quarters are diagnosed with multiple chronic conditions. Additionally, nearly one-third of these members have an associated mental health disorder, such as schizophrenia, bipolar disorder, or depression.⁷ To manage this population more effectively, many States are beginning to target members who are at high risk for future costs or members who are currently high cost or high utilization.

Managing Comorbidities
Traditionally, States have selected patients based on primary diagnosis. Although many programs are shifting to members with comorbidities, currently only a limited body of research has looked at successful interventions in managing these high-risk populations.
Members with comorbidities often seek care from several specialists and require coordination among multiple providers. Disease-specific ("siloeed") self-management techniques and interventions are inadequate to address the needs of patients with multiple comorbidities. Instead, programs managing complex comorbid conditions require an integrated delivery system that incorporates various strategies for addressing member needs, including behavioral health and non-medical support services.

⁶ Steinel JA, Madigan EA. Resource utilization in home health chronic obstructive pulmonary disease management. *Outcomes Manag* 2003;7(1):23-7.

⁷ Centers for Health Care Strategies. *The faces of Medicaid II: Recognizing the care needs of people with multiple chronic conditions.* Princeton, NJ October 2007.

Targeting high-risk members. States determine high-risk status by various mechanisms. Many States employ predictive modeling (which will be addressed later in this section) or claims analysis to identify high-risk members. Depending on population size, programs might target 10 percent or 20 percent of members at the highest risk. Washington, for example, uses predictive modeling to target members with risk scores in the highest 20 percent. Within this category, some programs exclude certain groups, such as patients with cancer or in long-term care facilities.

Targeting high-cost and high-utilization members. Other States have chosen to target either high-cost or high-utilization members. High-utilization members are typically among the highest-cost members and frequently visit the ER for care because of their uncontrolled condition or conditions. Programs that target high-utilization or high-cost members can identify eligible members through claims data analysis, which requires fewer resources than running predictive modeling. Many of these programs provide interventions to help patients self-manage their disease and, thus, curb inappropriate utilization of services.

As part of **Oklahoma's** care management program, the State created the Emergency Room Utilization Initiative to target members with inappropriate ER utilization. The initiative includes:

- PCCM provider profiling of assigned enrollees' ER utilization to show PCCM primary care providers their patients' ER utilization rates and how these rates compare to these providers' peers;
- outreach to beneficiaries with high ER utilization (four or more visits in a quarter);
- interventions such as letters, telephone calls, primary care provider assignment, and location of specialists; and
- followup on nurse call line calls that directed beneficiaries to the ER.

Population-Based Approach

Some States, such as North Carolina and Wyoming, have chosen to take a population-based approach to their care management programs. These States include their entire FFS and PCCM populations in the program and offer them a continuum of care based on their current needs. Members without chronic diseases might have access to a nurse call line and might be assigned to a medical home. Members who currently are able to self-manage their chronic conditions might receive educational brochures, while members who have unmanaged or poorly managed conditions (including comorbidities) are assigned to higher levels of care management. This program design permits members to move among levels of care as their conditions allow. Similar to targeting members at high risk or with high utilization patterns, the population-based approach might be more successful at managing comorbid conditions by addressing members' entire needs rather than just a single disease.

Wyoming's care management program, The Health Management Program, was implemented in 2004. All Medicaid beneficiaries are eligible to receive wellness and preventive services. Members with chronic diseases as well as depression and high-risk maternity cases may participate in the care management program. Once enrolled, members are stratified by risk level and assigned to one of three levels of intervention. Interventions range from prevention

and education for members at the lowest risk level to complex case management for members at highest risk.

1. **Prevention and Education.** Members in this level receive a Healthwise Handbook, which is a self-care guide covering topics from ear infections to diabetes with clear, easy-to-understand information and illustrations.
2. **Disease Management.** Health coaches or case managers—registered nurses with specific experience in a clinical area and at least 3 years of acute care management experience—provide the majority of member support and education telephonically. For some diseases, such as mental health disorders, health coaches and care managers are licensed professionals or social workers certified to deal with mental health issues. The goals of health coaching are to empower members to better understand their illness and self-manage their condition, as well as to coordinate care between providers, the member, and the community.
3. **Complex Case Management.** Complex case management is reserved for members at the highest risk level. Health Management Program members are identified proactively via triage of pre-certification requests, analysis of claims and pharmacy data, or both. Types of cases appropriate for complex case management include trauma, genetic disorders, hemophilia, and cancer.

Population Exclusions

Some States also have opted to exclude certain individuals from their care management programs for several reasons. Because self-management is integral to the care management process, some States exclude Medicaid beneficiaries residing in long-term care facilities who have little control over their medication or diet. In addition, Medicaid beneficiaries in long-term care facilities should be receiving integrated care already and might not need additional care management. States also exclude waiver beneficiaries, because they already receive management through the waiver. These and other populations excluded by States participating in the initial care management Learning Network are shown in Exhibit 3.3.

Exhibit 3.3. State Inclusions and Exclusions

State	TANF FFS/PCCM	SSI FFS/PCCM	Managed Care	Dual Eligible	Long-Term Care	Waivers
Arkansas	✓	✓	X	X	X	X
Illinois	✓	✓	X	X	X	X
Indiana	✓	✓	X	X	X	X
Iowa	✓	✓	X	X	X	X
Kansas	✓	✓	X	X	X	X
North Carolina	✓	✓	X	X	X	X
Oklahoma	✓	✓	X	X	X	X
Pennsylvania	✓	✓	X	X	X	X
Rhode Island	✓	✓	X	✓	X	X
Texas	✓	✓	X	X	X	X
Virginia	✓	✓	X	X	X	✓
Washington	X	✓	X	✓	X	X
Wyoming	✓	✓	X	✓	✓	✓

X=Excluded ✓= Included

However, some States include these populations to improve their care, achieve additional cost savings, or respond to legislative mandates.

Virginia's legislature mandated that the State include the Medicaid home- and community-based services waiver population in its care management program. Having begun to coordinate delivery of care management (or chronic condition care management) with the mental retardation/developmentally disabled (MR/DD) waiver population, Virginia has worked closely with MR Directors throughout the State to develop a protocol to avoid duplication of services to members. The State has learned early lessons from its experience with this population:

- Stakeholder involvement with the MR/DD population is critical.
- The traditional care management program initiation process does not work for individuals with MR/DD who have caregivers making their health care decisions.
- Separate reporting for the MR/DD population is important to enable the State to monitor these members independently from the rest of program members.

Identifying and Stratifying Members

After selecting the eligible population for a care management program, States must consider how to identify eligible members and how best to target their resources (e.g., care managers, interventions, funding). Many States provide more intense care management services to the most high-risk or high-cost members. States can implement a risk stratification tool or a predictive model to categorize members in high-, medium-, and low-risk categories. States also consider which members are most “impactable” by using individual-level tools, such as health assessments, the Patient Activation Measure⁸, or other measurement and screening tools. To apply their interventions most effectively, States can use a combination of population-based tools and individual-level tools.

Identification

States can identify eligible members using a variety and combination of methods, including claims data, physician referral, self-identification, hospital discharge planners, predictive modeling, and referral from other State agencies, non-profit organizations, and social services. When using claims data to identify potential members, States should ensure that they have the necessary means to run the claims data internally or that their vendor employs the necessary staff.

Oklahoma identifies and enrolls members into the care management program in the following ways:

- Calls by Medicaid beneficiaries to the SoonerCare Helpline
- Referrals from physicians, nurses, family, or friends
- Claims and encounter data, including inappropriate ER utilization
- Medicaid eligibility workers

Stratification

Stratification allows States to direct program resources most appropriately. To stratify members, States can develop an internal tool or rely on predictive modeling software.

State-specific stratification tool. To stratify members, States have used disease, comorbidity, health assessments, and health care costs, as well as other criteria (e.g., age, gender). State staff can develop a stratification methodology relying on claims and demographic data.

To determine the appropriateness of the selected variables and methodology, States should test the data periodically and depend on their familiarity with the program’s population to assess the stratification tool’s accuracy. Analyzing the member population to derive a unique stratification model typically proves more accurate for predicting risk than using a generic model. States should identify a segment of the population where costs are modifiable and analyze factors that predict high-cost or high-risk.

⁸ Hibbard JH, Stockard J, Mahoney ER, et al. Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers. *Health Serv Res* 2004; 39(4):1005-26.

States also should consider their program model and interventions to determine which behaviors they can target. For example, if the program employs interventions to target ER utilization or medication adherence, ER utilization rates or pharmacy claims data should be included in the stratification tool.

Indiana program staff used 2 years of retrospective claims data to derive a predictive model for stratifying members to low- and high-intensity care management interventions. They compared the predictive value of several different approaches for using claims-based predictors in a particular year to forecast total claims paid in the following year. Of the many predictors modeled, the final algorithm involved three:

1. Total net Medicaid claims costs in the past year
2. Medicaid aid category
3. Total number of unique medications filled in the past year

Indiana also allows its nurse care managers to reassign some members to low-risk interventions, even after the stratification model identifies them as a high risk. Based on their experience, nurse care managers can also graduate members from high-risk interventions if self-care knowledge and skills are sufficient or to reassign members for whom care management is unlikely to improve their health status.

North Carolina staff developed their stratification tool internally. To design the process, CCNC met with care managers who decided, based on their experience, to target individuals with a high number of ER visits or inpatient claims. To communicate information on high-risk members to care managers, CCNC sends case identification reports that list individual high-risk members. Care managers review these reports to identify members currently in care management, members that have appeared on the list multiple times, and new members. Based on these reports, care managers prioritize outreach and care management quarterly.

Checklist: Primary Steps in Stratification
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Identify target variables<input checked="" type="checkbox"/> Select time periods to use for development<input checked="" type="checkbox"/> Review potential drivers or predictors of adverse health outcomes<input checked="" type="checkbox"/> Select significant drivers and determine weights for each variable<input checked="" type="checkbox"/> Test the data periodically to assess tool's accuracy

Patient Activation Measure⁹

The Patient Activation Measure (PAM), developed by Dr. Judy Hibbard and colleagues at the University of Oregon, assesses the knowledge, skills, and confidence for managing one's own health and health care. The PAM segments members into one of four progressively higher activation levels:

- Disbelieve they have active or important role
- Lack confidence and knowledge to take action
- Begin to take action
- Maintain behaviors over time

Reliable and valid for use with patients managing a wide range of chronic illnesses, the PAM has been found to be helpful wherever a patient has a significant role to play in managing his or her health. The PAM can be used for the following purposes:

- Predictive Modeling: Identify members at risk and forecast utilization
- Segmentation: Segment or target members who need the most (and least) attention
- Tailoring: Individualize self-management competencies
- Program Effectiveness: Assess the effectiveness of support programs

Predictive modeling. States use predictive modeling to identify and stratify members for care management programs. Predictive models can improve program efficiency by identifying members who are or might become a high risk. Predictive modeling is defined as the “process of analyzing currently available data to prospectively identify specific individuals who are at high-risk of having adverse outcomes in the near future.”¹⁰ States can employ predictive modeling in a variety of ways, including to:

- Identify eligible members for inclusion in care management interventions,
- Focus on especially high-cost members,
- Help target appropriate populations effectively,
- Conduct needs assessments and quality improvement, and
- Provide “actuarial” risk information to inform financial decisions.

States typically contract with an external vendor for predictive modeling. In working with a predictive model vendor, States should understand how the tool works and what information will be available should the contract end or be awarded to another vendor. Although most predictive modeling software is proprietary, States should be involved in the identification and stratification algorithms or criteria used to identify high-risk members to ensure that the model is working appropriately for their program. As with the State-developed tools described above, program staff should rely on their knowledge of the program members and provide feedback to the vendor on the predictive model's success.

Pennsylvania's vendor has a proprietary risk stratification methodology to assign members to three tiers, each associated with a different level of intervention. Members can move among the tiers, if necessary, and each member receives an assessment every 3 months. Self-management is a component of all three tiers.

⁹ Hibbard JH, Stockard J, Mahoney ER, et al. Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers. *Health Serv Res* 2004; 39(4):1005-26.

¹⁰ Center for Health Care Strategies. Using risk-adjustment for payment and predictive modeling for care management in Medicaid: A WebExchange. Princeton, NJ March 2005.

- **Level One.** Educational mailings, nurse call line, audio health libraries (The member receives a call from a nurse care manager at weeks 6 and 26.)
- **Level Two.** All Level One services plus more frequent calls from a nurse care manager
- **Level Three.** All Level One and Level Two services plus in-person visits and a more intensive call schedule

Health Assessment

Many States use health assessments, in addition to claims data, to stratify members across risk categories. Health assessments provide information to care management program staff to gauge a member's health condition, create treatment plans, and evaluate programs. Health assessments can be administered by the member's primary care physician, a nurse care manager, or they can be self-administered. In many instances, assessments occur the first time program staff contact identified members. Staff should use this time to actively engage members in the program. Some States have included motivational interviewing with the administration of the assessment for this purpose.

States have used assessment tools that are publicly available, purchased, created by the State, or adapted by the State to fit its needs. Commonly used assessments include the following:

- **EuroQol.** The EuroQol (EQ-5D) survey asks five questions about mobility, self-care, daily living, pain, and depression. Initially developed for administration in an in-person interview format, EQ-5D has been adapted for telephonic delivery.¹¹
- **Short Form Health Survey.** The Short Form Health Survey comes in three versions: 36, 12, and eight questions. Its eight domains encompass physical function, role limitations due to physical functioning, general health perceptions, bodily pain, social functioning, energy/vitality, role limitations due to emotional functioning, and mental health.¹²
- **Patient Assessment of Chronic Illness Care.** A brief, validated patient self-report instrument, the Patient Assessment of Chronic Illness Care (PACIC) gauges the extent to which members with chronic illness receive care that aligns with the Chronic Care Model. Developed by Improving Chronic Illness Care staff, the PACIC asks users to respond to 20 questions that yield results on patient activation, delivery system design, decision support, goal-setting, problem-solving, and follow-up.¹³

Lessons Learned: Health Assessments
<ul style="list-style-type: none"> • Develop rapport with members. Health assessments are typically the first contact with members, it is important to use this time to develop a relationship with the members to ensure greater participation among members. • Ensure the assessment is understandable. Clarity is especially important with self-administered health assessments. Outreach materials must be developed at an appropriate literacy level so members can understand them easily. • Align questions with measurement and evaluation strategy. Health assessments provide baseline measures for members before intervention. Items on the assessment should reflect measures that interventions will impact.

¹¹ Available at: EurpQol. EQ-5D. <http://www.euroqol.org>. Accessed November 16, 2007.

¹² Available at: SF-36. <http://www.sf-36.org>. Accessed November 16, 2007.

¹³ Available at: Robert Wood Johnson Foundation. Improving Chronic Illness Care, Patient Assessment of Chronic Illness Care, http://www.improvingchroniccare.org/index.php?p=PACIC_Survey&s=36. Accessed November 16, 2007.

- **Patient Health Questionnaire.** The Patient Health Questionnaire (PHQ) is a tool designed to help primary care physicians diagnose depression as well as select treatment options. Versions of the PHQ include two-question, eight-question, and nine-question surveys. Several Learning Network States, including Iowa and Indiana, use the PHQ in their care management programs.¹⁴

Selecting Opt-In versus Opt-Out

An important consideration in designing an enrollment and outreach strategy is whether the program is opt-in or opt-out. Opt-in programs notify members of their eligibility for the program; members then must actively choose to enroll. In opt-out programs, members are enrolled automatically but have the option to disenroll themselves. Both enrollment mechanisms have advantages and disadvantages

Opt-out programs generally have higher member enrollment than opt-in programs. By easing the enrollment process, the opt-out model allows members to try the program even if they are hesitant. States have found that once members participate in the program they rarely choose to disenroll or opt out. However, many of the members in opt-out programs might not be actively “engaged.” In Texas, an average 21 percent of members opt out of the program, with COPD having the highest opt-out rate at 40 percent and CHF having the lowest rate at 0 percent. Illinois has a lower rate of opt-outs, with only 3 percent of the population choosing not to participate.

With an opt-in program, a stronger likelihood exists that the vendor will be able to engage most of the members successfully. In this model, States might assume that all of the members enrolled want to improve their health conditions through program participation. In Kansas, 21 percent of eligible members have opted into the care management program. Washington’s two care management vendors have estimated opt-in rates of 22 percent and 44 percent.

Iowa encountered difficulty recruiting people for its opt-in asthma program. The State initially identified 1,312 high-use asthmatics for program outreach but were able to reach only one-third of them through telephone calls. Deciding to revise its outreach strategy, Iowa sent letters to the high users, but only 17 responded and enrolled. Iowa realized that to enroll 250 members it would have to open the program to the entire population of asthmatics, which led to the enrollment of 266 members with asthma.

Of the 13 States in the initial Medicaid Care Management Learning Network, five operate opt-in programs; eight run opt-out programs.

¹⁴ Available at: Pfizer Inc. Patient Health Questionnaire (PHQ) Screeners. <http://www.phqscreeners.com>. Accessed November 16, 2007.

Enrolling Members

States use various techniques successfully to enroll members in their care management programs: outreach materials, hospital enrollments, physician referrals, consumer incentives, and coordination with other organizations. Many States choose to employ a combination of these techniques to make certain they target all eligible members.

Outreach Materials

With most programs, once eligible members have been identified, program staff often send letters and information regarding enrollment. Typically the member is required to sign and return the application or call a number to enroll (opt-in program) or disenroll (opt-out program). With opt-in programs, States should expect a low response rate with their first round of mailings, but members who respond generally will prove the most motivated. To maximize program enrollment, program staff might follow up with additional mailings or telephone calls to non-respondent members. In sending member outreach information, ensuring that materials are developed at an adequate level of health literacy is important so members can understand them easily. Please see Section 4: Selecting Care Management Interventions for additional information on health literacy.

Hospital Enrollment

Many States, including North Carolina, Indiana, Illinois, and Rhode Island, place nurse care managers in hospitals to reach out to potential members on discharge. These nurses enroll and provide more information to members who were hospitalized for chronic conditions covered in the State’s care management program. By targeting eligible members on discharge, the State hopes members will be more inclined to participate in interventions that might improve the health problems that caused their recent hospitalization. States have been successful at increasing enrollment by reaching members at these “teachable moments” to encourage them to make a difference regarding their health care decisions.

Lessons Learned: Enrolling Members
<ul style="list-style-type: none">• Ensure enrollment strategy coincides with program design. Opt-in programs will require more rigorous enrollment strategies than opt-out programs, but these members will be more actively engaged• Involve providers. Giving providers an active role in enrolling members leads to provider support for the program because providers understand their source and feel they are tailored to the particular needs of their State’s population• Partner with other organizations. States have successfully utilized other organizations, such as other State departments, community organizations, and hospitals to provide additional venues to target and enroll members.• Use incentives cautiously. Evidence suggests that while consumer incentives can encourage participation, once the incentive is removed or obtained members do not remain actively engaged in the program

Physician Referrals

Most States employ physician referrals to identify potential members for enrollment in a care management program. In general, if a physician provides care to a Medicaid beneficiary who might qualify for enrollment, the physician will alert the program, whose staff then will contact the individual. By offering the option for physician referrals, States have been successful at increasing enrollment and reinforcing the importance of care management through physician support. Physician referrals actively engage the provider in the program, which can lead to greater physician buy-in. Please see Section 2: Engaging Stakeholders in a Care Management Program for more information on strategies to engage providers.

Coordination with Other Organizations

Other organizations, such as community health centers, long-term care facilities, or other government agencies might provide a venue for enrollment efforts. Serving a high percentage of Medicaid beneficiaries, community health centers understand the population's cultural and social environment. Programs can work with these organizations to enroll members in care management programs.

Consumer Incentives

As a technique to encourage member enrollment in a care management program, some States are considering offering members a small incentive. Understanding that the effectiveness of incentives is still being debated, many States have chosen to test the usefulness of incentives for increasing member participation. Programs can use a variety of financial and non-financial incentives, such as cash, gift cards, small gifts, lotteries, or redeemable credit, to encourage enrollment in a care management program. Please see Section 4: Selecting Care Management Interventions for additional information on consumer incentives.

Kansas' vendor offers consumer incentives of \$10 or less. The vendor establishes relationships with new members by taking fruit baskets staff have assembled to in-home visits. As an incentive to attend orientation meetings, program staff deliver \$10 grocery store gift certificates. In addition, the vendor has established an agreement with a local YMCA to provide membership scholarships. Currently, 26 care management members participate in the initiative with the YMCA. The vendor tracks members' gym usage to ensure that the care management members on scholarship are using the gym.

Conclusion

Systematically planning which populations to cover and how to identify members for enrollment will help maximize the potential impact of a State's care management program. By identifying the population, program staff can move forward with tailoring interventions to meet member needs. With successful identification, enrollment, and stratification, the program will reach the appropriate populations.

Section 4: Selecting Care Management Interventions

State Medicaid agencies face unique challenges and must adapt to meet the needs of their population. When designing a care management program, understanding which interventions—the methods used in care management programs to impact member health—are possible, tested, and successful is important. Care management interventions can specifically target members or providers that deliver care. State Medicaid agencies have tried combinations of more than 15 types of interventions to improve member health.

Incorporating information from 13 State Medicaid care management programs in the initial AHRQ Learning Network and supporting literature, this section of the Guide, *Selecting Care Management Interventions*, provides information to State Medicaid staff about:

- provider, member, and system interventions,
- choosing care management interventions, and
- implementing care management interventions.

When choosing interventions, considering their outcomes, timing, and efficacy on selected diseases is important. Many states now are implementing programs that employ a more holistic approach, such as the population-based approach and managing comorbid conditions, as described in other sections, rather than addressing specific diseases. However, this Guide conveys States' experiences as well as the evidence base, which reflect a disease-specific approach. Future editions of the Guide are expected to communicate States' experiences as they implement new program models. For more information on these considerations, please see *Section 7: Measuring Value in a Care Management Program* and *Section 8: The Care Management Evidence Base*.

Provider, Member, and System Interventions

Most often, care management interventions tend to fall into two categories: provider interventions and member interventions. In addition, system interventions, which are designed to promote a culture, an organization, or mechanisms that further program goals, aim to coordinate provider and member interventions. States should choose a mix of provider interventions and member interventions aligned to achieve the same goals. Provider interventions can encourage additional testing and use of evidence-based practices, while member interventions can support self-management behaviors crucial for a member's health (e.g., adherence to diet, exercise, and medication regimens). Together, provider interventions and member interventions can better improve members' health.

States have implemented many interventions through their care management programs. Exhibit 4.1 shows the interventions described in this section and the number of States involved in the AHRQ Medicaid Care Management Learning Network that have implemented the interventions.

Exhibit 4.1. Care management interventions

	Intervention	States
Provider	Evidence-Based Guidelines and Protocols	10
	Provider Education and Training	10
	Practice-Site Improvement	6
	Provider Profiling and Reports	5
	Provider Incentives	3
	Registries and Clinical Information Systems	1
	Telemedicine	1
	Electronic Medical Records, Decision Support, Reminder System, and Other Electronic Communication Systems	1
Member	Educational Brochures, Mailings, and Member Letters	13
	Telephonic Care Management	13
	In-Person Care Management	11
	Call Center	10
	Self-Management Education	7
	Self-Monitoring Devices	2

Provider Interventions

Provider interventions attempt to change the way health care providers treat patients. For example, a physician education session on the importance of HDL and LDL screening is designed to increase physician use of screening for both types of cholesterol. This subsection reviews the types of provider intervention States have used in their care management programs, such as evidence-based guidelines or provider training. Provider interventions also can include practice redesign work that looks at system changes within a practice to support evidence-based best care and practice guidelines.

Evidence-based guidelines and protocols. The most common provider intervention that States use is the distribution of evidence-based guidelines and protocols for care to providers. These guidelines and protocols are designed to standardize and improve patient care across the State. States employ national guidelines for distribution, often adapting them to meet the unique needs of their program. States have faced barriers to provider incorporation of guidelines into practice protocols.

Arkansas has worked with providers to create a set of 80 obstetric and neonatal guidelines for physicians, developed through live videoconferences, Internet comment forms, and formal and informal communication with program staff. The comment period for each of the guidelines is 3½ months, with drafts posted frequently on the program

Guideline Sources
<ul style="list-style-type: none"> • AHRQ's National Guideline Clearinghouse, http://www.guideline.gov/ • National Heart, Lung, and Blood Institute, http://www.nhlbi.nih.gov/ • American Diabetes Association, http://www.diabetes.org/for-health-professionals-and-scientists/cpr.jsp • American Lung Association, http://www.lungusa.org/site/pp.asp?c=dvLUK900E&b=23042 • American Heart Association, http://www.americanheart.org

Web site. Arkansas' guidelines are available on its program Web site for all providers; new protocols are distributed quarterly to obstetrical providers.

Indiana, as part of its initial program, the Indiana Chronic Disease Management Program (ICDMP), worked with the Health Department's existing Chronic Disease Advisory Council, which comprised provider groups, private health plans, hospitals, provider associations, and other key stakeholders throughout the State, to adapt national guidelines from guidelines produced by the American Diabetes Association; American Heart Association; National Heart, Lung, and Blood Institute; and American College of Cardiology. To avoid sending conflicting messages to providers, the Health Department and all participating insurance providers distributed the Indiana "consensus guidelines."

State experience with creation and distribution of evidence-based guidelines has produced several lessons:

- **Employ cross-payer, statewide guidelines.** Provider buy-in is more likely if a provider receives the same guidelines from other payers and Medicaid.
- **Involve providers.** Giving providers a role in adapting guidelines leads to provider support for them, because providers understand their source and feel they are tailored to the particular needs of their State's population.
- **Keep guidelines brief.** States have found that providers respond best to one-page documents in an easy-to-read format.
- **Identify local physician "champions."** These individuals can help convey the importance of implementing the evidence-based guidelines and solicit physician input at the community level.

Provider education and training. Ten of the 13 States involved in the initial AHRQ Medicaid Care Management Learning Network have provided opportunities for physicians to learn more about care management and patient care. In addition, the literature review in Section 8: The Care Management Evidence Base found that provider education and training successfully impacted all of the diseases included in the review. States offer provider education and training to improve patient care and increase provider involvement in a program. The State might send educational materials, for example, hold teleconferences or Web conferences, or conduct in-person sessions. Providers have responded well to opportunities to earn continuing medical education (CME) credit, regarding it as a program benefit.

Arkansas holds several well-attended teleconferences a month, which count for CME credit, to keep physicians up to date on the best current neonatal medical practices.

Indiana's former care management program, ICDMP, held collaborative learning sessions that introduced teams of three (i.e., physician, nurse, and office manager) from physician practices to the program, the chronic care model, practice site improvement techniques, and ways to improve the care of patients with chronic conditions. As part of these sessions, the practices were required to set measurement goals and to report the measures monthly. More than 60 physician practices attended.

Wyoming also provides CME credit for physicians who attend training Web conferences held four to five times a year.

To ensure the success of provider education and training, States should consider:

- **Training location.** States can ensure greater participation by holding trainings in convenient, central locations or online.
- **Evidence base.** The literature shows that provider education exerts the greatest impact on measures that target provider processes, such as HbA1c screenings.
- **CME credit.** States can offer CME credit as an incentive to providers for participating in training sessions.

Practice site improvement. Practice site improvement is a service Medicaid can offer physician practices through care management programs. Care managers can work with physician offices to find ways to improve the care of patients with chronic conditions. Few Medicaid agencies have offered this service because it can prove labor intensive and some physicians might find it invasive. In North Carolina, care managers educate providers when they fail to comply with specific practices (e.g., use of asthma forms). The care managers visit physician offices and map their workflow to identify where the process “broke down.” For example, care managers will suggest attaching an asthma form to the chart of every Community Care of North Carolina patient with asthma so the physician can clearly see that it needs to be completed.

Practice profiles and reports. Provider profiles, which can contain any data the State and providers choose, can give providers a more holistic sense of how providers are treating their patient population and how their patients are using health services. Nonetheless, some States have encountered provider resistance to the profiles, because providers often feel concerned that they will be penalized for poor performance. States have learned to “sell” the profiles to physicians as a mechanism for physicians to acquire additional data to which they would not otherwise have access.

States can make the profiles most useful by observing the following guidelines:

- **Keep profiles brief.** To encourage provider use, profiles should be brief and easy-to-read.
- **Involve providers.** Because provider involvement is key to the success of profiles, providers should be involved in choosing what data to include in the profiles and adapting the profiles as their needs change.
- **Include useful comparisons.** Create data comparisons at the level most useful to providers (i.e., county, regional, or State).

North Carolina has worked closely with physicians to create practice profiles.

Physicians receive data for their entire Medicaid population that includes:

- per-member per-month costs;
- emergency room (ER), hospital, pharmacy, and lab use rates; and
- disease management statistics that change according to provider needs (examples of statistics for diabetics are lipid tests in the last 12 months and eye exams in the last 15 months).

Physicians receive profiles quarterly. North Carolina also shares practice-level data at physician meetings (if physicians are comfortable with the exercise), providing opportunities for practices to benchmark themselves against other practices and creating a competitive environment in a positive sense.

Texas is working with providers to create “client registries,” a name Texas chose because it felt “profiles” had negative connotations for providers. The client registries will show providers how their patients compare to patients in other practices. Texas hopes that providers will be able to use the registries to identify gaps in care and to improve their practices.

Provider incentives. Provider incentives and pay-for-performance (P4P) initiatives can help engage providers in care management programs and change provider behavior. Provider incentives do not have to be financial; they can include annual awards banquets to recognize achievements, plaques to hang in offices, and recognition by a high-level official. States can make their P4P initiatives more successful by:

- **Engaging providers early.** Providers are the key to P4P success and are best able to offer input on what incentives will appeal to them.
- **Delivering ongoing provider education.** Providers require ongoing education to understand P4P initiatives and how they can take advantage of them.
- **Limiting administrative burden.** States should design flexible P4P initiatives that limit the administrative burden placed on providers, which might include allowing providers to submit data in different formats (e.g., electronic format versus paper) or accommodating the needs of large health systems that employ providers.

Pennsylvania engages providers with its P4P program, which focuses on three critical areas: assistance with enrollment of eligible patients in the program, collaboration in care management of members, and delivery of key clinical interventions that help improve quality of care and clinical outcomes. To develop the program, Pennsylvania launched a physician workgroup that represented State organizations such as the Medical Society, Academy of Family Practice, Academy of Pediatrics, and Osteopathic Medical Association. The State also involved consumers through the Consumer Advisory Subcommittee, Regional Advisory Committees, and the Pennsylvania Law Project.

Provider payments include the following:

- \$200 per practitioner for agreeing to partner with the ACCESS Plus program
- \$40 per patient for encouraging newly eligible high-risk patients to participate in the program
- \$30 per patient for furnishing contact information for selected patients
- \$60 per completed Chronic Care Feedback Form every 6 months
- \$17 per patient every 12 months for high-risk patients who are taking their key medications

The program aims to minimize workflow impact for offices by allowing nurses or office managers to complete the Chronic Care Feedback Form and providing additional assistance to meet requirements. To implement the program, Pennsylvania contacted

physicians by mail, hosted an educational Web seminar, and visited high-volume providers.

North Carolina created the Physician Incentive Program (PIP) to reward physicians who excel in meeting care management program objectives and to motivate other physicians to improve. A workgroup of North Carolina physicians met to design PIP structure and to choose measures and reward levels. The workgroup chose measures that would affect cost and could be gathered using existing data sources (i.e., claims data and chart audits):

- Asthma ER rate per 1,000 members
- HbA1c performed every 6 months
- Prescribing over-the-counter medication

The program offers two levels of reward: Excellent Performance and Quality Improvement. To qualify for the Excellent Performance reward, a practice must be the best or be in the top 15th percentile of program baseline. Winning the Quality Improvement reward requires a practice to improve from the baseline by 20 percent and to exceed the 50th percentile of program baseline. The incentive awards will be based on network performance; networks can develop their own methods of internal reward distribution.

Lessons Learned: Provider Interventions
<ul style="list-style-type: none">• Involve providers early. This will encourage provider buy-in.• Design materials carefully. Materials should be brief, easy-to-read, and useful.• Pilot resources. Pilot tools, reports, etc. with providers to create the most useful tools.• Update providers frequently. Frequent provider updates on program successes and changes remind providers of the program and their role.

Patient registries and clinical information systems. Patient registries can help providers track patient care to reduce duplication of services, address patient issues, and coordinate care with care managers. Physicians often are unaware of a patient’s multiple ER visits or entire prescription drug regimen, so a patient registry gives providers data they cannot access otherwise. However, challenges to creating patient registries sometimes occur. Some States, for example, might have insufficient resources to create a registry or to buy one. States also have found that physicians might be reluctant to use registries for several reasons (e.g., the system cannot be used for billing). States can try a number of methods to encourage providers to use their system:

- **Involve providers in creating the system.** Ask them what information would induce them to use the system (e.g., pharmacy data, ER visits).
- **Pilot the system.** Test it at a few provider sites and incorporate provider feedback into the program.
- **Tie the system to claims data.** If possible, create a system that allows providers to enter data for claims purposes.
- **Give providers data they would not have otherwise.** Such data might include pharmacy data or information on ER visits.
- **Offer provider incentives.** Providers might be more likely to enter data (e.g., lab values) into the system if given an incentive.

Iowa has developed an online health information tool, the Iowa Electronic Medical Records System, which it is testing currently at five sites, including three federally qualified health centers (FQHC) and the county hospital system. These sites are using the system daily and providing feedback to the State. As Iowa has received feedback, it has modified the information in the system (e.g., the State added ER and urgent care use data). The State adds claims and prescription data to the system weekly.

Wyoming has developed the Web-based Total Health Record (THR), an electronic health record, for all Medicaid providers. All care team members, including the patient, physician, payer, care manager, and pharmacist have access to THR. To build support and obtain input on the Total Health Record, the State:

- convened an advisory board of providers, consumers, and legislators;
- established a provider collaborative that helped select measures to evaluate the initiative; and
- offers financial incentives to encourage provider participation .

Health Literacy
<p>Healthy People 2010 defines health literacy as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.” In creating outreach and enrollment materials, program staff must understand that the average Medicaid beneficiary possesses a Grade 4 reading competency. Therefore, materials must be written in an easily understandable way. Techniques to make written materials more comprehensible to people with low health literacy include:</p> <ul style="list-style-type: none"> • Large font (preferably serif) throughout the document • Short sentences and lines of text, with left margin justification only • Simple, short, and familiar words (no jargon) • Active voice • Easy-to-understand use of numbers (e.g., 1 in 10 instead of 10 percent) • Culturally appropriate language • Uncluttered pages with ample white space • Simple graphics that increase comprehension of text <p>Experts suggest that testing materials with the target audience will ensure appropriate presentation and content.</p>

Member Interventions

Member interventions attempt to change member behavior. For example, self-management education can teach and empower members with heart failure to weigh themselves daily and to adhere to their medications. Member interventions might include the use of resources such as educational materials or workshops, telephonic and in-person care management, or home monitoring devices.

Educational materials. All of the initial 13 States involved in the AHRQ Medicaid Care Management Learning Network include educational materials as an intervention in their care management programs. For this intervention, States typically target low-risk, low-cost members who might have their disease under control. States might, for example, mail members disease-specific information, as well as information on when to use the ER versus their primary care provider. Although this intervention is relatively inexpensive, questions of its efficacy arise. Member addresses often are incorrect and program staff have no way to ensure that members are reading the materials. States might also question the cost effectiveness of sending information to

all eligible members and instead choose to send materials to certain members using selection criteria. The evidence base for educational materials shows that their efficacy varies by disease and is most effective for asthma.

After deciding to use educational materials, States can strive to create the most effective materials by considering:

- non-English-speaking populations,
- literacy levels,
- material length,
- relevant audience, and
- available materials.

The Medicaid population includes non-English speakers and low-level readers, so educational materials ideally should be printed in the common languages of the Medicaid population and should be developed for a Grade 4 reading level.

States must consider which members will receive the educational materials. To send appropriate materials, program staff can identify members through claims. For example, if a member visits the ER twice in a month, staff could automatically send him or her a brochure on appropriate ER utilization. States could choose to send materials on diabetes to all diabetics or to send materials only after a diabetes-related visit to the ER. In addition, States can send educational materials to members identified by care managers. If a member identifies that he or she wants to adopt a healthier diet, care managers can offer to share materials on health diets as followup.

In many cases, creating these educational brochures from the beginning (or without help) is unnecessary. Other State Medicaid agencies often are willing to share materials they have already developed. Partnering with local disease-specific organizations (e.g., local chapter of the American Heart Association, State diabetes prevention and control programs) to produce materials also is possible.

Oklahoma and **North Carolina** send postcards to care management program members with information on appropriate ER utilization.

Indiana's former program, ICDMP, developed disease-specific materials that included information on diet (e.g., eating in restaurants, foods high in sodium), medication adherence, blood pressure, and physical activity.

Care management. Care managers can serve many functions, depending on the design of the care management program. They might assess a patient's health status, for example, or coordinate a patient's care team, develop a care plan with the patient, teach self-management, remind the patient of physician appointments, visit a physician with a patient, grocery shop with a patient, and more.

Telephonic care management. Care managers can use the telephone to contact patients regularly, monitor patient status, deliver patient education and counseling, give appointment reminders, and

facilitate peer support and referrals for coping with illness.¹ Evidence suggests that telephonic care management can improve outcomes for patients with asthma, diabetes, congestive heart failure (CHF), and chronic pain. In addition, telephonic care management can improve self-management behaviors, like proper use of medication. Scripts and guidelines to standardize telephonic care management and outreach might prove beneficial.

In-person care management. Care managers can include in-person visits in their care management intervention. The literature review in Section 8: The Care Management Evidence

Checklist: Care Management	
Process	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Will care management be delivered in person or telephonically? <input checked="" type="checkbox"/> How will self-management be built into care management? <input checked="" type="checkbox"/> How will the medical home be built into care management? <input checked="" type="checkbox"/> What resources will care managers have to refer patients to other services? <input checked="" type="checkbox"/> How will interventions be documented and patient progress tracked?
Staff	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> What level of staff will provide the care management? <input checked="" type="checkbox"/> What training will care managers receive? <input checked="" type="checkbox"/> Will care managers have contact with patients' physicians? <input checked="" type="checkbox"/> Will care managers initiate all contact?
Patients	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Can patients contact their care manager? <input checked="" type="checkbox"/> How often will patients be contacted? <input checked="" type="checkbox"/> Which patients will receive care management? <input checked="" type="checkbox"/> Will patients receive an initial assessment? <input checked="" type="checkbox"/> Will patients "graduate" from care management?

Base found that in-person care management was the most effective intervention across all diseases. In-person care management is the intervention most likely to impact clinical outcomes, utilization, and cost. Although in-person care management offers advantages (e.g., environmental factor identification, trust-building, patient values) and has a stronger evidence base, it also is more costly than telephonic care. In-person visits might occur for an initial visit, regularly, or as needed.

- **Initial visit.** States might have care managers meet members in person for the first time to conduct a thorough assessment of the individual and potentially the home environment. Home visits allow care managers to acquire a sense of the environmental factors affecting the member's health (e.g., dust or mold in an asthmatic's home). An in-person visit also can help build trust between the member and the care manager.

- **Regular visit.** Regular visits are most feasible if the care manager works in a physician practice or community health center. This situation allows the care manager to sit in on patient visits and work more closely with the patient's care team.
- **As-needed visits.** In this situation, care managers see patients in person when necessary but not on a regular schedule. If a patient is having difficulty using a glucometer, for example, the care manager can visit the patient and teach him or her how to use the device correctly. Care managers also might schedule office visits with the patient and his or her provider. During the visit, the care manager facilitates communication between patient and provider to help the patient learn communication techniques.

¹ Available at: Piette JD California Health Care Foundation. Using telephone support to manage chronic disease.

<http://www.chcf.org/topics/download.cfm?pg=chronicdisease&fn=UsingTelephoneSupportToManageChronicDisease%2Epdf&pid=420974&itemid=111784>. Accessed October 25, 2007,

A combination of in-person and telephonic care management has proven an effective intervention.²

Indiana's initial program, ICDMP, offered care management on two levels: a call center and nurse care managers. All eligible members first were stratified as either low risk or high risk. The call center assumed responsibility for making the first call to members of both strata to introduce them to the program and assess their general health status. Care coordinators with a customer service background (not clinical), supervised by nurses, staffed the call center. After the first call, high-risk and low-risk members took two different tracks. High-risk members were assigned to nurse care managers who worked with them for 4-6 months. Low-risk members received calls and educational materials quarterly. After a high-risk member was in care management for 4-6 months and was ready to self-manage, the nurse care manager transitioned him or her to the call center for quarterly contact.

Pennsylvania works with its vendor, McKesson, to provide both in-person and telephonic care management to members. First, community-based health workers locate the member, explain services and benefits, help locate basic community resources (e.g., dentists), and help the member call the nurses. Then, community-based registered nurses deliver care management services to members. Interventions can be telephonic or they can be in-person if the member cannot be reached by telephone. The registered nurses work with the member's physician to coordinate care. Nurses:

- encourage members to visit their primary care provider;
- teach members to recognize signs or symptoms of disease process;
- increase members' self-management skills to take better care of themselves;
- coordinate with the provider's plan of care through ongoing education; and
- promote a healthy lifestyle.

² Bella M, Cobb E, Rothstein, J.(Center for Health Care Strategies. Health supports for consumers with chronic conditions. http://www.chcs.org/usr_doc/ESMVPFINAL.pdf. Accessed October 25, 2007.

Consumer Incentives

Consumer incentives can be used for various reasons, including encouraging members to engage in healthy behaviors, self-manage their disease, or participate in a wellness program. By incentivizing members to adopt healthy behaviors, many States are attempting to give members a greater stake in improving their health care.

States can offer a variety of incentives to encourage members to engage in healthy behaviors, including financial incentives, such as cash, gift cards, small gifts, lotteries, and redeemable credit. Some States might even choose to waive registration fees as an incentive for signing up for a tobacco cessation or weight management class.

Many programs choose to collaborate with community organizations or State departments, such as the YMCA or the Department of Public Health, to provide services to members. Through these collaborations, programs can offer reduced or free enrollment programs that promote healthy behavior. Kansas, for example, has an agreement with a local YMCA to provide scholarships to care management members to use its gym.

When deciding where and what incentives to apply, programs should consider members' preferences and needs. States might convene focus groups or use surveys to collect information from members on behaviors they wish to change, incentive preferences, and barriers to engaging in healthy behaviors.

Self-management education and training. Self-management is what people do every day: make decisions about diet and exercise, monitor their health, and adhere to their medication regimen. Everyone self-manages, but many people do not make decisions that improve their health-related behaviors and clinical outcomes. To make good health decisions, patients must be informed and activated.

- **Informed patients** possess the knowledge they need to make correct decisions. For example, an informed diabetic understands the importance of regular blood sugar testing.
- **Activated patients** are involved in their own care, set goals, and develop problem-solving skills.

Care management programs have several options to empower and prepare patients to manage their health and health care. One option is to incorporate self-management messages and education into telephonic and in-person appointments. This option requires training care managers in self-management support. Care managers learn about collaborative goal-setting and shared decisionmaking. In this management style, the patient sets the agenda for what he or she wants to work on. For example, when a patient wishes to focus on smoking cessation, the care manager works with him or her on a plan to quit smoking, even if the care manager feels that working on the patient's diet is more important. During this process, States also can provide the tools necessary to self-manage (e.g., weight scale, glucometer).

Indiana's initial program, ICDMP, infused the general principles of self-management into its nurse care management protocols as well as into telephone call scripts and written materials. The State's nurse care manager vendor recruited nurse care managers who are comfortable and successful with teaching patients self-management techniques. Nurse care managers worked closely with patients to set self-management goals, allowing them to choose their goal and working with them to achieve it. Indiana also encouraged self-management by setting a date for program graduation. Nurses worked with patients to create self-management plans and to become independent.

Another option for bringing self-management into a Medicaid care management program is to adopt an approach like the Stanford Chronic Disease Self-Management Program (CDSMP), which is based on small-group workshops. Held 2 hours a week for 6 weeks, the workshops are designed to help patients gain confidence in their ability to control their symptoms and understand how their health problems affect their lives. They provide skills to coordinate all things the patient needs to manage his or her health and remain active. Moreover, they cover techniques to deal with problems such as frustration, fatigue, pain, isolation, appropriate use of medication, exercise, communication, nutrition, and making informed treatment decisions. Two trained leaders—one of whom, preferably, is a peer with a chronic condition—facilitate the workshops.

Rhode Island Medicaid is in the process of bringing CDSMP to the State in conjunction with the Department of Health and the Department of Elderly Affairs. In October 2006, 17 people throughout the State were trained to be “master trainers,” at a cost to Rhode Island of approximately \$23,000, including the session, trainers, and materials. These master trainers can conduct workshops and train other workshop leaders. As of April 2007, six workshops had been conducted, from which the State will begin identifying potential peer leaders for leadership training in fall 2007.

Home monitoring devices. As new technology becomes available, tools to help patients and care managers monitor patient health are becoming more common in State Medicaid care management programs. Home monitoring devices might require patients to:

- answer a series of questions about their health (e.g., weight gain in the past 24 hours),
- monitor their health (e.g., reminders to take medication, measure blood pressure), and
- answer health education questions (e.g., “Do you understand what to do if you feel short of breath?”).

Medicaid agencies are still piloting many of these home monitoring devices, so their efficacy for the Medicaid population has yet to be determined. The devices also can prove expensive.

Wyoming’s care management program provides high-risk members a home monitoring device, Health Buddy, which questions them about their health and quizzes them on health education. Members enter information daily in response to five to eight questions based on their chronic condition. They might be asked about their blood sugar level, for example, weight gain, or shortness of breath. Nurse care managers call all Health Buddy users at least once a month, and they call immediately if answers to the questions indicate the member’s health might be in danger. To receive a Health Buddy, members must have at least three conversations with a care manager, be high risk, and be interested in using the device. Health Buddy costs approximately \$40 per member per month (PMPM) and \$300 if the unit is not returned. Wyoming has found that about 50 percent of members who have a Health Buddy use the device consistently.

Iowa is piloting a telemedicine device, Pharos, for 250 members of its CHF population. Members in the Pharos pilot are required to call a toll-free number once a day and answer five machine-prompted questions. A nurse care manager calls the member if he or she

answers two or more questions positively, indicating the member might need additional care management or medical attention.

Choosing Care Management Interventions

Once a State is aware of the menu of care management interventions, its next step is to choose the interventions that best fit its target population, resources, and goals. A State should consider several factors when choosing interventions:

- Evidence base of interventions
- Program budget limitations
- Program model (buy, build, or assemble)
- Provider and member interventions
- Diseases covered (e.g., asthma, diabetes)
- Stakeholder input

States must balance all of these factors to choose the set of interventions appropriate for their situation. Balancing the costs and benefits of interventions can be difficult.

Evidence Base

A strong evidence base can help a State defend its program against critics until the program has had time to show positive outcomes. The evidence base can come from literature or from other State Medicaid experiences. The literature offers some evidence on the efficacy of care management interventions, although often not Medicaid-specific evidence. The literature review in Section 8: The Care Management Evidence Base identified a few important findings across diseases.

- **Intervention effectiveness varies among diseases.** Interventions vary across diseases in overall efficacy and in their ability to impact particular outcomes. For example, the literature review found that telephonic care management was more effective for asthma than for diabetes.
- **In-person care management.** In-person care management was the most effective intervention across all diseases addressed in the literature review. Though in-person care management can be more difficult and expensive to implement, in-person care management is the best intervention to use to generate cost savings and improved clinical outcomes.
- **Provider interventions.** As expected, provider interventions had the greatest impact on measures that target provider processes such as HbA1c screening or medication use. States can use provider interventions to impact process measures or, in some cases, utilization or cost, but provider interventions had minimal impacts on clinical outcomes overall.

Intervention Costs

Interventions vary in cost as well as in efficacy and speed. Some interventions might seem appealing (e.g., sending a nurse care manager to the home of every member) but are infeasible due to cost constraints. Considering the cost of interventions in relation to the benefits is important. Exhibit 4.2 shows the estimated average cost (low, medium, high) of interventions.

Exhibit 4.2. Intervention cost estimates

	Intervention	Cost
Provider	Evidence-Based Guidelines and Protocols	○
	Provider Education and Training	◉
	Practice-Site Improvement	◉
	Call Center	◉
	Provider Profiling and Reports	○
	Registries and Clinical Information Systems	●
	Telemedicine	●
	Electronic Medical Records, Decision Support, Reminder System, and Other Electronic Communication Systems	●
	Provider Incentives	●
Member	Self-Management Education	◉
	Educational Brochures, Mailings, and Member Letters	○
	Call Center	◉
	In-Person Care Management	●
	Telephonic Care Management	◉
	Self-Monitoring Devices	●

○ = Low ◉ = Medium ● = High

If the State contracts with a vendor to provide care management services, the cost of particular interventions might be less important, because most costs are incorporated in the overall contract or PMPM fee.

Program Model

A State’s care management model—buy, build, or assemble—can influence the interventions the State chooses. Please see Section 5: Selecting a Care Management Program Model for additional information on care management models. If a State chooses to procure the program with a vendor, the interventions the vendor can provide might be limited. The State also might have to work with the vendor to adapt the interventions to fit the needs of the State’s program. In an assemble model, the State uses a combination of partnership and contracting to organize a program. If a State assembles its model, adding interventions might prove difficult because doing so might require contracting with additional specialized vendors. In a build model, the State primarily uses in-house staff to administer the program and conduct interventions. In this case, the State might be limited by its own lack of capabilities or resources. For example, the State itself might be unable to support the use of self-monitoring devices or telemedicine.

Stakeholder Input

Throughout the process of planning, designing, and implementing a care management program, gathering stakeholder input is important. Stakeholders can be members, providers, advocates, caregivers, legislators, or other government agencies. In relation to interventions, stakeholder input can prove vital to gain buy-in from members and providers. States have formed physician advisory boards and regional advisory councils to solicit provider and member input. Please see Section 2: Engaging Stakeholders in a Care Management Program for additional information on stakeholder input.

Implementing Care Management Interventions

States must decide who will receive interventions and how they will receive them. To do so, States must identify the population that will benefit from the interventions, coordinate the delivery of provider and member interventions, and address the specific barriers the Medicaid population faces.

Target the Appropriate Population

Factors that might influence decisions regarding which members will receive which care management interventions include cost, resource availability, and members' potential benefit from the intervention. A State might wish to provide every diabetic member with a care manager, but the cost would be prohibitive. Instead, the State might stratify members so individuals with the most severe diabetes receive care management and diabetics with less severe diabetes receive disease education materials. In addition to cost, States must consider which members will benefit most from interventions. Care management might exert a significant impact on a patient who is experiencing difficulty managing his or her CHF and a minimal impact on a patient who is self-managing his or her CHF successfully. Given limited resources and potential benefit to patients, States generally choose to give more intense interventions to high-risk or high-cost members. Please see Section 3: Selecting and Targeting Populations for a Care Management Program for additional information on techniques for risk stratification and predictive modeling, both of which can be used to determine the level of intervention a member needs.

Pennsylvania's care management program features three levels of care. At Level One, members receive educational mailings and access to the nurse call line and audio health libraries. A patient at this level receives a call from a nurse care manager at weeks 6 and 26. At Level Two, a patient receives all Level One services plus more frequent calls from a nurse care manager. The patient might be referred to PCCM, in which case the patient's provider is notified that he or she is receiving care management. At Level Three, patients are provided with all Level One and Level Two services plus in-person visits and a more intensive call schedule. Pennsylvania's vendor, McKesson, employs a proprietary risk stratification methodology to place members in each level. Members are able to move between levels, as needed.

Facilitate Provider and Care Manager Coordination

In the most effective care management programs, care managers and providers deliver the same messages to members. Because member interventions are delivered most frequently by a care manager, often the coordination must take place at the care manager to physician (or physician office) level. If a member is receiving the same information from the care manager and the physician, his or her behavior is more likely to change. States can use several techniques to coordinate provider and member interventions:

- Station nurse care managers in provider offices
- Inform providers of member interventions
- Provide patient registries to nurse care managers and providers
- Work with office staff
- Develop a system for providers to refer patients for care management
- Identify patients in a practice who, based on initial claims analysis, might benefit from care management activities, and coordinate efforts with practice staff
- Station care managers in safety-net hospitals during peak Medicaid use times

Nurse care managers can work with provider offices to inform physicians of the care management interventions their patients are receiving and to ensure the patient is receiving a consistent message.

In **North Carolina**, nurse care managers assume responsibility for managing patient care at a set of physician offices. Nurse care managers become familiar with each physician practice, sometimes attending physician office staff meetings and joining the office team that manages patient care. The physician is familiar with the nurse care manager and feels comfortable communicating with him or her about patients and making patient referrals.

Rhode Island is creating a new care management program that will assign nurse care managers directly to large practices with 150 to 200 Medicaid-only adult patients who are determined by the State's Connect CARRE predictive modeling algorithm to be at moderate risk or high risk. The first site will be an FQHC, and the nurse care managers will manage the care of moderate- and high-need individuals there. Rhode Island is moving toward integrating nurse care managers into the practice so they will remain a constant part of patient care teams.

The State can also use patient registries to facilitate communication between providers and nurse care managers. States have employed systems that allow physicians and nurse care managers to enter information on patients (e.g., notes from a call, an HbA1c level) and to see claims data. In addition, States can use other forms of communication to inform providers of care management activities. When launching their programs, States often send materials to providers that contain background information on the care management program and its interventions. Members benefit when their providers are aware of and support care management efforts. To achieve program success, implementation of both provider interventions and member interventions is critical.

Address Barriers to Care Delivery

As States implement interventions, they should consider the challenges that other States have faced in implementing care management programs. Typically, the Medicaid population is poorer, less educated, and sicker than the privately insured population. To maximize success, States have adapted their programs to best communicate with members and coordinate social services.

Communicate with members. Because member telephone numbers and addresses in Medicaid data often are incorrect, care management program staff should expect that contacting members will be difficult. States might set limits on the number of times they will attempt to contact members.

In **Indiana's** initial program, ICDMP, call center staff attempted to reach members three times (on different days and times) and sent the members a welcome packet. If the call center failed to reach a member, he or she was put into a queue for 3 months, after which staff again tried to reach the member three times. If the call center was unsuccessful again, the member was returned to the queue and sent educational materials. This pattern continued until the call center reached the member or until the member was no longer eligible for the program.

Public distrust of Medicaid or of public programs also might make contacting members difficult. Indiana found that members were not opening letters from the care management program because the envelopes had the same logo as the Medicaid program. When Indiana changed the envelopes to have a care management-specific logo, members were more likely to open them.

In addition to difficulties reaching Medicaid members, States must expect that many members will have low literacy levels. Materials should target an appropriate reading level and be made available in prominent languages. Some states might want to consider holding informal focus groups with select Medicaid members to determine the best mechanism for communication with them and “perceived barriers” to communication.

Connect members with other supports. To serve a Medicaid member, care management programs often have to address his or her other social issues. Competing priorities, such as adequate housing or food, can make taking care of their health difficult or impossible for members. Medicaid care management programs can serve as a link to many services, including behavioral health services, transportation, food stamps, and support groups.

Rhode Island developed an online system, Ask Rhody, that members and care managers (and all other Rhode Islanders) can use to find member services and to check for member eligibility for certain benefits. The system is available in English, Spanish, and Portuguese. Using a Real Choice grant from the Centers for Medicare and Medicaid Services, Rhode Island's Department of Human Services developed this Web site in collaboration with other departments within the Rhode Island Office of Health and Human Services. Among services listed are housing assistance, homeless shelters, adult daycare, counseling centers, food centers, family services, support groups, and rehabilitation centers.

The link to behavioral health services can be particularly important for the Medicaid population. Depression is especially pertinent, because depression rates are two to four times higher among low-income and Medicaid-insured patients. Care management programs can refer members to mental health specialists or even assess a member’s mental health status.

Indiana’s initial program, ICDMP, operated a call center that used the Patient Health Questionnaire (PHQ) to assess member depression. During an assessment, call center staff asked two questions: 1) “During the past month, have you often been bothered by feeling down, depressed, or hopeless?” and 2) “During the past month, have you often been bothered by little interest or pleasure in doing things?” If the member gave a positive response to either of the two questions, call center staff continued with the remaining PHQ screening. If a member scored 10 or higher on the PHQ, staff prompted the member’s provider by mail to ask that he or she carefully consider followup testing, and care. Indiana call center staff also were trained to recognize “red flags,” which would result in their transferring the call to a supervising nurse or placing a call to the member’s provider.

Iowa has worked with its Managed Behavioral Health Organization (MBHO) to set up links between care management and behavioral health providers. Iowa care managers administer the PHQ-2, a depression screening tool, to every member enrolled in the Medicaid care management program. If a member answers either question affirmatively, the care manager continues with the PHQ-9. Depending on the PHQ-9 score, the care manager coordinates with Iowa’s MBHO to arrange for services or more frequent testing. If the member’s score indicates severe depression, the care manager refers the member to the mental health vendor’s crisis line and arranges for an immediate or next-day appointment.

Patient Health Questionnaire
<p><i>Over the last 2 weeks, how often have you been bothered by any of the following problems?</i></p> <ul style="list-style-type: none">• Little interest or pleasure in doing things• Feeling down, depressed, or hopeless• Trouble falling or staying asleep, or sleeping too much• Feeling tired or having little energy• Poor appetite or overeating• Feeling bad about yourself—or that you are a failure or have let yourself or your family down• Trouble concentrating on things, such as reading the newspaper or watching television• Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual.• Thoughts that you would be better off dead or of hurting yourself in some way

Conclusion

Choosing interventions constitutes an important part of designing a care management program. States should be aware of the spectrum of interventions and other States' experiences with interventions. Once a State is aware of the intervention options available, it must determine which interventions are appropriate for its population and program. States must make decisions based on their vendor or in-State capabilities, financial capacity, timeframe, and the evidence base. Interventions must also be adapted to the Medicaid population; communication and social supports are particular issues for these individuals. Understanding the potential impact of the care management interventions feeds into the evaluation process.

Section 5: Selecting a Care Management Program Model

In designing a care management program, States should consider which type of care management program model is most appropriate for them. Depending on the availability of State resources and staff, States can choose to contract with a vendor, operate a program internally, or choose a hybrid method to operate a care management program.

Incorporating information from the 13 State Medicaid care management programs in the initial AHRQ Learning Network and additional literature, this section of the Guide, *Selecting a Care Management Program Model*, provides information to State Medicaid staff and policymakers about:

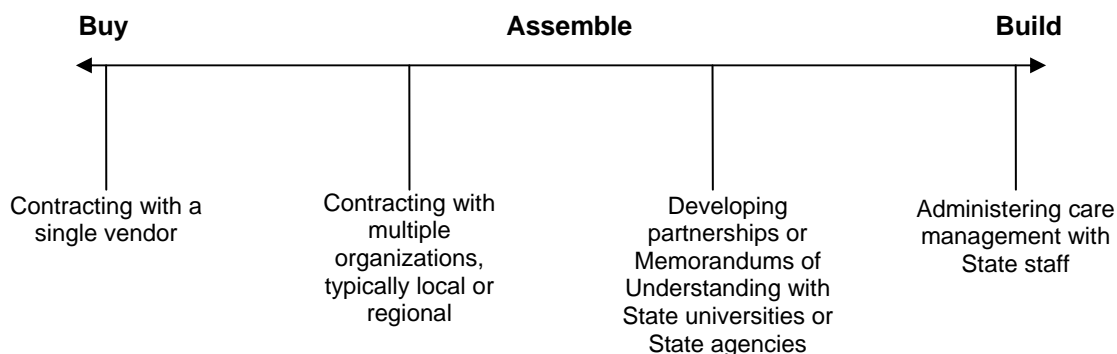
- selecting a care management program model, and
- additional considerations for contracting with a vendor.

Designing a care management program also involves selecting the populations to target and program interventions. Please see Section 3: *Selecting and Targeting Populations for a Care Management Program* and Section 4: *Selecting Care Management Interventions* for additional information on these topics.

Considerations for Selecting a Care Management Program Model

To administer care management programs, States can contract with an external organization, undertake in-house operations, or use a hybrid of the two. As a result, care management models lie on a continuum, with three general categories—often referred to as buy, build, and assemble—as shown in Exhibit 5.1. The majority of States use a model between the two ends of the continuum or adopt a combination of these models.

Exhibit 5.1. Continuum for care management models



When choosing to buy, build, or assemble a care management program, States must consider a variety of factors to determine whether they have the capacity and interest to operate the program

in-house or whether contracting with a vendor is the more desirable option. Considerations include the following:

- Program staff capacity
- Care management staff capacity
- Data capacity
- Program monitoring
- Program design
- Evaluation capacity
- Program timeline

Advantages and Disadvantages of the Models

Exhibit 5.2 lists potential advantages and disadvantages of the three types of care management program models: buy, build, and assemble.

Exhibit 5.2. Comparison of advantages and disadvantages of the buy, build, and assemble models

	Advantages	Disadvantages
Buy	<ul style="list-style-type: none"> • Quick program implementation, relying on the vendor's established infrastructure • Building on the vendor's experience, particularly in managing care for the Medicaid population • Augmentation of scarce resources • Vendor accountability for financial risk or other outcomes 	<ul style="list-style-type: none"> • Difficulty engaging local providers or the community during program design and implementation • Lack of sustainable investment in infrastructure • Difficulty making program refinements quickly • Potential for jobs and revenue associated with the program to be located out of state
Build	<ul style="list-style-type: none"> • Control over program operations • Sustainable infrastructure • Relationships with stakeholders that other State programs can use • In-State jobs and revenue associated with the program 	<ul style="list-style-type: none"> • Difficulty finding appropriate personnel and implementing the program successfully
Assemble	<ul style="list-style-type: none"> • Customization of the program • Choice of the best vendor for each program component 	<ul style="list-style-type: none"> • Complications and resource intensiveness in coordinating activities with State staff and across multiple vendors

Program Staff Capacity

States need a variety of program staff to operate and oversee care management program operations, identify areas for improvement, and monitor the program. The number and type of program staff needed varies based on program model, as discussed throughout this section, and

on the complexity and size of the program. Regardless, a State needs a minimum level of staff to operate the program effectively. Program administrative staff should include the following:

- **Program Manager.** Oversees program operations, identifies areas for quality improvement, and, if appropriate, ensures that vendors are complying with the contract and meeting performance indicators.
- **Provider Liaison.** Interacts with providers to build program support (in some States, the program manager or medical director serves this function).
- **Medical or Clinical Director.** Oversees quality initiatives, makes sure interventions are delivered appropriately, oversees nurse care management functions, communicates with the provider community, and ensures delivery of evidence-based practices.
- **Data Analyst.** Generates program reports and analyzes member data (in some States, this position is dedicated only partially to the care management program).

In addition, depending on the program model, States might need additional staff to operate the program, including the following:

- **Program Associate.** Assists the program manager in overseeing care management and program monitoring operations.
- **Actuary or Actuarial Consultant.** Conducts analyses and interprets financial reports. A State incorporating a financial and clinical performance guarantee into a vendor contract or one that is required to certify rates actuarially needs a State actuary or an actuarial consultant.

If States are unable to hire all of these staff internally, vendors can supplement internal capacity. For example, a care management vendor can hire a medical or clinical director, and a State can hire an actuarial consulting firm to provide actuarial support. A State that selects this option should dedicate staff to manage and monitor the vendor or vendors and to coordinate these activities with activities conducted by State staff.

Illinois requires its vendor to have on staff a medical director, licensed in Illinois to practice medicine, to help administer the care management program. The medical director must have previous experience in disease management and work with provider and stakeholder organizations at the direction of the State. The medical director also must be available to interact with providers to discuss the care management program, administration issues, and clinical guidelines and treatment protocols for members.

When considering this option, States should account for the fact that coordinating activities across multiple vendors might prove complicated and resource intensive.

Care Management Staff Capacity

States also should involve care management staff, such as nurse and social service care managers, to deliver care management. Care managers reach members and deliver program interventions by telephone or in person. The number of care management fulltime equivalents (FTEs) varies across States, according to program size, desired caseload, and intensity of the interventions. Care manager caseloads might be as high as 500 members to 1 care manager for only telephonic interventions or as low as 25 members to 1 care manager for intensive in-person

case management. Many care managers provide interventions of varying intensity and assume responsibility for a caseload between the above examples. Some examples of State care management staffing strategies include the following:

- **Indiana.** In Indiana’s initial care management program, the Indiana Chronic Disease Management Program (ICDMP), each in-person nurse care manager provided services to approximately 150 members.
- **Oklahoma.** In Oklahoma’s Health Management Program, a registered nurse performing in-person care management may be assigned to a maximum of 75 members by Oklahoma’s vendor.
- **Kansas.** Enhanced care management staff employed by Kansas’ vendor include four nurse care managers for approximately 200 members. Each nurse care manager has a maximum caseload of 60 members. To assist the nurses, the State also employs a disease management specialist nurse, whose maximum caseload is 150 members, and two community resource care managers with a social service background.
- **Texas.** In addition to call center staff, Texas’ vendor employs 11 community-based nurses to deliver in-person care management services for approximately 420 high-risk members. Caseloads vary by care manager.

Although nurses often deliver care management interventions, some States use non-clinical health personnel to locate members and provide care management interventions. For example, Texas’ vendor employs *promotoras* (Spanish-speaking outreach workers) and community-based nurses to reach members and deliver in-person care management interventions.

Data Capacity

State staff should use data systems to help them identify eligible members, review performance indicators, recognize areas for improvement, and store data. In addition to including a data analyst on the care management program staff, States should ensure that they have appropriate hardware, such as servers and software, for their data system. States should understand the current data capacity within the Medicaid program and assess whether this capacity will meet program needs. States can use already existing Medicaid Management Information Systems (MMIS), other data warehousing capabilities, or analyzing platforms, thereby enabling opportunities for coordination across programs and avoiding a large financial investment in software and system maintenance.

States also might need to use member data to identify “impactable” populations, depending on the role of State staff in program operations. Please see Section 3: Selecting and Targeting Populations for a Care Management Program for additional information on identification and stratification strategies. Please see Section 6: Operating a Care Management Program for additional information on data systems.

Program Monitoring

An important component of administering a care management program for both State-run and vendor programs is program monitoring. States can monitor their care management programs to track progress, identify areas for program improvement, and recognize program strengths.

Program staff use regular reports and onsite monitoring strategies to monitor programs. For example, States receive weekly, monthly, quarterly, or annual reports on almost all facets of the care management program. States also can monitor a subset of their population receiving care management to understand improvements in utilization of services, costs, health outcomes, and self-management. States contracting with a vendor must monitor contract compliance and related process measures regularly. Please see Section 6: Operating a Care Management Program for additional information on program monitoring strategies.

Indiana program oversight staff, in their former program, ICDMP, accompanied nurse care managers on in-person visits with members to better understand program operations. Medicaid staff assessed a variety of actions performed by the nurse care managers, including:

- recording information gathered during the visit,
- implementing strategies to encourage members to actively engage in the disease management program,
- assessing members' readiness and ability to set self-management goals, and
- communicating regarding next follow-up visit.

The in-person visits with nurse care managers helped program staff to understand issues the nurse care managers face and identify areas for improvement.

Program Design

Designing a care management program also involves selecting populations to target and interventions appropriate for the care management program.

An integral part of any care management program is a thorough understanding of the population it will affect. A key challenge that States must address is targeting resources most effectively for members who are presently high risk and impactable versus members who might be low risk or medium risk currently but who can be prevented from migrating to high risk. As a result, most programs target specific populations because they are more impactable. A State must decide which population to target and how to identify and stratify members for enrollment in the program. In doing so, program staff will be better equipped to tailor appropriate interventions and resources to impact members most effectively. Please see Section 3: Selecting and Targeting Populations for a Care Management Program for more information.

Program staff also should assess the type of interventions appropriate for their care management program. When choosing interventions, considering their outcomes, timing, and efficacy in managing certain diseases is important. A State should consider specific interventions that will prove most effective for that population. Interventions may target the patient or the provider and generally range from “low-touch” interventions, such as mailings, to “high-touch” interventions, such as home visits by nurse care managers. Please see Section 4: Selecting Care Management Interventions for a comprehensive discussion of types of interventions and a comparison of the relative costs of various interventions.

Evaluation Capacity

Evaluating the value of care management programs is essential, both to ensure that Medicaid recipients are benefiting from the program and to garner support from the State legislature and other stakeholders.

Many States prefer to use an external vendor for the program evaluation to ensure an independent review. For example, an actuarial consulting firm and the University of Washington have conducted program evaluations for Washington. Also, professors at the University of Arkansas Medical School and the University of Alabama at Birmingham perform Arkansas' care management program evaluation.

Please see Section 7: Measuring Value in a Care Management Program for additional information on program evaluation.

Program Timeline

When selecting a program model, States must consider the implementation timeline, including resources needed to develop interventions and reach target populations. Initial implementation of a care management program is resource intensive, and, as a result, might be difficult to accomplish in a short timeframe. States that build a program from scratch must recruit and retain appropriate State personnel, design intervention and outreach strategies, tailor data systems, and develop a measurement strategy, as described earlier.

States that assemble a care management program might also have to undertake some of these tasks; they should build additional time into their implementation schedule because they might have to engage in multiple procurements.

States contracting with an experienced vendor to implement their program often have the advantage of relying on the vendor's established infrastructure and experience in managing care for the Medicaid population. However, in all cases, staff dedicated to overseeing project operations is critical.

Additional Considerations for Contracting with a Vendor

Additional considerations for States contracting with a vendor include request for proposal (RFP) evaluation, dedicated and accessible staff, and financial arrangements.

RFP Evaluation

Contracting with a vendor usually requires that States conduct a formal procurement process. A State should consider what expertise is required to review the proposals and form an appropriate committee to do so. Assembling a mix of State staff to review the proposal, including data analysts, actuaries, technical experts, or other financial staff, is also important. States such as

Wyoming and Pennsylvania used a consultant from the initial stages of procurement for input and review. Texas' and Wyoming's consultants also provided expertise on the methodology for calculating the savings guarantee, which was set in the signed contract.

In 2006, Washington released an RFP for a care management program. To help evaluators score proposals received in response to its RFP, the State created an evaluation tool. General evaluation guidelines included the following:

- **Evaluation by section is more effective than evaluation by bidder.** Because section-specific information can be forgotten by the time an evaluator compares bidders, evaluation by section is more valuable.
- **Evaluation approach will differ by section.** Sections might vary significantly regarding information requested and overall weighting. For example, in Washington, responses related to certain RFP requirements were more important and, therefore, worth more points than others. Also, certain questions within a section might be important to understanding the bidder and, therefore, require more time spent in evaluating them.
- **The best writer should not necessarily win.** Content is more important than grammar or style. As a result, evaluators should distinguish actual capabilities.
- **The general sense of a bidder should not be permitted to bias ratings.** Certain bidders, because of their history with the State or their reputation, might generate a higher rating.

States also should engage stakeholders, such as the patient and advocacy community, in the review process.

Pennsylvania involved consumers in the RFP review process. The State split its technical committee into financial and consumer subcommittees. Ten to 12 consumers reviewed RFP materials, notices, and call center requirements.

Dedicated and Accessible Vendor Staff

States should gauge a prospective vendor's willingness to dedicate staff who are accessible and responsive to the care management program on an ongoing basis. In care management programs where a vendor employs dedicated staff and establishes a local office, State and vendor staff have significantly increased opportunities for interaction. For example, Wyoming's vendor staff is located in the same building as State staff who administer the care management program. This physical proximity has facilitated an open relationship.

In their contract, States might also specify job descriptions for vendor staff and a clause that the State reserves the right to replace vendor personnel. For example, in Pennsylvania, the current vendor medical director has Pennsylvania Medicaid program experience and maintains an office near the Pennsylvania Medicaid office. Although the State was not involved in identifying candidates for the medical director position, it was offered the opportunity to comment on candidates before the selection was finalized. Oklahoma's Health Management Program's vendor contract also reserves the right to replace vendor personnel and withhold payment for vacancies of key program personnel.

Financial Arrangements

Financial arrangements with a vendor might be complicated, depending on the use of financial incentives such as guaranteed savings where the vendor puts its administrative fees at risk for program impacts on medical costs and quality indicators. States should make certain that they possess the relevant expertise to understand the vendor's proposed financial arrangement. If a State lacks this capability, contracting with an actuarial consultant to provide guidance in this area might help, both during the RFP development and proposal evaluation process and throughout the program. Most States have chosen to pay vendors a per-member per-month (PMPM) fee for their services. Some States also have incorporated a performance savings guarantee.

Lessons Learned: Vendor Contracting
<ul style="list-style-type: none">• State vendor contracts should require dedicated and accessible staff to provide increased opportunities for interaction with State staff.• States should ensure they have relevant expertise to understand the vendor's proposed financial arrangement and program outcomes.• States should monitor programs to track progress, identify areas for improvement, and ensure vendors are meeting performance goals.• States should review contracts from other States to incorporate additional lessons learned.

States might pay a PMPM fee based on several factors. One option is paying a PMPM fee for the entire eligible population. Another is to pay varying PMPM fees based on intervention level. For example, a State could pay a higher PMPM fee for members receiving in-home visits rather than just telephonic care. The State might also pay an additional fee to the vendor for its efforts to identify eligible members. An advantage to paying a variable PMPM fee based on intervention level is that the vendor has an incentive to provide care management services to as many members as possible. However, assessing the level of care management interventions members are receiving can be difficult for the State and, consequently, can complicate program monitoring efforts. To mitigate this issue, States should be clear when the PMPM fee is paid to the vendor. For example, members assigned to a higher intervention group might become disengaged over time, perhaps evidenced by the care management program's inability to reach the member for a sustained

period of time. States should adopt mechanisms to define for which members the PMPM will be paid or develop a PMPM level assuming a certain proportion of inactive or unreachable members.

To provide additional incentives, some States use a performance guarantee, at times in response to a vendor proposal. States will specify in their contract financial and quality goals for the vendor to meet. If the vendor fails to achieve the specified goals, a percentage of the fees the State paid are returned. This arrangement offers vendors incentives to meet quality and financial goals, while States are guaranteed cost savings, which legislative mandates might require. However, this agreement might cause the vendor to charge higher fees to allow for the possibility of fee repayment due to nonperformance. Additionally, this arrangement can lead to a potentially prolonged, difficult, and costly reconciliation process with the vendor. If a State chooses this option, it should clearly define methods and processes for determining reduction in medical cost or improvement in quality measures, which might require support from the State's actuarial consultant. Exhibit 5.3 summarizes the advantages and disadvantages to the State and the care

management program inherent in various financial arrangements for the assemble and buy models.

Exhibit 5.3. Advantages and disadvantages of various financial arrangements with vendors

Financial Arrangement	Advantages	Disadvantages
Per-member per-month (PMPM) fee for the entire eligible population	<ul style="list-style-type: none"> • Try to improve health status and outcomes of overall eligible population 	<ul style="list-style-type: none"> • Paying for members not engaged in interventions
PMPM fee based on intervention level	<ul style="list-style-type: none"> • Provide more intensive care management services to as many members as possible 	<ul style="list-style-type: none"> • Difficulty in assessing the level of care management interventions members are receiving • Must clearly stipulate which members should receive specific levels of intervention
PMPM fee and a performance guarantee	<ul style="list-style-type: none"> • Aligning vendor with State's quality and financial goals 	<ul style="list-style-type: none"> • Higher fees to allow for the possibility of fee repayment due to nonperformance • Potential for prolonged, costly, and difficult reconciliation process with the vendor • Possibility of unintentional cessation in reaching members if the vendor thinks it has met its performance guarantee • Less incentive to improve care for people whose future enrollment is uncertain due to large turnover of eligible population in Medicaid

Many States that have a cost savings guarantee incorporate clinical performance goals as part of the reconciliation. As well as providing a list of measures in their vendor contracts, States should operationalize measures and determine baseline measurements before a contract is signed. For example, the State and vendor will have to come to an agreement on which members count in the numerator and denominator of each metric. Please see Section 7: Measuring Value in a Care Management Program for additional information on setting quality and performance measures.

States can spend a significant amount of time agreeing on evaluation results, especially when the contract contains a cost savings guarantee. Thus, the focus on reconciliation might prevent the State from concentrating on program management and contract monitoring.

Washington chose to eliminate its cost savings guarantee after the fourth year. Initially, 100 percent of fees were at risk, 80 percent for cost savings and 20 percent for meeting quality indicators. The State was concerned that the vendor would lower the intensity of its outreach to members when it thought it had achieved its cost savings. Based on experience, when Washington issued an RFP for its care management contract in 2006, it stipulated cost neutrality (i.e., the program must save enough money in medical and pharmacy costs to pay for itself), and savings will be measured against an “abeyance” group of clients who will not be enrolled in the program until 2008. If the program is not cost neutral, the State will consider other non-financial program outcomes and assess whether to continue the program.

Lessons Learned: Performance Guarantees
<ul style="list-style-type: none">• Ensure adequate resources to calculate cost savings. States often must hire external assistance to complete a possibly complicated reconciliation, which can prove expensive.• Agree on performance indicators. If the vendor is at risk for quality indicators, the State and vendor should operationalize measures and agree on baseline values and measurement methodology for performance indicators before the contract is signed.

Conclusion

When selecting a care management program model, States must consider their administrative staff capacity, clinical staff capacity, program timeline, data expertise, and evaluation capacity. By conducting an assessment of a State’s internal capabilities, a State can design a program that fits its needs. Designing a care management program also involves selecting the populations to target and program interventions. Please see Section 3: Selecting and Targeting Populations for a Care Management Program and Section 4: Selecting Care Management Interventions for additional information on these topics.

Section 6: Operating a Care Management Program

After a State selects its care management program design, target population, and program interventions, it should plan a program implementation strategy. By carefully planning program rollout, designing monitoring strategies, and using measurement for program improvement, States can maximize resources and build support for the program.

Incorporating information from the 13 State Medicaid care management programs in the initial AHRQ Learning Network and additional literature, this section of the Guide, Operating a Care Management Program, provides information to State Medicaid staff about:

- implementation strategies,
- program monitoring,
- data systems, and
- continuous quality improvement.

Implementation Strategies

States can use a variety of implementation strategies for their care management programs, including operating a pilot program and implementing the program in phases by disease, region, population, or statewide. Both the pilot and phased approaches offer the State the opportunity to address problems and unexpected challenges before larger implementation, to gauge program effectiveness, and to build program support.

Under any implementation strategy, States should draw on other States' experiences, other program successes and failures within the State, and, if appropriate, the vendors' established infrastructure and experience in managing care for the Medicaid population.

Pilot Program

States implement a pilot to assess the program intervention on a smaller scale. States can evaluate results and implement program refinements before expanding the program.

Iowa launched an asthma management program with a target of 250 members. Iowa's initial strategy was to perform outreach to only the highest asthma utilizers for participation in the program. After difficulty in reaching this population, Iowa broadened the outreach population and was successful in enrolling more than 250 members in the program. By implementing and reviewing its pilot program, Iowa was able to refine its enrollment strategy before expanding the program to people with diabetes.

Kansas selected Sedgwick County as its pilot site to implement a care management program focused on asthma, diabetes, congestive heart failure, and other high-risk or high-need members. Sedgwick County was chosen because it had a large concentration of patients, an established PCCM program, and significant legislative support. Kansas' vendor, Central Plains, also has a strong presence in the county. To demonstrate the success of the care management pilot, Kansas has identified a reference, or comparison,

group. Wyandotte County is similar to Sedgwick County in population size, density, and socioeconomic composition and will allow the State to compare health outcomes and other metrics of participants and non-participants.

Virginia's Department of Medical Assistance Services (DMAS) was directed to launch a statewide disease management program. Anthem, one of Virginia's Medicaid managed care organizations, approached the State with a proposal to provide a pilot disease management program at no cost to the State. DMAS agreed to the pilot, and Anthem's subsidiary, Health Management Corporation, implemented Healthy Returns, which ran from June 2004 through June 2005. Through this pilot, the State was able to determine which specific program components were effective. Virginia has modeled its larger statewide disease management program on the Healthy Returns program.

Lessons Learned: Pilot Programs

- **Allow adequate time.** The pilot program will need time to demonstrate early results.
- **Be realistic and plan expansion carefully.** Use caution when planning an expansion based on results from a pilot program, because positive outcomes might fail to occur when a program is implemented on a larger scale.
- **Engage stakeholders.** Secure support from agency leadership and stakeholders on selected evaluation methodology (e.g., control group evaluation).

Program Implementation in Phases

Another means of testing an intervention on a segment of the population is to implement the program in phases by disease, region, or population. Unlike in a pilot program, States may have an abbreviated program implementation timeline or strategy, and may have only a short time to evaluate and refine the program.

North Carolina's Office of Rural Health and Community Care developed Community Care of North Carolina (CCNC), which comprises many separate networks. In launching CCNC, the State leveraged strong, established relationships between the State and local communities. Initially targeting easier, less costly populations, such as women and children, lent the program credibility and bought time to build a strong infrastructure for more challenging populations. Subsequently, as more networks joined the program, more experienced networks shared lessons learned with new networks, and the State's greater standardization of best practices encouraged efficiency. Because of the program's demonstrated success, county commissions encourage providers in the counties to participate in the CCNC program.

Implementing a Care Management Program in Phases

- **By Disease.** States can phase in a care management program by starting with one disease and then adding additional diseases.
- **By Region.** States can implement a care management program by starting in one region or area with a high disease burden or where a model can be tested for replication.
- **By Population.** States can focus resources on populations that are most likely to show effects of the intervention.

Ongoing Program Monitoring

An important component of operating a care management program for both State-run and vendor programs is program monitoring. Different than program evaluation, program monitoring can track the program's progress, identify areas for program improvement, recognize program strengths, and ensure that vendors are complying with the contract. Please see Section 7: Measuring Value in a Care Management Program for more information on program evaluation.

Regular Reports

Receiving regular reports is a useful way for care management program staff to remain apprised of vendor or in-house program activities. States receive weekly, monthly, quarterly, or annual reports on almost all facets of the care management program. Examples of reports that States require include the following:

- **General Member Reports** contain information on the number of members enrolled by age, ethnicity, county, and intensity or intervention level; number and percentage of members who decided to opt out by disease and risk status; most common education modules provided to members; and most common provider alert criteria.
- **Care Management Line Reports** contain information on the call center, such as number of incoming and outgoing calls, nature of calls received, average time required to return member calls, and average hold time.
- **Provider Reports** contain information on number of providers participating in the care management program, number of providers educated on evidence-based clinical practice guidelines, results of provider focus groups, and provider satisfaction surveys.
- **Complaint Reports** contain information on provider and member complaints and resolutions.
- **Care Management Reports** contain information on the number of health assessments and care plans completed for members, number of members being actively care managed and their status, number of referrals to behavioral health, and number of times members were assisted with transportation, scheduling appointments with providers, discharge planning, and pharmacy issues.
- **Utilization Reports** contain information on select performance indicators related to utilization. Utilization measures, such as HbA1c tests and beta-blocker prescription claims, can be compared to frequency of services recommended by evidence-based guidelines.

Lessons Learned: Regular Reports

- **Establish clear goals and desired frequency for each report.** States use regular reports for general program monitoring and identifying future program enhancements.
- **Group reports by smaller categories.** Since States receive many reports, providing member information by population, disease, and severity can make information easier to understand.
- **Streamline reports or develop summary-level reports.** Concise and aggregate-level reporting make interpretation easier.
- **Solicit feedback from report users.** Program managers, providers, and care managers may have ideas to improve regular reports.

- **Staffing Reports** contain information on ratio of nurses to members, an updated telephone directory of staff, and analysis of staff turnover and fluctuations in staffing.
- **Annual Reports** contain an overview of program successes and challenges encountered throughout the year, member and provider satisfaction, results of the vendor’s internal quality assurance monitoring, and aggregate clinical and financial outcomes. States can develop, or require the vendor to develop, an annual report to share with program stakeholders to demonstrate program successes.

Often, States are inundated with the quantity and complexity of program reports. Interpreting reports received from vendor or internal staff can become a significant issue for program management staff, especially when staff, resources, or both are limited.

Pennsylvania implemented two strategies to simplify its monitoring strategy. First, it streamlined program reports into a Disease Management Summary Report, a 15-page high-level monthly report designed to answer the key questions of program management staff. The streamlined report provides information on program enrollment activity, monthly population changes, program interventions, care coordination referral support, triage service in the total population and in the disease management population, and community outreach activity. Second, Pennsylvania then began coordinating monthly meetings between senior vendor staff and State staff to communicate about aspects of the disease management program and to clarify information contained in the reports.

Onsite Monitoring

States can employ onsite monitoring of a care management vendor to understand program operations and to make suggestions for program improvement.

Indiana program staff, in their initial program, the Indiana Chronic Disease Management Program, accompanied nurse care managers on in-person visits with members to better understand program operations approximately 1 year after program implementation. Although Indiana had no formal tool for evaluation, Medicaid staff assessed a variety of actions performed by the nurse care managers, including:

- recording information gathered during the visit,
- implementing strategies encouraging members to actively engage in the disease management program,
- assessing members’ readiness and ability to set self-management goals, and
- communicating regarding next followup visit.

Subsequently, program staff reviewed records to assess how quickly the nurse care manager documented the visit in the Chronic Disease Management System and assessed how the nurse care managers managed their caseloads. The data gathered during the in-person visits to nurse care managers helped program staff understand issues the nurse care managers face and identify areas for improvement.

Texas staff visited their vendor headquarters to meet with program staff and to learn about the call center. Their two major goals for the site visit were ensuring that activities

specified in the contract were being accomplished and understanding the vendor’s call center operations. To prepare for the site visit, Texas developed an onsite monitoring tool that lists items for evaluation. To follow up on specific questions from regular reporting on call center operations, Texas staff listened in on calls and offered recommendations to redesign the call center scripts. In addition, Texas staff reviewed call center staff’s methods for recording information from calls. Texas expects to repeat a site visit to the vendor headquarters annually. In addition to an onsite review of the call center, Texas staff plan to conduct a more comprehensive review of operations by evaluating home visits by nurse care managers.

Data Systems

Data systems are critical for effective program monitoring and other ongoing program operations. Specific needs vary by State according to program design and program model. Please refer to Section 5: Selecting a Care Management Program Model for additional information on specific resources needed.

Data systems compatibility and readiness. When contracting with a vendor, States should ensure that their systems can interface with the vendor’s data system. Inability to interface could result in delays for program implementation or could affect evaluation efforts at a later stage. Moreover, States should consider whether data can be exchanged easily with the receiving entity. For example, States must consider how secure data will be transmitted, whether data can be modified, and who will have access to the data.

Prior to program implementation, ensuring the data system’s readiness is essential. During implementation and throughout the program, States can send test files to the vendor to ensure that all data is transferred accurately. Texas employs a technical member on their team to ensure that database programming and reporting match program design.

Member identification and stratification. Many States provide more intense care management services to the most high-risk or high-cost members. To identify and categorize the most high-risk or high-cost members, States or their vendors can employ a risk stratification tool or a predictive model. To supplement the identification and stratification tool, States also consider which patients are most “impactable” by using individual-level tools, such as health assessments, the Patient Activation Measure¹, or other measurement and screening tools. Please see Section 3: Selecting and Targeting Populations for a Care Management Program for more information.

Lessons Learned: Data Systems
<ul style="list-style-type: none"> • Ensure that data systems are compatible. States should make certain that data can be exchanged between the State and vendors or partners. • Run data early and often. States should run reports to identify data or systems issues. • Involve a data analyst. States should employ a technical member on the care management team to interpret data issues.

¹ Hibbard JH, Stockard J, Mahoney ER, et al. Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers. *Health Serv Res* 2004; 39(4):1005-26.

Measurement. States use measurement to assess how their program is performing, identify areas for improvement, and evaluate whether the program is successful. States should measure:

- structure (organizational, technological, and human resources infrastructure needed for delivering high-quality care),
- process (services that constitute recommended care), and
- outcome (measures of disease-specific health and disability).

Please refer to Section 7: Measuring Value in a Care Management Program for more information on the selection of measures and feasibility of data collection.

Continuous Quality Improvement

Many State care management programs strive to improve members' quality of care. To improve the health system and the quality of care delivered to members, States can implement continuous quality improvement, which is a process to test, understand, and revise processes constantly.²

States employ small tests of change as a model for continuous quality improvement. Small tests of change answer the questions:

- What are we trying to accomplish?
- How will we know a change is an improvement?
- What change can we make that will result in improvement?

The Plan-Do-Study-Act³ (PDSA) cycle is used to make changes continuously that result in improvement. To conduct a PDSA cycle, the State can develop a plan to test the change (Plan), carry out the test (Do), observe and learn from the consequences (Study), and determine what modifications should be made based on the test (Act). For example, a State might ask, "What is the most effective way to roll out our care management program to the eligible Medicaid population?" The State might predict that "Educating members while we have them on a telephone call will increase enrollment." The first PDSA cycle might unfold as follows:

- **Plan.** Introduce the program to eligible Medicaid members during the first health assessment phone call from the call center.

PDSA Cycle
<p>Step 1: Plan. Plan the test or observation, including a plan for collecting data.</p> <ul style="list-style-type: none">• State the test objective• Predict what will happen and why• Develop a plan to test the change (Who? What? When? Where? What data must be collected?)
<p>Step 2: Do. Test on a small scale.</p> <ul style="list-style-type: none">• Carry out the test• Document problems and unexpected observations• Begin the data analysis
<p>Step 3: Study. Set aside time to analyze the data and study the results.</p> <ul style="list-style-type: none">• Compare the data to your predictions• Summarize and reflect on lessons learned
<p>Step 4: Act. Refine the change, based on what was learned from the test.</p> <ul style="list-style-type: none">• Determine what modifications should be made• Prepare a plan for the next test

² Berwick, DM. Continuous improvement as an ideal in health care. *N Engl J Med* 1989; 320(1):53–6.

³ Available at: Institute for Health Improvement. Testing changes.

<http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/testingchanges.htm>. Accessed November 5, 2007.

- **Do.** Identify the members via the program selection and stratification criteria, and notify them by phone. However, some cannot be reached.
- **Study.** Learn that the initial call is already too long, and the intervention is less successful than predicted.
- **Act.** Explore other ways to reach members.

After the State completes this first cycle and has measured its effectiveness, it decides to introduce the program by a mailing to eligible members. The State thinks that a mailing in tandem with the calls would improve enrollment. The second PDSA cycle goes as follows:

- **Plan.** Introduce the program to eligible Medicaid members through a mailing.
- **Do.** Send the letter immediately after eligibility is determined, informing the beneficiary to expect a call for an initial assessment. Then follow up with initial call.
- **Study.** Learn that two methods of notification in quick succession about the program are more effective than one and that the intervention increased the number of members who knew about the program.
- **Act.** Experience satisfaction with this outcome and expand its use.

States can use the PDSA cycle on a smaller scale, as well. For example, a clinic that wants to create a self-management form for patients to document their goals, might greatly benefit from a small test. The clinic might predict that “Use of self-management forms will increase if physicians find them easy to use.” The first PDSA cycle might develop as follows:

- **Plan.** Introduce the self-management form to a physician.
- **Do.** Ask the physician to use the form on three to four patients.
- **Study.** Learn that the questions on the form are unclear and that the form fails to evaluate patient commitment to goals.
- **Act.** Revise the form and test again.

Lessons Learned: PDSA Cycles
<ul style="list-style-type: none"> • Be innovative to make the test feasible. States may need to modify existing conditions make the test possible. • Test over a wide range of conditions. States should experiment with the test in multiple settings to ensure success. • Do not try to obtain stakeholders’ buy-in or consensus. States should not spend valuable time obtaining support. Instead, States should focus on making the test successful.

After revising the self-management form, the clinic asks another physician to use it on another group of patients. The second PDSA cycle goes as follows:

- **Plan.** Introduce the form to the physician.
- **Do.** Ask the physician to use the form on three or four patients.
- **Study.** Learn that the questions on the form document patient goals and commitment clearly.
- **Act.** Experience satisfaction with this outcome and expand use of the new form.

Consequently, States can use the PDSA cycle to measure outcomes quickly and modify the program accordingly. States should use the small tests of change to experiment with programmatic and operational changes.

Conclusion

By carefully planning program implementation, designing monitoring strategies, and using measurement for program improvement, State Medicaid staff can maximize resources and build support for their program. Based on their program design and included populations, States should choose interventions that target patients and providers.

Section 7: Measuring Value in a Care Management Program

Demonstrating the value of care management programs is essential, both to ensure that they are providing value to Medicaid beneficiaries and to garner support from the State legislature and other stakeholders. The term “value” can be interpreted broadly, encompassing ideas such as improved health outcomes for members, efficient use of services, provider adherence to evidence-based standards of care, and slowed spending growth.

For any State implementing a care management program, developing a measurement strategy is essential to demonstrating value. A successful measurement strategy allows a State to:

- evaluate whether the program is successful,
- identify areas for improvement,
- fulfill contractual parameters, and
- build support for the program.

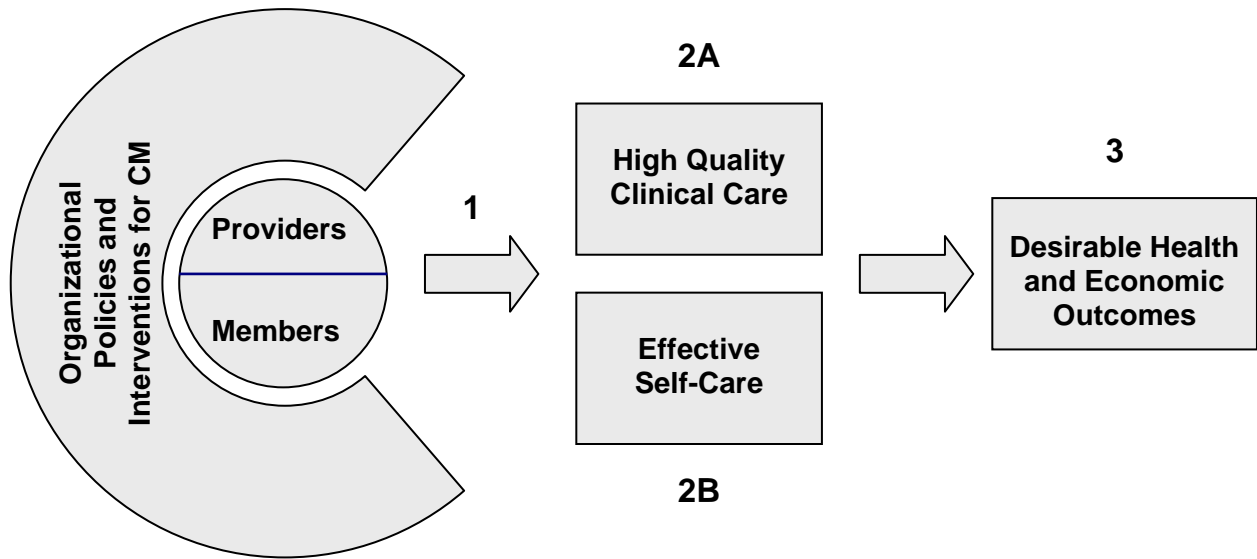
Incorporating information from 13 State Medicaid care management programs in the initial AHRQ Learning Network and supporting literature, this section of the Guide, Measuring Value in Care Management Programs, provides information to State Medicaid staff about:

- measurement strategy design,
- examples of measures,
- measurement strategy implementation, and
- communicating results to stakeholders.

Measurement Strategy Design

A measurement strategy evaluates whether a care management program has met its goals by using a set of measures with expected outcomes. When designing a measurement strategy, considering the program goals and how program interventions will lead to these goals is helpful. The conceptual model in Exhibit 7.1 demonstrates how interventions lead to desirable outcomes.

Exhibit 7.1. Care management conceptual model¹



Organizational policies and interventions work together to impact provider and member behavior (Step 1). If the interventions are effective, they should lead to high-quality clinical care and effective patient self-care (Steps 2A and 2B), which will yield desirable health and economic outcomes (Step 3). States can measure program successes at each step:

- Step 1. Program Process.** Are the program interventions and policies being implemented as planned?
- Step 2. Intervention Impact.** Are program interventions and policies yielding their intended results (high-quality care and effective self-care), which should lead to better outcomes?
- Step 3. Health Outcomes.** Is the program resulting in meaningful changes in health and economic outcomes?

Using this conceptual model, a State can design a program that yields desired outcomes and then create a measurement strategy that determines whether the program results in meaningful change. In addition to considering the link between interventions and outcomes, the State also should choose measures based on the following considerations:

- Quality and usefulness of measures
- Balance of process and outcome measures
- Source of measure
- Feasibility of data collection
- Potential for improvement

¹ Ackermann R. Evaluating statewide disease management programs. Regenstrief Institute for Healthcare. Presentation at the AHRQ Medicaid Care Management Learning Network. November 2, 2006.

Quality and Usefulness of Measures

Measures are important for several reasons, including their appeal to stakeholders, ability to identify areas for program improvement, and capacity to determine program value in terms of cost savings, clinical improvements, or improvements in care.

Stakeholders have different interests and investments in care management programs that States must consider when choosing program measures. For example, providers might be more interested in clinical outcomes, while some legislators might be more interested in cost savings. To ensure that value is proven to all stakeholders, States should use a variety of measures that appeal to a broad stakeholder group. Washington measured functional assessment, along with clinical measures such as testing rates and hospitalizations. Pennsylvania measures the number of asthmatic patients who self-reported the use of a controller medication as well as the rate of hospital admissions for patients with asthma.

States also must consider whether their measures are accurately gauging the success of their interventions. The measures a State chooses should be appropriate to the interventions it plans to implement. For example, if an intervention centers on encouraging providers to follow

standardized guidelines, then a process measure related to providers, such as whether asthma severity is noted in the chart of patients with asthma or whether patients with diabetes receive a foot examination at least once a year, might be appropriate. Alternately, if an intervention focuses on improving patient self-management, then an appropriate measure might track weight loss or whether patients have a self-management goal. When choosing measures, a State should consider the program's broader aims and the expected outcomes resulting from the program and the interventions. An appropriate measure should be able to track a specific intervention's outcomes.

Patient Behavior Indicators

States should measure indicators of patient behavior, such as medication adherence and continuity of care. These measures are particularly effective at determining the success of programs that focus on patient self-management.

Considering the strength of different data sources also is important. Self-reported measures can be essential for information on influenza vaccinations, aspirin, satisfaction, knowledge of self-care and treatment goals, and quality of life. However, self-reporting is an invalid and unreliable way to collect data on clinical indicator values, such as blood pressure numbers and HbA1c level. Therefore, States should strive to find alternatives ways to collect data on clinical indicator values such as through chart reviews or by obtaining lab results. Finally, a State should consider the types of measures it is collecting. Outcome measures are better indicators of a program's success but are often difficult to collect. Process measures are easier to collect and can be affected in a shorter period of time, but the evidence base on their overall impact on health outcomes varies. States should strive to have a balance of process and outcome measures.

Balance of Process and Outcome Measures

The measures a State chooses will depend on the program structure and the State's goals in operating the program. Although the measures for every State might differ, incorporating a

variety of measures in a measurement strategy is important, because by doing so a State can identify both short- and long-term successes and failures of program design, interventions, and implementation. Exhibit 7.2 defines each of the three types of measure to consider—structure, process, and outcome—and lists its positives and negatives and an example.

Exhibit 7.2. Types of measures and examples

Measure Type	Data Sources	Positives	Negatives	Examples
Structure Infrastructure required to deliver high-quality care	<ul style="list-style-type: none"> • Policies and procedures • Program monitoring reports 	<ul style="list-style-type: none"> • Easy to measure • Directly actionable by program administrators 	<ul style="list-style-type: none"> • Link to health outcomes often weak • Structure often fixed and cannot be changed 	<ul style="list-style-type: none"> • Qualifications of nurse care managers • Protocols for identifying high-risk participants
Process Services that constitute recommended care	<ul style="list-style-type: none"> • Claims data • Self-reported data • Care management reports and logs 	<ul style="list-style-type: none"> • Directly actionable by program or providers • Impact on clinical outcomes variable 	<ul style="list-style-type: none"> • Depends on administrative measures • Evidence base for impact of process measures varies • Might fail to match intervention 	<ul style="list-style-type: none"> • Percentage of diabetic patients with retinal eye exam • Percentage of heart failure patients advised about salt intake
Outcome Measures of health and disability	<ul style="list-style-type: none"> • Medical records • Lab results • Self-reported data 	<ul style="list-style-type: none"> • Ultimate purpose of care management programs • Most relevant to patients and policymakers • Often included in vendor contracts 	<ul style="list-style-type: none"> • Influenced by extraneous variables • Time lag to change might be long • Difficult to collect clinical data 	<ul style="list-style-type: none"> • Percentage of asthmatic patients visiting emergency room • HbA1c levels among diabetic patients • Average medical costs per patient

By using structure, process, and outcome measures, a State can ensure that it is receiving a complete picture of its program’s value.

Pennsylvania’s program, ACCESS Plus, is designed to improve the quality of care delivered to its Medicaid population, particularly for the ACCESS Plus (PCCM) population. To demonstrate that the State is achieving this goal, Pennsylvania agreed on a measurement strategy with its vendor that includes up to seven measures for each disease it covers. Pennsylvania’s measures vary by type and include financial measures, clinical performance indicators, and use measures, such as:

- readmission rates for patients with congestive heart failure (CHF),
- patients with asthma who self-report the use of a controller medication, and
- patients with diabetes who receive an annual dilated retinal exam.

Pennsylvania included more than 40 measures in its vendor contract but later decided to narrow its focus to a smaller group of measures that were closely linked to interventions and were meaningful to stakeholders.

North Carolina Medicaid met with physicians to set performance measures for its asthma and diabetes care management programs. One of North Carolina’s goals is to choose measures that have demonstrated quality improvement and cost impact, such as:

- inpatient admission rates for asthma and diabetes,
- percentage of asthma patients classified by stage of disease severity,
- percentage of asthma patients with a written asthma management plan,
- diabetic flow sheet in use on the medical record, and
- blood pressure test at every continuing care visit.

North Carolina included measures that could be captured only through chart audits (e.g., asthma staging, diabetic flow sheet use). The State felt that collecting these measures was important in an effort to assess provider care. North Carolina contracted with local Area Health Education Centers using a foundation grant award to conduct randomized chart audits annually.

Source of Measure

Depending on the type, scope, and focus of a care management program, the process and outcome measures a State tracks likely will be unique to the program. However, when deciding on clinical process and outcome measures, a State might choose to use measures from nationally recognized measurement sets, such as the Medicaid Healthcare Effectiveness Data and Information Set (HEDIS) or the Ambulatory Care Quality Alliance (AQA) Ambulatory Care Starter set. A State using HEDIS and AQA has the advantage of avoiding the lengthy process of gaining consensus on specific measures and can also feel confident that the measures chosen are valid and reliable.² Selecting standardized measures might lessen the burden on providers within a State, particularly if payers across programs can agree to use a set of standardized measures. Measures such as HEDIS also might be collected for a State’s managed care program, allowing the State to compare the performance of its MCOs and FFS care management program. The use of national measures such as HEDIS, can also allow a State to compare its program with other the programs in other States. The Centers for Medicare and Medicaid Services’ (CMS) *The Guide to Quality Measures: A Compendium Volume 1*, provides a compilation of nationally recognized quality measures. When accessed electronically through the CMS website, the measures may be sorted by target population, care setting, disease or condition, measure type, or any combination of these variables.

Standardized Measures
<ul style="list-style-type: none">• Gain consensus more easily• Standardize measures across payers• Compare measures to managed care program

² Llanos K, Rothstein J, Bailit M, et al. Pay-for-performance in Medicaid: an environmental scan. Publication forthcoming. Designing and Implementing Medicaid Disease and Care Management Programs: A User’s Guide Section 7: Measuring Value in a Care Management Program

States might have to modify the parameters of national measures to fit the unique characteristics of the Medicaid care management program. For example, Medicaid HEDIS measures require the eligible population to have continuous enrollment for 1 year prior to the measurement year. This requirement might be too limiting for a care management program where members may only be enrolled in the intervention for 3 to 6 months. Therefore, some States have created “HEDIS-like” measures that allow greater flexibility but are similar to the Medicaid HEDIS measures. For example, States have modified HEDIS measures by disregarding or decreasing the continuous eligibility requirement. This allows the State to capture a larger portion of its target care management population for measurement and evaluation purposes.

Although using nationally accepted measures offers benefits, these measures might be inapplicable for certain populations within the Medicaid programs. States might have to develop “homegrown” measures for certain program components.

State-Generated Measures
<ul style="list-style-type: none"> • Use for diseases without national measures • Customize measures to the characteristics of the Medicaid population • Design with local providers to gain buy-in

A State interested in tracking pressure ulcers in its Supplemental Security Income (SSI) population, or the number of SSI-eligible patients with a unique set of comorbid conditions, might decide to create measures that will help determine the level and quality of care being delivered to these specific groups. Arkansas created measures to track its interventions focused on reducing complications from high-risk pregnancy. The State collected data for measures such as the number of

maternal-fetal consults and the number of low birth-weight infants who had intraventricular hemorrhaging after birth.

Feasibility of Data Collection

States must consider the administrative burden of data collection for each type of measure. A State can collect information through administrative data, program data, clinical data, and patient surveys. Each of these data collection sources varies in ease of collection and usefulness, as shown in Exhibit 7.3.

Exhibit 7.3. Data Sources

Data Sources	Positives	Negatives
Administrative Data Claims	<ul style="list-style-type: none"> • Low cost and accessible • Provides process measures 	<ul style="list-style-type: none"> • Coding errors • Provides no outcome measures
Program Data Patient assessments, nurse care manager reports	<ul style="list-style-type: none"> • Available • Relevant for some outcomes 	<ul style="list-style-type: none"> • Often self-reported and less reliable
Clinical Data Medical records and lab results	<ul style="list-style-type: none"> • Best source for outcome measures 	<ul style="list-style-type: none"> • Costly • Records sometimes inaccurate
Patient Survey	<ul style="list-style-type: none"> • Easy to measure 	<ul style="list-style-type: none"> • Costly • Low response rate • Self-reported data sometimes unreliable

States often struggle with balancing the value of collecting clinical data (usually through individual chart reviews) and the associated burden on the State and the provider. States collect data through chart reviews because it is the best source for outcome measures. Chart reviews are also required for hybrid HEDIS measures. The HEDIS hybrid methodology is more robust than the typical administrative HEDIS measures because it combines administrative data available from claims with clinical data found in medical records. HEDIS 2008 contains hybrid specifications for measures such as cholesterol management, controlling high blood pressure, and comprehensive diabetes care. States can also use hybrid HEDIS measures to compare their program with MCOs that are also collecting hybrid HEDIS measures. When considering conducting chart reviews, States should ask:

- What role will providers and their office staff play in data collection?
- Will the State send auditors to collect a sample of chart information? How much will this information sample cost?
- Will the State provide tools, such as registries, to help expedite the process? How will the State encourage providers to use the tools?
- What resources within the State can ease the process for providers?
- Are any State agencies already conducting chart reviews and available as potential partners to share costs with?

North Carolina performed chart reviews to obtain information on outcomes measures, with funding in the first year provided by grants from local and national nonprofit organizations. Subsequently, the State partnered with its State Area Health Education Center to accomplish the reviews, which cost \$18 per chart in 2005. North Carolina uses outcomes data to communicate cost savings to the State legislature and provide information on quality.

Potential for Improvement

States must consider whether the measures they choose have potential for improvement and within what timeframe they may expect to see improvement. Specifically, States should ask:

- Does evidence exist that the measure can be improved?
- Are the interventions in our program likely to improve the measure?
- Can the interventions impact the measure in our required timeframe?

States often find that including measures that can yield information over different lengths of time is especially important. For example, a Medicaid agency might be required to report back to the legislature on a program's progress 6 months after the program has been launched, but it is unlikely that the interventions would be able to yield clinical outcome changes in such a short period. In this instance, the Medicaid agency would be best off collecting several structure or process measures that could be used in the short term as well as monitoring outcomes measures that can yield different sorts of information in the longer term.

Examples of Measures

Exhibit 7.4 outlines examples of measures that States have incorporated into their care management programs targeting three common diseases—asthma, diabetes, and CHF. For each disease, several example measures are listed, including possible numerator and denominator sources, types of interventions that might effect change in the measure, and expected timeframe to see change.

Exhibit 7.4. Core measures for asthma, diabetes, and congestive heart failure

Measure	Description	Data Source	Measure aligns with interventions focused on:		Most rapid timeframe in which change might occur	Comments
			Members	Providers		
Use of Appropriate Medications for People with Asthma (AQA and HEDIS Measure)	Percentage of members with persistent asthma who received at least one prescription for an appropriate medication in the measurement year	<ul style="list-style-type: none"> • Claims • Case Data³ 	✓	✓	6–12 mos	This measure might be good to track in the short- to medium-term (6–18 mos).
Daily Preventive Medication	Percentage of members with asthma who self-report the use of a controller medication	<ul style="list-style-type: none"> • Case Data • Patient Survey 	✓	✓	6 mos	Patient self-report goals can be a good way to obtain information about an intervention’s effects in a short timeframe (< 6 mos).
Written Action Plan	Percentage of members with asthma who have a personal action plan for managing their asthma	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	3–6 mos	If an intervention uses action plans, this measure could be effective.
Self-Management Goal	Percentage of members with asthma who have a self-management goal	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	3–6 mos	Patient self-report goals can be a good way to obtain information about an intervention’s effects in a short timeframe.
Emergency Room (ER) Use	Percentage of members who visited the ER for asthma in the past 12 mos	<ul style="list-style-type: none"> • Claims • Case Data • Patient Survey 	✓	✓	12–18 mos	Reducing ER visits can exert a significant impact on cost and quality of life.

³ Case data is collected by care managers during the process of delivering care management (e.g., through assessments, telephonic care management).

Measure	Description	Data Source	Measure aligns with interventions focused on:		Most rapid timeframe in which change might occur	Comments
			Members	Providers		
Physician Followup Post-ER Visit or Post-Hospitalization	Percentage of members who followed up with a physician after an ER visit or hospital admission	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record 	✓	✓	12–18 mos	
Influenza Vaccination	Percentage of all members with asthma who received a influenza vaccination within the past 12 mos	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	12–18 mos	Influenza vaccination can exert a significant impact on health care expenditures in members with asthma, particularly in epidemic years. The effect will, of course, be seasonal.
HbA1c Screening (AQA and HEDIS Measure)	Percentage of members who received one or more HbA1c screenings in the measurement year	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Patient Survey 	✓	✓	12 mos	Screening rates can be a good way to obtain information about an intervention's effects in a short timeframe.
HbA1c Control (AQA and HEDIS Measure)	Percentage of members with most recent HbA1c level > 9.0% (poor control)	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Lab Results 	✓	✓	12 mos	
Low Density Lipoprotein Cholesterol (LDL-C) Screening (AQA and HEDIS Measure)	Percentage of members who received at least one LDL-C screening during the measurement year	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Lab Results 		✓	12 mos	Screening rates can be a good way to obtain information about an intervention's effects in a short timeframe.

Measure	Description	Data Source	Measure aligns with interventions focused on:		Most rapid timeframe in which change might occur	Comments
			Members	Providers		
LDL-C Level (<130mg/dl) (AQA Measure)	Percentage of members with diabetes with most recent LDL-C <130 mg/dl	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Lab Results 	✓	✓	12 mos	Seeing a change in clinical outcomes, such as cholesterol levels, might take a year or more.
LDL-C Level (<100mg/dl) (AQA and HEDIS Measure)	Percentage of members with diabetes with most recent LDL-C <100 mg/dl	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Lab Results 	✓	✓	12 mos	Seeing a change in clinical outcomes, such as cholesterol levels, might take a year or more.
Nephropathy Screening (HEDIS Measure)	Percentage of members with diabetes with a nephropathy screening or evidence of nephropathy	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record 	✓	✓	12 mos	Screening rates can be a good way to obtain information about an intervention's effects in a short timeframe.
Eye Examination (AQA and HEDIS Measure)	Percentage of members who received one dilated retinal examination in the measurement year	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Patient Survey 	✓	✓	12 mos	Screening rates can be a good way to obtain information about an intervention's effects in a short timeframe.
Foot Examination	Percentage of members with diabetes who received at least one foot examination from a health care provider	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Patient Survey 	✓	✓	12 mos	Screening rates can be a good way to obtain information about an intervention's effects in a short timeframe.
Blood Pressure (AQA and HEDIS Measure)	Percentage of members with diabetes with most	<ul style="list-style-type: none"> • Claims • Case Data 	✓	✓	12 mos	Seeing a change in clinical outcomes, such as blood

Measure	Description	Data Source	Measure aligns with interventions focused on:		Most rapid timeframe in which change might occur	Comments
			Members	Providers		
	recent blood pressure <140/90 mm Hg	<ul style="list-style-type: none"> • Medical Record 				pressure, might take a year or more.
ASA (aspirin)/Antiplatelet Therapy	Percentage of members with diabetes who were prescribed ASA/antiplatelet therapy	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record 	✓	✓	6 mos	
Self-Management Goal	Percentage of members with diabetes who have a self-management goal	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	6 mos	Self-management goals can be useful in gauging patient activation.
Influenza Vaccination	Percentage of all members with diabetes who received a influenza vaccination within the past 12 mos	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	12 mos	
LDL-C Intensification	Percentage of members with diabetes with: <ul style="list-style-type: none"> • Most recent LDL-C <100 mg/dl or • LDL-C ≥100 mg/dl and on highest dose statin or • Statin started or statin increased within 6 mos of last value 	<ul style="list-style-type: none"> • Case Data • Medical Record • Lab Results 	✓	✓	12 mos	This measure represents a more sensitive “hybrid” indicator of change in provider behavior and improved quality of care.

Measure	Description	Data Source	Measure aligns with interventions focused on:		Most rapid timeframe in which change might occur	Comments
			Members	Providers		
New York Heart Association (NYHA) Functional Classification	Percentage of members who have documentation of NYHA classification	<ul style="list-style-type: none"> • Case Data • Medical Record 		✓	12 mos	
Blood Pressure	Percentage of members with congestive heart failure (CHF) with most recent blood pressure <140/80 mm Hg	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Lab Results 	✓	✓	12 mos	Seeing a change in clinical outcomes, such as blood pressure, might take a year or more.
Beta Blocker Therapy after a Heart Attack (HEDIS)	Percentage of members who were discharged from a hospital for AMI and received persistent beta-blocker treatment for 6 mos after discharge	<ul style="list-style-type: none"> • Claims • Case Data 	✓	✓	6–12 mos	This measure could be good for tracking in the short- to medium-term (6–12 mos).
Cholesterol Management for Patients with a Cardiovascular Condition (HEDIS)	Percentage of members who had a cholesterol screening in the measurement year after an AMI discharge	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record • Lab Results 		✓	12–18 mos	
Left Ventricular Function (LVF) Assessment (AQA Measure)	Percentage of members with CHF who have the results of an LVF assessment recorded	<ul style="list-style-type: none"> • Claims • Case Data • Medical Record 		✓	12–18 mos	

Measure	Description	Data Source	Measure aligns with interventions focused on:		Most rapid timeframe in which change might occur	Comments
			Members	Providers		
ACE Inhibitor or Angiotensin Receptor (ARB) Therapy (AQA Measure)	Percentage of members who have CHF and an LVSD who were prescribed ACEI or ARB	<ul style="list-style-type: none"> • Claims • Case Data 		✓	6–12 mos	
Emergency Room (ER) Use	Percentage of CHF members with an ER visit for CHF in the past 12 mos	<ul style="list-style-type: none"> • Claims • Case Data 	✓	✓	12 mos	Reducing ER visits can exert a significant impact on cost and quality of life.
Physician Followup Post-ER Visit or Post-Hospitalization	Percentage of CHF members who followed up with a physician within 30 days after an ER visit or hospital admission	<ul style="list-style-type: none"> • Claims • Case Data • Patient Survey 	✓	✓	12–18 mos	
Self-Management Goal	Percentage of members with CHF who have a self-management goal	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	6 mos	Self-management goals can be useful in gauging patient activation.
Weight Self-Monitoring	Percentage of CHF members who monitor their weight daily	<ul style="list-style-type: none"> • Case Data • Patient Survey 	✓	✓	6–12 mos	This goal is useful in assessing patient activation.
Influenza Vaccination	Percentage of all members with CHF who received a influenza vaccination within the last 12 mos	<ul style="list-style-type: none"> • Case Data • Medical Record • Patient Survey 	✓	✓	12 mos	

Measurement Strategy Implementation

After choosing a set of measures, States can take several steps to ensure their measurement strategy will succeed. States should:

- **Set measurement goals.** States can determine the success of their programs by setting measurement goals.
- **Begin collecting data early.** Early data collection helps States identify and solve inevitable data collection problems before results are required.
- **Work with stakeholders to develop measures.** Data is an important tool for garnering stakeholder support. By involving stakeholders early, States can earn their support and trust.

Set Measurement Goals

To create a successful measurement strategy, a State must choose goals for its measures as well as choose the measures themselves. States might set finite goals, such as: “Seventy-five percent of members will receive an assessment.” Or States might set goals for improvement, such as: “The number of members receiving assessments will increase by 5 percent every quarter until 90 percent of members receive an assessment.” To avoid setting unrealistic goals, States should consider available benchmarks from other States and data sources such as HEDIS.

When setting improvement goals, distinguishing between absolute and relative improvement is important. For example, a difference exists between a five percentage point improvement (from 70 percent to 75 percent) and a 5 percent improvement (5 percent of 70 percent is 3.5 percent). The former represents an absolute improvement goal, the latter a relative improvement goal. This concept is especially important when a State is contracting with a care management vendor and might have financial rewards tied to performance.

Recognizing that many measures have a “ceiling,” beyond which further improvement is challenging, also is important. For example, the percentage of members with asthma who received an influenza vaccine should increase every year. However, as the percent of members with asthma who received an influenza vaccine increases, it will be gradually more difficult for the vendor or program to meet its target. The State should set realistic goals for improvement and be ready to adapt these goals as the measure approaches its ceiling.

Begin Collecting Data Early

States have reported that unexpected data issues are common and that a frequent lesson learned is to allow as much time as possible to collect data. Consequently, data collection and measurement should begin before a new program is launched, if not earlier. In fact, a State can collect baseline data before the program begins, enabling it to set expectations for measures and to target populations and diseases appropriately.

By collecting data early, a State can identify problems with its data or data collection methods before results are required. For example, if a State wants to know whether the volume of calls to its call center has increased since beginning a public awareness campaign but lacks prior data, it has no way to measure improvement. Pennsylvania was able to draw its baseline data from calendar year 2004, which was extremely useful in determining whether changes seen in 2006 were part of an ongoing trend or resulted from recent program interventions.

Allow Ample Time for Data Collection To:
<ul style="list-style-type: none">• Identify data problems early• Capture real-time data• Identify program improvements early

Beginning data collection early also allows States to identify problems with a program or specific intervention early in the program's implementation. Data collected early

in a program's existence can prove invaluable in helping the implementation team understand whether progress is being made per expectations. A program failing to deliver expected results has not necessarily failed; minor "mid-course corrections" might be undertaken to strengthen interventions and help a State reach its goals.

Work with Stakeholders to Develop Measures

Data can constitute an effective tool for gaining support from stakeholders, but only if they trust the data and agree with the measures. To facilitate their trust and agreement, involving stakeholders, especially providers, in the measures selection process often is useful. Stakeholders can be involved in varying levels of participation. At a high level of intensity, a provider advisory group might select the program measures. At a lower level, a provider advisory group might just review proposed measures and offer feedback. At any level of intensity, collecting feedback from stakeholders can gain buy-in for the measures and their results.

Communicating Results to Stakeholders

In addition to designing and implementing a successful measurement strategy, States should consider how they will communicate the results of their measures to stakeholders. Typically, a care management program has many stakeholders with an interest in the program's outcomes. A State should be prepared to present measurement results to each of these different stakeholders. Please see Section 2: Engaging Stakeholders in a Care Management Program for more information on communicating with stakeholders.

States must present meaningful measurement results focusing on three to five key measures that demonstrate program success in a way that stakeholders, especially legislators, can comprehend (e.g., a non-clinician might understand the importance of reduced ER visits but not increased HbA1c screening). Reporting too many or incomprehensible measures only serves to confuse and turn off stakeholders.

States can use a different strategy for communicating with providers. Measures and their results can be used to help providers improve their practices as well as to gain provider support. Regular updates to providers and their associations on overall program success, especially process and

outcome measures, can help garner support. Please see Section 4: Selecting Care Management Interventions for more information on updates for providers.

Frequently the best data, health and financial outcome data, is unavailable early in the program. Nevertheless, States should not wait until outcome data is available to provide program updates. Instead, they should report other measurement results (e.g., process or structure measures) regularly to inform stakeholders of progress. Communicating early measurement results in the context of the State's goals can help manage stakeholder expectations and ensure that stakeholders are receiving correct and positive information about the program.

Conclusion

A measurement strategy is critical for determining program value and ensuring the program is as effective as possible. The most successful measurement strategies are designed in conjunction with program interventions and reflect program goals. States also must consider their available resources, stakeholder needs, and the evidence base for measures. Finally, measurement is helpful only if the results are used to improve the program and communicate program value to stakeholders.

Section 8: The Care Management Evidence Base

Considering the evidence on the efficacy of different care management interventions is important for States as they plan and design a care management program. States should use the evidence base for care management to gain support from stakeholders, choose diseases, and select interventions. The evidence also can help States determine the timeframe in which they should expect changes from their programs. This information allows States to better set expectations for their program and choose appropriate measures.

This section of the Guide, The Care Management Evidence Base, presents a review of published literature relating to care management programs in the public and private sectors. General findings appear in the body of the section, with more specific findings for diabetes, asthma, congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), and coronary artery disease (CAD) outlined in individual synopses that follow.

General Findings

The literature review examined the effects of common care management interventions, as discussed in Section 4: Selecting Care Management Interventions, on outcome and process measures. Diabetes and asthma were addressed most frequently in the literature, followed by CHF, COPD, and CAD, respectively. In general, the impact of different interventions varied widely depending on the disease and type of measure. Noting that few studies reviewed just one intervention is important. Many study participants received multiple interventions (e.g., telephonic care management and patient education), and the studies were unable to isolate the impact of each individual intervention. The literature is also limited regarding the timing needed to see the effects of care management interventions. Within the literature reviewed, study duration varied from 30 days to 5 years, and the intervention length did not have a clear impact on the outcomes. Despite these study limitations, the literature review found evidence of care management interventions improving outcomes across all diseases successfully.

Diabetes

Medicaid care management programs target diabetes frequently because of its high prevalence and cost. The literature review found significant evidence that care management can impact clinical outcomes and process measures positively. The literature addressed utilization and cost-saving measures less frequently for diabetes than for the other diseases, except for CAD. For diabetes, in-person and telephonic care management were the only interventions that impacted utilization or cost. As with other diseases, in-person care management was the most effective intervention overall, but several other interventions also proved effective, including self-management education, provider education, and provider profiling and feedback.

- **In-Person Care Management.** Of the interventions addressed in the literature, in-person care management exerted the strongest impact on clinical outcomes and process measures. It significantly affected measures such as blood pressure, lipid screening and levels, HbA1c screening and levels, and eye and foot exams. For example, 10 articles on in-person care management detailed a significant reduction in average HbA1c levels, a significant increase in the proportion of patients with good HbA1c control, or a

significant increase in blood sugar control. Significant positive outcomes were primarily experienced when interventions lasted 12 to 36 months. In fact, among the 13 articles that provided interventions for 12 months to 36 months, seven studies provided in-person care management for 36 months.

- **Provider Education.** For diabetes, provider education was the second most effective intervention in terms of number of measures impacted. Studies found that provider education exerted a positive impact on lipid levels, HbA1c screening, eye exam rates, and lipid screening rates. Noting that provider education most often impacted measures tied to provider services (i.e., exams and screenings) is important. For example, six articles implementing provider education interventions show significant increases in low density lipoprotein (LDL) screenings (20 percent to 43 percent), high density lipoprotein (HDL) screenings, or Healthcare Effectiveness Data and Information Set (HEDIS) score for lipid screening or a significant decrease in the racial disparity in LDL screenings (33 percent).
- **Self-Management and Monitoring.** Compared to other types of measures, self-management and monitoring had the greatest impact on clinical outcome measures controlled by the patient (e.g., blood sugar levels). These outcome measures are largely determined by a patient's behavior (e.g., exercise, medication adherence). For example, seven studies implementing self-management and monitoring interventions reported significant improvements in HbA1c control. Five articles demonstrated a significant decrease in HbA1c levels (ranging from 1.4 to 2.1 percentage points).

Other interventions, such as telephonic care management, were associated with positive clinical outcomes but less frequently than the interventions listed above. Overall, the literature review found that care management impacted diabetes outcome and process measures positively but that its impact on utilization and cost measures was limited. The most common intervention length for diabetes was 12 months, though studies used interventions up to 5 years. Although diabetes cost and utilization outcomes were limited, no utilization or cost outcomes occurred as a result of interventions lasting fewer than 12 months.

Asthma

The prevalence of asthma is significantly higher for Medicaid beneficiaries as compared with the commercial population. Medicaid beneficiaries often face environmental factors and barriers to care that result in higher emergency room (ER) utilization for asthma. The asthma literature review found a greater number of positive outcomes, especially in terms of utilization and cost measures, as compared with the other diseases. The literature review found that asthma care management can impact clinical outcomes, process, utilization, and cost measures effectively.

- **In-Person Care Management.** As with diabetes, in-person care management proved the most effective intervention, impacting all types of measures. In-person care management for asthma yielded the largest utilization and cost results as compared with the other diseases and interventions. Several studies found decreased health care utilization overall, including lower ER use and hospitalizations. Studies also found that in-person care management increased savings, often due to changes in utilization.
- **Patient Education.** The asthma literature review found much stronger evidence for using patient education than the diabetes literature review. The review found that patient education impacted process, clinical outcomes, and activation measures positively,

though not utilization or cost measures. Patient education impacted measures such as medication use, self-management, asthma knowledge, and quality of life. Patient education often is combined with other interventions, which might increase its effectiveness.

- **Telephonic Care Management.** The asthma literature also found much stronger evidence for using telephonic care management than the diabetes literature review. Telephonic care management impacted clinical outcomes, process, activation, utilization, and cost measures positively. Telephonic care management especially impacted measures that reflect a patient's quality of life. For example, three studies found that telephonic care management significantly reduced the number of patient-reported symptoms.
- **Provider Education.** The most effective provider intervention studied, provider education, impacted measures such as adherence to guidelines, followup visit rates, medication use, and utilization positively. For example, three studies found that provider education helped significantly reduce the number of outpatient visits, ER visits, hospital admissions, and acute office visits.

Many other interventions also were associated with positive results, including self-management and provider profiling and feedback, but less frequently than the interventions listed above. Studies addressing asthma experienced significant results in a shorter period of time, compared with diabetes. The majority of these studies provided interventions for only 6 to 12 months yet significantly impacted measures. In sum, the literature shows that both patient and provider interventions can positively impact the outcomes of people with asthma in a relatively short amount of time.

Congestive Heart Failure

A highly prevalent disease among the Medicaid population, CHF is targeted consistently in care management programs. A literature review looking at efficacy of care management interventions on CHF found that care management can impact clinical outcomes, process, utilization, and cost measures positively.

- **In-Person Care Management.** The CHF literature review yielded less evidence for using in-person care management compared with diabetes and asthma, yet it found that in-person care management exerted the greatest impact, compared with all other interventions, on hospital readmission rates. For example, one study found a 74 percent reduction in hospital readmissions within 6 months. In-person care management also impacted clinical outcomes and cost measures. No evidence was found suggesting improvements in process measures.
- **Telephonic Care Management.** The majority of research found in this literature review assessed the impact of telephonic care management, although results were inconclusive. Telephonic care management showed strong evidence for reducing utilization, specifically hospital readmissions, with some studies experiencing a 45 percent drop in hospital readmissions. Evidence for cost savings and improved clinical outcomes were less conclusive. Some studies found significant improvements, but others failed to see a significant difference when telephonic interventions were applied.
- **Self-Management and Monitoring.** Self-management and monitoring was found to be one of the most effective interventions for CHF, impacting clinical outcomes, process,

utilization, and cost measures. For example, studies found that fewer patients died when a self-management and monitoring intervention was used. As for the impact of self-management and monitoring on cost savings, one study found that the return on investment (ROI) ranged between \$1.08 and \$1.15 per dollar spent.

- **Decision Support.** Although fewer articles assessed the impact of decision support on CHF compared with self-management and telephonic care management, evidence suggests decision support can improve clinical outcomes, process, utilization, and cost measures significantly. For example, studies found that decision support improved the administration of ACE inhibitors significantly.

Other interventions, including patient and provider education, also were associated with positive results, but less frequently than the interventions listed above. Study lengths addressing CHF ranged from 1.5 months to 24 months and varied greatly across interventions and outcomes. A notable exception includes studies examining utilization measures in which no outcomes occurred as a result of interventions lasting fewer than 12 months. Overall, the literature review found that care management impacted CHF positively, but the evidence base is stronger for asthma and diabetes.

Chronic Obstructive Pulmonary Disease

Although COPD is commonly targeted by care management programs, only a limited body of research explores the effects of care management interventions on managing the disease. The literature review found significant evidence suggesting that care management led to substantial savings per patient, but results are inconclusive looking at interventions' impact on clinical outcomes and utilization rates.

- **In-Person Care Management.** In-person care management was the most researched intervention, and though some studies suggest improved clinical measures and utilization, others found no significant impact. For example, one study suggested in-person care management led to improvement in quality of life, dyspnea (difficult or labored respiration), emotional function, and fatigue, but a randomized clinical control study found no significant difference in quality of life between the group with in-person care management and the control group. Regarding utilization, one study found significant decreased hospital and ER utilization, another article found no significant decrease in use of such resources. Only one study examined the impact of in-person care management on cost and found a savings of more than \$13,000 per patient.
- **Decision Support.** Only one article examined use of decision support and found that it exerted the greatest impact on utilization. This study suggests that decision support led to significant reduction in average hospital stay, which reduced from 7.8 days to 5.6 days and helped reduce significantly the cost of an average case from \$4,050 to \$3,170.
- **Provider Education.** Only one study researched provider education's impact on COPD and found that this intervention had no significant effects on clinical outcomes or utilization.

Due to the limited amount of research surrounding care management interventions' effect on COPD, results are inconclusive, including results regarding timing. Nevertheless, studies suggest

that care management interventions can potentially lead to cost savings and improved clinical outcomes and utilization rates.

Coronary Artery Disease

Of all the diseases, the least amount of evidence exists for the effect of care management on CAD. The literature review found five studies, and all showed positive impacts on clinical outcomes, process, or activation measures. As with the other diseases, in-person care management proved the most effective intervention. None of the studies found care management interventions that exerted a significant impact of utilization or cost related to CAD.

- **In-Person Care Management.** Studies have found that in-person care management can improve clinical outcomes, process, and activation measures. For example, studies revealed that in-person care management reduced angina frequency and CAD-related physical limitations, while significantly increasing angina stability and the percentage of people with LDL levels below 130 mg/dl and 100 mg/dl.
- **Self-Management.** Evidence suggests that self-management can improve clinical outcomes and processes. Two studies found that self-management education helped increase use of aspirin, beta-blockers, ACE inhibitors, and statins. An additional study found that the percentage of patients with LDL levels less than 100 mg/dl increased significantly when self-management education interventions were applied.
- **Provider Interventions.** Studies also found improvements associated with other interventions, including physician decision support tools and provider education. Two studies found that these provider interventions were able to reduce the percentage of patients with LDL levels greater than 130 mg/dl and improve use of aspirin, beta-blockers, ACE inhibitors, and statins.

Evidence for the effectiveness of care management on CAD is sparse, and impact of time is unclear. Studies have found positive results, but additional research is needed to allow for firm conclusions.

Conclusion

States can use the evidence base for care management to select diseases and interventions and to set appropriate expectations for program outcomes. The literature review identified a few important findings across diseases.

- **Care Management Success.** Across all diseases, the literature found examples of successful care management programs in terms of intervention outcomes. Although the body of literature was significantly smaller for certain diseases and, therefore, less conclusive, successful interventions still can be identified.
- **Intervention Effectiveness.** Although interventions ideally would prove equally effective for all diseases, the literature review found that they might vary among diseases in terms of their overall efficacy and, in particular, which outcomes they impact. For example, the literature review found that telephonic care management was more effective overall for asthma as compared with diabetes.
- **In-Person Care Management.** In-person care management was the most effective intervention across all five diseases. Although it can be more difficult and expensive to

implement, in-person care management is the best intervention to use to generate cost savings and improve clinical outcomes.

- **Provider Interventions.** As expected, provider interventions exerted the greatest impact on measures that target provider processes such as HbA1c screening or medication use. States can employ provider interventions to impact process measures or, in some cases, utilization or cost, but overall provider interventions had minimal impacts on clinical outcomes.

The following disease-specific synopses outline the impact of multiple care management interventions. For more information on specific outcomes, please refer to the Review Synopses.

Review Synopsis: Diabetes

To evaluate the effect of care management on diabetes, we reviewed 61 articles. Of those articles, 40 examined the impact of patient interventions, 17 examined the impact of provider interventions, and 3 examined the impact of a combination of patient and provider interventions. The interventions evaluated most commonly were:

- In-person care management (15 articles)
- Self-management and monitoring (13 articles)
- Provider education (6 articles)
- Telephonic care management (10 articles)

Findings are organized below by measurement category (i.e., clinical outcome measures, clinical process measures, activation measures, utilization measures).

Clinical Outcome Measures

We reviewed 39 articles that evaluated the impact of care management interventions on clinical outcomes, 35 of which found these interventions can lead to improved outcomes. Clinical outcomes examined include:

- glycosated hemoglobin levels (HbA1c),
- blood pressure, and
- lipid (cholesterol and triglyceride) levels.

Of the intervention categories, in-person care management, which lowered HbA1c levels, blood pressure, and lipid levels significantly in several studies, appeared to exert the strongest impact on clinical outcomes. Disease registry and practice site improvement appeared to have the weakest effects, demonstrating no significant impacts on clinical outcomes.

Impact on Blood Sugar

- **In-Person Care Management.** Ten articles studying in-person care management detailed a significant reduction in average HbA1c levels, a significant increase in the proportion of patients with good HbA1c control (under 7.0 percent or 7.5 percent), or a significant increase in blood sugar control. In these studies, average HbA1c levels were reduced by 0.4 to 1.1 percentage points, while the proportion of patients with good HbA1c control rose by approximately 40 percent.¹⁻¹⁰
- **Self-Management and Monitoring.** Seven studies implementing self-management and monitoring interventions reported significant improvements in HbA1c control. Five articles demonstrated a significant decrease in HbA1c levels (ranging from 1.4 to 2.1 percentage points), while one article showed significant improvements in low-literacy populations, and another demonstrated a significant increase in patients' mean fasting sugar-to-insulin ratio.¹¹⁻¹⁶

- **Pharmacist-Led Care Management.** All four studies investigating pharmacist-led care management found a significant reduction in HbA1c levels (ranging from 0.8 to 2.1 percentage points).^{11, 17-19} One of these studies found this reduction to be larger in patients with HbA1c levels greater than 8.5 percent (2.7 percentage points) and also found a significant increase in the proportion of patients with HbA1c levels less than or equal to 7 percent.¹⁸

Impact on Blood Pressure

- **In-Person Care Management.** Three articles addressing in-person care management demonstrated significant reductions in both systolic and diastolic blood pressure, ranging from 4 to 8 mm Hg and from 3 to 8 mm Hg, respectively.^{4, 6, 20}
- **Self-Management and Monitoring.** Similarly, three articles examining self-management and monitoring showed significant reductions in blood pressure in either the general patient population or in hypertensive patients.¹³⁻¹⁵

Impact on Lipid Levels

- **In-Person Care Management.** Four in-person care management studies documented one or more improvements in cholesterol: two articles found significant reductions in total cholesterol (of approximately 28 mg/dl), three found significant reductions in LDL (16 mg/dl), and one found significant improvement in HDL (3 mg/dl).^{4, 5, 8, 10}
- **Self-Management and Monitoring.** Three studies featuring self-management and monitoring interventions documented significant lipid improvement. One article found significant improvement in total cholesterol; two articles found significant improvement in HDL levels (6 mg/dl); and one found significant improvement in LDL cholesterol.^{13, 15, 21} Additionally, one study demonstrated a significant decrease in triglycerides.¹⁵
- **Provider Education.** One education article found a reduction in LDL levels, while another found a reduction in racial disparity in LDL levels (71.4 percent).^{22, 23}

Clinical Process Measures

We evaluated 26 articles that examined the impact of care management interventions on clinical process measures, 25 of which found that these interventions can generate improvement. The clinical process measures we looked at were HbA1c screening, eye exams, foot exams, lipid screening, aspirin use, and pneumococcal vaccine administration. Of the intervention categories, the intervention that appeared to exert the strongest impact on clinical process measures was in-person care management, which affected HbA1c screening, eye exams, foot exams, and pneumococcal vaccine administration significantly. Profiling and feedback and provider education were also effective in improving clinical process measures.

Impact on HbA1c Screening

- **In-Person Care Management.** Three in-person care management studies found significant improvement in HbA1c screening rates.^{1, 2, 24}
- **Profiling and Feedback.** Two profiling and feedback studies found significant improvement in the likelihood of HbA1c screening, with the rate increasing by 29 percent.²⁵
- **Provider Education.** Four provider education articles found significant improvement in screening rates. Two studies found that the odds ratio of having an HbA1c screening ranged from 2.1 to 7.0 (as compared to baseline), while another study found that the intervention led to a 12.5 percent increase in screening.^{26–28} An additional study found that HbA1c screening increased 15 percent.²⁹

Impact on Eye Exams

- **In-Person Care Management.** Two in-person care management studies showed significant increases in retinal exams.^{1, 24}
- **Telephonic Care Management.** Two telephonic care management studies demonstrated either a significant increase in eye exams or a significant increase in frequency of dilated retinal exams.^{30, 31}
- **Profiling and Feedback.** Two studies using profiling and feedback found this intervention significantly increased eye exams. One study found a 16 percent increase in eye exams (from 14 percent to 30 percent).^{24, 32}
- **Provider Education.** Two studies investigating provider education found that the intervention increased eye exam referrals significantly (by 30.6 percent) or resulted in significantly higher HEDIS scores for eye screening (22 percent).^{27, 29}

Impact on Foot Exams

- **In-Person Care Management.** Three of the studies using in-person care management found that the intervention improved the rate of foot exams by approximately 34 percent.^{1, 6, 24}
- **Telephonic Care Management.** Two of the telephonic care management studies found that foot exam frequency was improved, as was likelihood of both physician-administered foot exams and foot self-exams.^{30, 31}
- **Profiling and Feedback.** Two articles investigating profiling and feedback found the practice to improve the rate of foot exams. One study showed that likelihood of an exam increased by 36 percent, while another found that rate of exam was increased by five percentage points.^{24, 32}

Impact on Lipid Screening

- **Provider Education.** Six articles implementing provider education interventions show significant increases in LDL screenings (20 percent to 43 percent), HDL screenings (odds ratio, compared to baseline: 5.6), or HEDIS score for lipid screening or a significant decrease in the racial disparity in LDL screening (33 percent).^{23, 26-29, 33}

Impact on Aspirin Use

- **Pharmacist-Led Care Management.** Two studies revealed that pharmacist-led care management increased aspirin use. One study showed that aspirin use increased significantly (57 percent), while another found that the proportion of patients taking aspirin daily rose significantly (48 percent).^{17, 18}

Impact on Pneumococcal Vaccine Administration

- **In-Person Care Management.** Two studies found that this intervention increased the likelihood of inoculation (79 percent) significantly.^{1, 6}

Activation Measures

Because of the broad array of activation measures, these outcomes are measured inconsistently across or within the varying interventions. In fact, the only measure to yield significant results more than once for any given intervention is patient satisfaction: two studies using in-person care management demonstrated significant increases in patient satisfaction (odds ratio, compared to control: 2.88).^{8, 34}

Utilization Measures

Resource utilization was addressed sparingly in the diabetes care management literature, and significant results were reported only in studies employing in-person care management and telephonic care management.

- **In-Person Care Management.** Four in-person care management articles featured significant findings pertaining to utilization. One article found a significant decrease in the risk of hospitalization (16 percent), while another found that the proportion of patients for whom the cost of medications, monitors, and test strips presented an obstacle to care was reduced.^{6, 35} Further, another study found that routine visits increased by 39 percent when the intervention was employed.³⁶ However, one study found that in-person care management increased total costs by almost \$1,350 (31 percent).⁴
- **Telephonic Care Management.** Four studies investigating telephonic care management reported significant utilization data. One study reported a significant increase in need-based primary care visits, while another demonstrated a significant decrease in outpatient visits (49 percent).^{37, 38} The latter study also reported reductions in inpatient admissions (32 percent) and ER visits (34 percent); these findings were insignificant with p-values

under 0.10.³⁸ Overall, according to one study, telephonic care management led to a significant reduction in the cost of care, while another study reported ROI of 3.37 (significance not reported).^{30, 39}

Conclusion

The majority of the relevant articles evaluated the impact of care management interventions on clinical outcomes, and most of those articles found that these interventions can lead to improved outcomes. Several articles also found improved clinical process measures when in-person care management, profiling and feedback, provider education, telephonic care management, and pharmacist-led care management interventions were used. However, because of the inconsistent measures used for activation outcomes, results for activation measures were too broad and were not subject to generalized findings. Limited evidence exists addressing the effects of utilization and savings when employing care management interventions for diabetes maintenance.

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Review Synopsis: Asthma

To evaluate the effect of care management on asthma, we reviewed 34 relevant articles. Of these, 23 examined the impact of patient interventions, 6 examined the impact of provider interventions, and 5 examined the impact of a combination of patient and provider interventions.

The interventions evaluated most commonly were:

- In-person care management (15 articles)
- Telephonic care management (6 articles)
- Patient reminders (1 article)
- Self-management and monitoring (3 articles)
- Patient education (5 articles)
- Patient incentives (2 articles)
- Provider education (6 articles)
- Patient site improvement (1 article)
- Provider profiling and feedback (2 articles)

Findings are organized below by measurement category (i.e., clinical outcome measures, clinical process measures, activation measures, and utilization measures).

Clinical Outcome Measures

Our search returned 19 relevant studies, all of which found that care management interventions can lead to improved clinical outcomes. Clinical outcomes examined include:

- quality of life,
- level of self-efficacy, and
- number of symptoms.

Of the nine intervention categories, in-person care management and patient education appeared to exert the strongest impact on clinical outcomes. Both interventions significantly improved quality of life and level of self-efficacy in the studies reviewed as well as reduced the number of symptoms. Provider education and practice site improvement appeared to have the weakest effects, demonstrating no significant impacts on clinical outcomes.

Impact on Quality of Life

- **In-Person Care Management.** Three articles studying in-person care management found significant improvement in quality of life.¹⁻³ One study found that patients were more likely to have improved quality of life, in particular daytime quality of life.¹ Another study found that quality of life improved significantly at 6 months, whereas at 12 months, no significant improvement occurred.³
- **Telephonic Care Management.** Two studies examined improvement in quality of life when using telephonic care management. Both studies showed that quality-of-life scores improved, with one study demonstrating significantly higher scores at 6 months.^{3,4}

- **Patient Education.** One study found that patient education improved patients' quality of life, physical, and social domains significantly.⁵ However, contrasting results from another study showed that children's quality of life failed to improve significantly as a result of the education intervention.⁶

Impact on Level of Self-efficacy

- **In-Person Care Management.** One study demonstrated significantly improved self-efficacy levels when in-person care management was used. The investigators concluded that improvements in psychosocial outcomes are achievable with this particular intervention.⁷
- **Self-Management and Monitoring.** One study found that with a self-management and monitoring intervention, children can improve their asthma self-efficacy levels significantly.⁶
- **Patient Education.** The same study that found improvements in self-efficacy levels due to a self-management and monitoring intervention also found that children's self-efficacy level could be improved with patient education.⁶

Impact on Symptoms

- **In-Person Care Management.** In general, two studies showed that symptoms are reduced significantly when an in-person care management intervention is employed.^{3, 8} In particular, one study found that symptoms were reduced significantly at 6 months, while at 12 months symptom reduction was insignificant.³ However, another study found that the number of symptom-free days remained the same after an in-person care management intervention was used when compared to the control group.⁹
- **Telephonic Care Management.** Four studies explored the impact of telephonic care management on number of symptoms present.^{3, 10-12} Three of the studies found that telephonic care management significantly reduced the number of symptoms patients reported.^{3, 10, 11} One study showed that at 6 months, asthma symptoms were reduced significantly, but at 12 months, no significant change in asthma symptoms had occurred. In addition, another study showed that the number of days and nights with symptoms was reduced significantly when a telephonic care management intervention was used.¹²
- **Self-Management and Monitoring.** Three studies found that self-management and monitoring was an effective intervention to significantly reduce the number of symptoms and symptom days reported.^{6, 13, 14}
- **Provider Profiling and Feedback.** The results of one study also showed that provider profiling and feedback techniques were successful at significantly decreasing the number of symptoms reported.¹⁵ During this study, patients experienced 21.2 percent fewer symptom days than the control group.

Clinical Process Measures

We identified 19 studies that showed how care management can improve clinical process measures. The clinical process measures examined in this review include medication use, action plan development and use, management practices, and adherence to medication. Of the nine intervention categories, the intervention that appeared to exert the strongest impact on clinical process measures was in-person care management, which significantly affected medication use, action plan development and use, and self-care practices. Patient and provider education also proved effective in improving clinical process measures.

Impact on Medication Use

- **In-Person Care Management.** Four studies examined the effect of in-person care management on medication use.^{1, 2, 16, 17} Two of these studies found that use of controller medication increased significantly when in-person care management was used.^{2, 16} In particular, one study found that corticosteroids use increased significantly in patients with in-person care management,¹ while another study showed that some patients received corticosteroids multiple times.¹⁷
- **Telephonic Care Management.** One study found that when telephonic care management intervention was employed, use of asthma medication increased significantly.⁴
- **Patient Reminders.** One study showed that corticosteroid use remained the same even when patient reminders were used.¹⁸
- **Provider Profiling and Feedback.** One study showed that, when indicated, provider profiling and feedback helped increase medication use by 46 percent in the intervention group as compared with 36 percent in the control group.¹⁵
- **Provider Education.** Three studies showed that medication use increased significantly when a provider education intervention was employed. In one study, corticosteroid use increased significantly.¹⁹ Another study showed that paid claims for corticosteroids increased significantly after using the provider education intervention.⁸ Similarly, a third study showed that prescriptions for fluticasone increased significantly when provider education was the focused intervention.²⁰

Impact on Action Plan Development and Use

- **In-Person Care Management.** Two studies explored the impact of in-person care management on development and use of action plans. One study found that in-person care management was more likely to result in action plan development at 6 months. However, at 12 months, the study found no significant differences between the intervention and control groups regarding possession of an action plan.³ The other study showed that action plan development and use failed to result in a significantly improved clinical process measure.²¹

- **Telephonic Care Management.** Two studies examined the number of action plans written and used when telephonic care management is employed as an intervention. One study found that the number of written action plans and use of action plans increased significantly with use of telephonic care management.¹⁰ This same study also found that at 12 months, possession of an action plan failed to differ significantly between the intervention and control groups. The second study found that availability of action plans at 6 months increased significantly when using telephonic care management.³

Impact on Management Practices

- **In-Person Care Management.** One study found that self-care practices improved significantly when in-person care management was used.⁷
- **Self-Management and Monitoring.** One self-management and monitoring study found that self-care practices improved significantly when this intervention was employed.¹⁴
- **Patient Education.** One patient education study found significant improvement in self-management, symptom identification, and cough symptom treatment.⁵ Similarly, another patient education study found significant improvement in child and parent management.⁵
⁶ The third study found that metered-dose inhaler technique scores improved significantly when patients were educated about proper use of inhalers.²²

Impact on Adherence to Medication

- **Patient Education.** One study found that patient education helped significantly improve adherence to medication.²³
- **Provider Profiling and Feedback.** One provider profiling and feedback study showed that using this intervention significantly improved adherence to steroids.²⁴
- **Provider Education.** One study found that provider education helped significantly increase provider adherence.⁸

Activation Measures

Eight studies examined the effect of care management on activation measures. The activation measures identified in this literature review include knowledge, followup visits, asthma planning visits, and guideline adherence. In-person care management, telephonic care management, patient education, patient incentives, and provider education appeared to influence activation measures more strongly.

Impact on Knowledge

- **In-Person Care Management.** One study found that asthma knowledge improved significantly after using in-person care management.⁷

- **Self-Management and Monitoring.** One study showed that asthma knowledge improved significantly when self-management and monitoring interventions were used.⁶
- **Patient Education.** Three of the studies using patient education found that the intervention significantly improved patient knowledge,^{5,25} parent knowledge,⁵ care management knowledge,²⁵ and asthma knowledge.⁶

Impact on Followup Visits

- **In-Person Care Management.** One study found that patient followup visits at 6 months increased significantly but failed to demonstrate significant change at 12 months with use of in-person care management.³
- **Telephonic Care Management.** Two studies found that telephonic care management had an effect on office visits. One of the studies showed that patients with telephonic care management were significantly more likely to have asthma planning visits at 2 weeks.¹² The other study found that patient followup visits at 6 months increased significantly, but it failed to demonstrate significant change at 12 months with use of in-person care management.³
- **Patient Incentives.** One study showed that the likelihood of having asthma planning visits at 2 weeks increased significantly with patient incentives. Similarly, the same study found that after 2 weeks, no differences occurred in asthma planning visits or acute care visits.¹²
- **Provider Education.** Provider education interventions also found that the likelihood of having asthma planning visits at two weeks increased significantly with patient incentives. Similarly, the same study found that after two weeks, no differences in asthma planning visits or acute care visits occurred.¹²

Impact on Guideline Adherence

- **Patient Incentives.** One study found that guideline adherence increased significantly with use of patient incentives.²⁶
- **Provider Education.** One study that examined the provider education intervention showed that when provider education was used, guideline adherence rates were significantly higher.²⁶
- **Practice Site Improvement.** One study found that when practice site improvement interventions were employed, guideline adherence rates were significantly higher.²⁶

Utilization Measures

We identified 18 studies relevant to utilization and savings. Of these studies, we found that utilization decreased and savings increased. In-person care management, telephonic care

management, patient reminders, provider profiling and feedback, and provider education all helped decrease utilization and increase savings.

Impact on Utilization

- **In-Person Care Management.** Six in-person care management studies found that the intervention decreased utilization.^{1, 27-30} One study found that the number of unscheduled visits decreased significantly,¹ while two studies found that the use of health care services decreased significantly when in-person care management was employed.^{29, 30} Similarly, two studies found that hospital admissions also decreased significantly with in-person care management.^{27, 29} In particular, two studies also noted that length of hospital stay was significantly reduced for intensive care unit (ICU) and non-ICU visits^{28, 29} as well as ER visits.^{27, 29} Contrasting these results are two other studies that found no significant differences in the number of ER visits.^{2, 17} Another study also found no significant differences in the number of emergency medical care services provided to patients engaged in in-person care management¹¹ as well as number of hospital admissions.¹⁷ Lastly, one study found that ambulatory visits increased significantly with in-person care management.¹⁶
- **Telephonic Care Management.** One study found that adverse use of health care services decreased significantly with telephonic care management.¹¹
- **Patient Reminders.** One study found that using patient reminders helped to significantly increase the number of patient followups, while another study showed that patient reminders failed to significantly reduce the number of ER visits.¹⁸
- **Provider Education.** Three studies showed that provider education helped to significantly reduce the number of outpatient visits,^{8, 19} ER visits,^{8, 19} and hospital admissions.^{8, 31}

Impact on Savings

- **In-Person Care Management.** Four studies found that in-person care management increased savings. For instance, one study showed that ER costs, physician office visit costs, and hospital admission costs all decreased significantly as did number of missed school days.²⁹ This study also found that in-person care management significantly increased the number of symptom-free days. Another study found that hospital net savings increased by 9 percent, whereas yet another study valued the annual cost savings at \$300,000 when in-person care management was used.^{28, 32} Similarly, one study found that the incremental cost-effective ratio of in-person care management was valued at \$9.20 per symptom-free day when compared with usual care.³³
- **Telephonic Care Management.** One study found that telephonic care management significantly reduced the number of lost workdays for caregivers of people with asthma-related illnesses.¹¹

- **Provider Profiling and Feedback.** One study found that using provider profiling and feedback helped to significantly reduce ER visits as well as number of missed school days.¹⁵
- **Provider Education.** One study found that provider education helped to significantly increase the number of reported information problems as well as the number of partnerships.²⁰

Conclusion

Several care management techniques can be used effectively to treat asthma. According to the literature review we conducted, quality of life, level of self-efficacy, and level of symptoms were cited most frequently as types of clinical outcome evaluated using in-person care management, telephonic care management, patient reminders, self-management and monitoring, patient education, patient incentives, and provider profiling and feedback. In addition, a host of care management interventions that involve in-person care management, telephonic care management, patient reminders, self-management and monitoring, provider profiling and feedback, and patient and provider education showed how clinical process measures, such as medication use, action plan development and use, management practices, and medication adherence, can be improved. Similarly, the same care management interventions also were found to improve activation measures such as knowledge, followup visits, and guideline adherence. Lastly, the evidence demonstrates that these care management interventions can significantly decrease health care utilization and increase savings.

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Review Synopsis: Congestive Heart Failure

To evaluate the effect of care management on CHF, we reviewed 18 relevant articles. Of these studies, 13 articles examined the impact of patient interventions, 3 examined the impact of provider interventions, and 1 examined the impact of a combination of patient and provider interventions. The interventions evaluated most commonly were:

- In-person care management (2 articles)
- Telephonic care management (7 articles)
- Self-management and monitoring (5 articles)
- Patient education (1 article)
- Provider education (2 articles)
- Decision support (2 articles)

Findings are organized below by measurement category (i.e., clinical outcomes measures, clinical process measures, activation measures, and utilization measures).

Clinical Outcome Measures

Our search returned 11 studies that found care management interventions can lead to improved clinical outcomes. Clinical outcomes examined include:

- quality of life,
- mortality,
- self-reported health and self-efficacy, and
- scores from the Minnesota Living with Heart Failure and Kansas City Cardiomyopathy questionnaires.

Of the six intervention categories, in-person care management, telephonic care management, self-management and monitoring, and decision support appeared to have equal impact on clinical outcomes. These interventions significantly improved quality of life, self-reported health, self-efficacy, and scores for the Minnesota Living with Heart Failure and Kansas City Cardiomyopathy questionnaires. Patient and provider education appeared to exert the weakest effects, demonstrating no significant impacts on clinical outcomes.

Impact on Quality of Life

- **In-Person Care Management.** One study found significant improvement in quality of life for interventions using in-person care management.¹ This study showed that patients were more likely to have improved quality of life in three of the eight Short Form Health Survey 36 (SF-36) quality-of-life measurements.
- **Decision Support.** One study examining whether decision support interventions could improve quality of life found that patients whose nurses received an e-mail message addressing six heart failure recommendations were significantly more likely to see an improved quality-of-life score.²

Contrasting these results are two studies that examine the effect of telephonic care management on quality-of-life levels.^{3,4} The results of these studies found no significant changes in quality of life when telephonic care management was employed. Another study focusing on self-management and monitoring found no significant changes in CHF-related quality of life when a telephonic care management intervention was employed.⁵

Impact on Mortality

- **Telephonic Care Management.** One study demonstrated significantly decreased mortality rates when telephonic care management was used. The investigators concluded that patient mortality rates decreased and, consequently, patients gained 76 days by using telephonic care management.⁶ In contrast to this study, two other studies found no significant changes in mortality when telephonic care management intervention was employed.^{3,7}
- **Self-Management and Monitoring.** One study found that fewer patients died when a self-management and monitoring intervention was used.⁵ Furthermore, another study showed that mortality was significantly reduced at year one with the help of self-management and monitoring interventions.⁸

Impact on Self-Reported Health and Self-Efficacy

- **Telephonic Care Management.** One study showed that self-reported health improved significantly when telephonic care management was employed.⁴ In particular, this study found self-reported health improved at 6 months and 12 months. However, this study failed to show improvement in health-related quality-of-life scores when using the SF-36.
- **Self-Management and Monitoring.** One study found that self-management and monitoring resulted in a significantly improved self-perceived health status.⁹ Similarly, the same study found that self-management and monitoring can significantly improve a patient's self-efficacy.

Impact on Minnesota Living with Heart Failure Questionnaire Scores and Kansas City Cardiomyopathy Questionnaire Scores

- **Telephonic Care Management.** One study showed that telephonic care management exerted a positive impact on scores for the Minnesota Living with Heart Failure questionnaire.¹⁰ Using telephonic care management helped improve scores by 9.9 points over 3 months. The results demonstrate that using this technique for low-literacy patients is highly effective.
- **Decision Support.** The results of one study showed that decision support constituted an effective tool to improve scores for the Kansas City Cardiomyopathy questionnaire.²

Other Impacts

Three other studies focusing on telephonic care management and self-management and monitoring found that these care management interventions failed to significantly change level of depression,³ functional status,⁷ and CHF severity.¹¹

Clinical Process Measures

We identified nine studies that showed how care management can improve clinical process measures. The clinical process measures examined in this review include use of medication and tests, weight monitoring, and self-care and management behavior. Of the six intervention categories, the intervention that appeared to exert the strongest impact on clinical process measures was self-management, which significantly affected medication and test use, as well as self-care and management behavior. Patient education, decision support, and provider education also were effective in improving clinical process measures.

Impact on Medication Use and Tests Performed

- **Self-Management and Monitoring.** One study found that self-management and monitoring significantly improved the use of alpha-beta blockers, lipid panels, and the number of electrocardiograms performed.¹² However, self-management and monitoring intervention failed to significantly change the use of beta-blockers.
- **Patient and Provider Education.** One study showed that using patient and provider education significantly improved prescription patterns for ACE inhibitors and beta-blockers.¹³
- **Decision Support.** Similar to the results from the provider and patient intervention study, the results of another study showed that decision support was useful at significantly improving the administration of ACE inhibitors.¹⁴

Impact on Daily Weight Monitoring

- **Decision Support.** Two studies found that weight monitoring and diet use improved significantly when decision support was employed.^{2,5}
- **Telephonic Care Management.** Contrasting the decision support results was one study that found the percentage of patients weighing themselves daily failed to increase significantly when telephonic care management was used.¹⁰

Other Impacts

- **Self-Management and Monitoring.** Using self-management and monitoring was found to significantly increase the rate of pneumococcal vaccination and significantly decrease the number of cardiac catheterizations.¹² Two other studies also found that this intervention significantly improved self-care and management behaviors.^{9,11}

- **Provider Education.** Using provider education appeared to significantly increase use of evidence-based care.¹⁵

Activation Measures

Four studies examined the effect of care management on activation measures. The activation measures identified in this literature review include patient satisfaction and patient knowledge. Telephonic care management, self-management and monitoring, and decision support appeared to influence these activation measures more strongly.

Impact on Knowledge

- **Self-Management and Monitoring.** One study showed that CHF knowledge improved significantly when self-management and monitoring interventions were used.¹¹
- **Decision Support.** In particular, patient knowledge of medication improved significantly when decision support interventions were used.²
- **Telephonic Care Management.** One study found no significant changes in patient knowledge when telephonic care management was used.¹⁰

Impact on Patient Satisfaction

- **Telephonic Care Management.** One study found that patient satisfaction increased with use of telephonic care management.¹⁶

Utilization Measures

We identified 13 studies relevant to utilization, savings, or both. Of these studies, we found that utilization decreased and savings increased. In-person care management, telephonic care management, self-management and monitoring, patient education, decision support, and provider education all help to decrease utilization and increase savings.

Impact on Utilization

- **In-Person Care Management.** One study found that the 6-month readmissions rate was significantly reduced, by 74 percent, when in-person care management was used.¹⁷
- **Telephonic Care Management.** Three studies found that telephonic care management significantly reduced utilization.^{7, 12, 16} All three studies showed that telephonic care management significantly reduced the number of hospital readmissions. In particular, two of the three studies found that telephonic care management helped significantly reduce the number of CHF-related hospitalizations, between 44 percent and 47.8 percent.^{12, 16} The results of one study showed that the number of CHF-related hospital days was

significantly fewer with telephonic care management.¹⁶ Results of another study also found that the number of inpatient bed days was reduced by 26 percent, whereas the number of skilled nursing facilities days was decreased by 45 percent.¹² This same study also found that the number of ER visits decreased significantly with telephonic care management. Lastly, the third study showed that telephonic care management helped significantly reduce time to “hospital encounter.”⁷

- **Self-Management and Monitoring.** Four studies evaluated the effect of self-management and monitoring on utilization. The first study found that self-management and monitoring significantly reduced the hospitalization of low-literacy patients.⁵ In addition, another study showed that this intervention could significantly reduce the number of inpatient admissions and the number of inpatient bed days.¹² Furthermore, a third study showed that the number of readmissions decreased significantly when self-management and monitoring was employed. Lastly, one study found that hospital utilization decreased, with specific attention to a decrease in ER use, when self-management and monitoring interventions were used.⁹
- **Patient and Provider Education.** One study found that patient and provider education was effective at significantly reducing length of hospital stay as well as number of readmissions.¹³
- **Decision Support.** One study showed that number of patients released from the hospital in 4 days or fewer increased significantly with use of decision support interventions.¹⁴

Impact on Savings

- **In-Person Care Management.** One study showed that the average cost savings associated with in-person care management was \$1,541.¹⁷
- **Telephonic Care Management.** One study found that in-person care management increased savings. This study showed that the cost of inpatient heart failure was reduced significantly by using in-person care management.¹⁶ In contrast, three studies found no significant changes in number of CHF-related hospitalizations,⁷ CHF-related days in the hospital,³ CHF-related cost of care,³ and health care utilization when using in-person care management.⁶ A fourth study showed that even when in-person care management was used, no significant changes occurred in cost shifting to the outpatient environment.¹⁶
- **Self-Management and Monitoring.** One study found that self-management and monitoring significantly reduced per-month cost for each member.⁹ Moreover, this same study found that ROI ranged between \$1.08 and \$1.15 per dollar spent.
- **Decision Support.** Two studies found that savings increased significantly with use of decision support. One study showed that median hospital charges were reduced significantly, by 45 percent, or, in other words, by \$2,500.¹⁴ Similarly, another study found that basic decision support was more cost effective than a more complicated decision support intervention.²

Conclusion

Several care management interventions can be used effectively to treat CHF. According to the literature review, quality of life, mortality, self-reported health and self-efficacy, and scores from the Minnesota Living with Heart Failure and Kansas City Cardiomyopathy questionnaires were cited most frequently as types of clinical outcome evaluated using in-person care management, telephonic care management, and decision support interventions. In addition, a host of care management interventions that involve self-management and monitoring, patient and provider education, and decision support showed how clinical process measures can be improved. Similarly, self-management and monitoring and in-person care management also were found to improve activation measures, such as knowledge and patient satisfaction. Lastly, the evidence demonstrates that these care management interventions can significantly decrease health care utilization and increase savings.

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Review Synopsis: Chronic Obstructive Pulmonary Disease

To evaluate the effect of care management on COPD, we reviewed six relevant articles; four that examined the impact of patient interventions, one that examined the impact of provider interventions, and one that examined the impact of a combination of patient and provider interventions. The interventions evaluated most commonly were:

- In-person care management (4 articles)
- Care management (1 article)
- Decision support (1 article)
- Provider education (1 article)

Findings are organized below by measurement category (i.e., clinical outcome measures, clinical process measures, activation measures, and utilization measures).

Clinical Outcome Measures

Our search returned three studies that found care management intervention can lead to improved clinical outcomes. Clinical outcomes examined include:

- quality of life,
- dyspnea,
- emotional function,
- fatigue, and
- “feeling mastery over disease.”

Of the four intervention categories, in-person care management appeared to exert the strongest impact on clinical outcomes. This intervention significantly improved quality of life, dyspnea, emotional function, fatigue, and the feeling of mastery over disease. Care management, decision support, and provider education appeared to have the weakest effects, demonstrating no significant impacts on clinical outcomes.

- **In-Person Care Management.** One study examining in-person care management found improvement in quality of life, dyspnea, emotional function, fatigue, and feeling of mastery over the disease.¹ However, another randomized clinical control study found no significant changes in generic or disease-specific quality of life after an in-person care management intervention was employed.²
- **Care Management.** One systematic review addressed the effect of care management on clinical outcomes. In this review, the authors concluded that no significant effects on health-related quality of life, lung function, functional capacity, symptom scores, mortality, anxiety, and depression occurred.³
- **Provider Education.** One study showed that provider education resulted in no significant increases in generic and disease-specific quality-of-life scores.²

Clinical Process Measures

We identified two studies that showed how care management can improve clinical process measures. The clinical process measures examined in this review include exercise tolerance, recognition of severe disease exacerbation, self-action in the event of exacerbation, and initiation of steroids, antibiotics, or both. Of the four intervention categories, in-person care management and care management appeared to exert the most effect on clinical process measures.

- **In-Person Care Management.** One study found that in-person care management was effective at significantly improving COPD patients' exercise tolerance.¹ This intervention showed that improved clinical process measures are achievable with use of in-person care management.
- **Care Management.** One systematic study using a care management intervention found that it significantly improved recognition of severe disease exacerbation, use of self-action in the event of exacerbation, and initiation and use of steroids, antibiotics, or both.³

Activation Measures

- One systematic study examined the effect of care management on activation measures, including self-management knowledge.
- **Care management.** The systematic study found that care management of COPD helped to significantly improve self-management knowledge.³

Utilization Measures

We identified five studies relevant to utilization and savings, a majority of which showed that resource use decreased and savings increased. In-person care management and decision support for providers were the main interventions used to decrease utilization and increase savings.

Impact on Utilization

- **In-Person Care Management.** One study found that in-person care management significantly decreased hospital use, ER use, and skilled nursing facility resources.⁴ This same study also showed that in-person care management significantly increased use of home health care. Contrasting these results is one study that found no significant differences in hospital admissions rates when in-person care management was employed.⁵ This study also found no significant differences in number of ER visits.
- **Decision Support.** One study evaluating use of decision support showed that average hospital stay decreased significantly from 7.8 days to 5.6 days.⁶ This study found that decision support was an effective tool used to decrease health care utilization.

- **Care Management.** One systematic review found that care management was an ineffective intervention used to decrease health care utilization. The results of this study found no significant impact on health care utilization rates.³
- **Provider Education.** Similarly, one study that evaluated use of provider education also found no significant differences in number of ER visits and hospital admissions when a provider education intervention was employed.²

Impact on Savings

- **In-Person Care Management.** One study found that using in-person care management resulted in an average savings of more than \$13,000 per patient.⁴
- **Decision Support.** Like the in-person care management study, one study found that using decision support for COPD management helped to significantly reduce the cost of an average case, from \$4,050 to \$3,170.⁶

Conclusion

Using in-person care management, care management, decision support, and provider education to manage COPD can lead to positive outcomes. According to the evidence found, improved clinical outcomes such as quality of life, dyspnea, emotional function, fatigue, and feeling of mastery over the disease are best accomplished by in-person care management. In addition, in-person care management and care management are two interventions that can improve clinical process measures such as exercise tolerance, recognition of severe disease exacerbation, use of self-action in the event of exacerbation, and initiation and use of steroids, antibiotics, or both. This literature review also found that COPD management helped to significantly improve activation measures. Lastly, decreased health care utilization and increased savings were shown for in-person care management, decision support, and care management interventions.

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Review Synopsis: Coronary Artery Disease

To evaluate the effect of care management on CAD, we reviewed five relevant articles. Of these studies, three examined the impact of patient interventions, one examined the impact of provider interventions, and one examined the impact of a combination of patient and provider interventions. The interventions evaluated most commonly were:

- In-person care management (2 articles)
- Self-management education (3 articles)
- Decision support (1 article)
- Provider education (1 article)

Findings are organized below by measurement category (i.e., clinical outcomes, clinical process measures, and activation measures).

Clinical Outcome Measures

Our search returned four studies that found care management interventions can lead to improved clinical outcomes. Clinical outcomes examined include:

- frequency of angina,
- LDL levels, and
- CAD-related physical limitations.

Of the four intervention categories, in-person care management appeared to have the strongest impact on clinical outcomes. This intervention significantly reduced angina frequency and CAD-related physical limitations while significantly increasing angina stability and the percentage of people with LDL levels less than 130 mg/dl and LDL levels less than 100mg/dl. Self-management education and decision support also appeared to affect clinical outcomes.

- **In-Person Care Management.** Two studies evaluating in-person care management found significant improvement in clinical outcomes when this intervention was used.^{1,2} In particular, the studies showed that frequency of angina and number of CAD-related physical limitations were reduced significantly.¹ Moreover, this study found that in-person care management significantly improved angina stability, by 14.7 points on the Seattle Angina questionnaire. Another study found that of the patients who used an in-person care management intervention, 84 percent had LDL levels less than 130 mg/dl and 48 percent had LDL levels less than 100 mg/dl.²
- **Self-Management Education.** One study showed that the percentage of patients with LDL levels less than or equal to 100 mg/dl increased significantly when using self-management education interventions.³
- **Decision Support.** One study showed that using a decision support intervention helped to significantly reduce the percentage of patients with LDL levels greater than 130 mg/dl.⁴

Clinical Process Measures

We identified four studies that showed how care management can improve clinical process measures. The clinical process measures examined in this review include screening rates and medication use. Of the four intervention categories—in-person care management, self-management education, decision support, and provider education—all appeared to exert similar effects on improving clinical process measures.

- **In-Person Care Management.** One study found that using in-person care management interventions helped increase LDL screening rates up to 97 percent. This same study also found that 89 percent of the patients with LDL levels greater than 120 mg/dl also were on lipid-lowering therapy. Similarly, patients used significantly more aspirin/antiplatelet and beta-blocker medication.²
- **Self-Management Education.** Two studies found that self-management education, like in-person care management, helped to significantly increase use of aspirin, beta-blockers, ACE inhibitors, and statins.^{3, 5}
- **Decision Support.** One study showed that decision support was successful at significantly improving the rate of prescription change at 1 month.⁴ However, this same study found no significant changes at 1 year.
- **Provider Education.** One study showed that provider education significantly improved the use of statins, by 19 percent, and the use of ACE inhibitors, by 28 percent, compared to the control group. Although insignificant, trends from this study also indicate a greater use of aspirin and beta-blockers among the intervention group.

Activation Measures

Only one study examined the effect of care management on activation measures, including treatment satisfaction.

- **In-Person Care Management.** This study found that in-person care management of CAD helped to significantly improve treatment satisfaction.¹ Results from the Seattle Angina questionnaire found that patients using in-person care management improved their scores by 8.6 points.

Conclusion

Using in-person care management, self-management education, decision support, and provider education to manage CAD can lead to positive outcomes. According to the evidence found, improved clinical outcomes such as frequency of angina, stability of angina, CAD-related physical limitations, and LDL levels are best accomplished by in-person care management. Self-management education and decision support also improve clinical outcomes. In addition, in-person care management, self-management education, decision support, and provider education

are interventions that can improve clinical process measures such as screening rates and medication usage. This literature review also found that in-person care management of CAD helped to significantly improve activation measures.

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Appendix: State Overviews

The appendix provides a brief description of the 13 states participating in the initial Learning Network, highlighting many of their successes and lessons learned. These States are among the leaders in their field of care management, and through their openness and willingness to share lessons learned and productive failures, they have provided the foundation for the material discussed throughout this Guide. While each State developed its care management program to match its unique needs, through the collaboration within the Learning Network, each State has incorporated significant program improvements.

This appendix outlines each State's strategies and lessons learned regarding:

- program planning,
- program design,
- program interventions, and
- program evaluation.

This Guide and appendix reflect current programs and trends. As care management programs evolve to meet the changing needs of their populations, States will continually modify their programs to ensure that they are effectively impacting their populations. This appendix conveys the experiences of States to date. Future editions of the Guide are expected to communicate States' experiences as they implement new program models.

Arkansas: Antenatal and Neonatal Guidelines, Education and Learning System (ANGELS)

Arkansas began its ANGELS program in February 2002. The program currently targets pregnant women in PCCM and FFS with a focus on high-risk obstetrics and neonatology.

Program Planning

The Medicaid agency began planning ANGELS in partnership with the University of Arkansas for Medical Sciences (UAMS) after determining that when high-risk babies are born at UAMS, they tend to have fewer complications.

Program Design

The Medicaid agency, in partnership with UAMS, designed the ANGELS program, which involves the State's obstetrical providers in developing best practices for high-risk cases and helps providers transfer pregnant women with extremely high-risk cases to UAMS before giving birth. The ANGELS program targets Temporary Assistance for Needy Families (TANF) mothers and babies in the FFS and PCCM programs.

Program Implementation

To develop and share clinical guidelines, Arkansas hosts a weekly teleconference focusing on high-risk obstetrics for which physicians may receive Continuing Medical Education credit for participation. An average of 20 to 40 physicians participates each week at 20 teleconference sites.

Arkansas' Lessons Learned: Gaining Stakeholder Support

- Understand State legislators' goals and their possible desire to see program results during their term in office
- Spend a significant time engaging stakeholders, particularly in the medical society and hospital association
- Emphasize to providers that the care management program is an added value
- Distribute evidence-based guidelines

Program Interventions

The ANGELS program offers a call center for physicians and patients, transportation for pregnant women, and physician guidelines.

- **Call Center.** The ANGELS call center operates 24 hours a day, 7 days a week, for physicians and patients. Primary care providers can consult with specialists regarding patient management issues, and patients can find support related to their pregnancy, labor, and delivery, as well as postpartum care. Additional call center functions include maternal-fetal medicine consults, transportation arrangements, continuing education, advanced practice nurse consultants, telemedicine consults, patient education, patient referrals to community supports, and follow-up calls.
- **Transportation.** The ANGELS program arranges transportation to UAMS for women with particularly high-risk obstetric cases. The call center coordinates the transportation and can arrange for ambulance pickup or a helicopter for more serious cases. While a patient remains at UAMS for care, her local physicians receive regular reports from UAMS specialists.

- **Guidelines.** More than 80 finalized evidence-based guidelines have been written with physicians. ANGELS staff work with a group of physicians to adapt existing national guidelines to meet Arkansas' specific needs, especially around issues of cost, time, research, and clinical expertise.
- **Provider activation.** State staff employ a variety of strategies to engage providers in the ANGELS program. They circulate guidelines, for example, to help providers recognize and treat symptoms and conditions such as postpartum depression. In addition, they work with the Arkansas Foundation for Medical Care to market directly to providers and meet with neonatologists to discuss Level III neonatal intensive care unit (NICU) admissions.

Program Evaluation

Arkansas is contracting with the University of Alabama at Birmingham to conduct an evaluation using Medicaid claims data. In addition, Arkansas Medicaid's External Quality Review Organization, Arkansas Foundation for Medical Care, conducts the Healthcare Effectiveness Data and Information Set (HEDIS) and Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys for Arkansas. The program has two years of data for high-risk pregnancy and neonatology. Finally, UAMS is working with birth certificate data and Medicaid claims data to analyze ANGELS program effectiveness on decreased NICU admissions and complications.

Additional Information

Arkansas Medicaid Web site: <http://www.medicaid.state.ar.us/>

Illinois: Disease Management Program

Illinois' Disease Management Program started in November 2006, focusing on three populations: aged, blind, and disabled (ABD) members; persistent asthmatics; and emergency room (ER) users who have visited the ER more than six times in the last fiscal year without a hospital admission. The program covers all conditions of the eligible populations, with special emphasis on five disease categories for the ABD population: asthma, diabetes, coronary artery disease (CAD), congestive heart failure (CHF), and chronic obstructive pulmonary disease (COPD). Within Illinois' populations, the program excludes dual eligibles, home- and community-based waiver clients, and members enrolled in Medicaid managed care.

Program Planning

The goals of Illinois' disease management program are to improve health outcomes, decrease inappropriate use, and reduce costs. The program was implemented with an understanding that disease management can improve health outcomes for members with chronic conditions.

Program Design

Illinois contracted with a vendor to implement its disease management program. Illinois' vendor assumes responsibility for improving cost and quality outcomes for all members who fit into the three population categories. Eighty percent of the vendor's risk is based on financial savings across all populations, and 20 percent is based on improvement in clinical indicators in the five targeted diseases.

Program Implementation

Illinois and its vendor are working together to engage providers. Building on a long history of working with providers, the State has reached out to physician organizations, nurse organizations, behavioral health providers, and their sister health agencies. The program's Medical Director is the most recent past president of the State pediatric society and is associated with the family practice and medical associations in Illinois. Physicians will receive no additional payments for participating in the disease management program.

In-Person Care Management

Illinois' vendor has divided the State into 24 catchment areas staffed with 170 "feet-on-the-street" workers. These staff members can be lay health workers, social workers, or nurses.

The vendor also will place nurses in 10 high-volume hospitals and lay health workers in 10-12 high-volume clinics to assist with discharge planning, program outreach, and followup.

Program Interventions

All members receive an introductory letter and educational materials. Illinois' vendor then

performs targeted case management, including assessments and action plans for higher-need members. Moderate-level members receive quarterly contact, and high-level members receive telephone calls and in-person visits.

Program Evaluation

The State is currently implementing its program evaluation strategy, which includes establishing the baseline for the financial and performance indicators.

Additional Information

Illinois Medicaid Web site: <http://www.hfs.illinois.gov/dm>

Indiana: Indiana Chronic Disease Management Program

Indiana established the Indiana Chronic Disease Management Program (ICDMP) in 2003 for the State's primary care case management population. The program members were primarily in the ABD aid category. Diseases covered included asthma, diabetes, CHF, cardiovascular disease, and chronic kidney disease. Indiana "assembled" its program by partnering with local vendors to provide services, including a call center, nurse care management, and program evaluation.

Building on experience from the original program and successes in other States, Indiana created a new program, Care Select, for its ABD population. In November 2007, Indiana signed contracts with two vendors to provide medical homes, utilization management, prior authorization, and care management services as appropriate to approximately 70,000 members. Indiana seeks to provide comprehensive care coordination to this previously unmanaged population.

Program Planning

In November 2002, as part of the early conceptualization for ICDMP, Indiana's Medicaid Director, the Indiana Department of Health Director, and two State legislators attended a National Governors Association Policy Academy on disease management and met with Dr. Ed Wagner, who is the director of the Macoll Institute for Healthcare Innovation and lead developer of the Chronic Care Model. The Policy Academy provided the necessary impetus for program development, including legislative buy-in.

Program Design

Indiana decided to assemble its ICDMP program by partnering with local agencies to provide chronic disease management services. The main components of the program are as follows:

- **Program Management.** Medicaid and the Department of Health jointly assume responsibility for managing the program.
- **Primary Care.** Members are assigned a primary care provider who serves as the focal point of patient care.
- **Care Management.** Members have access to care management via in-person nurse care managers or the call center based on stratification.
- **Patient Data Registry.** An electronic data registry is available to Medicaid providers and care managers.
- **Measurement and Evaluation.** Indiana conducted a statewide evaluation and a randomized controlled trial.

Indiana also partnered with AmeriChoice for the call center, the Indiana Primary Health Care Association for nurse care managers, and the Regenstrief Institute for help with member stratification and program evaluation.

Program Implementation

Approximately 30,000 members have received disease management services through ICDMP. Eligible members, who are identified through Medicaid claims data, are stratified into either high-risk or low-risk groups, but they can move in and out of high-risk and low-risk management. Indiana developed its patient stratification methodology internally with assistance from the Regenstrief Institute. Factors that drive patient stratification include historical claims data, referrals (by patient, physician, or call center), new costs (e.g., hospitalization), and pharmacy utilization.

Program Interventions

ICDMP interventions include a call center, care management, provider collaboratives, and provider toolkits. The call center monitors patient status and follows up based on established protocols. Call center staff assume responsibility for:

- letters to patients and physicians;
- outbound calls to assess, inform, and motivate;
- patient education materials; and
- inbound calls.

The nurse care managers provide more intense followup and support to high-risk members. The care management intervention typically lasts 4 to 6 months. During this time, nurse care managers provide disease education and help patients set self-management goals. They also help foster the patient's relationship with his or her primary care provider. After 4 to 6 months of care management, patients "graduate" from the program and receive followup calls every 3 months from the call center.

For providers, Indiana offers ongoing education, training, toolkits, and nurse care manager support. In addition, at the beginning of the program, Indiana conducted provider collaboratives, including three learning sessions followed by action periods that allowed for implementing new practices. Teams implemented practice-site improvements and reported results to the State.

Program Evaluation

The State legislature mandated a program evaluation when Indiana created the program. To ensure the study's legitimacy, the State decided to use an outside evaluator, the Regenstrief Institute. The study included a random control trial within the Indianapolis population and a time-series evaluation comparing patient care in different parts of the State. Data was collected from:

- Collaborative learning sessions
- Medicaid administrative claims
- Electronic medical records (Central Indiana only)
- Care management vendors

Indiana's Lessons Learned: Evaluation

- Randomized controlled trials allow for validation of intervention effects
- Disease management programs require time to exert an impact
- Measuring member satisfaction is important
- Measures should be planned strategically

Evaluation results found that the program reduced expenditures for patients with CHF but might increase expenditures modestly for diabetics.

Additional Information

Indiana Medicaid Web site: <http://www.indianamedicaid.com/ihcp/index.asp>

Indiana Care Select Web site:

http://www.indianamedicaid.com/ihcp/HoosierHealthwise/rbmc_index.asp

Indiana Chronic Disease Management Program Web site: <http://www.indianacdmprogram.com/>

Iowa: Care Management Program

Iowa's care management program, established in July 2005, covers members with asthma, diabetes, and CHF, as well as high-utilization and high-cost members. The Iowa Foundation for Medical Care (IFMC) operates the program as part of a larger contract with Iowa Medicaid.

Program Planning

Iowa developed its program to provide optimal care to all Medicaid members. Program goals include:

- Improving access to care and eliminating unnecessary care,
- Increasing member involvement in care through self-management skills,
- Using community resources efficiently,
- Improving clinical outcomes, and
- Saving program money.

Iowa's Medicaid program is operated through the Iowa Medicaid Enterprise, a collection of nine vendors that collaborate with the State to accomplish program goals. The vendors work in the same building with State staff and strive to provide Medicaid services seamlessly. As one of these vendors, IFMC runs the State's care management program. In 2003, before the creation of the Iowa Medicaid Enterprise, IFMC operated a State diabetes pilot program that provided lessons about operating and evaluating care management programs.

Program Design

Iowa's asthma program launched in July 2005, its CHF program in October 2006, and its diabetes program in December 2006. The State chose to implement the asthma program first because staff believed asthma would render the best initial return on investment. The program is opt-in, which has made enrolling members difficult due to trouble contacting them.

Electronic Medical Records

Iowa has developed an in-house online health information tool, the Iowa Electronic Medical Records System for physicians and hospitals. The system contains claims and pharmacy data updated weekly. Iowa worked closely with its provider community to test the system and gather feedback.

Program Implementation

Using claims data, Iowa identified 1,312 asthmatics with high costs and inappropriate use patterns for program outreach. The State attempted to reach this group through telephone calls but, after repeated attempts, had reached only one-third of the asthmatics. Iowa then sent letters to the identified group, but enrolled only 17 members

through this method. Program staff realized that to enroll their target population of 250 members, they would have to open enrollment to the entire population of asthmatics. This decision led to their enrolling 266 members.

Iowa also has also worked to involve providers in the program, with engagement activities such as creating a Clinical Advisory Committee of physicians throughout the State and extending outreach to provider organizations. The standing Clinical Advisory Committee includes nine members who represent primary care providers throughout the State. Responsibilities of the Clinical Advisory Committee include the following:

- Assess member use of services
- Assess new therapies and technologies
- Review Medicaid policies and recommend changes
- Support member and provider education
- Promote preventive services to members and providers

Program Interventions

Although disease-specific interventions vary for asthma, diabetes, CHF, and high utilizers, all members receive telephonic care management and educational materials. Disease-specific interventions include providing peak-flow meters to members with asthma and providing Pharos (a telephonic reporting system) for members with CHF. Iowa is working with Des Moines University to provide the Pharos system. As part of the Pharos intervention, members call the system every morning and answer five questions about their CHF health status (e.g., weight, shortness of breath, swelling). If the member's answers indicate a need for further assistance, a care manager calls the member.

Program Evaluation

Iowa has completed an evaluation for the first year of its asthma program, including a description of the program and interventions, participating members' demographic data, program costs, and program outcomes. In addition, IFMC creates monthly reports on the care management program that cover enrollment, contact data, and information on services provided to specific patients. Iowa also measures pharmaceutical utilization, emergency room utilization, and inpatient admissions.

Additional Information

Iowa Medicaid Web site: <http://www.ime.state.ia.us/>

Iowa Diabetes Pilot Evaluations:

<http://www.ime.state.ia.us/ManagedCare/ManagedCareDocs.html>

Kansas:

Enhanced Care Management Program

Kansas began enrolling Medicaid PCCM members in its pilot care management program in March 2006. The program serves high-need PCCM members in Sedgwick County, the State’s most populous county. Although the program currently has fewer than 200 members, it is expanding. Serving identified high-risk Medicaid beneficiaries, the program provides disease-specific management for asthma, diabetes, CHF, and other conditions.

Program Planning

Following a recommendation by the State legislature, the Kansas Medicaid agency decided to implement a care management pilot program as a cost containment and quality improvement measure. Before implementation, Kansas carefully reviewed care management options and data from its population. The State decided to focus on a care management program to develop an administrative program coordinating a broad range of services allowing for Medicaid beneficiaries’ “whole health.” Kansas chose to pilot the program in Sedgwick County because of its large concentration of patients, established PCCM program, strong legislative support, presence of a viable local vendor—Central Plains Regional Health Care Foundation (Central Plains), and a supportive medical society. The pilot was originally designed to operate for 5 years, but due to budget constraints it will operate for 2½ years.

Stakeholder Support
Because of budget constraints, Kansas’ program was nearly discontinued in August 2006. However, response from the community and local physicians created enough support to reverse the decision to cancel. Kansas staff would advise other States to seek and maintain a higher level of visibility for the program early to build a positive reputation within its own agency and the State.

Program Design

Kansas partners with Central Plains to deliver care management to PCCM members who choose to participate in the Sedgwick County project. The vendor is a nonprofit organization that also manages Project Access to connect the uninsured with donated community health services. Central Plains’ long-term relationship with providers and its connections to the Medical Society of Sedgwick County proved instrumental in helping the State secure provider buy-in for the program.

State staffing limitations compelled Kansas to partner with a vendor. Central Plains’ enhanced care management staff includes four nurse care managers for approximately 200 members. Each nurse care manager has a maximum caseload of 60 members. To assist the nurses, the State also employs a disease management specialist nurse, whose maximum caseload is 150 members, and two community resource care managers with a social service background.

Program Implementation

Kansas uses the Johns Hopkins Adjusted Clinical Groups Case-Mix predictive model to identify patients and stratify members for the care management program. After patients are identified, Central Plains contacts the potential enrollees for voluntary enrollment. Interventions, which vary, are based on member-identified needs, PCCM-identified needs, and utilization history.

Initially, Kansas faced difficulty recruiting members for the program. Eligible patients first are sent an invitation letter for the program, after which care managers attempt to reach them at least three times by phone.

To increase enrollment, Kansas expanded its criteria for potential members. Medicaid staff have visited the Central Plains office many times to review cases and program operations. Through these site visits and work with Central Plains, the State has been able to encourage a focus on the project's clinical outcome aspects.

Program Interventions

Kansas bases its interventions on the use of an interdisciplinary team of nurse care managers and social service specialists. Interventions include in-person and/or telephonic care management, connection with community supports, collaboration with the PCCM program, and provider and patient education materials.

Program Evaluation

Kansas is contracting with an external evaluator to conduct an evaluation of the care management pilot program. The claims-based evaluation will compare the program to a reference group in a similar Kansas county. When designing the evaluation, the State, external evaluator, and Central Plains met to discuss the evaluation philosophy and goals and to set measures. Central Plains also has implemented its own internal evaluation to assess patient health and program outcomes.

Additional Information

Kansas Medicaid Web site: <https://www.kmap-state-ks.us/>

North Carolina: Community Care of North Carolina

North Carolina Medicaid operates a statewide enhanced PCCM program, Community Care of North Carolina (CCNC). Implemented in 1998 and built on a traditional PCCM program (Access), CCNC currently has approximately 745,000 Medicaid beneficiaries. North Carolina's program is based on local physician networks responsible for the local leadership of the enhanced care management programs.

Program Planning

Before the implementation of CCNC, the majority of North Carolina's Medicaid population was enrolled in Access, the State's PCCM program. Although the purpose of Access was to provide every enrollee with a medical home, it was not intended to serve as a holistic care coordination system for a large population. CCNC was developed to help primary care providers manage the Medicaid population's health care needs and improve the quality of their care. CCNC's gradual

North Carolina's Lessons Learned: Provider Engagement

- Involve physicians early in the planning process
- Seek physician input in measurement and in creating care guidelines to obtain physician buy-in
- "Sell" the program to providers as a tool that can support their efforts to manage patient care
- Recognize that physician leaders can be your best advocates with the State legislature and with other providers
- Recognize that Physician Advisory Groups can provide valuable input and help gain provider buy-in

development allowed the provider networks time to create effective programs and show positive results without legislative scrutiny.

Program Design

North Carolina's program includes 14 physician networks. Unique in terms of structure, community partners, and project activity, each CCNC network was designed locally, allowing it to best fit the needs of its region. Each network must collaborate (via a business associate agreement) with the local health department, department of social services, and hospital or hospitals. The CCNC networks range in size from 17,000 to 180,000 members and receive \$2.50 per member per month from the State for

administrative and operation costs. Network physician leaders came to a consensus to concentrate care management and quality improvement efforts initially on asthma, diabetes, high ER utilization, and high-cost patients, based on inpatient hospitalization data and ER utilization. Currently, CCNC is expanding its care management and quality improvement program to cover CHF statewide. Individual networks manage other chronic illnesses, including obesity, attention deficit hyperactivity disorder, COPD, mental health integration, and sickle cell anemia.

Program Implementation

To build the CCNC networks, North Carolina relied on the unique strength of its physician community and the appeal of locally run programs. The first step in CCNC's network creation was to garner physician participation and buy-in by sending letters to primary care providers who serve more than 2,000 PCCM patients introducing them to the program's concept and asking them to participate. North Carolina then worked through an informal request for proposal (RFP) process with the interested primary care providers and other community Medicaid providers. Finally, the State partnered with local stakeholders to finalize program implementation.

Program Interventions

Networks provide all beneficiaries with a medical home and a toll-free call center and selected beneficiaries with care management. Beneficiaries are selected for care management using claims data stratification (identification of high-cost beneficiaries with chronic conditions) and provider referrals. For high-intensity patients eligible for care management, care managers first call or send a letter introducing themselves. The care manager reviews the patient's chart, conducts a four-page assessment, and talks with the family, especially if the patient is a child. Finally, the care manager develops a plan of care with the patient. Assigned to physician offices, care managers help ensure that patients make and keep their appointments. Care managers work closely with the physician and attend physician office staff meetings to become part of the office team that manages patient care.

Program Evaluation

Since program inception, CCNC has collected data and monitored financial, quality, and health outcomes. CCNC conducts both claims and chart audits to review outcomes and process data and measures. The CCNC program office assumes responsibility for collecting a range of outcome measures via claims analysis (e.g., inpatient admission rate) and performance and process measures via randomized chart audits (e.g., implementation of an asthma action plan). Each network has a medical committee consisting of participating primary care providers that reviews evidence-based guidelines and Medicaid claims data to make recommendations to the clinical directors. State program staff meet regularly with the network clinical directors in finalizing the performance measures for the program. This process helps ensure physician buy-in and support for the measurement process. North Carolina has contracted with the University of North Carolina's Sheps Center for Healthcare Research and Mercer Consulting to evaluate program outcomes and savings.

Additional Information

North Carolina Medicaid Web site: <http://www.dhhs.state.nc.us/dma/>

Community Care of North Carolina Web site: <http://www.communitycarenc.com/>

Sheps Center Evaluation: <http://www.communitycarenc.com/PDFDocs/Sheps%20Eval.pdf>

Oklahoma:

Care Management Program

Oklahoma expanded its care management program statewide in 2004. The program covers both the TANF and ABD populations in the PCCM and FFS programs, focusing on managing complex conditions and reducing comorbidities.

In 2006, the State legislature required Oklahoma to implement a care or health management program. Oklahoma issued an RFP focusing on high-cost individuals with one or more chronic conditions. The State will provide patient education and care management services to members, with in-person care management for the highest risk members. The program will also include the development of provider collaboratives focused on holistic health management and evidence-based guidelines, and practice site improvement for selected providers. The State recently awarded the contract for this program to the Iowa Foundation for Medical Care. Oklahoma held its implementation meetings with the vendor and is preparing to launch their program in early 2008.

Program Planning

After discontinuing its full-risk Medicaid managed care program, Oklahoma significantly increased its care management program (from 8 fulltime equivalents [FTEs] to 36 FTEs) for members enrolled in the expanded statewide PCCM program.

Program Design

Oklahoma's PCCM program, SoonerCare Choice, serves through mandatory enrollment the majority of Medicaid beneficiaries. Excluded from SoonerCare Choice are members dually eligible for Medicaid and Medicare, enrolled in an MCO, institutionalized, or enrolled in home- and community-based waiver programs, as well as children in State or tribal custody.

Oklahoma includes members from its PCCM program in the care management program. Members under the following conditions are automatically enrolled:

- Children receiving in-home private-duty nursing
- Women enrolled in the Breast and Cervical Cancer Prevention and Treatment Program (BCCPTP)
- Tax Equity and Fiscal Responsibility Act of 1982 children
- Transplant candidates
- Referred individuals with complex and diverse conditions, such as frequent ER utilization, high-risk pregnancy, high-risk newborns, dual diagnoses (in coordination with the Behavioral Health Department)

Program Implementation

Clients are identified and enrolled in the care management program in the following ways:

- Claims and encounter data
- Medicaid eligibility workers
- Second tier referrals of members with four or more ER visits per quarter
- Referrals from physicians, nurses, family, or friends

- Calls by beneficiaries to member services or the SoonerCare Helpline

The major provider-oriented activity is care coordination for complex cases, including specialty referrals. Nurses maintain a current list of specialists who will see Medicaid patients. The nurses also help expedite particular referrals when needed or arrange for specialty care within and outside Oklahoma.

Care management nurses attempt to contact each woman enrolled in the BCCPTP to facilitate diagnostic and treatment services. This contact continues until the woman no longer needs treatment for breast or cervical cancer.

Providers helped develop the evaluation grid used to evaluate children for in-home private-duty nurse services. Oklahoma educates the provider community about care management services through outreach, including health fairs, and provider training. The care management program collaborates with large provider groups, including State university provider panels.

Program Interventions

Oklahoma’s care management program continued some of the interventions implemented by the MCOs. Interventions include the following:

- Toll-free care management telephone system
- Nurse exceptional needs coordinators
- Patient self-management

Program Evaluation

The Emergency Room Utilization Initiative has realized positive results, with large decreases in ER visits. Oklahoma employs claims and encounter data to create provider profiles, which the State develops and distributes to the SoonerCare Choice provider network. Additional profiling efforts developed include breast and cervical cancer screening; Early Periodic Screening, Diagnosis, and Treatment; and immunizations. Oklahoma is interested in moving the program to a predictive model that is more proactive in nature.

Emergency Room Utilization Initiative
<p>The Emergency Room Utilization Initiative was implemented to curtail improper ER utilization. The initiative includes:</p> <ul style="list-style-type: none"> • PCCM provider profiling of assigned enrollees’ ER utilization to show PCCM primary care providers their patients’ ER utilization rates and how these rates compare to these providers’ peers • Outreach to beneficiaries with high ER utilization (four or more visits in a quarter) • Interventions include letters, telephone calls, primary care provider assignment, and location of specialists. • Follow-up on nurse call line calls that directed beneficiaries to the ER

Additional Information

Oklahoma Medicaid Web site: <http://www.okhca.org/home.aspx>

Pennsylvania: ACCESS PLUS

Pennsylvania implemented ACCESS Plus, its enhanced primary care case management (EPCCM) and disease management program in 2005. ACCESS Plus covers both the TANF and ABD populations with a disease management focus on asthma, diabetes, CHF, CAD, COPD, and high-risk obstetrics.

Program Planning

Prior to implementing ACCESS Plus, the State was having difficulty expanding mandatory managed care into additional counties, which were more rural, had low managed care penetration, and had little provider interest. To mitigate these issues, Pennsylvania decided to pursue an EPCCM and disease management program.

To begin planning ACCESS Plus, Pennsylvania used lessons learned from its mandatory Medicaid managed care program. The State formed an interdepartmental workgroup, included various stakeholders, and consulted with other State programs. During the procurement process, Pennsylvania worked closely with the Centers for Medicare and Medicaid Services (CMS) to develop an RFP and corresponding waiver. Pennsylvania also collaborated with potential vendors through the pre-RFP and proposal process. To review bids, the State used both a technical committee and a cost committee.

Program Design

The EPCCM and disease management program is operated through a vendor contract and medical home model. With the exception of managed long-term care enrollees, nursing home residents, institutionalized persons, and dual eligibles over age 21, all newly eligible Medicaid beneficiaries in the additional counties are automatically enrolled in ACCESS Plus. Members who choose to participate in voluntary managed care are disenrolled from ACCESS Plus. An independent enrollment assistance vendor educates Medicaid beneficiaries on their choices, helps them with primary care provider selection, and processes all enrollments.

Program Implementation

The State assembled Regional Advisory Committees comprised of physicians and program members who meet regularly to offer feedback on disease management activities. The vendor also created a monthly steering committee and an advisory committee that included providers and health plan representatives. Each of these entities renders constant feedback to the vendor and the State.

Pennsylvania also launched a pay-for-participation program designed to offer incentives for providers in three critical areas: help enrolling eligible patients in the program, collaboration in members' disease management, and delivery of key clinical interventions that help improve quality of care and clinical outcomes. The program strives to minimize workflow impact for offices by providing flexibility as to who completes the Chronic Care Feedback Forms to meet requirements.

Program Interventions

Three care management units operate for the ACCESS Plus population: Primary Care Case Management, Disease Management, and Intensive Case Management. All three units work together to refer patients to respective units that can better meet their needs.

- **Primary Care Case Management.** This unit, operated by Pennsylvania’s vendor, provides care or services beyond what is typically offered to PCCM members. Services might include prevention, care coordination, and support for high-risk pregnancies.
- **Disease Management.** Operated by Pennsylvania’s vendor, this unit includes a field staff of community-based nurses and workers. The community-based nurses help deliver disease management services to program members. Interventions can be telephonic or in-person if staff are unable to reach the member by telephone. Nurses encourage members to visit their primary care provider, teach members to recognize signs of disease process, increase members’ self-management skills, coordinate with the provider’s plan of care, and promote a healthy lifestyle. Community-based workers locate the member, explain services and benefits, and help locate basic community resources. Pennsylvania’s vendor employs a proprietary risk stratification methodology with three tiers:
 - **Level One.** Educational mailings, nurse call line, audio health libraries. (The patient receives a call from a nurse care manager at weeks six and 26.)
 - **Level Two.** All Level One services plus more frequent calls from a nurse care manager. (The patient might be referred to PCCM, whereby the patient’s provider is notified that he or she is receiving disease management.)
 - **Level Three.** All Level One and Level Two interventions plus in-person visits and a more intensive call schedule.
- **Intensive Case Management.** Operated by State staff, this unit provides services to high-risk members with a range of conditions. The majority of case management is telephonic; in-home visits are conducted on a case-by-case basis.

Pennsylvania’s Pay-for-Participation Program
<p>Pay-for-participation payments are made in addition to Medicaid fees paid for covered professional services. Physicians receive payments for:</p> <ul style="list-style-type: none">• Reviewing and partnering in the ACCESS Plus program• Contacting newly eligible high-risk patients to encourage them to enroll in the program• Furnishing contact information for selected patients• Completing the Chronic Care Feedback Form that care coordination nurses use to help them monitor and coach high-risk patients more effectively• Implementing clinical interventions for year one, based on self-reported data by high-risk patients• Implementing clinical interventions for year two, based on claims data for both high-risk and low-risk patients• Implementing clinical interventions for year three (measures yet to be selected) <p>In November 2007, Pennsylvania transitioned its program to reward providers for improvements in clinical outcomes.</p>

Program Evaluation

Pennsylvania conducted a chart review of modified HEDIS measures using six medical technicians (approximately 1.5 FTEs for two months) who pulled samples for each HEDIS parameter and programmed claims data to run modified HEDIS measures.

Additional Information

Pennsylvania Medicaid Web site: <http://www.dpw.state.pa.us/OMAP/>

Pennsylvania ACCESS Plus Program Web site: <http://www.accessplus.org/>

Rhode Island:

Connect CARRE (Coordinated Assessment Referral Re-Assessment Evaluation)

Rhode Island began serving adult FFS members through a chronic care program, Connect CARRE, in 2002. The program is not disease specific, but instead identifies high-risk and high-cost members to assist through care management. Rhode Island has a provider contract with a State MCO to provide nurse care managers for the program.

Program Planning

Rhode Island created its managed care program in response to a legislative mandate and State concerns about the cost and quality of care for adults with chronic conditions. Approximately 45,000 adults are enrolled in the FFS program, and 15,000 are not dual eligibles and are living in the community. Of the 15,000, 620 have been served through Connect CARRE. Program goals include the following:

- Improve the wellness of chronically ill members by engaging, empowering, and educating them to manage their conditions
- Promote primary and preventive care through the medical home
- Reduce acute care costs by shifting care appropriately to community and ambulatory care settings
- Improve disease-specific care and monitoring

Program Design

Rhode Island partnered with Medicaid’s Neighborhood Health Plan of Rhode Island (NHPRI) to build its care management program. NHPRI provides nurse care management to the program through a provider agreement. Targeting adults with three or more chronic conditions living in the community, Connect CARRE focuses on teaching self-management techniques, managing comorbidities and social issues, and providing care guidelines for people with specific diseases.

Rhode Island’s Lessons Learned: Self-Management

- Be prepared for a significant time and financial commitment
- Partner with other State entities to “share the wealth”
- Explain the program clearly to partnering entities and new trainers

Program Implementation

Rhode Island uses predictive modeling to identify high-risk adults for the program. Initially, identified patients were invited to join the program, but enrollment was low. Rhode Island switched to an opt-out strategy, which increased enrollment. Due to incorrect address data and limited consumer response, however, enrollment was still too low to keep the program viable. Rhode Island then placed a nurse care manager at its largest hospital and began training hospital discharge planners to refer patients to Connect CARRE. This method has proven the program’s most successful recruiting strategy.

Program Interventions

NHPRI has four nurse care managers, dedicated fulltime to this project, making in-person visits and providing telephonic care. The nurse care managers lead a care team that can include the patient's primary care provider, social worker, and pharmacist to coordinate care. Given the severity of their conditions, patients typically do not graduate from the program.

In addition to nurse care management, Rhode Island has brought the Stanford Chronic Disease Self-Management Program (CDSMP) to the State. CDSMP offers group self-management training through a 6 week course. Rhode Island has trained 17 CDSMP master trainers who will be able to train additional trainers and conduct self-management courses. In January 2007, Rhode Island held its first 6 week self-management course.

Program Evaluation

Rhode Island performs all program monitoring and evaluation in-house. Every year the State compares utilization data for all Connect CARRE members in all settings (including behavioral health, nursing facilities, emergency room, and pharmacy) to the utilization data for Medicaid beneficiaries who chose not to enroll in Connect CARRE. Rhode Island also collects clinical outcomes measures, including influenza vaccination rate, smoking cessation, daily weighing, foot exam, eye exam, and HbA1c testing. All measures except for smoking cessation are collected through claims data; nurse care managers report on smoking cessation. Rhode Island also conducts patient and physician satisfaction surveys.

Additional Information

Rhode Island Medicaid Web site: <http://www.dhs.state.ri.us/>

Rhode Island Connect CARRE Web site:
<http://www.dhs.state.ri.us/dhs/Connect%20CARRE.htm>

Texas:

Disease Management Program

Texas began its disease management program in 2004, serving TANF and supplemental security income (SSI) adults and children in PCCM and FFS Medicaid, who reside in non-urban areas. To be eligible, patients must be diagnosed with one or more of five diseases: asthma, diabetes, CHF, CAD, or COPD.

Program Planning

Texas launched its disease management program in response to a legislative mandate. The State legislature mandated \$8.5 million in savings for the program. Because of staffing limitations, the Texas Medicaid agency decided to contract with an outside vendor.

Program Design

Texas sends its vendor a presumptive eligibility file of approximately 1.1 million potential members. Through an algorithm, the vendor identifies eligible members and determines who the program will actively manage through the call centers. All eligible members are enrolled but can opt-out of the program. Of the 48,000 eligible individuals identified, approximately 11,000 are actively receiving disease management services.

Program Implementation

Texas' vendor conducts provider outreach activities on behalf of the State. Before program implementation, the vendor met with major provider groups, such as the Texas Medical Association, to promote the program. Texas' vendor initiated a variety of strategies to engage providers:

- Distributing clinical guidelines to Medicaid providers
- Creating the Physician Advisory Board, a statewide coalition of providers who meet quarterly to provide program feedback
- Establishing a disease management advisory group comprising various stakeholders
- Sending alerts to providers when a patient requires follow-up care
- Hosting continuing medical education classes, offering decision support software, and providing physician practice improvement
- Offering Chronic Care Patient Registry Reports to providers

Chronic Care Patient Registry Report

The Chronic Care Patient Registry Report, distributed by the vendor semiannually, profiles physicians with four or more disease management members and includes information on:

- Summary statistics across the network
- Individual physician performance on condition guideline and utilization measures
- Disease-specific measures

The disease management program manages provider relations using local medical advisors, who meet with providers in their areas, meet quarterly with the equivalent of an advisory committee to network with other providers, and respond to other issues as they arise.

Program Interventions

Program interventions are mostly telephonic with community-based nurses paying some in-person visits and communicating with providers if urgent action is required. Interventions include a health assessment, patient education materials, telephonic contact, home visits, a 24/7 nurse call line, patient self-management, and provider education. Texas' vendor operates the call center, which allows incoming and outgoing calls.

Program Evaluation

Texas staff visited their vendor headquarters to meet with program staff and to learn about the call center. Their major goals for the site visit were ensuring that activities specified in the contract were being accomplished and understanding the vendor's call center operations. To prepare for the site visit, Texas developed an onsite monitoring tool that lists items for evaluation. To follow up on specific questions from regular reporting on the call center operations, Texas staff listened in on calls and offered recommendations to redesign the call center scripts. State staff also reviewed call center staff's methods for recording information from calls. Texas expects to repeat a site visit to the vendor headquarters annually. In addition to an onsite review of the call center, Texas staff plan to conduct a more comprehensive review of operations by interviewing focus groups and evaluating home visits by nurse care managers. Finally, the State plans to complete an independent assessment of the State's 1915(b) waiver.

Additional Information

Texas Medicaid Web site: <http://www.hhsc.state.tx.us/medicaid/index.html>

Virginia: Disease State Management Program

In January 2006, Virginia Medicaid began operating a disease management program for its FFS and PCCM populations. Virginia contracts with a vendor to provide disease management services for recipients with asthma, diabetes, CAD, and CHF.

Program Planning

Virginia has a long history of providing disease management services to Medicaid beneficiaries. Beginning in 1993, the State's first program, Virginia Health Outcomes Partnership, provided disease management to members with asthma and diabetes. In 1997, Heritage/ACS operated an expanded statewide disease management program, which changed to a provider-centric model focused on pharmacological management and increased the number of diseases covered. This program ended in 2000.

In 2004, Anthem, one of Virginia's Medicaid MCOs, approached the State with a proposal to provide a pilot disease management program at no cost to the State. Virginia agreed to the pilot, and Anthem's subsidiary, Health Management Corporation, implemented Healthy Returns, which ran from June 2004 through June 2005. During Healthy Returns' pilot year, the State legislature passed legislation requiring Virginia to implement a disease management or chronic condition care management program. Healthy Returns continued to run until the new program was operational.

Virginia's Lessons Learned: Enrolling Members in HCBS Waivers

- Work with MR/DD Directors Disease management is not a redundant service for the MR/DD population
- People with MR/DD can participate actively in managing their disease

Program Design

Issuing a RFP for its program in May 2005, Virginia awarded the contract to Health Management Corporation (HMC), to implement its pilot program. The State chose to cover asthma, diabetes, CAD, and

CHF and to include individuals receiving mental retardation/developmentally disabled (MR/DD) home- and community-based waiver services (HCBS) in the disease management program.

Initially, stakeholders resisted inclusion of the MR/DD population in the program because they felt disease management services would be redundant and potentially contradictory to the care coordination that members in the MR/DD waiver receive. The State worked closely with the MR/DD advocacy community, MR/DD Directors, and group home providers to develop protocols for working with the MR/DD population. Virginia now has actively engaged MR/DD waiver clients and has received no complaints.

Another important feature of Virginia’s disease management program is the State’s ability to benchmark condition-specific outcome measures from the FFS disease management program to identical outcomes measures from the Medicaid MCO disease management programs. Virginia worked with HMC to develop “HEDIS-like” measures for this process. Benchmarking across the FFS program and the MCO programs has enabled Virginia Medicaid to improve care and access for all disease management members. All MCOs offer disease management for at least four conditions, and Virginia can identify and build on successes identified through this process.

**Virginia’s Lessons Learned:
Coordination of FFS and MCO
Disease Management Programs**

- Select identical conditions for all MCOs and FFS programs to cover
- Establish similar condition-specific benchmarks
- Evaluate and build on successes

Program Implementation

HMC assumes responsibility for the majority of program implementation tasks. The vendor identifies and enrolls Medicaid beneficiaries in the disease management program based on claims and eligibility data. The program requires members to opt-in to enroll. Initially, Virginia worked with CMS to develop a 1915(b) waiver program to automatically enroll all eligible members, while giving members the ability to opt-out. Virginia, however, changed this strategy, and CMS approved an Alternative Benchmark State Plan Amendment for Virginia to operate an opt-in disease management program.

Program Interventions

Virginia’s disease management interventions include:

- case management,
- 24/7 nurse advice line,
- health status assessment,
- disease education, and
- self-management monitoring.

Providers have access to a toll-free line for questions about the disease management program, and they receive treatment protocols and evidence-based guidelines.

Program Evaluation

Virginia’s program evaluation and monitoring includes vendor reports. HMC measures cost savings by developing a predictive model of expected expenditures and comparing projected expenditures to actual expenditures, less program costs. The vendor is required to submit regular reports on disease management, outreach and participation, nurse call line activity, satisfaction surveys, and clinical outcomes. HMC also measures utilization including the number of hospital admissions and readmissions, number of emergency room and ambulatory care visits, and physician office visits. In addition, the vendor reports the degree of participation in self-management (a self-reported measure).

Virginia also has contracted with an External Quality Review Organization, Michigan Peer Review Organization (MPRO), to monitor its contract with HMC. MPRO ensures HMC is meeting contract requirements and will evaluate program cost effectiveness. Finally, Virginia plans to conduct an internal review of the program.

Additional Information

Disease State Management Program Web site: <http://www.dmas.virginia.gov/dsm.htm>

Virginia Disease Management Report: http://www.dmas.virginia.gov/downloads/pdfs/dsm-dsm-medicaid_report_to_GA_11-05.pdf

Washington: Chronic Care Management

Implementing a disease management program for Medicaid fee-for-service members in April 2002, Washington contracted with two vendors, focusing on asthma, diabetes, CHF, chronic COPD, end stage renal disease (ESRD), and chronic kidney disease. The program ran for 4 years, ending June 2006.

Building on experience from the original program and successes in other States, Washington created a new program with both a statewide vendor and local vendor. In January 2007, the State piloted a new chronic care management program. Washington contracts with AmeriChoice to provide care management services and a predictive modeling mechanism statewide. At the same time, Washington contracts with a local organization, Seattle Aging and Disability Services (Seattle ADS), to coordinate medical home and care management services for King County residents. The pilot is testing the effectiveness of predictive modeling and the ability of local care management organizations to deliver services.

Program Planning

In 2001, Washington's legislature mandated the creation of a Medicaid disease management program to cover three to five conditions, with an intended cost savings of \$600,000 within the biennium. The State reached out to providers for support and input during the planning process, primarily through professional associations (e.g., State medical association, pharmacy

Communicating with Providers: Benefits of a Disease Management Program

- Will enhance, rather than replace, primary care provider services
- Will not result in reductions of provider payments
- Will not create significant paperwork for providers

association) and several provider meetings across the State. In partnership with the State health department, Washington coordinated provider-focused collaboratives on chronic diseases. The State also sought consumer input through its Title 19 (Medicaid) Advisory Committee.

Program Design

As part of the 2001 legislative mandate, the legislature commissioned a planning study from the Washington State Institute for Public Policy at Evergreen State University. The study estimated the per-member per-month (PMPM) cost of the program and made recommendations about diseases that should be covered. Based on the results of this report and its experience, the Medicaid agency decided to adopt a disease-specific approach; moreover, the short timeline to achieve savings dictated by the legislation compelled the State to adopt a vendor model rather than create an in-house disease management program.

When the State issued a request for information and a RFP, bidders were asked to recommend diseases. The winning bidder, McKesson, proposed covering asthma, diabetes, and CHF. Washington contracted with a second vendor, Renaissance, to provide disease management services for ESRD. COPD and chronic kidney disease were added a year later.

For the new Chronic Care Management program, an RFP was issued to select vendors for predictive modeling using Medicaid claims data as well as for care management for members

with chronic conditions. AmeriChoice was awarded the statewide contract for predictive modeling and care management services outside King County, and Seattle ADS was awarded the care management contract for King County. Washington also solicited models that supported the local medical home infrastructure, and Seattle ADS is providing that service with several King County clinics.

Program Implementation

Based on claims data provided by the State, McKesson's algorithm identified members who might have had diseases covered by the program. The algorithm sorted members into disease categories according to a hierarchy of conditions; the remaining members remained enrolled to be able to access the nurse call line. Care managers were required to make multiple attempts (at least seven telephone calls) to contact hard-to-reach members. In the contract's fourth year, the State assigned payment differentially according to high-risk and low-risk status by condition and assigned a basic payment to members with none of the four conditions. After 90 days, if a member was still unreachable, he or she was automatically assigned to the low-risk category.

Approximately 20 providers were involved in the program through an advisory committee with provider representation. Providers initially participated in disease-specific subgroups to allow McKesson and the State to receive valuable feedback on the disease management program.

Program Interventions

Washington's program with McKesson included member interventions such as assessment, a toll-free telephone system, a nurse call line, nurse care managers, and member education. For providers, McKesson offered evidence-based guidelines and protocols. Providers received individual faxed reports or queries on members and enrollment data on the number of their members enrolled in the disease management program.

Program Evaluation

Washington contracted with Milliman, an actuarial consultant, and the University of Washington to conduct program evaluations. The University of Washington analyzed outcomes data to determine the efficacy of the disease management program's first year. The study compared members actively enrolled in the program (i.e., receiving disease management) to a control group of patients who were not actively enrolled. The control group members and their providers received education and support materials by mail. To evaluate the program, the University of Washington used several data sources, including claims data, chart data, and vendor-provided administrative data. Findings from the University of Washington evaluation include the following:

- **Asthma.** Disease management patients were more than twice as likely to have written care plans. Length of stay decreased for high-risk patients who were hospitalized.
- **Diabetes.** Disease management patients were more than twice as likely to receive an HbA1c test and one and one-half times as likely to have a retinal exam.
- **CHF.** No significant outcomes were found.
- **ESRD.** A high degree of patient contact was associated with improved lab values. Emergency room visits, hospitalizations, and length of stay decreased for patients with ESRD.

The Milliman study found that the disease management program improved overall use of medical services (e.g., fewer days in the hospital for children with asthma and members with ESRD). It also found that the asthma, diabetes, and CHF program realized no net savings in its first year; however, ESRD did realize net savings (\$29.58 PMPM beyond the guaranteed savings).

Additional Information

Washington State Medicaid Web site: <http://fortress.wa.gov/dshs/maa/>

Media release for the conclusion of Washington's pilot disease management program:
<http://www1.dshs.wa.gov/mediareleases/2006/pr06088.shtml>

Wyoming: Health Management Program

Wyoming’s Health Management Program offers care management to all Wyoming Medicaid beneficiaries. Implemented in 2004, the program targets approximately 76,000 members and addresses all chronic conditions.

Program Planning

With a strong background in care and utilization management, Wyoming Medicaid staff already knew about their benefits and, consequently, decided to include all populations in wellness and prevention activities. They did not consider operating the program in-house because of program staffing limitations. While drafting a RFP, the State contracted with a consultant to develop a specific return-on-investment (ROI) methodology, to which Wyoming’s vendor agreed before finalizing the contract. The consultant remains on retainer to assist Wyoming with future ROI needs.

Program Design

All Medicaid beneficiaries are eligible to receive wellness and preventative services. Members with coronary artery disease, congestive heart failure, diabetes, chronic obstructive pulmonary disease, asthma, and depression as well as high-risk maternity cases may participate in the care management program. Complex case management is reserved for members with catastrophic conditions. Members may disenroll from the program. Wyoming was not required to submit a waiver to the CMS; the program is funded using an administrative match.

Program Implementation

To identify patients, Wyoming supplied its vendor with two years of claims data at the start of the contract. Because Wyoming’s care management vendor is also its utilization management vendor, it has access to claims data feed daily. The vendor uses claims history to identify members for care management services, stratifies them by risk, and conducts outreach accordingly. If a member requires complex case management, the vendor refers him or her to Wyoming staff for the case management component.

Health Buddy
Wyoming’s Health Management Program offers some members the Health Buddy, a telemedicine device that collects symptomatic and behavior information vital signs and tests members’ knowledge base. This information is transmitted through a telephone line to the member’s health coach. High-risk members who are enthusiastic about using the Health Buddy receive the device after three conversations with a care manager.
The Health Buddy requires members to respond to five to eight questions daily, entering information such as blood sugar level and weight gain. Nurse care managers call all Health Buddy users once a month, but they call immediately if a member’s daily responses indicate his or her health might be in danger.

Program Interventions

The Health Management Program comprises three components: disease management, complex case management for specific conditions, and prevention and education.

- **Disease Management.** Health coaches or case managers—registered nurses with specific experience in a clinical area and at least three years of acute care management experience—provide the majority of member support and education telephonically. For some diseases, such as mental health disorders, health coaches and care managers are licensed professionals or social workers certified to deal with mental health issues. The goals of health coaching are to empower members to better understand their illness and self-manage their condition as well as to coordinate care between providers, the member, and the community. Wyoming’s vendor operates a 24/7 call center for all Health Management Program members. Registered nurses operate the call center, which is located in Montana. Few calls come into the center, likely because once a health coach or care manager contacts a member, the member begins contacting the health coach or care manager directly. To minimize after-hours calls, members also receive instruction in how to handle emergencies.
- **Complex Case Management.** Case Management is a method of managing the provision of health care to members with high-cost medical conditions. Health Management Program members are identified proactively via triage of pre-certification requests, analysis of claims and pharmacy data, or both. Types of cases appropriate for complex case management include trauma, genetic disorders, hemophilia, and cancer.
- **Prevention and Education.** Wyoming’s vendor distributes a Healthwise Handbook, which is a self-care guide covering topics from ear infections to diabetes with clear, easy-to-understand information and illustrations.

Program Evaluation

Limited staffing prevents Wyoming from performing in-house measurement or evaluation. Instead, the State contracts with a vendor to monitor the program, conducting member and provider satisfaction surveys. In addition to monthly and quarterly reports, the vendor submits an annual report containing results of the quality and clinical outcomes measures, an executive summary of program educational events, and outreach and enrollment strategies.

As part of the contract, Wyoming contracts with an actuarial consultant to conduct an external ROI evaluation. The consultant collects data to calculate trends and ROI. Eighty percent of the ROI is based on financial outcomes, while 20 percent depends on performance measures outcomes. The baseline, calculated by using data from the aged, blind, and disabled population from five surrounding states with no care management program, was combined with trends from the Wyoming TANF population. The PMPM cost was compared to the Health Management Program’s PMPM cost.

Additional Information

Wyoming Medicaid Web site: <http://wyequalitycare.acs-inc.com/>

Wyoming Health Management Program Web site: <http://wdh.state.wy.us/medicaid/healthmgmt.asp>