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Evaluation of Care and Disease Management
Under Medicare Advantage
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Final Report

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EXECUTIVE SUMMARY

The projected financial burden of paying for chronic disease treatment is enormous – it is estimated that spending for individuals with chronic conditions will contribute towards approximately 80% of the annual \$1 trillion the U.S. spends on health care¹. This burden is particularly severe within the Medicare population, where 75% of those over age 65 report having at least one chronic condition and nearly half of those report having two or more conditions². Medicare beneficiaries with high-prevalence, high-cost, medical conditions typically require frequent and expensive health care from a wide range of providers. The risk of fragmented and duplicative care resulting in unnecessary hospitalizations, re-admissions and poor health outcomes, is great. Beneficiaries are often poorly positioned to manage their complex care needs and navigate the health and social service systems they interact with. While some may benefit from the help of caregivers, a great number of beneficiaries lack adequate support and even those that do could benefit from additional intervention; this could include managing specific conditions and diseases, such as in disease management programs, or focus more broadly on managing and supporting the continuum of care, such as with care management programs.

To help minimize the quality of life and budgetary impact of chronic illnesses, the Centers for Medicare & Medicaid Services (CMS) has undertaken a series of major demonstrations to explore health care coverage options directed at beneficiaries with chronic illnesses. For example, the CMS initiated Care Management for High Cost Beneficiaries (CMHCB) demonstration pays provider groups under the Original Medicare program to identify beneficiaries with multiple conditions and develop interventions, such as better care coordination or appropriate use of different medical care settings, to improve care delivery and outcomes.

While CMS has funded End Stage Renal Disease (ESRD) and Special Needs Plan (SNP) evaluations within managed care settings, the spectrum of disease and care management programs available through Medicare Advantage (MA) plans is not well documented. With the advent of the Part D prescription drug benefit, more Medicare managed care products are being offered and enrollment in them has surged. Care and disease management (C/DM) programs are currently implemented and defined in many different ways. For the purposes of this study, “care management” (CM) programs are considered those designed to manage patients with multiple chronic conditions who are considered high-risk because of a combination of health, social, and functional problems. Disease management (DM) programs are defined as those programs managing patients with a particular disease, such as diabetes or hypertension. When referring generally to care and/or disease management programs and issues we utilize the term care and disease management (C/DM).

Many health plans enroll selected members into care and disease management programs to help streamline care, optimize health outcomes, and minimize health care costs. The structure and nature of these care and disease management programs vary and are not well documented in the

¹ Anderson, J. J., M. Ruwe, et al. (2002). “Relative costs and effectiveness of specialist and general internist ambulatory care for patients with 2 chronic musculoskeletal conditions.” *J Rheumatol* 29(7): 1488-95.

² Congressional Budget Office. (2005). *High-cost medicare beneficiaries*. Washington, DC: Julie Lee and Todd Anderson.



public domain. L&M Policy Research and its subcontractors, Mathematica Policy Research (MPR) and National Council on Aging (NCOA), are assisting CMS in assessing care and disease management programs available through MA plans across four key aims:

- Document and characterize the universe of care and disease management programs under MA plans;
- Document and characterize the populations enrolled in these programs;
- Characterize how health plans or vendors function in the structure and implementation of C/DM programs; and,
- Document the range of effectiveness measures (e.g. structure, process, outcomes metrics) used to monitor and provide feedback in these programs, noting any particular findings on program effectiveness.

While the scope of this work will not provide any definitive evaluation of C/DM program effectiveness, it is a critical first step in documenting a base-line distribution of program characteristics and offering up a framework for longer-term profiling efforts, charting trends, and benchmarking the evolution of these programs in the managed care arena.

To address these aims, the L&M team undertook a multi-pronged approach that includes a limited literature review, patient and stakeholder interviews, a survey of Medicare Advantage organizations (MAOs) offering care management or disease management programs, and case studies with six MAOs. To provide a conceptual foundation through which these research aims were addressed, we integrated an adaptation of the Chronic Care Model (CCM), an evidence-based framework that describes the interaction between the health care setting, community and patient as they relate to health outcomes.^{3,4} Specifically, the components presented under the Health System portion of the model are particularly relevant when characterizing programs designed to monitor and manage the complex health of Medicare beneficiaries living with chronic conditions. These include:

- Self-Management Support – information and support provided by an organization to patients that facilitate self-care through patient-provider collaboration;
- Delivery System Design – availability of a broad practice team that can provide outreach and close follow-up, often characterized by the involvement of non-physician practitioners;
- Decision Support – availability of guidelines and protocols that keep providers informed about standards of care and other information to assist in clinical and other decision making about the care of a patient; and,
- Clinical Information Systems – availability of timely data on patients/populations enabling practitioners to effectively monitor and understand the needs of individuals they serve.

³ Wagner EH, Davis C, Schaefer J, et al (2001). “A survey of leading chronic disease management programs: are they consistent with the literature?” *Manag Care Q*; 7: 56-66.

⁴ Bodenheimer T, Wagner EH, Grumbach K (2002). “Improving Primary Care for patients with chronic illness: the chronic care model, part 2.” *JAMA*; 288: 1909-14.



With the CCM in mind to guide, the team undertook the following:

Literature Review

In order to ground the study findings in an evidence-based context, the project team conducted a focused literature review, using MPR's March 2000 report "Best Practices in Coordinated Care" as a departure point. In addition to providing context to the project, the literature also helps to address some of the research questions.

Despite the limited number of studies assessing care and disease management programs, the literature does suggest positive health and cost outcomes associated with these interventions; medical service use was significantly decreased in three of the reviewed studies;

- One DM program for management of heart failure among the elderly resulted in a 23% reduction in hospitalizations, 26% fewer inpatient bed-days, 22% fewer ER visits, 44% fewer hospitalizations for heart failure, 70% fewer 30-day readmissions, and 45% fewer skilled nursing facility days in patients who received intervention, compared with rates before DM was introduced as part of treatment⁵;
- A diabetes management program resulted in a 22-30% decrease in hospitalizations⁶;
- One multi-condition CM program reduced emergency room visits and inpatient admissions for care of diabetes, asthma, and CHF, but not for hypertension⁷.

Overall, C/DM programs have potential for decreasing costs in health care by reducing medical service use. It is also evident that many C/DM programs have been able to improve health outcomes and/or quality of health care, with the literature reporting the most success in programs focused on diabetes and congestive heart failure. The implication for managed care is that C/DM programs can be beneficial in several key ways; studies of general C/DM programs (i.e., those not restricted to managed care settings) have sought to establish the usefulness of C/DM programs at keeping people more satisfied and healthier, by preventing hospital re-admission, improving health outcomes, and improving quality of life. These studies consistently showed at least some level of success as the C/DM program yielded positive outcomes along the above dimensions. MAOs seem well positioned to explore ways the programs can be mutually beneficial to the health plan and the member. However, the current state of the literature on C/DM in managed care settings is heavily focused on cost-reduction. While improving patient-level outcomes may be implied, or a corollary aspect of these programs, published studies do not necessarily frame the programs in this way. This does not imply necessarily that C/DM programs under managed care are not concerned with these outcomes, simply that the literature does not contain examples of these to date.

⁵ Berg, GD, S Wadhwa, et al. (2004). "A matched-cohort study of health services utilization and financial outcomes for a heart failure disease-management program in elderly patients." *J Am Geriatr Soc* 52(10): 1655-1661.

⁶ Villagra, VG and T Ahmed (2004). "Effectiveness of a disease management program for patients with diabetes." *Health Aff (Millwood)* 23(4): 255-266.

⁷ Afifi, AA, DE Morisky, et al. (2007). "Impact of disease management on health care utilization: evidence from the "Florida: A Healthy State (FAHS)" Medicaid Program." *Prev Med* 44(6): 547-553.



In addition to the programs discussed above, a recent Blue Cross Blue Shield report describes C/DM successes within their organization in management of CHF, osteoporosis, diabetes, kidney failure, and overall elder-care (2007). In sum, C/DM programs appear to benefit both managed care providers and patients, and while these overarching results may in fact be an artifact of a skewed literature base of managed care-related studies, there is sufficient evidence to suggest that C/DM approaches can result in positive patient and cost outcomes. In addition to further enriching the literature base in this area, it will be important to also explore what particular features and characteristics are associated with the relative success of managed care driven C/DM programs over those in other settings. These factors may range from the broad structural differences in care delivery and management between managed care and non-managed care settings, differences in populations enrolled in these programs, or variations in how the features of the programs are implemented.

Key Informant Interviews

We conducted 28 interviews with C/DM stakeholders ranging from academic and policy experts to providers, plan administrators, and C/DM program directors. These stakeholders provided context not otherwise captured through a survey or a literature review and helped identify themes and other nuances about these programs. To assess patients' views of their care and disease management program, we recruited potential respondents via chronic disease listservs and conducted short interviews with ten patients engaged in a C/DM program.

The overwhelming theme that emerged from these interviews is that C/DM programs share the same goals of fostering appropriate health care utilization as well as improving and maintaining member health. These programs also have some broad similarities from a macro-level perspective, including being largely data driven (via claims, utilization, lab results, staff assessments), patient-directed, and focused on reaching segments of the member population who can most benefit from intervention. It is these segments of the population that tend to comprise members with multiple and complex chronic conditions, or are otherwise at higher risk for intensive medical care use.

Despite some consistency in these general features, examining C/DM programs at a more detailed level reveals wide variation in program focus, approach (including amount of financial and other resources dedicated to these functions), operations, staffing, and data systems. From these interviews, it is difficult to draw generalizations across plans, due to the diversity in populations served, market share, geography and organization and plan structure. However, repeatedly and across nearly all interviews, it was clear that if “you have seen one program, you have seen one program.”

Survey of Medicare Advantage Plan Contract Holders

Given the current lack of information about how MA plans use C/DM programs to improve member health and manage financial risk, a survey was conducted to establish a benchmark against which to compare the use of such programs as they evolve over time. Care and disease management programs in managed care settings can take many forms, varying in their overarching infrastructure and design to the implementation of myriad activities. While there



can be great variation, the vast majority of MA contracts are still in formative stages of developing their respective C/DM programs. Nearly every MA contract offers both care management and disease management programs, and these programs share core similarities that help illustrate what C/DM programs look like under MA in 2008. Specifically, the survey instrument addressed characteristics of C/DM programs, physician interventions, provider arrangements and electronic data systems, differences between regular MA plans and Special Needs Plans (SNPs), and evidence of effectiveness and assessment of costs.

We conducted a mail survey with entities holding Medicare Advantage contracts in February 2008. Contracts with CMS to provide services to MA members may cover multiple MA plan offerings. The survey excluded contracts that were not currently active, pilots, demonstrations, Medical Savings Accounts, and Cost or Health Prepayment Plans that either do not include financial risk as MA plans normally do or are unlikely to have C/DM programs. A total sample of 483 contracts comprised the sampling frame⁸ - we received 149 completed questionnaires from 119 organizations reflecting 397 contracts, for an overall response rate of 84.1%.

Care Management Program Features

Survey results demonstrated that CM programs are predominantly staffed by health plan employees and are directed at both members and physicians. Contracts focus on members with high costs and high utilization, significant health events, and specific procedures and diagnoses to determine eligibility. These contracts rely on claims, clinical data reviews, and referrals from providers, plan staff and members to identify potentially eligible members for enrollment. Comprehensive assessments, conducted largely by clinical staff, are also used to help identify members for CM and monitor their needs. Nearly every plan reported that registered nurses comprise the core staff of these programs.

Telephone is a primary means of contact for communicating with CM members and reviewing care details such as discharge planning and medication management. Overwhelmingly, plans also work directly with providers and facilities as part of the CM program. While CM programs seek to educate using teachable moments and written materials delivered by CM staff, the nature and intensity of these education efforts are not clear from the survey alone.

Nearly every CM program included assistance with care transitions, such as movement from a skilled nursing facility to a hospital, or from a hospital to home. In these cases the CM programs largely rely on hospitals to notify the plan of the upcoming changes. The vast majority of CM plans also offer medication management, where members report medication concerns and staff conduct claims reviews. The most common course of action to remedy a medication-related issue was to notify and involve the member's physician or refer the member to a formal medication therapy management program. CM programs also include support services, relying on members and their doctors to determine what is needed.

⁸ Eleven of the 483 contracts were ineligible for the survey for various reasons: they offered no C/DM, had no members enrolled, or the contract was no longer in operation.





Disease Management Program Features

Nearly every plan offers DM for diabetes and congestive heart failure, and utilizes diagnoses - in most cases from insurance claims - as the primary means for determining eligibility for DM program enrollment. Similar to CM, plans use claims review as well as member and physician referrals to help identify candidates. Once identified, plans conduct comprehensive assessments by clinical staff and assign the member to a needs-based hierarchy that determines what type of intervention is provided (e.g. vendor-initiated reminder phone calls or mailings, one-on-one home-based monitoring visits).

DM programs employ similar outreach approaches as CM, the telephone is the primary (or sole) means of member contact and teachable moments and written materials are employed for member education. Registered nurses are overwhelmingly employed to run and staff DM programs. When DM programs include assistance with care transitions, which is far less likely than with CM, it is provided via telephone directly to members.

MA Plan Electronic System Features

There is little variation among the types of member-level electronic data directly maintained by MAOs. Data include quantitative elements such as enrollment or disenrollment dates, service use or charges, procedure codes, assessment or care plans, prescription drug use or charges, as well as quality related process of care information, such as prevention screening or immunizations. A large majority of organizations maintain data on clinical indicators, while only a few report maintaining health risk assessment data.

Although the collection and maintenance of this type of member-level information is widely embraced by contract holders, the survey did not capture the quality of the data collected or the manner in which contractors utilize these data. From the stakeholder interviews, respondents acknowledged that because health plan organizations do not specialize in information systems, their systems have evolved over time in fits and starts and many organizations have interoperability issues between different departments within their organizations and with vendors. Despite these significant limitations, some contract holders continue to improve their electronic data systems with the latest information management strategies, such as web portals to help providers access patient health information and interactive voice response technology to improve contact rates with patients.

Plan-Provider Roles

On the whole, MAOs in the survey reported communicating regularly with physicians working with care and disease management programs, but this contact is not universal. Collaboration is best characterized as C/DM programs asserting themselves to fill gaps, rather than a model where care managers and physicians work together as a team. Evidence from stakeholder interviews suggests that this communication is often a one-sided conversation initiated by contractors hired to provide C/DM services for the health plan. In these instances, physicians do not commonly respond. This is likely a result of the fact that most contractor communication occurs between the C/DM staff and office staff at the physician's practice rather than directly





with the physicians. In many instances, however, only a few patients per physician are enrolled in any given C/DM program, leaving physicians little incentive to engage fully with each and every C/DM staff member that approaches them.

A large majority of MAOs encourage physicians to collaborate with care and disease managers, but only a very small number of physicians are contractually required to do so. Furthermore, physicians are nearly universally provided with decision support tools such as evidence-based practice guidelines or patient specific reports showing gaps in care, though it is unclear how and to what extent physicians actively leverage this information. Despite some reported disconnects between the MAO and its providers, nearly three quarters of contractors offer feedback on provider performance.

Special Needs Plans

The majority of contractors indicate that they have both regular MA plans and SNPs and that there are some differences between the care and disease management programs under each of these plans. A large majority of contractors reported that SNP members in C/DM programs use program services with greater frequency or intensity and that services are generally provided for a longer period of time. However, one might expect that SNP enrollees are likely to be frailer and have greater health needs than their non-SNP counterparts. Only a few contractors report that their SNP services are more structured or that they give staff smaller caseloads. This suggests that the differences between SNPs and MA plans are externally driven by the types of patients enrolled in the C/DM programs, rather than being internally driven by plan management style or protocols.

Measuring Effectiveness

In the stakeholder interviews, many managed care organizations noted the multiple difficulties in capturing high quality evidence of effectiveness due to data limitations imposed by their information systems. These included problems in measuring quality criteria, identifying the treatment group (e.g. C/DM program participants) and what C/DM programs activities have been administered to program enrollees.

Most contractors report determining the success of their care and disease management services using a similar range of criteria including, but not limited to: improved member satisfaction, whether specific care is received, reduced rates of preventable admissions, reduced costs of care, specific health outcomes, and meeting operational performance standards. Specifically, contractors use self-reported (member) health or satisfaction, claims for covered services, and clinical data collected directly by contract holder staff to determine the success of C/DM programs. Less than half of contractors use clinical data providers report and very few use HEDIS scores to track success. Overall, the vast majority of contractors compare these data to national or local managed care benchmarks and members baseline values, but less than half use national fee-for service benchmarks and almost no contractors use HEDIS scores in this fashion.

Although the vast majority of contractors use formal criteria, it is impossible to tell what standards contract holders are setting to define effectiveness and whether these standards are in-



line with best practices in C/DM. Furthermore, the data collection activities conducted to date do not document how organizations actually use the data they gather, and whether or not they are accurately collecting and correctly interpreting this evidence of success or failure of their C/DM programs.

Almost all contractors view their C/DM programs as quality management and utilization/risk management tools, but less than half view them as a separate marketable plan benefit and very few see these programs as a way to improve member clinical outcomes. This suggests that contractors currently view C/DM programs primarily as an advanced cost management tool, though interviews suggest that they are striving to shape these programs into clinical tools and member benefits.

Case Studies

Case studies offer an approach to holistic and in-depth examination of an issue. This component of the project comprised a descriptive case study analysis, selecting a small sample of MAOs with which to document and explore the features and operations of C/DM programs. Given the budget and exploratory scope of this project, only six MAOs were ultimately selected. The analyses and findings are not intended to be generalized to the broader universe of C/DM programs. However, the six cases were selected to reflect a diversity in key MAO characteristics, in order for the findings may be illustrative of the range of likely C/DM program characteristics and operations. The intent was to capture as many “variations on the C/DM theme” as possible within the constraints of just six cases.

Specifically, data from the MA plan survey, conducted in early Fall of 2008, and expert interviews provided a starting point in identifying a short list of sites that represented a meaningful range of C/DM programs. Selection criteria included a number of factors:

- Plan type (non-profit/for-profit, national/regional)
- Corporate ownership
- Types of products offered
- C/DM program structure (e.g. developed in-house/contracted out)
- Geography (e.g. in areas with high managed care penetration rates)
- Physician reimbursement (capitated/FFS).

With these in mind, and with input from CMS and advisory stakeholders, the following MAOs were selected:

- United Health Group (UHG) – National (site visit in Greensboro, NC)
- University of Pittsburgh Medical Center (UPMC) – Pittsburgh, PA
- Tufts Health Plan (Tufts) – Boston, MA
- Blue Cross Clue Shield of Minnesota (BCBSMN) – Eagan, MN
- Kaiser Permanente Southern California (KPSC) – Pasadena, CA
- Humana – National (site visit in Tampa, FL)



Case studies of these six MAOs offered significant insights into which features of C/DM programs transcend MAO structure and care delivery systems and which features are dictated by them. For example, all of the MAOs reported similar C/DM program goals and had some basic features in common. As a C/DM program matured, the MAOs all reported shifting away from silo-like DM programs to focus more broadly on identifying the members most in need of care coordination, help with managing transitions and very expensive treatments, and/or dealing with terminally ill patients or those with multiple chronic conditions. In the C/DM program departments, C/DM staff members dedicate significant time on improving their ability to predict those members most likely to need assistance and refine the most parsimonious interventions in order to use their limited care management resources as wisely as possible.

All of the organizations also, reported heavy reliance on evidence based medicine and nationally recognized standards to help manage complex conditions. For staffing, all relied upon experienced, well-qualified RNs to facilitate the development of care plans and coordinate care for members across patient care settings. While there was some variation in a minimum periodicity for care manager outreach (oft referred to as member “touches”) that depended on a member’s health and related care needs, all C/DM programs offered near-identical types of care manager help. Guideline-based protocols serve as the overarching framework for care management, but it is the trained RN using his or her own clinical judgment that develops and works with members on a care plan.

Each MAO also had systems in place to support efforts to identify members most at risk for high utilization and those with care gaps that could be remedied through C/DM. While some relied on vendors to perform key tasks, their ability to function smoothly and efficiently was directly related to three core factors – their *ability to collect timely and accurate clinical data* from multiple settings, *share this information with the entire care team* (including key providers), and their *ability to engage physicians* (typically driven by shared goals and aligned financial incentives). How well and to what extent an MAO is able to leverage these three areas essentially told the tale of how well a C/DM program functioned. This is not to suggest that MAOs were unable to function without addressing these three areas well, nor that they are unable to overcome associated challenges, but simply that the most streamlined and comprehensively targeted C/DM programs were particularly strong in these three areas and most C/DM activities were shaped by how well the MAO managed them.

Conclusions

As the CCM framework was used as a guide to shape the data collection process and focus, it is useful to review the findings against the core components to help assess where C/DM programs under MA currently stand. It is important to note that much of the detail on these components drew from the stakeholder interviews and case studies, which represent only a fraction of the total plans. The survey, while generalizable to the overall MAO universe, serves best to document the presence of various features, but does not include the important context and detail necessary to evaluate against the CCM framework. With this project we are able to begin the narrative, with hopes that additional research will provide a better sense of how many and what types of MAOs fall into which ends of the spectrums for each of these domains. With each of the





data collection activities taken together, the results suggest that C/DM programs under MA today fare in the following ways according to the CCM model:

1. **Strong self-management support** – From the stakeholder interviews and case studies, we observed that while contract staff can be highly involved in CM programs, particularly for members transitioning care settings, support is primarily telephone-based. MAOs report that even telephone-based support can be highly valuable and allows for diagnosis of ancillary issues that can impact a member’s adherence to a care plan. In-person support is viewed as a gold standard, though MAOs reported that this approach was cost-prohibitive and when used, tended to be restricted to use with the most frail members.
2. **Involvement of non-physician members on the care team** – Registered nurses staff the vast majority of programs, with many also using LPNs, NPs, advanced practice, or vocational nurses. CM programs in particular leverage social workers and other types of non-clinical staff to round out care teams. Managed care organizations reported great difficulty engaging network physicians unless they had staff that were willing to ‘round’ the physician offices to discuss particular member cases, or the physician was part of an integrated delivery network and/or were otherwise financially aligned with the MAO.
3. **Planned interactions and proactive follow-up** – In observing nurse managers across the case study sites, the C/DM programs were all structured around a tailored care plan that called for a minimum periodicity of contact with the member, health goals, and reminders on what to address with a member, given a particular diagnosis or need. The survey results are variable in the extent to which C/DM program staff are proactive in identifying problems, particularly in care transitions. Most programs report relying on members to raise issues with their providers, though there is also evidence that C/DM programs typically involve at least some minimal utilization review.
4. **Use of guidelines and decision support systems** – Surveyed MAOs report widespread use of clinical practice guidelines and other tools to help providers and other care team members deliver and monitor care. What is less clear from the survey, but suggested in the MAO interviews, is the extent to which providers and C/DM program staff have the appropriate input data on hand when they need it to make full use of these guidelines. From the six case studies, it is clear that this can be highly variable and that the best functioning information systems reflect infrastructure and highly integrated models of care that facilitate the data collection and dissemination.
5. **Interactive education** – The degree to which C/DM programs offer interactive education remains unclear. In the stakeholder interviews and case studies, managed care organizations note that interpersonal education, unless they are able to get members to attend group sessions, is not very cost-effective. Oftentimes vendors are hired to place outbound reminder and education calls. Survey responses suggest that all C/DM programs attempt to leverage ‘teachable moments’, but also note a reliance on written materials as a primary source of education. From the interviews and case studies, it is clear that care managers spend significant time educating members with respect to their





individualized care plans, but do not appear to provide interactive education on health topics for the purposes of C/DM.

6. **Nimble clinical information systems** – The survey results suggest that a rich array of data are housed in the MAOs, from administrative and billing details to claims information, pharmacy records, electronic health records and lab values. The resounding finding from the stakeholder and case study interviews is that most of these systems were built for reimbursement and other administrative purposes, not for research or evaluation. Therefore, while these data sources may exist within the organization, they often cannot be merged. One striking finding from the questionnaire development phase was that organizations were largely unable to report basic descriptive information about the members that were enrolled in their C/DM programs (e.g. age, race/ethnicity, gender), or that these reports were difficult to generate. Further, survey results suggest that contracts look at a wide variety of outcomes to determine effectiveness. However, very few of the key informant MAOs were able to report on the effectiveness of their programs beyond broad metrics such as general satisfaction levels, reductions in hospital readmission rates and HEDIS measures during and after C/DM intervention. None were able to produce these statistics for just the population enrolled in C/DM.

On average, C/DM programs offered through MA plans appear to be in the early stages of development. There is certainly strong evidence that managed care organizations are invested in C/DM and believe that these programs are important offerings to members. They are, however, still in the process of crafting appropriate and efficient information systems to support C/DM care teams and integrate data sources across different platforms (e.g. lab data, pharmacy data, administrative data) to facilitate effective monitoring and evaluation efforts.





BACKGROUND AND OVERVIEW OF THE PROJECT

Over the past several decades, health care has broadened in focus from acute care and the control and treatment of infectious disease to encompass the management of chronic and often non-fatal conditions. Rising life expectancy, medical advances, and lifestyle changes in diet and exercise have accompanied an increase in both the prevalence and relative burden of chronic conditions, such as diabetes, hypertension, asthma, and coronary artery disease. This shift in disease burden poses significant medical and economic challenges for both the public and the private health care delivery systems. Managing chronic diseases, to provide better quality of life for patients and to minimize costs for employers and taxpayers, requires an evolving understanding of the best practices for delivery of health care services, as well as the complex relationship across services, costs and health outcomes.

Those with multiple conditions, in particular, require more frequent and more expensive health care from a wider array of providers than other segments of the population. This often results in fragmented, duplicative care. The projected financial burden of paying for chronic disease treatment is enormous – it is estimated that spending for individuals with chronic conditions will contribute towards approximately 80% of the annual \$1 trillion the U.S. spends on health care⁹. This burden is particularly severe within the Medicare population, where 75% of those over age 65 report having at least one chronic condition and nearly half of those report having two or more conditions¹⁰.

To help minimize the quality of life and budgetary impact of chronic illnesses, the Centers for Medicare & Medicaid Services (CMS) has undertaken a series of major demonstrations in the fee for service sector (Original Medicare) to explore health care coverage options directed at beneficiaries with chronic illnesses. For example, the CMS initiated Care Management for High Cost Beneficiaries (CMHCB) demonstration pays provider groups under the Original Medicare program to identify beneficiaries with multiple conditions and develop interventions, such as better care coordination or appropriate use of different medical care settings, to improve care delivery and outcomes. The Home Health Independence Demonstration is studying the benefits and costs of allowing Medicare beneficiaries with severe and chronic conditions to be deemed ‘homebound’, thus remaining eligible for home health benefits, to determine whether access to home health benefits can reduce other health care costs for this population. Similarly, demonstrations for Consumer-Direct Chronic Outpatient Services and Project for Medical Adult Day-Care Services examines how personal or adult day care affects the quality and cost of overall Medicare services.

While CMS has funded End Stage Renal Disease (ESRD) and Special Needs Plan (SNP) evaluations within managed care settings, the spectrum of disease and care management programs available through Medicare Advantage (MA) plans is not well documented. Care and disease management programs are currently implemented and defined in many different ways.

⁹ Anderson, JJ, M Ruwe, et al. (2002). “Relative costs and effectiveness of specialist and general internist ambulatory care for patients with 2 chronic musculoskeletal conditions.” *J Rheumatol* 29(7): 1488-95.

¹⁰ Congressional Budget Office. (2005). *High-cost medicare beneficiaries*. Washington, DC: Julie Lee and Todd Anderson.



For the purposes of this study, “care management” (CM) programs are considered those designed to manage patients with multiple chronic conditions who are considered high-risk because of a combination of health, social, and functional problems. Disease management (DM) is defined as programs designed to manage patients with a particular disease, such as diabetes or hypertension. When referring generally to care and/or disease management programs and issues we utilize the term care and disease management (C/DM).

Given the mixed literature on the effectiveness of such programs in reducing costs while improving health outcomes, and the relative lack of public data from plans, it is difficult to assess how care and disease management programs are faring. One could argue that Medicare Advantage organizations (MAOs) are well positioned to realize both health and cost gains from C/DM, given that they have defined populations to serve and relatively integrated systems of care, compared to fee-for-service settings. However, operationalizing C/DM programs can be fraught with difficulties, as enrolled populations can change from year to year and MAOs may not have the appropriate infrastructure in place to leverage clinical and administrative information needed to identify and monitor members and evaluate effectiveness.

Any assessment of disease and care management programs in MA plans must take into account the changing face of these programs over the past decade. The evidence-driven focus has spawned a consolidation of disease and care management vendors, with large health plans increasingly bringing these services in-house and building their own internal auditing capabilities. While the structure and management of such programs have evolved, health plans, States and the federal government continue to expand them. More recently, C/DM programs have been tied to incentives for patients (e.g. waiving drug co-pays for participating in a diabetes program, employees getting a bonus for completing a health risk assessment) and providers (e.g. pay-for-performance).

Some health care market trends create obstacles to effective implementation of care and disease management programs. Insurance products are increasingly consumer-driven, focusing more on flexibility and choice than previously. As a result, the utilization management tools may no longer be as effective at identifying at-risk patients who can benefit from C/DM interventions. Further, refinements in clinical practice guidelines, evidence based approaches to care delivery and rapid development of new and costly drugs, increase the information load that providers must navigate and require plans to continually update their systems and reassess how to monitor effectiveness. The need for well-functioning, comprehensive and nimble information systems that filter the right information to the right people at the right time is critical.

Study Aims

The purpose of this study is to design and implement a qualitative assessment of care and disease management programs available through MA plans, centering around four key aims:

- **Types of Programs and Models:** To document and characterize the universe of care and disease management programs under MA plans;
- **Identifying the Target Population:** To document and characterize how MA plans identify and enroll members in C/DM programs;

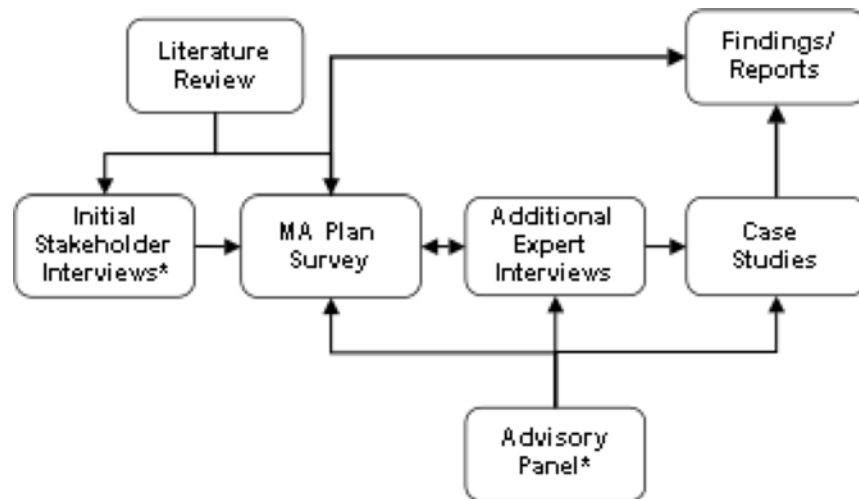


- **Role of the Health Plans:** To characterize how health plans or vendors function in the structure and implementation of care and disease management programs; and,
- **Evidence of Effectiveness:** To document the range of effectiveness measures (e.g. structure, process, outcomes metrics) used to monitor and provide feedback in these programs, noting any particular findings on program effectiveness.

So that CMS is able to monitor trends and innovations in care and disease management, as well as to identify successful implementation of such programs, it is critical to develop a working framework that accurately depicts the current landscape, yet is dynamic enough to accurately capture changes over time. While this study does not provide any definitive evaluation of care and disease management program effectiveness, it is a critical first step in documenting a baseline distribution of program characteristics and offering up a framework for longer-term profiling efforts, charting trends and benchmarking the evolution of these programs in the managed care arena.

Given the mixed literature on the effectiveness of such programs in reducing costs while improving health outcomes, and the relative lack of public data from plans, it is difficult to assess how C/DM programs serve to minimize cost and improve health outcomes. An important starting point is to take inventory of these programs under managed care settings, characterizing their structural and programmatic features as well as the strategies, metrics, and systems used to monitor and assess their effectiveness. This project comprises a series of iterative data collection activities that include a literature review, a mail survey of MA plans, interviews with C/DM experts, stakeholders and patients, as well as case studies with individual MA plans offering C/DM programs, depicted in Figure 1 below.

Figure 1. Summary of Research Approach



*members of the advisory panel comprised a subset of the initial stakeholders that the team interviewed.

The survey task allows the team to capture a broad snapshot of the C/DM landscape under managed care. Given the national scope of the sampling frame, results from the survey yield



representative estimates on the prevalence and distribution of characteristics in C/DM programs. To maximize response rates and meaningfulness of analyses within the timeframe and resources of the project, certain trade-offs must be made, the most significant trade-off being the depth of program profiling that can be accomplished through a survey. Therefore, the qualitative research activities (literature review, interviews, case studies) of this project are critical companion tasks. So that the research activities are anchored in an evidence-driven conceptual base, the team looked to the Chronic Care Model described in the following section.

Organizations, Contracts and Plans

In this report, we refer to contracts, plans and organizations. The term “contract” refers to a contract between a Medicare Advantage Organization (“organization”) and CMS to provide Medicare beneficiaries with medical services in a defined geographic area. The term “plan” refers to a specific benefit package and premium offered by an organization. Several plans may be offered by the same contract (and organization). For example, a contract may include a plan with a zero premium, and no out of pocket maximum, one with a fixed premium and an out of pocket maximum, and one that is a special needs plan (SNP). The survey was conducted at the contract level, but only if the organization reported that it could answer all of the questions regarding its care and disease management programs at the contract level.

These terms and relationships can be explained in this scenario using fictional organization and plan names.

Birchwood Health is a private health *organization* offering Medicare Advantage (MA) products. CMS has a *contract* with Birchwood Health that Birchwood Health will offer medical services in the form of Medicare Advantage plans to central New York State and western Massachusetts. Under their MA *contract* this *organization*, Birchwood Health, offers three MA *plans*: Birchwood Medicare Secure with a fixed \$200 monthly premium and an out of pocket maximum of \$3,000, Birchwood Medicare Prime with no premium and no out of pocket maximum, and Birchwood Diabetes Care Plus with a condition-specific SNP with a \$50 monthly premium, no out of pocket maximum, and a comprehensive Part D plan.

A beneficiary with diabetes might contact this MA *contract* holding *organization* because he is interested in eligibility in their affordable *plan* for Medicare beneficiaries with diabetes.

Conceptual framework

To provide a conceptual foundation through which these research aims were addressed, the project drew from an adaptation of the Chronic Care Model (CCM), an evidence-based framework that describes the interaction between the health care setting, community and patient



as they relate to health outcomes.^{11,12} The CCM is widely used by health care organizations to structure disease management programs, is endorsed by the Department of Health and Human Services Health Resource Services Administration (HRSA), and has repeatedly been found to consistently characterize the elements of successful chronic disease management programs. Specifically, the components presented under the Health System portion are particularly relevant when characterizing programs designed to monitor and manage the complex health of Medicare beneficiaries living with chronic conditions. These include:

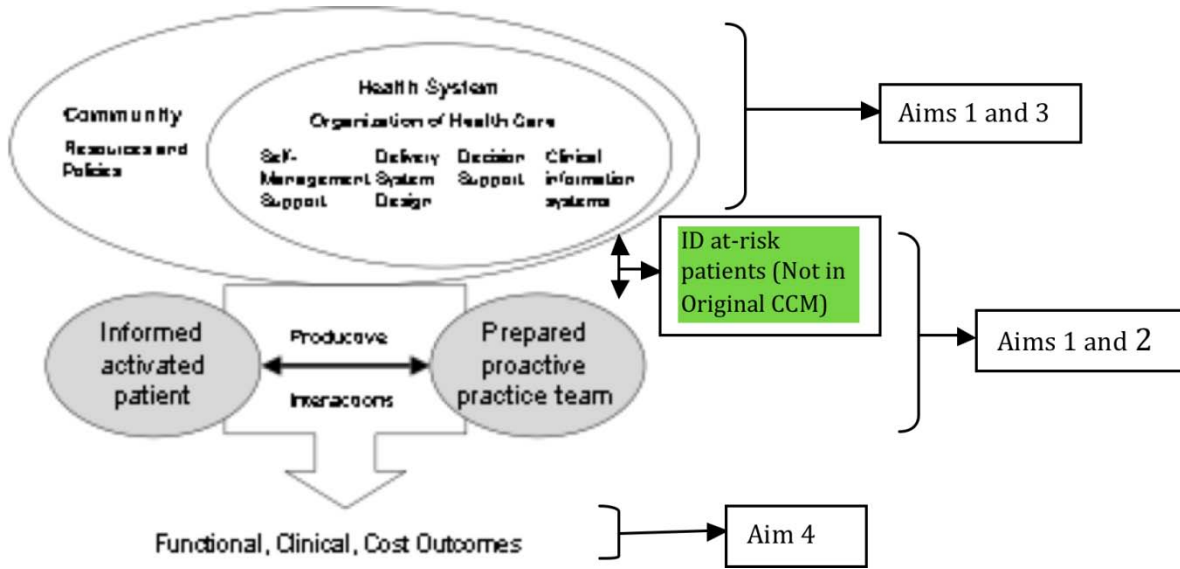
- Self-Management Support – information and support provided by an organization to patients that facilitate self-care through patient-provider collaboration;
- Delivery System Design – availability of a broad practice team that can provide outreach and close follow-up, often characterized by the involvement of non-physician practitioners;
- Decision Support – availability of guidelines and protocols that keep providers informed about standards of care and other information to assist in clinical and other decision making about the care of a patient; and,
- Clinical Information Systems – availability of timely data on patients/populations enabling practitioners to effectively monitor and understand the needs of individuals they serve.

Figure 2, below, illustrates the Chronic Care Model, as well as how this study aims mapped to its different components.

¹¹ Wagner EH, Davis C, Schaefer J, et al (2001). “A survey of leading chronic disease management programs: are they consistent with the literature?” *Manag Care Q*; 7: 56-66.

¹² Bodenheimer T, EH Wagner and K Grumbach. (2002). “Improving Primary Care for patients with chronic illness: the chronic care model, part 2.” *JAMA*; 288: 1909-14.

Figure 2. Adapted Chronic Care Model



An additional component not depicted in the original framework is the identification of at-risk patients. Given the critical aspect of early and appropriate identification of patients who may benefit from these programs, we have adapted the CCM to include an identification domain, as highlighted in Figure 2.

The purpose of this final report is to present a synthesized summary of findings from the research activities. The following section presents the research approach and methods for the literature review, interviews, survey activities and case studies, and subsequent sections present findings organized by the study aim topic areas. These include a profile of care and disease management program characteristics (Aim 1), a review of approaches MA plans are using to identify members for program participation (Aim 2), the role that MA plans play in C/DM programs (Aim 3), and a discussion of how MA plans are evaluating and monitoring C/DM program effectiveness (Aim 4).



METHODS

To address the four study aims, we designed a multi-pronged approach that includes a literature review, patient and key informant interviews, a survey of MA plan contract holders and a series of six case studies. A summary of the approach and methods used for these four core activities follows below.

Literature Review

In order to ground the study findings in an evidence-based context, the project team conducted a focused literature review, using MPR's March 2000 report "Best Practices in Coordinated Care" as a departure point. In addition to providing context to the project, the literature also helps to address some of the research questions. The review was based on a list of pre-identified key search words to query HealthSTAR, Medline/PubMED, and the Cumulative Index of Nursing and Allied Health Literature databases. Search terms included:

- Case management
- Comprehensive health care
- Disease management
- Patient care management
- Patient care planning
- Patient education and self-care
- Transitional care

Articles generated by these search terms were initially included if an examination of the abstract demonstrated that the article was from the year 2000 or later and focused on care management or disease management (see definitions used below). The project team initiated a second query combining the above search terms, e.g. "case management AND disease management", and then scanned these for inclusion based on the same criteria. The resulting set included 66 citations that were then reviewed more closely to identify those describing a study or evaluation of a C/DM program. So that the literature focus included those studies most relevant to the project, we excluded literature that focused on non-elderly populations (e.g. children, pregnant women), studies conducted on populations outside of the United States, and two studies that focused on topics or conditions not highly prevalent in the Medicare population (e.g. chronic fatigue, substance abuse). These exclusion criteria were applied and the bibliographies of the remaining relevant articles were reviewed to identify any additional articles. This process resulted in a final set of 12 articles, including empirical studies of C/DM in a managed care setting and C/DM in general that are summarized in Appendix A.¹³

¹³ All appendices are available upon request to the Project Officer: Gerald Riley, via email at Gerald.Riley@cms.hhs.gov, or through the Office of Research, Development, and Information (ORDI/REG/DRHPD), Centers for Medicare & Medicaid Services, Department of Health and Human Services, 7500 Security Boulevard, Baltimore, MD 21244



Key Informant Interviews

While the MA plan survey can capture a broad picture of the range and prevalence of C/DM programs, more detailed aspects of these programs, particularly with respect to how plans collect evidence and evaluate program effectiveness and nuances of patient identification and program implementation, were better suited for open-ended interviewing. Conducting key informant interviews in advance of the survey also offered the opportunity to identify any areas of focus (or unworthy of focus), given the need to field a parsimonious questionnaire. This task included interviews with 28 experts ranging from academic and policy experts to providers, plan administrators, and C/DM program directors, who could provide context not otherwise captured through a survey or a literature review and help identify themes and other nuances about these programs. Additionally, interviews with experts, plan staff, and other stakeholders helped uncover unpublished or forthcoming studies that lend evidence on the effectiveness of care and disease management programs.

The interviews were based on semi-structured, tailored interview protocols to guide the telephone interviews that lasted on average 1.5 hours. Stakeholders were identified through a ‘snowball’ technique, where the project team began with a list of stakeholders generated through the team’s own contacts, suggestions from CMS and suggestions from the advisory committee. In reaching out to this initial list, the team generated additional contacts, and worked with CMS to decide upon a final list of individuals to interview that reflected a range of expertise and perspectives.

Patient Interviews

To assess patients’ views of their care and disease management program, the project team recruited potential respondents via chronic disease listservs. A recruitment advertisement was posted on listservs for individuals with Chronic Obstructive Pulmonary Disease (COPD), Heart Failure, Diabetes, and End-Stage Renal Disease (ESRD). A member of the project’s Advisory Panel, Dr. Kate Lorig, also sent a request for potential participants via e-mail through her network of care managers who work with Medicare beneficiaries on chronic condition self-management techniques. After receiving responses to the initial recruitment ad and from Dr. Lorig’s contacts, the project team screened potential interviewees to determine their eligibility for an interview. Qualifying individuals answered “yes” to the following questions, “Are you currently enrolled in a Medicare sponsored health plan, often called Medicare Advantage or Medicare Part C?” and “Have you ever been contacted by telephone or mail about helping you manage your health?” The project team conducted 15-minute interviews with ten patients meeting the screening criteria.

The following list presents the interviewees, organized by category of expertise.

Managed Care Organizations

- Robert Pope-MD/CMO, Humana
- John Mach-MD/CEO, UHC Evercare
- Beverly Everett-MD/Medical Director, CIGNA



- Lonny Reisman-MD/CEO, Active Health & Randy Krakauer-MD, Medical Director, Aetna
- Paul Wallace-MD/Medical Director, Kaiser
- Cheryl Phillips-MD/Geriatrician/CM Expert, On-Lok
- Tim Schwab-MD/Medical Director, SCAN
- Judith Black-MD/Medical Director, Sr. VP, BCBS/Highpoint
- Joy Luque- BSN/PHN/RN, UHC Pacificare
- Esther Nash-MD/Sr. Medical Director, BCBS/IBC
- Joan Kennedy-MBA/CEO, HSC & Sr. VP, BCBS/Wellpoint
 - (Subtotal: 11)

State Operated Managed Care Programs

- Melanie Brown-Woofter-Nurse/Administrator, Florida
- Pam Parker-Nurse/Dual Eligible Program, Minnesota
- Diane Flanders-Nurse/Dual Eligible Program, Massachusetts
- Sandeep Wadwha-MD/Medicaid Director, Colorado (recently with McKesson)
 - (Subtotal: 4)

C/DM Company/Vendors

- Jim O'Leary-PhD/Administrator, APS
- Sara Parkerson-Nurse/Administrator, Matria (has since left)
- Jim Pope-MD/CMO, Healthways
- Gordon Norman-MD,MBA/EVP, Chief Science Officer, Alere Medical
- David Wennberg- MD,MPH/CEO, Health Dialog
- Chris Selecky- CEO/Immediate past pres. Of DMAA, LifeMasters
 - (Subtotal: 6)

Academic/Policy/Advocacy

- Stu Guterman, Commonwealth Fund
- Joyce Dubow- Policy expert/advocate, AARP
- Don Fetterolf- MD/Matria, DMAA
- Al Lewis- Employer/Purchaser perspective, DM Purchasing Consortium
- Ken Thorpe- Policy expert/advocate, Emory
- Sooren Matke- MD/DSc/Policy Expert, RAND
 - (Subtotal: 6)

Caregiver/Patients

- Kate Lorig- Advocate/academic/policy/patient, Stanford Patient Education
- Confidential Interviews, Medicare Advantage Patients (10)
 - (Subtotal: 11)

Total Approved and Completed: 38

Survey of Medicare Advantage Plan Contract Holders

The mail survey was conducted with entities holding MA contracts in February 2008, and provided basic information on whether and how MA contractors use C/DM. Survey responses also provided the data needed to help select candidates for the case study portion of the project and shaped the content of the case study protocols and selection of staff types targeted for

interviews during the case study site visits. Given the current lack of information about how MA plans use C/DM programs to improve member health and manage financial risk, the survey was intended to establish a benchmark against which to chart the use of such programs as they evolve over time.

Questionnaire Development

Instrument development for the survey began in the fall of 2007. The questionnaire was designed to gather information from MA contracts about the C/DM programs offered through their plans. Specifically, the instrument addressed characteristics of C/DM programs, physician intervention, provider arrangements and electronic data systems, differences between regular MA plans and Special Needs Plans (SNPs), and evidence of effectiveness and assessment of costs. Pre-testing was completed with nine health organizations, after which the questionnaire was reduced in consultation with CMS to achieve a more reasonable respondent burden. The final version of the questionnaire continued to address the primary research goals, without any changes to the intent and purpose of the survey. Additionally, the final questionnaire, at the shorter length, was in keeping with the original project assumptions, which would enable us to minimize respondent burden and maximize response rates. The survey questionnaire is included in Appendix C.

Sampling Frame

The universe of MA contracts was drawn from a February 2008 extract of contract characteristics and contact information housed in CMS' Health Plan Management System (HPMS). After removing contracts that were considered ineligible (those not currently active, pilots, demonstrations, Medical Savings Accounts, and Cost or Health Prepayment Plans that either do not include financial risk as MA plans normally do or are unlikely to have C/DM programs), a total sample of 483 contracts remained and served as the sample frame for the survey. These 483 contracts were held by 156 different health organizations, holding as few as one MA contract and as many as 54.

Data Collection

The data collection procedure for the survey utilized a mixed-mode approach consisting of mail and telephone contacts. Data collection began in August 2008 and ended in October 2008. Respondents were contacted initially by mail, with a telephone follow-up call shortly thereafter. The contacts consisted of, in chronological order, (1) an advance letter, (2) an initial call, (3) a questionnaire mailing, and (4) a reminder call/telephone interview. Because many health organizations held multiple MA contracts, sometimes one person was a contact for multiple contracts. In these cases, only one letter referencing all MA contracts was mailed. During the initial call, all respondents were probed sufficiently to determine if each MA contract (1) was currently operating, (2) offered care or disease management through its plans, and (3) showed any meaningful difference in the C/DM offered through plans under a contract or across contracts. The initial calls were made between August 20, 2008 and September 12, 2008. During this time, we successfully completed an initial call to health organizations holding 444 of the 483 MA contracts. During these calls, we discovered that two contracts were no longer operating and three contracts offered neither care nor disease management. These five contracts were not

contacted again. From these calls, we determined that 211 questionnaires were needed to gather accurate data regarding the C/DM programs offered through the remaining 478 MA contracts.

File Preparation

The data were collected and entered at the contract level. If an organization had multiple contracts with significantly different CDM features, multiple surveys could be completed by the organization. If the organization had contracts with similar CDM features, then only one survey was completed. Ultimately, each contract had a completed survey. For example, if Humana had ten contracts with all the same CDM features, then they would have filled out one survey, and it would have gone into the database ten times (for ten contracts). If BCBS had ten contracts, each different, then they would have completed ten surveys, and again, ten surveys would have gone into the database. However, if an organization had ten MA contracts, nine of which had one C/DM program (A) and one contract had another program (B), these were entered accordingly. That is, program A would be entered nine times, and program B only once. In doing this, we were able to capture any differences across MA contracts within a health organization.

Following data entry, the data file was reviewed and edited by project staff. During this phase, all questions with verbatim responses (either the “other specify” option or open-ended questions) were reviewed to determine if responses could be fit into an existing response category. If an “other specify” response clearly could have been coded under one of the listed response categories, instructions were provided to the programmer to back code the response to the appropriate response category and to remove the response from the “other specify” option. Data was also reviewed to build new codes for the questions. For sufficient numbers of verbatim responses, a number of new codes were added.

Response Rate

The overall response rate was 84.1% and was calculated based on the 483 MA contracts in the survey sample.¹⁴ Eleven of the 483 contracts were ineligible for the survey for various reasons: they offered no C/DM, had no members enrolled, or the contract was no longer in operation. In total there were 149 completed questionnaires from 119 organizations reflecting 397 contracts. Of these contracts, 391 questionnaires were completed by mail and 6 by telephone for a response rate of 84.1%.¹⁵ Overall, only 5.3% of the MA contracts overtly refused to participate. We were not able to complete the remaining 10.6%; for example, respondents said they would complete the questionnaire but did not do so before the end of the field period and did not respond to our telephone requests.

Non-Response Weights

As discussed, our survey resulted in 397 legitimate respondents, 75 non-respondents, and 11 who were considered ineligible. Ineligible cases involved contracts that had no members, were sold to

¹⁴ See <http://www.aapor.org/responseratesanoverview> for the American Association of Public Opinion Research Response Rate 1 guidelines for calculating response rates.

¹⁵ 397 completed interviews/(483 contacts in sample-11 ineligible contracts)



a new health organization, did not offer care or disease management, or were no longer operating. Because non-respondents could be ineligible for the survey, this information was used in our calculations.

Non-response weights were generated by using logistic regression with the weighting class definitions and other variables used as covariates. The non-response weight is then determined by grouping the predicted probabilities of response from the logistic model into weighting classes based on quantiles of p and taking the inverse of the class weighted response rate. This ensures that we do not place undue emphasis on correctness of the model, which would be the case if we simply used the inverse of the predicted probability of response as the weighting adjustment. For the sake of maintaining a stable adjustment, a weighting class should have at least 20 respondents in it.

The logistic model was determined using backward and forward selection, using a careful model-fitting process. The final model included the following set of variables:

1. a binary variable identifying contracts with BCBS as the parent organization,
2. a binary variable identifying Coventry Health Care as the parent organization,
3. a binary variable indicating whether the address of the contract contact individual was in the northeastern United States,
4. a binary variable indicating whether the contract was an HMO or HMO POS, and
5. number of special needs Medicare Advantage plans offered under the contract, where 4 or more special needs plans were collapsed into a single category.

Data Analysis

The data analysis focused on descriptive statistics to characterize contract holders' assessments of their care and disease management programs. Frequencies of categorical variables and distributions of continuous variables were examined for all contracts, and by whether or not the contract utilized vendors for C/DM (asked in questions B2 and C2)¹⁶, and by whether the contract included a Special Needs Plan (SNP) using the HPMS database to ascertain whether the contract had one or more SNP. These categories were selected for focus due to CMS' interest for policy considerations and because the literature and stakeholder interviews documented that use of vendors was a key variable in C/DM program design and the team hypothesized that if a managed care organization also offered a SNP, it might impact how C/DM programs in that organization were also structured.¹⁷ Percentages reported in this report are weighted using the non-response weights. Pearson chi-squared tests were conducted to test for differences in the distributions of categorical variables among the groups. T-tests for differences in means were performed for continuous variables.

¹⁶ For questions regarding care management, or disease management, the variable used to determine vendor status were questions B2 and C2 respectively. For sections A, D, E and F, a variable was created to represent contracts that used vendors for either disease or care management.

¹⁷ The team also conducted analyses by plan type, but these proved less significant in explaining differences in response rates.



In addition to bivariate analyses, the team performed logistic regressions for survey responses that had binary (Yes/No) responses, and linear regressions for continuous variable responses. While some results in the bivariate analyses showed significant differences between survey responses by individual characteristics, it is important to also control for the other characteristics of the contract to see, holding all else equal, if that factor can explain variation in the survey responses. The model was determined using forward and backward selection and a model fitting process. Independent variables included in the regressions were:

- Whether the contract included a SNP
- The plan type – this included HMO, PFFS with the omitted variables being Local and Regional PPOs and PSOs.
- Region of the contract address, with Northeast, Midwest, and West included with Puerto Rico and the South omitted.
- Organization size – whether the contract was held by an organization with ten or more contracts.

Regressions were performed for binary variables where between 20 to 80 percent of contracts were in one category, in order to allow for stability. In the body of the text, where differences are noted by plan type, SNP status or vendor status, they are significant both in the regression and in the bivariate analysis ($p < .05$), unless otherwise noted. The questionnaire and response frequencies are presented in Appendix B.

Case Study Approach

Case studies offer an approach to holistic and in-depth examination of an issue. This component of the project comprised a descriptive case study analysis, selecting a small sample of MAOs with which to document and explore the features and operations of C/DM programs. Given the budget and exploratory scope of this project, only six MAOs were ultimately selected. The analyses and findings are not intended to be generalized to the broader universe of C/DM programs, per se. However, the six cases were selected to reflect a diversity in key MAO characteristics, such that the findings may be indicative of the range of C/DM program characteristics and operations that one is likely to observe in other C/DM programs. The intent was to capture as many “variations on the C/DM theme” as possible within the constraints of just six cases.

Specifically, data from the MA plan survey, conducted in early Fall of 2008, and expert interviews provided a starting point in identifying a short list of sites that represented a meaningful range of C/DM programs. Selection criteria included a number of factors:

- Plan type (non-profit/for-profit, national/regional)
- Corporate ownership
- Types of products offered
- C/DM program structure (e.g. developed in-house/contracted out)
- Geography (e.g. in areas with high managed care penetration rates)
- Physician reimbursement (capitated/FFS).



With these in mind, and with input from CMS and advisory stakeholders, the following MAOs were selected:

- United Health Group (UHG) – National (site visit in Greensboro, NC)
- University of Pittsburgh Medical Center (UPMC) – Pittsburgh, PA
- Tufts Health Plan (Tufts) – Boston, MA
- Blue Cross Clue Shield of Minnesota (BCBSMN) – Eagan, MN
- Kaiser Permanente Southern California (KPSC) – Pasadena, CA
- Humana – National (site visit in Tampa, FL)

Summary profiles of each site are presented in Appendix D. Detailed protocols, with an array of primary and follow up questions by core research topic and subtopic, were used to structure the discussions and serve as a checklist for the team to ensure that all questions were covered over the course of the site visit. Because rich detail often arises when the interviews are less formal and encourage discussion, these guides were in fact used as such, and not intended to facilitate a highly structured question and answer format.

The interview style and number of participants varied by MAO but generally took the form of group discussions, with staff relevant to the particular topic area answering questions or presenting as a group (e.g. multiple nurse managers or database and information technology staff). Some discussions were conducted with one individual, such as a chief operating officer. During each of the site visits, there were opportunities to sit with staff for demonstrations of their management tools, such as the electronic medical records or clinical management systems used to support C/DM activities. In addition, at several sites, there were opportunities to listen in on outreach or recruitment calls led by care managers, social workers or referral staff. This observation of hands-on program implementation demonstrated how and to what extent the policies and processes are operationalized, and what personal skills and clinical judgment are involved in working with members on C/DM programs.

Several types of C/DM staff and organization leadership participated in discussions to allow the project team to form a thorough understanding of the goals, structure, and processes of the programs, including:

- Case/care managers
- Care manager support staff (e.g. social workers, health educators, member service representatives)
- Directors of C/DM programs
- MAO executives
- Medical directors
- Medical/utilization management staff
- Pharmacists
- Financial or program analysts responsible for program costs and measurement
- Information systems staff
- Quality assurance staff



FINDINGS

From the key informant interviews, MA plan survey, and case studies there appears to be an increasing ambiguity in how care management and disease management programs operate. As a C/DM program matured, the MAOs all reported shifting away from silo-like DM programs to focus more broadly on identifying the members most in need of care coordination, help with managing transitions and very expensive treatments, and/or dealing with terminally ill patients or those with multiple chronic conditions. The survey documents that virtually every MA plan offers both care management and disease management programs, but the case studies suggest that MA plans are taking a member-centered approach, using the DM programs more as supplements to care management programs for the highest risk members, and as bare-bone versions of care management (albeit with the narrow focus of the DM program), for lower risk members that are not otherwise closely monitored. The role of nurse practitioners as the primary staff in both types of programs, almost by definition, means that members often receive support beyond the “playbook” for a particular DM program. With an enrolled population, C/DM programs may not have as strict boundaries as they may otherwise have in a fee-for-service setting, where individuals are enrolled in programs sponsored by entities that are not also providing an overarching care delivery structure.

MA plans all reported in the survey and in interviews a heavy reliance on evidence based medicine and nationally recognized standards to help manage complex conditions. For staffing, all relied upon experienced, well-qualified RNs to facilitate the development of care plans and coordinate care for members across patient care settings. While there may be some variation in a minimum periodicity for care manager outreach (oft referred to as member “touches”) that depended on a member’s health and related care needs, all C/DM programs observed in the case studies offered near-identical types of care manager help. This is supported by results from the survey, which showed how nursing staff dominate operations and management in C/DM programs, and that plans generally stratify members to apportion support. Guideline-based protocols serve as the overarching framework for care management, but it is the trained RN using his or her own clinical judgment that develops and works with members on a care plan.

All surveyed MAOs reported the presence of systems in place to support efforts to identify members most at risk for high utilization and those with care gaps that could be remedied through C/DM. While some reported use of vendors to perform key tasks, it appears from the interviews and case studies that an MAO’s ability to function smoothly and efficiently was directly related to three core factors:

- their *ability to collect timely and accurate clinical data* from multiple settings,
- the ability to *share this information with the entire care team* (including key providers), and
- their *ability to engage physicians* (typically driven by shared goals and aligned financial incentives).

How well and to what extent an MAO is able to leverage these three areas likely tells the tale of how well a C/DM program functions. This is not to suggest that MAOs are unable to function

without addressing these three areas well, nor that they are unable to overcome associated challenges, but simply that the most streamlined and comprehensively targeted C/DM programs are likely strong in these three areas, with most C/DM activities shaped by how well the MAO managed them. In comparing the different C/DM approaches taken by the six MAOs visited, it was useful to develop additional common vocabulary to help frame the different program features observed. It became quickly apparent that DM and CM, as distinct approaches to addressing member health needs, were insufficient to describe the range of services MAOs offered. As suggested in the literature, terminology is wide ranging and, outside of the managed care setting, it is reasonable to discuss DM and CM as separate programs. However, it is clear that with nearly every one of the six MAOs, these CM and DM approaches are often interwoven, and in some instances, indistinguishable - some MAOs are providing a program that is more than disease management, but falls short of true care management, other MAOs have overlapping programs, offering different levels of intensity, and addressing different permutations of health conditions. For the purpose of the comparisons in this report, this study employs the following definitions of DM and CM, with the understanding that there were no examples where a MAO offered wholly independent programs that did not interface in at least some minimal way. As was reported in previous project reports, no two C/DM programs visited looked alike despite common features.

- **Disease Management (DM)** – Condition specific, disease management only focuses on issues for any member related to a given primary condition. Multiple co-morbidities/behavioral health issues may be addressed indirectly, usually through a referral to another program.
- **Care Management (CM)** – Care management is the coordination of several or all sources of health care for specific members, and is not tied to a specific condition or health situation. Care management may be initiated when a member presents with a certain condition or diagnosis, which because of other social or health vulnerabilities, is not suitable for a more limited DM program. Coordination can become more or less intense, but never ceases completely. Care management typically strives to integrate all aspects of care such as prescription drug management, primary and specialty care, transitions from one setting to another, behavioral health, and family caretakers. Additionally, CM often relies on social workers to help members obtain needed community resources in order to reduce any barriers to care, such as financial or transportation concerns. CM sometimes involves a degree of in-person interaction, in addition to telephonic interaction, that is not always found in case or disease management

Though evident throughout all data collection activities, the case studies also offered the most crystallized picture of the three key factors that appear to drive the structure, implementation and operations of C/DM programs:

1. **Alignment of financial incentives.** One consistent goal of C/DM programs is to manage limited resources so members receive needed health care services and support at the optimal time and in the most appropriate setting. Traditional fee-for-service payment systems reward physicians based on the number of procedures performed and office visits rather than for providing the most appropriate level of care. MAOs that are able to

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negotiate contracts with providers (especially primary care physicians) to realign financial incentives so both the payer and providers have an interest in collaborating to ensure care is managed and coordinated appropriately have more opportunities to engage physicians and clinical administrators in comprehensive care management. Physicians whose livelihoods depend on seeing a certain volume of patients a day (rather than focusing on the entire population of patients for whom they are responsible) are often difficult to engage in C/DM programs. These providers may work with many payers and receive isolated inquiries and reports from each about patients they may or may not have seen at any given time. Time spent responding to payers' inquiries about individual members is not compensated, and therefore only worthwhile to divert a physician's time if there is a critical mass of patients. Integrated delivery systems, where financial incentives to provide the most appropriate level of care are aligned, are able to avoid this pitfall. Larger medical groups with the infrastructure in place to support engagement with the MAO are often financially incented to consider the total medical expenses of the population for whom they are responsible. These inducements can be in the form of shared risk pools, rewards and pay for performance programs.¹⁸

2. **Level of data system integration.** C/DM programs often have many facets of care management that require access to member-level enrollment and clinical data by different types of staff, such as care managers, primary care physicians, case managers, transition teams, pharmacists, etc. A highly integrated data system typically synthesizes all data sources (e.g. administrative, enrollment, encounter data, care plan details, outreach details, lab values, prescription drugs) into one platform and is nimble enough to make the appropriate data available to the appropriate staff person when needed. A fragmented data system is typically comprised of siloed data sources across platforms that do not 'speak' to each other and data availability is limited.
3. **Data type and quality.** The type of data that care team members have access to can greatly affect the efficiency and success of C/DM interventions. The range, accuracy, completeness and timeliness of data, will determine a care manager or other provider's ability to assess and intervene in health issues at the optimum time and in the most appropriate manner. It is important to note that the quality of data is not to be confused with the sophistication of the data system. A fancy and visually pleasing data system that accesses incomplete or untimely data will not facilitate care management efforts as effectively as a basic computer system that can access complete and timely information.

The following sections provide further detail on these findings, as organized by the four key study aims.

AIM 1: CARE AND DISEASE MANAGEMENT PROGRAM FEATURES

¹⁸ In some instances, MAOs have been able to achieve regular engagement by physicians in their programs merely by having a large volume of patients within a given physician practice, even if that practice is paid on a fee-for-service basis. In these instances, it behooves the physicians to work collaboratively with that payer since they are dependent on that payer for a significant amount of their total revenue stream.



Confirming literature that suggests the use of care and disease management is prevalent and growing among organizations that pay or provide for health care, 97% of Medicare Advantage organizations reported offering C/DM programs to their members in the survey.¹⁹ Most contracts with either a care or disease management program had both, with 98% reporting a care management program and 97% reporting a disease management program. Of all the contracts contacted for the survey, only 3 contracts were excluded because they did not offer a C/DM program.

In interviews and case studies, nearly all managed care organizations and vendors emphasized the importance of recognizing the special challenges of working with an elderly population with very heterogeneous needs, from simple help with a transition from hospital to home, to complex combinations of chronic conditions as well as special needs related to activities of daily living and social and economic supports. As one medical director put it:

“Over-focusing on clinical measures and improving them can cause ignoring social and environmental aspects that are really involved in the clinical measure, such as giving the patient a medication dispensing box or arranging for transportation to medical appointments.”

The challenges are apparently in identifying the interventions most likely to be helpful to the patient, and the patients who are willing and/or able to make the changes necessary to obtain the appropriate services and level of health care. A number of those interviewed emphasized the importance of finding a way moving forward, to combine the benefits of true medical homes that are patient-centered and led by primary care physicians, with the added support they need to manage a population and offer coaching by individuals trained in behavior change motivation. One medical officer said:

“There is a big risk in placing all the responsibility for failure [in care management] on a physician or medical home because the primary care physician does not have all the resources of a C/DM program... this involves thinking about managing a population as opposed to patients as they present.”

While the case studies and some of the interviews suggest a convergence of C/DM programs, the survey asked MAOs to report on different features by program type, presented below.

Care Management Program Features

Survey results document that CM programs are predominantly run by health plan staff and are directed at both members and physicians. Contracts focus on members with high costs and high utilization, significant health events, and specific procedures and diagnoses to determine eligibility, relying on claims and clinical data reviews as well as referrals from providers, plan staff and members to identify potentially eligible members for enrollment. Comprehensive assessments, conducted largely by clinical staff, are also used to help identify members for CM

¹⁹ Mays, G, M Au and G Claxton. November/December 2007. Convergence and dissonance: evolution in private-sector approaches to disease management and care coordination. Health Affairs; Vol. 26, No. 6, p1683-1691.





and monitor their needs. Nearly every plan reported that registered nurses comprise the core staff of these programs. The case studies further documented that registered nurses in particular served as the backbone for all C/DM programs, and while each had a program “playbook” to guide their support to members, largely relied on their own clinical judgment on how to work with members on care coordination, or particular disease management health goals.

As shown in the survey and the case studies, telephone is the primary mode of contact for communicating with CM members, reviewing care details such as discharge planning and medication management. Surveyed plans also overwhelmingly reported working directly with providers and facilities as part of the CM program, though the case studies and interview suggest that this process is rife with challenges – while natural partners, providers and plan staff are not always financially aligned and due in part to misconceptions about managed care, are not historically strong collaborators.

Nearly every CM program in the survey involved assistance with care transitions, such as movement from a skilled nursing facility to a hospital, or from a hospital to home. In these cases the CM programs largely rely on hospitals to notify the plan of the upcoming changes, though the case studies suggest that in non-integrated delivery systems, the ability to receive complete and timely notification from hospitals can be a significant challenge. The survey notes that the vast majority of CM plans also offer medication management, where members report medication concerns and staff conduct claims reviews. Plans reported that the most common course of action to remedy a medication-related issue was to notify the member’s physician to resolve the problem or refer the member to a formal medication therapy management program. CM programs also include support services, with needs assessed from members and their doctors to determine what is needed.

Disease Management Program Features

Disease management programs have traditionally focused on common chronic conditions such as diabetes, congestive heart failure (CHF), coronary artery disease (CAD), asthma, chronic obstructive pulmonary disease (COPD) and depression, with fewer programs for cancer and dementia. Programs for these conditions were also offered in MA contracts, as reported in the survey, with most contracts offering programs for CHF and diabetes. More than three-quarters offered programs for other chronic cardiac conditions such as CAD. A majority also offered programs for high blood pressure and other chronic respiratory illnesses such as asthma. Half of surveyed contracts also reported a focus on high cholesterol. Less than half had programs for chronic kidney disease, depression, smoking cessation or HIV/AIDS as seen in Table 1-1 below.





Table 1-1. For what diagnoses is disease management offered (mark all that apply)?

Diagnosis	Percent of contracts offering	Percent of contracts not offering
Congestive Heart Failure (CHF)	93%	7%
Other chronic cardiac diagnoses such as Coronary Artery Disease (CAD)	80%	20%
Diabetes	98%	2%
Chronic Obstructive Pulmonary Disease (COPD)	69%	31%
Other chronic respiratory diagnoses (such as asthma)	58%	42%
Chronic kidney disease	47%	53%
High cholesterol	50%	50%
High blood pressure	61%	39%
Other diagnoses	40%	60%
(Other) Depression	10%	90%
(Other) Smoking cessation	5%	95%
(Other) HIV/AIDS	14%	86%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

The key informant interviews with MA plans and vendors and case study interviews revealed the same focus, with the nature of the programs and numbers of conditions covered ranging from the “top 5” diseases (diabetes, COPD, CHF, asthma and CAD) to 22 different conditions and diseases (sometimes including less prevalent conditions such as sickle cell anemia or Crohn’s disease). Several managed care organizations and vendors mentioned during interviews that they focus more on identifying elderly patients who were isolated or showing signs of depression, in combination with other conditions, given the higher likelihood that these patients would become high resource users in the near future. Organizations selected the conditions and diseases to be included in their program for varying reasons, but generally with the intent that intervening would help control costs, address gaps in existing care regimens, and/or improve the overall quality of care delivered.

Similar to CM, surveyed plans report using claims review as well as member and physician referrals to help identify individuals for DM. Once identified, plans conduct comprehensive assessments by clinical staff and assign the member to a needs-based hierarchy that determines what type of intervention is provided (e.g. vendor-initiated reminder phone calls or mailings, one-on-one home-based monitoring visits). The case studies suggest that DM programs are often reserved for the non-Medicare member populations and that the needs of Medicare beneficiaries are not necessarily well suited for DM interventions, given the much higher prevalence of complex and co-morbid health presentations.

The survey also documents that DM programs employ similar outreach approaches as CM, using the telephone as a primary (or sole) means of member contact and teachable moments and written materials for member education. Registered nurses are overwhelmingly employed to run and staff DM programs. When DM programs include assistance with care transitions, which is far less likely than with CM, it is provided via telephone directly with members.





As with other features discussed during key informant and case study interviews, the structure and focus of disease management approaches varied across managed care organizations and vendors. While all began with population-based predictive modeling, some of those interviewed emphasized having disease-specific targets versus larger utilization trends. One SNP segregates members upon enrollment into categories, such as those with multiple comorbidities, those with functional issues, those who are especially frail, and those facing end of life issues. They then have different approaches to developing an advanced care plan, with coordination efforts depending on the issues identified through claims data, predictive modeling, and information collected/confirmed at intake. These individual care plans would generally not be condition-specific, but rather patient-centered. Others interviewed reported offering both care and disease-specific programs that follow an established hierarchy of intensity for patients with multiple comorbidities. These may include coordinated communications with patients by different staff members depending on the combination of conditions and concerns identified for a specific patient. Oftentimes, these managed care organizations would hire vendors to tackle patients with certain conditions, generally disease specific, and either identify the required interventions or look to the vendor to determine the appropriate approach.

A few of the national managed care organizations interviewed described programs that differed by state and region, rather than structuring programs that utilized consistent approaches across the country and individual contractors and plans. These C/DM program designs appeared dependent upon whether the managed care organization had purchased smaller plans with many risk arrangements in a particular region, their penetration in a certain market, and their existing relationships with C/DM vendors and local provider groups. Thus, with these organizations, in one region or state the focus would be on certain targeted diseases, while in another area another set of patient conditions or gaps in care might be identified for intervention.

Managed care organizations also reported variation in their approaches to using vendors and communications with physicians, with some focusing on coaching patients in decision-making (patient-sensitive conditions) and others taking a more traditional approach to motivate changes in patient behavior. Managed care organization representatives interviewed reported most vendor arrangements included some form of risk sharing and incentives to encourage cost savings.

Special Needs Plans

The majority of contractors in the survey indicated that they have both regular MA plans and SNPs and that there are some differences between the care and disease management programs under each of these plans. Large majorities of contractors reported that SNP members in C/DM programs use program services with greater frequency or intensity and that services are generally provided for a longer period of time. However, one might expect that SNP enrollees are likely to be more frail and have greater health needs than their non-SNP counterparts. Only a few contractors report that their SNP services are more structured or that they give staff smaller caseloads. This suggests that the differences between SNPs and MA plans are externally driven by the types of patients enrolled in the C/DM programs, rather than being internally driven by plan management style or protocols.



When examining responses to the overall survey by contracts that had one or more SNP plans in their contract, some of these observations were confirmed. Contracts with SNPs on average had more enrollees utilizing care management than contracts without SNPs (27% vs. 13%). On average, contracts with SNPs discharged fewer of their members from care management within a year than did contracts without SNPs (67% vs. 76%).

If higher complexity or additional benefits and services require additional staffing for care management, this was confirmed by some of the survey questions. Contracts with SNPs were more likely to use advance practice nurses in their care management program than contracts without SNPs and were also more likely to use licensed practical or vocational nurses. They were less likely, however, to use pharmacy staff. The case studies, while only reflecting six contracts, suggest that registered nurses comprised the core staff of not only the C/DM programs, but for the SNP members as well - both less highly trained and more highly trained nursing staff were brought in as supplements to the registered nurses, as opposed to providing core support care to members.

In order to support special needs populations with transitions in care management, surveyed contracts that had SNPs were more likely than plans without SNPs to indicate that their staff routinely reviews facility admissions logs to identify care transitions in care management (77% vs. 52%). They were also more likely to receive information based on pre-admission screening or benefit advisory review about transitions than contracts without SNPs (78% vs. 69%). Contracts with SNPs were also more likely to indicate that they identified transitions through members or caregivers than contracts without SNPs (46% vs. 36%).

In working with the transitions, contracts with SNPs were more likely to indicate that they visited with members to follow up on discharge arrangements than contracts without SNPs (49% vs. 35%). Seemingly in contradiction for the need for more involvement, contracts with SNPs were more likely to indicate that they worked with facility staff only in advance of discharge than contracts without SNPs (57% vs. 32%).

There were also some smaller differences in DM programs for contracts with and without SNPs. Surprisingly, the average duration of DM was lower among contracts with SNPs, with the average duration being 168 days compared to an average of 241 days for contracts without SNPs. Contracts with SNPs were more likely to employ behavioral therapists than those without (59% vs. 44%) in their DM programs. They were less likely to cite high cost of care as a criterion to determine eligibility for DM than those contracts without SNPs (55% vs. 79%).

Supporting the claim of the survey respondents that the programs under the SNP are more structured, contracts with SNPs were more likely to use computer algorithms (59% vs. 40%) to educate members about chronic conditions in their DM programs.

However, contracts with SNPs were less likely to indicate that they reviewed member medications for DM either by telephone or visit than plans without SNPs (57% vs. 82%), or to review reports on prescription drug claims than contracts without SNPs (63% vs. 81%) as part of their DM offerings.

Contracts with SNPs were also less likely to include meeting or achieving goals as a criterion for discharge from DM than contracts without SNPs (19% vs. 45%). They were more likely to use the members' ability to self-manage as a criterion for discharge (71% vs. 48% for contracts without SNPs).

Features Common to all C/DM programs

The MAOs surveyed, and fleshed out in the key informant and case study interviews, reported key commonalities in their respective C/DM programs. Core amongst these important commonalities include:

- **Use of Clinical Guidelines and Quality Measures:** All C/DM programs reported using clinical guidelines and quality measures as the basis for developing and guiding their interventions. Examples from the case studies include the Milliman Care Guidelines, NCQA standards, Beers list, professional medical society consensus guidelines and HEDIS measures. Additionally, the case study programs all had an internal mechanism, typically in the form of a clinical advisory committee, for synthesizing new condition management information and best practices to form and continually refine internal guidelines for care management approaches. Some MAOs used off-the-shelf services where guidelines are updated on a continuing basis, though most internally reviewed their care guidelines annually. Guidelines are generally made available through web portals for staff and participating providers.
- **Use of health and cost outcomes for program evaluation:** All surveyed MAOs reported goals of improving health outcomes and reducing hospitalizations and inappropriate readmissions ER visits. As revealed in the case studies, the short-term, patient-specific C/DM program goals tended to focus on care plan adherence, health maintenance and health improvements, while overarching program-level evaluations focused on returns on investment calculations and reductions in population-level adverse events (e.g. readmissions).
- **Limited DM offerings:** Few MAOs surveyed reported having a vast array of DM programs for their Medicare Advantage members. In the case studies, most of the MAOs reported having only one or two DM programs, if any at all. In interviews, MAOs reported addressing chronic conditions with members through CM programs, though unique DM programs were offered by some MAOs and were almost exclusively limited to diabetes, CHF, and/or COPD.
- **Use of incident- or situation-based case management:** The survey documented that all CM programs offer some form of case management. The interviews suggest that this can be event- or situation-specific case management, may involve the care manager, or a case management specialist, acting as the “quarterback” of a care team which might include the PCP, inpatient facility staff, behavioral health specialists, pharmacists, discharge planning specialists, and home health caregivers. The case managers discussed during case study site visits were generally limited to addressing a specific circumstance/case,

rather than being permanently in charge of the member's healthcare coordination. These case managers may work with the routine care management team, but typically focus on ensuring a smooth care transition to and from different settings (e.g. facility to facility, facility to community/home).

- **Reliance on Registered Nurses as Front-Line Care Managers:** While the survey clearly demonstrated the dominant use of nurses in C/DM programs, their specific role was clarified in the interviews. While the six case study MAOs have different models of staffing for care management teams, some core staff is common to all MAOs. All programs are based around experienced RNs serving as front-line care managers. Additionally, all programs have physician oversight of care management activities, either by having the primary care physician active in the care management planning and execution, or through the clinical guidance of MAO medical directors or condition specialist teams. Care managers and/or members also have access to pharmacist consultation through all programs, although some MAOs had pharmacists embedded in the care teams rather than in an advisory role.
- **Use of Non-Clinical/Additional Staff for “wrap around” services:** As noted in the survey responses, most MAOs incorporate additional care specialists or non-clinical staff into the care management team. As shown in several of the case study sites, when C/DM programs have non-clinical outreach or call centers available, a RN is not always needed for the interaction. These MAOs, or their vendors, employ non-clinical “healthcare concierges” for these roles, often assisting with enrollment or customer care issues, ensuring that health risk assessments are completed, and referring members on to a clinician when appropriate. Other types of non-clinical staff include lay health educators and chaplains (for consultation in end-of-life/palliative care). The case study sites all offered access to social services by working with MSWs or LCSWs when a need arises. C/DM program staff often reported that meeting a non-medical need, such as transportation or meals, served as the gateway to ultimately addressing a critical health need and earning a member's trust.
- **Use of Care Coordination.** The majority of surveyed plans reported care coordination as part of their offerings. Those programs visited during case studies discussed their methods of care coordination within the care management team and between the care team and the PCP, however some MAOs' C/DM programs facilitate care coordination with a significantly higher degree of physician engagement. Where there are EMRs in place, such as at UPMC and KPSC, members of the care team have rapid and easy access to member information and clinical data. Technology is not the only factor influencing effectiveness of care coordination. Tufts has varied care management arrangements (more on this can be found in the Tufts section of the report) wherein not all members have access to a care management team that has easy and/or rapid access to data via EMRs and integrated information systems. Those members who are cared for by delegated medical groups where local care management is an integral function within the PCP offices (with care managers on site) have the advantage of their team being able to

more easily procure needed services and more readily reach physicians or other related caregivers.

- **Focus on Care Transitions.** All programs emphasized the importance of helping members to manage care transitions, but the role of care management staff during transitions differed from program to program. With some MAOs, such as BCBSMN and United, the care manager acts as a “safety net” during transitions – mainly ensuring that the MAO maintains knowledge of patient status and picking up care management after discharge, depending on the hospital care and discharge procedures. These MAOs may become aware of hospitalizations through claims if not notified by daily review of hospital rosters, directly by the patient, caregivers, or facility. When claims alone inform the MAO of a hospitalization, interventions or procedures to maintain continuity of care are often delayed or the opportunity for transition management is missed, since information is received well after the member’s discharge. Other MAOs, like KPSC and UPMC, facilitate and monitor inpatient care and continue care management throughout the duration of any facility stay, discharge, and at the new care setting.

Case management, as described above, often begins with a hospitalization or series of them and involves intensive monitoring and facilitation of care with the member and caregivers surrounding the event. Case management typically directs the discharge planning and transitional care arrangements.

Staffing Approaches

While beyond the scope of the survey, the case studies and other interviews revealed the role of how staffing models shape C/DM program operations and are worth noting. Two staffing models encompassed the six case studies as well as the MAOs interviewed as key informants, and are thus likely very prevalent across the broader universe of MAOs, though this study is not able to capture the magnitude of each. The infrastructure and approaches of a particular C/DM program has is largely based on whether the MAO has an integrated delivery system or other method of aligning financial incentive between providers and the MAO to encourage efficient and improved care delivery. The primary difference is in the focal point of the C/DM program. Non-integrated delivery systems are likely to rely on a care manager “quarterback” to arrange and coordinate all of a member’s care management needs. A system with aligned incentives is more easily able to ensure collaboration across the care team, with the member as the focal point. These models typically have a more fluid flow of information and referrals to other members of the care team, whereas the flow of information in non-integrated systems or in those with poorly aligned incentives tends to be more hierarchical. These models describe shared features, though MAOs did vary slightly on what types and to what extent additional staff comprised the care teams (e.g. co-located PharmD vs. external PharmD resource through pharmacy benefits manager).

The survey was able to provide insight into the levels and types of staffing used by MAOs, though it is not clear which models overlay these results. The survey documents that care management is generally provided by a combination of different types of staff, including contract holder staff, vendors, plan network providers and other non-contract holder staff. Depending on

the size of the contract (or of the organization of the contract), such arrangements with non-contract holder staff may allow the contract to offer more services, or reduce duplication of administration costs. Conversely, contracts may achieve these results better in-house, where they can more closely monitor the results of their programs. Nearly all contracts reported using in-house staff to provide care management, while close to a third of the contracts reported using vendors and more than a third using plan network providers.

The heart failure literature reveals that programs delivered in multi-disciplinary teams were most effective in improving outcomes.²⁰ Nurses were a central component of staffing in all cases, and the literature suggests that nurses with more training and experience are likely to provide more effective care management.²¹ Close to all of the contracts indicated that among their professional staff providing care management, registered nurses were the mostly widely used (99 percent reported using them). About half indicated that they employed advanced practice nurses or licensed practical or vocational nurses in addition to registered nurses (Table 1-2). In addition to nursing staff, the majority of contracts also utilized social workers, behavioral specialists or therapists, pharmacy staff and primary care physicians. Fewer used physical, occupational, speech or respiratory therapists, registered dietitians, or other types of staff.

Table 1-2. Please indicate the types of professional staff providing care management under this contract.

Types of staff	Percent utilizing this type of staff	Percent not utilizing this type of staff
<i>Nursing Staff</i>		
Advance practice nurses	52%	48%
Registered nurses	99%	1%
Licensed practical or vocational nurses	46%	54%
<i>Staff other than nurses</i>		
Social workers	83%	17%
Physical, occupational, speech, or respiratory therapists	24%	76%
Behavioral health specialists or therapists	73%	27%
Pharmacy staff	65%	35%
Registered dietitian	26%	73%
Primary care physicians	61%	39%
Other types of staff providing care management	11%	87%
(Other) Medical director	6%	93%
(Other) Health educator	11%	88%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

²⁰ Sochalski J, T Jaarsma, H Krumholz, A Laramée, J McMurray, M Naylor, M Rich, B Riegel and S Stewart. January/February 2009. What works in chronic care management: the case of heart failure. *Health Affairs*;28(1) 179-189.

²¹ Chen A, R Brown, N Archibald, S Aliotta, and P Fox. Best Practices in Coordinated Care. March 22, 2000. Mathematica, Inc. report to HCFA under contract HCFA 500-95-0048 (04).




Unique Features of C/DM Programs

Despite some core similarities, C/DM programs varied significantly depending on the extent to which the MAOs' providers have aligned financial incentives or are part of an integrated delivery system. As mentioned in the introduction, the six MAOs fall into two models of health care networks - those that effectively act as integrated delivery network (IDNs), and those that do not. KPSC and UPMC function as IDNs where all or most of their providers, care management teams, and laboratory and radiology services are combined in one entity that shares data and resources. IDNs have unique characteristics that affect how C/DM is provided. First, the integration allows for quick, efficient, and accurate transfers of patient information, clinical and lab data, and shared knowledge of care gaps among all care management staff and providers. Secondly, the alignment of financial incentives and having care management an integral part of general care delivery ensures providers view interventions as complementary and supportive to their own direction of patient care. The IDNs establish internal expectations and benchmarks of quality of care for providers and provide regular feedback on practice patterns and methods for improving care and controlling costs. Providers are not only motivated by financial incentives but how their or their practice group's performance compares to norms within the IDN.

MAOs without integrated health organizations or aligned financial incentives naturally face more challenges in creating collaborative relationships with providers, and PCPs in particular. Data sharing, without the involvement of large medical groups that have infrastructure dedicated to EMRs and information systems, becomes far more difficult to achieve. One approach that helps encourage physician engagement with the C/DM efforts is better aligning financial incentives for providers. Tufts, for example, has a network of large single and multi-specialty groups as well as physician hospital organizations that are at financial risk (and can receive significant reward) for medical expenses of their members. These groups choose to pay for C/DM out of their revenue and are authorized to perform their own C/DM program, provided it meets Tufts standards. These provider groups believe, based on their historical successes in coordination and medical management, that adopting their own C/DM program is a worthwhile investment. Many of these delegated groups not only have hired their own experienced RNs to help with care management, but have engaged social workers and pharmacists to assist in this effort. Another technique used by MAOs that do not have IDNs is having "roving" care managers who are responsible and linked to a small number of physician practices that they visit frequently to provide onsite assistance. This helps physicians see the value of C/DM staff as allies, and begin to work more collaboratively with the MAOs rather than viewing C/DM efforts as MAO mandated oversight or opportunities to deny services. MAOs without these clearly aligned financial incentives, such as BCBSMN, Humana and UHG, repeatedly report frustrations in engaging providers on a large scale basis. Their successes come one provider at a time.

All MAOs reported some initiative(s) to improve and specialize their C/DM approaches to better serve the health interests of members, refine efficiency of C/DM outreach or intervention techniques, and reduce costs. Some examples of these initiatives are:

- Wound care and pressure ulcer prevention programs
- Osteoporosis and fall prevention

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- Special geriatric care management
 - CHF transitional care improvement initiatives
 - Special health education classes
 - Flu prevention

Role and Use of Vendors to Support C/DM Programs

C/DM services are so varied, and cover so many aspects of member care, that delivering all services in-house may not be possible for an MAO. When employee staffing levels, information system limits, or cost are prohibitive to building internal infrastructure, MAOs sometimes choose to outsource some or all C/DM tasks to a professional vendor.

We analyzed the survey responses by whether or not the MAO indicated that they used a vendor to determine in how, and if, care and disease management differs when provided by a vendor. Our hypothesis was that we would see differences, as vendors not only provide services to MA plans, but offer a broad spectrum of service to broader spectrum of clients. Vendor programs have often evolved from specific functions (for example, cardiovascular disease), to take on new client demands. However, they may still have an orientation toward their original focus or expertise. Other vendors may have a particular focus towards health coaching. Vendors may have expertise in predictive modeling and special information systems for identifying patients, where health organizations are more likely to have information systems that have evolved from membership and claims orientation. Finally, vendors must offer their client, the contractor, some sort of evidence for the value of their services.²²

While care management programs almost always involved in-house staff, 31% of contracts also used a vendor to provide care management. In contrast, for DM programs, 77% of contracts indicated that contract holder staff provided DM, and 41% utilized a vendor.

Vendors tended to have more structured approaches to education in care management. Contracts using vendors relied more on checklists than those that did not (84% vs. 59%). Contracts that utilized vendors were also more likely to have on-line education available than those who did not contract with vendors (76% vs. 46.8%).

While about half of contracts (55%) reported assisting members with care transitions, those contracting with vendors were more likely to report this type of assistance compared to those that did not use vendors (60% vs. 40%).

There were differences in how contracts with vendors identified care transitions in care management. Contracts with vendors were less likely to indicate that staff routinely reviewed facility admissions logs than contracts without vendors (30% vs. 76%). However, contracts with vendors were more likely to indicate that staff received information based on pre-admission screening or benefit advisory review about transitions than contracts without vendors (81% vs. 70%).

²² Bodenheimer, T. February 2000. Disease Management in the American Market. BMJ; Volume 320:26, p. 563-566.



In responding to transitions in care management, contracts with vendors were more likely to indicate that they visited with members to follow up on discharge arrangements (48% vs. 38% of contracts without vendors, p-value of .08 for the bivariate analysis, p< .001 for logit analysis).

In terms of problems with medication, there was also more emphasis on higher level staff and structured approaches. Contracts with vendors were more likely to indicate that they had a PBM identify problems (89% vs. 62% of contracts without vendors). Contracts with vendors were more likely to indicate that they administered a screening instrument to identify problems with medications (92% vs. 72% of contracts without vendors).

There were some differences in program offerings by vendor status, where contracts with vendors were more likely to offer programs for COPD than for those contracts without vendors (88% vs. 56%). However, they were less likely to offer programs for high blood pressure (44% vs. 72% of contracts without vendors).


Staffing tended to be richer for DM programs for contracts with vendors. Contracts with vendors were more likely to indicate that they utilized advanced practice nurses, licensed practical or vocational nurses, physical, occupational, speech, or respiratory therapists, and registered dieticians (74% vs. 36%) compared to those without vendors. However, as highlighted in the case study interviews, DM programs were few and far between, and tended to be highly specialized (as they were otherwise folded into CM programs) such that it made economic sense for MAOs to vend out these services (e.g. telemonitoring for COPD) than to staff up internally.

It is possible that the use of vendors may be phasing out, or increasingly restricted to peripheral functions. All but one of the case study MAOs utilize vendors to complete their care management offerings, however the extent to which vendors are used varies greatly²³. MAOs ranged from complete independence from vendor use to significant reliance on vendor services. Some services provided by vendors at the sites visited include:

- Remote telephonic care management
- SNP operations
- Care gap coverage
- Complex/frail elderly care
- IVR - automated reminders/administer UHG's RSA
- Risk scoring of members
- Behavioral health care coordination

The sites that operate most of their C/DM in-house report being happy with the arrangement and proud of their programs. Those MAOs that rely more heavily on vendors are satisfied with the vendor operations, largely due to their ability to oversee and direct vendor programs to meet their needs, however these MAOs did mention that they would prefer to run C/DM in-house. All MAOs mentioned an eventual goal of reducing vendor use. It should be emphasized that vendor

²³ The MAO that does not use vendor services or data systems in its care management approach does use a third party vendor for assessing member satisfaction to ensure objectivity.



use focused primarily on the DM-related activities, versus CM activities, often due to the fact that DM programs were relatively small, specialized, and stand-alone and thus easier to vend out than the more integrated CM activities.



AIM 2: IDENTIFYING MEMBERS FOR ENROLLMENT

Information technology is a critical component of any MAO operation, and of care and disease management efforts in particular. An MAO's ability to identify members with chronic diseases or other health issues requiring special attention (such as those being discharged from a hospital or frequently visiting emergency rooms) is dependent on having accurate and complete information about a member's health. Therefore, the findings associated with this aim begin first with a discussion of the role information technology plays in C/DM, and is then followed by how MAOs identify and enroll members into C/DM programs.

Most MAOs do not have the luxury of working with groups of physicians and hospitals that all share a common system of electronic medical records. Instead, the overwhelming majority of MAOs contract with a number of provider networks and hospitals, each employing its own method of documenting and using member health information. Thus, an MAO's strategic and operational decisions about how to collect and share critical health information with C/DM staff and providers across settings becomes a key factor in determining effectiveness in population- and patient-level CM. The information systems they use to collect and share this information within their own organization - utilization and medical management, member services, their pharmacy benefits providers and C/DM staff - becomes a vital part of their C/DM program.

The extent to which IT systems can incorporate information from different sources into one platform (versus multiple platforms), results in better documentation of health information and more efficient delivery of C/DM services. For example, one of the challenges facing MAOs, particularly ones that have chosen to grow through acquisitions, is working with systems from different platforms using software that are incompatible. This results in a patchwork information system where C/DM staff must access information about a member from multiple platforms, with varying levels of data availability and ease of use.

The following sections discusses some of the common sources of information that are included in these IT systems and the extent to which they are included on one platform and easily accessed by individuals involved in targeting members for enrollment and monitoring C/DM program progress.

Data Sources Incorporated into IT systems

The survey showed that there is little variation among the types of member-level electronic data directly maintained by MAOs. They maintain enrollment or disenrollment dates, service use or charges, procedure codes, assessment or care plans, prescription drug use or charges and quality related process of care information, such as prevention screening or immunizations. Moreover, a large majority of organizations maintain data on clinical indicators, while only a few maintain health risk assessment data.

MAOs may rely on electronic data to support the activities of their C/DM programs. What data is maintained, and how it may be accessed may be particularly important in identifying patients for

care or disease management.²⁴ Overall, plans reported they maintained a range of member-level electronic data, with the vast majority (90% or higher) of plans including enrollment/disenrollment dates, service use or charges, prescription drug use or charges, procedure codes (e.g. CPTs), quality-related process of care information and health assessments or care plans as part of their systems. About three-quarters of all plans also reported maintaining clinical indicators, such as lab test results, with fewer plans reporting that they keep other types of electronic data, such as clinical guidelines, member contact activities and electronic health records as seen in Table 2-1.

Table 2-1. Which of the following types of electronic data are directly maintained by your organization?

Electronic Data Type	Percent maintaining	Percent not maintaining
Enrollment or disenrollment dates	99%	1%
Service use or charges	99%	1%
Prescription drug use or charges	92%	8%
Procedure codes, such as CPTs	99%	1%
Clinical indicators, such as lab test results	74%	25%
Quality-related process of care information, such as receipt of prevention screening or immunizations	91%	9%
Assessments or care plans	93%	7%
Other types of member-level electronic data your plan maintains	37%	63%
(Other) Health Risk Assessments	14%	86%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

Although the collection and maintenance of this type of member-level information is widely embraced by contract holders, these data do not measure the quality of the data collected or the manner in which contractors utilize these data. From the stakeholder interviews, respondents acknowledged that because health plan organizations do not specialize in information systems, their systems have evolved over time in fits and starts. This produces a system with interoperability issues among different departments within health plan organizations and vendors. Despite these significant limitations, some contract holders continue to improve their electronic data systems with the latest information management strategies, including web portals to help providers access patient health information, and interactive voice response technology to improve contact rates with patients.

As documented in the MA plan survey, MAOs leverage a wide variety of data sources to support plan operations, overall care delivery, and C/DM program activities and interventions. The availability and quality of the data sources varied primarily by whether the MAO operated in an integrated system or not, where the MAOs in integrated systems were more likely to have timely and comprehensive data than those in non-integrated systems. Specific data sources that plans consistently reported as driving C/DM programs include:

²⁴ Chen A, R Brown, N Archibald, S Aliotta, and P Fox. Best Practices in Coordinated Care. March 22, 2000. Mathematica, Inc. report to HCFA under contract HCFA 500-95-0048 (04).



- **Claims and Billing Information.** All MAOs rely on claims and billing data to some extent in identifying and delivering C/DM services. MAOs that operate with a network of independent contracted providers (e.g. UHG, BCBSMN) generally do not have the ability to collect real time clinical information about members, except when they have developed preauthorization systems that require providers to contact them prior to ordering or delivering certain services such as MRIs or specific surgical interventions. They instead rely on information collected through claims systems. While some claims data may be received promptly electronically (e.g. from a lab operating under a national contract with a particular MAO), others may take months to be submitted, particularly if they are from non-contracted (out-of-network) providers. This was often the case for MAOs such as Tufts, BCBSMN, and UHG, where perhaps the biggest limitation was their inability to capture claims data quickly, often resulting in delays in following-up on discharge planning and identifying gaps in care and adverse events. MAOs with a large, shared provider network, such as UPMC and KPSC, were able to address these issues almost immediately, due to the exchange of real-time lab/pharmacy data (discussed below).

Another important aspect of accurately identifying members and delivering C/DM services is in the way that claims are processed. Claims paid based on procedure codes or specific diagnostic related groups are more likely to accurately report a patient's conditions. However, it is not uncommon for a claim to include inaccurate primary codes that do not in turn reflect a patient's condition. These codes, however, are usually the key information available and used to identify and recruit patients into their C/DM programs. Some MAOs, UPMC in particular, has initiated an effort to ensure proper coding by sending MAO employees to provider offices to teach staff how to correctly use diagnostic and procedure codes.

- **Lab/Pharmacy Data.** The more sophisticated and comprehensive IT systems are able to incorporate real-time lab and pharmacy data, rather than solely relying on claims/billing information. For example, MAOs such as UPMC and KPSC, where most providers and hospitals are employed through the same network, are able to build and utilize systems that can exchange information fluidly and in real-time. This allows them to quickly identify members' health information for enrollment, gaps in care, duplicative care, discharge planning, and many other important aspects of C/DM.
- **Utilization and Medical Management Information.** Each MAO collects and synthesizes information about patient and provider utilization patterns in an effort to ensure care is being provided at the right time and in the right setting to control costs and quality. Certain benefits are covered only if they are pre-authorized through medical management. Utilization management staff often monitor hospitalizations, transfers across patient settings, the nature and frequency of emergency room visits, and approval of benefits such as durable medical equipment and home care services that are a critical aspect of transition management. Information systems platforms developed to support utilization and medical management activities are generally separate from the claims and

enrollment systems and sometimes a part of an MAO's care management system when their systems are highly integrated. Some MAOs, such as UPMC and KPSC, have fully integrated their utilization management programs into a larger more comprehensive care management system, while others, such as Tufts and BCBSMN, continue to have UM staff operate separately for discrete functions such as pre-authorizations and attempt to find ways to integrate the information across multiple platforms so care managers have access to medical management decisions at their fingertips.

- **Member Enrollment Information.** MAOs keep an enrollment file on each member, including basic information such as address, phone number, date of birth, insurance coverage, and primary care provider. These systems are normally independent of the billing and claims systems and are used by member services staff to track enrollment, answer member questions about benefits, and track member concerns or grievances. Oftentimes, member services or C/DM administrative support staff are enlisted to contact any MA members who have not completed a health risk assessment following plan enrollment.
- **Health Risk Assessment Information.** Information from health risk assessments is often entered into a data system. This information sometimes becomes part of a third platform, such as an MAO's C/DM software, and only accessible to C/DM and utilization management staff, or to analytic staff that use the data as part of the member identification and eligibility algorithms.

Structure of IT Systems and CM Workstation Interface

The structure of the information systems supporting C/DM programs has a tremendous influence on the way those programs are able to deliver services to their members. As described above, information system structure and the accuracy, completeness and timeliness of data are dependent on the platforms available to the MAO and the nature of their provider network.

Highly integrated systems with timely data feeds support care managers and providers in their ability to interface with patients, providers, and care facilities in near-real time. This in turn enables them to react more quickly to developing health events and to anticipate member needs before they actually occur. The higher the quality and timeliness of the data readily available to the care team, the more sophisticated they can become in assessing population and member specific needs and the usefulness of care management protocols. Those MAOs working with large medical groups prepared to conduct population management have more opportunities to integrate information for the purposes of care management. Conversely, a poorly integrated information system can slow MAO responses to members' health events and frustrate efforts of care managers to be proactive in situations such as care transitions. A lack of information system integration can increase the number of moving parts that care managers must monitor. Ultimately, poorly integrated systems can severely limit the MAO's ability to perform the complex analyses necessary to fine-tune C/DM protocols and activities.

The most nimble information systems observed during the site visits typically incorporated a wide range of data sources with key clinical information updated in real or near-real time. These

systems utilized a single software platform to access patient data, and enabled a variety of stakeholders to access members' information with varying levels of security access depending on their role in the members' care. They generally were supported by data from electronic medical records at the primary care physicians' sites, and sometimes included vital clinical information from specialists and hospitals electronic medical records systems as well. The most limited information systems tend to rely almost exclusively on claims data that can be days, weeks, or even months out of date (for out of network providers) by the time it becomes available to care managers within an MAO. Furthermore, access to information in the more limited systems is typically restricted only to C/DM staff who, in some cases, must operate in multiple software platforms simultaneously in order make clinical decisions while interacting with members.

System Design

All of the systems observed in this study share a number of common elements. First and foremost, they are designed to capture and process a member's health information in order to help care management staff produce and implement a care plan with that member. Although some advanced MAOs include support features for providers and hospital-based care managers through integrated electronic medical records, these functions for the majority of sites were only available to MAO-based C/DM staff that are either onsite or logged directly into the MAO's system remotely. Some specific administrative and clinical elements common to most platforms include:

- **Patient information summary from available data.** Generally includes patient contact information, key information from the member's health risk assessment, provider contact information if a primary care physician is assigned or selected, and a history of medical, pharmacy and lab claims. Hospitalizations and ER visits with key diagnoses, prescription information, lab tests and imaging ordered are sometimes available, with varying degrees of timeliness. Care managers at some MAOs need to launch multiple separate software applications to access this information.
- **Care plan development** support with the use of nationally accepted clinical guidelines and system generated prompts based on the data available as well as information entered by the care manager. For instance, the system may prompt a care manager following a member with multiple chronic diseases to ask specific questions or consider a series of interventions depending on the member's stated goals or health priorities.
- **Automated reminders and alerts** generated both by the system and care managers' customized entries (based on their clinical judgment) for issues ranging from regular health screenings to refills on prescription medications and based on elements in the care plan.
- **Detailed case notes** where staff can provide additional context on member status for other managers or providers and for quality monitoring purposes.



- **Condition specific assessment and screening tools** (sometimes to include more detailed HRAs) including questions for conditions identified as priorities by MAO staff such as depression and functionality (activities of daily living) screening.
- **Access to information on MAO policies and procedures, adopted clinical guidelines and plan-developed educational materials for both staff and members.** Some MAOs may require care managers to launch a separate software application(s) or Internet browser for such information while other systems have automated functions that, upon selection by the care manager, can send materials or educational kits to members.
- **Referrals and alerts to other staff** within the MAO such as social workers, pharmacists, behavioral health specialists and/or network providers. KPSC and UPMC's systems offered the most comprehensive set of alerts or referrals/assignments that pop up when certain staff members open their systems. These alerts vary from reminding any staff to ask if a member has scheduled a mammography to alerting a pharmacist to contact a member to help them figure out how to work through the donut hole given polypharmacy issues. In some instances these alerts appear in task logs for specific staff, such as the need to call a member about a lab result or contact a PCP due to a recent report from biometrics.
- **Ability to place orders for durable medical equipment, home care, hospice or other services on behalf of the member.** In one instance, this included pending orders for prescription medications and or certain health screening tests for review by the members' PCP.
- **Monitoring capacity for supervisors** to determine the frequency of member touches by staff member, timeliness of follow-up calls, and routinely evaluate key process measures identified by management as key to program success.
- **Utilization Management is supported** to some extent by each system as part of a comprehensive care management system rather than on a separate platform.

Observations from these site visits suggest that the ultimate success of a C/DM information system rests on the both the design of its database and the accuracy, completeness and timeliness of the information available to key provider and C/DM staff. In other words, slick software and multiple entry points cannot compensate for deficiencies in the core databases that underpin the system. One of the starkest examples of how database design can impact the efficacy of C/DM programs is found in the way patient data is organized. For example, BCBSMN's C/DM system responds to managing cases across a number of states with different data systems organized around case numbers connected to triggering events. These case numbers are assigned each time a member is triggered into a C/DM program, and then retired once the triggering event has been addressed by a case manager. This creates a situation where a single patient may have several case numbers on file and some of those cases may be closed while others remain open. Although each member is always assigned to the same nurse manager that has access to all previous case numbers, regardless of the services received, this system creates an extra burden on staff to keep



track of all of the member's relevant case history across multiple locations, increasing the chances that important information can be overlooked. However, as a regional plan with an unclear viability outlook, BCBSMN has been constrained in its ability to invest in a more dynamic interface.

On the other end of the spectrum are MAOs, such as UPMC and KPSC, that use internally designed systems organized around the member's identity and clinical information, providing just one location for key information relevant to that patient including their providers and care gaps as well as the most recent communications from the MAO/provider staff. Aside from removing the need for a care manager to track information in multiple locations and case files, this also creates the opportunity for multiple users (care managers, physicians, office staff, etc.) to access and update the same file in real time from multiple locations (MAO call center, care facilities, etc). This easily accessible and centralized system operating on a single platform is critical to supporting more advanced care management practices, for example the ability of UPMC's nurses to pull member information by diagnoses or lab values. These systems are able to regularly integrate lab and prescription claims, lab values and a variety of clinical data such as whether any provider has written a particular prescription for a member that has not been filled. This potentially critical information is then on hand as providers and C/DM staff monitor and work with a member.

Beyond database design and data quality, access to members' case files at the point of member contact and/or care delivery is another factor important in comprehensive care management. In ideal circumstances, all caregivers would have access to certain information about any given member and system alerts related to gaps in care. This level of sophistication in an information system would allow access to information based on a caregiver or administrative staff's ability to assist in closing the gaps in care - whether a member needs to be alerted to obtain certain cancer or osteoporosis screening, given age and medical history, or focusing on the importance of obtaining a specific lab test and discussing the results with their doctor because of a diagnosis.

The more integrated MAOs were able to provide access to the system across settings and well beyond the care managers' offices. These information systems support improved coordination between and among providers and care facilities and MAO staff, allowing them to operate with the same information and make updates that can be viewed in real-time. These open access systems are designed to only allow access to information that is relevant to the individual healthcare professional's job specifications, protecting private health information without creating barriers that interfere with proper care coordination. This kind of tiered access can be offered either through remote login to a common software platform (UPMC, KPSC) or through ancillary software such as an online provider and/or member portal (UHG, Tufts, Humana) within the MAO's website.

Identifying and stratifying members for enrollment

Given the costs of chronic and complex conditions, almost all contracts in the survey reported use of high cost care or high services use (past or expected in the future) to determine eligibility for care management. Additionally, almost all contracts indicated that they used specific health events or procedures (such as surgeries) or specific diagnoses, conditions or medical complexity





to make this determination. Nearly three-quarters of contracts indicated that they used gaps in care (such as lack of needed diagnostic testing) to determine eligibility. Other widely used criterion that contracts indicated they used included: high prescription drug use, functional limitations, or specific lab values or clinical indicators out of range. Approximately half of contracts indicated that they used some other criteria to determine eligibility, and one-quarter used scores from health risk assessments as a means of identification as shown in Table 2-2 below.

Table 2-2. Please indicate the criteria used to determine member eligibility for care management.

Criteria to determine eligibility	Percent using	Percent not using
High cost of care or high service use (past or expected in the future)	97%	3%
Specific health events or procedures (such as surgeries)	96%	4%
Gaps in care (such as the lack of needed diagnostic testing)	74%	26%
High prescription drug use	88%	12%
Functional limitations	88%	12%
Specific diagnoses or conditions, or medical complexity	99%	1%
Specific lab values or clinical indicators out of range	60%	40%
Need for palliative or end-of-life care	16%	84%
Other criteria used to determine eligibility for car	49%	51%
Score on health risk assessment	25%	75%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

Almost all (98%) contracts used claims review or predictive models (based on service or prescription drug use, costs, diagnoses or procedures) to identify members for DM. Most also identified members for DM through member self-referral, or provider referral. Many plans also used nonclinical staff referral, clinical or diagnostic data review (including review of Medicare Advantage risk scores), or administered a health risk assessment as seen in Table 4-18 below.

In the literature, the evidence is that the majority of disease management programs are population based: they identify and target patients with a specific condition.²⁵ The same seems to be true in the plans held by MA contracts. The vast majority (80%) of disease management programs are population based with opt-out provisions for members who do not wish to participate. A much smaller percentage (15%) of contracts report that they target members with particular diagnoses or conditions and invite them to participate. Just 6% of contracts have population-based disease management programs that include all members meeting the inclusion criteria as shown in below.

Surveyed contracts indicated a variety of approaches used to identify members for care management. Almost all contracts indicated that they used the following approaches: claims review or predictive model, clinical or diagnostic data review, provider referral, nonclinical staff

²⁵Mattke S. 2007. Evidence for the effect of disease management: is \$1 billion a year a good investment? The American Journal of Managed Care; 13(12):670-676.



referral, member self-referral, and administration of a health risk assessment. Only 4% used clinical staff referral to identify members as shown in Table 2-3 below.

Table 2-3. Please indicate the approaches used to identify members for care management.

Approach used to identify members	Percent of contracts using	Percent of contracts not using
Claims review or predictive model (based on service or prescription drug use, costs, diagnoses, or procedures)	98%	2%
Clinical or diagnostic data review (including review of Medicare Advantage risk scores)	94%	6%
Provider referral	99%	1%
Nonclinical staff referral (including customer service or pre certification staff)	96%	4%
Member self-referral	96%	4%
Administration of a health risk assessment	97%	3%
Other approaches used to identify members for care management	30%	70%
(Other) Clinical staff referral	4%	96%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

About three-quarters (76%) of contracts said that they assigned members of care management to different levels depending on the complexity of the members' problems.

The majority of contracts (74%) indicated they had no exclusion criteria for use of care management of enrollees. A limited number of contracts used terminal illness or participation in hospice, dementia, or end stage renal disease. Small numbers indicated they had another way of excluding members than listed, that the member declined care management, or the member was in or admitted to a long-term care facility as see in Table 2-4 below.

Table 2-4. Please indicate the criteria your organization uses to exclude members from care management

Criteria used to exclude members from care management	Percent using	Percent not using
Terminal illness or participation in hospice	13%	86%
Dementia	6%	94%
End Stage Renal Disease (ESRD)	5%	95%
Other criteria used to exclude members from care management	17%	83%
(Other) Member declines CM	10%	90%
(Other) Admission to /member in long term care facility	3%	97%
No exclusion criteria used	74%	26%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

In addition to the diagnoses for which DM is offered, contracts reported additional criteria used to determine member eligibility for DM. Most contracts used specific diagnoses or conditions in addition to the diagnoses mentioned earlier. Over three quarters used specific health events or



procedures (such as surgeries). Many also used gaps in care (such as the lack of needed diagnostic testing) to determine eligibility. Over half used high prescription drug use or specific lab values or clinical indicators out of range. Smaller numbers indicated that they used a score on a health assessment, member referral or physician referral.

The degree to which laboratory values and pharmacy/prescription information are available and/or timely to managed care organizations and/or their vendors as reported was not uniform. Availability depends on the capacity of the data management systems as well as the nature of the provider contracts. For instance, information on lab values and prescriptions filled was more frequently available to those managed care organizations that have reference labs or participating pharmacies sending this information directly and regularly as part of their contracting arrangements. Some managed care organizations have systems to relay this information on a timely basis to their vendors (albeit not necessarily in a readily usable format), while other vendors and managed care organizations interviewed consistently operate without this degree of detailed information.

Reported patient enrollment rates in C/DM programs also varied by managed care organization and vendor, as did their recruitment, targeting and stratification approaches. The length of time patients were involved in a program depended on their condition and the reason for their enrollment. Thus, patients who had recently been discharged from a hospital might be followed until the acute condition was resolved, whereas a diabetic patient or one with multiple chronic conditions might be followed indefinitely, depending on their needs and the participation criteria established by that managed care organization for that region and patient population. One large managed care organization reported that an average of 30% of MA members moved in and out of C/DM programs. One of the reported goals of such programs is to help the patients better manage their disease or condition and become more independent so that over time, less intervention by the C/DM would be needed.

The case studies further illustrate that MAOs have developed methods for identifying and stratifying members requiring some level of C/DM, based on specific selection criteria and MAO or vendor-assigned acuity scores. The methods generally include some predictive modeling based on review of claims data to identify certain diagnoses, procedures performed, emergency room visits, hospitalizations, lab data and medications. Each MAO then has its own series of algorithms designed to predict the likelihood of high resource use given previous utilization patterns and taking into account additional information to round out a member's health profile. The most basic systems use claims data, HCC scores from CMS, and the results from the initial HRAs, and revisit some form of this aggregated information on a periodic basis. Considerations would include the member's age, degree of frailty, diagnoses, use of services (or lack thereof), hospital readmissions, and overall utilization and costs.

The six MAOs had distinct approaches for identifying members for C/DM program enrollment that aligned with how care delivery was structured within a given market or among the contracted providers associated with an MAO. For example, targeting methods were different for MAOs that worked with large organized medical groups and were part of a more integrated delivery system (primary care-centered C/DM), those that worked with both large medical groups where incentives were aligned and integrated delivery systems and other physicians





(hybrids), and those that worked primarily with a loosely knit provider network, where collaboration between the payer and provider is limited and not supported by aligned financial incentives (plan-centered C/DM). Once again, financial alignment, data sources and data systems largely dictate how identification and stratification of members for C/DM programs takes place.

Among case study MAOs with a plan-centered C/DM, the focus by necessity is on identifying members who are not only at risk for high utilization, but also suffering from health conditions the MAOs believe they can significantly impact through largely telephone-based C/DM programs. These MAOs attempt to maximize the impact of their resources by identifying “low hanging fruit” – for example, targeting all heart failure patients to educate them on how to manage the disease rather than trying to educate all at-risk members on heart health, or contacting all members with diabetes that have not been to a physician for some time to discuss their condition and how best to care for it. In this way, MAOs are able to significantly impact the average cost of service delivery per member by providing care management to their sickest and/or potentially most expensive members. A more in-depth discussion of these types of ROI calculations can be found in the section below on MAOs’ Evaluations of C/DM Programs. While these MAOs used their information systems when possible to share “actionable” information with participating providers, their communications about C/DM with providers was generally limited.

Conversely, in the primary care centered delivery systems (both IDNs and groups with significantly aligned financial incentives), provider groups and the MAOs have access to more timely and complete clinical information (normally through the use of EMRs), allowing them to work with the provider team and primary care physicians in their care management efforts. The information systems integrating data from EMRs to be shared across providers and settings facilitate a total population management approach in which every member is in essence automatically “enrolled” in their C/DM program by virtue of being a member. These programs have the capacity to better identify care gaps for all their members across episodes, conditions and settings, and more readily reach members who are at risk for developing conditions that may result in high utilization of healthcare services earlier in the process.

The primary care centered C/DM model allows MAOs to more easily focus on the entire member population, rather than just the most expensive outliers. In addition to placing the sickest patients with the most complex needs into intensive case management sooner, primary care centered models allow for more routine monitoring and personally reaching out to members who are at risk for serious or deteriorated health conditions in the future – this is accomplished through wellness education, screening reminders, and other early stage preventative care management in addition to other care management interventions.

Irrespective of the C/DM model, most MAOs use some combination of data sources to stratify members according to their risk for future high cost healthcare utilization and the intensity of care management services they will require. At a minimum, this involves an analysis of claims data, HCC scores, and some form of health risk assessment. Furthermore, although all MAOs have the capacity to enroll or engage members that are referred for C/DM by both internal and external sources, this only accounts for a small number of members who are enrolled.



Beyond these core data sources, the information that MAOs use to identify members for C/DM varies according to the overall integration of their information systems with providers, pharmacies, laboratories, imaging centers and care facilities. For example, while most MAOs have the capacity to capture lab and pharmacy claims and incorporate them into their identification algorithms, most do not receive the most current data in time, so the more dated information becomes more of a supplement rather than an aid in the identification process. Moreover, only the most highly integrated systems, for example those of large medical groups with EMRs in their offices that are connected to systems in their primary hospitals (e.g. many Tufts groups), are able to regularly leverage current data such as lab values, imaging reports and information from EMRs such as prescription information into their identification processes.

With just one exception, all of the observed MAOs feed all their current data into a proprietary algorithm that stratifies their member population into risk levels. These stratification models generally flag members who have a history of high cost claims, repeated visits to the hospital, problematic health risk assessment scores, polypharmacy issues, or out of range lab values. While the exact method of stratification varies among MAOs, all of these systems allow MAOs to essentially triage their member populations into groups that need some form of more immediate attention and those groups that do not. Some MAOs establish a hierarchy of how intensively a member should be reached (“member touches”) depending on the level of into which the member is assigned. Once this initial stratification takes place, all MAOs allow their care managers to make clinical decisions about the ongoing risk status of members in their caseload. Additionally, while it is common for MAOs using a stratification algorithm to re-run their member population on a monthly basis with the most recent data, one MAO (BCBSMN) relies exclusively on their care managers to re-level members after initial enrollment.

As mentioned above, there was a single exception to the norm among observed MAOs of using an algorithmic method of identifying members for C/DM enrollment. This exception (KPSC) has no formal stratification system and does not actually enroll members into C/DM programs because all members receive care management coordinated by their PCP as part of the core benefits of their MAO. Instead, the MAO uses a system of proactive panel management whereby members’ health status is reviewed on a monthly basis via a real-time EMR. This review is conducted at the primary care team level by a clinician that reviews key indicators such as a high gap score, likelihood of hospitalization score, or other core health metrics and makes an individual judgment about whether that person needs a “touch” from a care manager. The process of these case reviews is systematized when an individual primary care practice decides to focus on a particular health issue from month to month. This decision is guided by the PCP(s) in that practice along priorities consistent with established health center and regional level benchmarks and targets. For example, one month a practice may decide to reach out to all of its diabetic patients, and the next month they will reach out to all women who are overdue for a mammogram. Outside of this dynamic, practice-driven identification process, the MAO also uses stable and universal criteria for identifying members that need to be elevated from simple surveillance into active, complex case management.

Of the 19 state Medicaid programs, managed care organizations or vendors interviewed for this project, along with the six case study sites, only three interviewees reported that their organizations track patient sociodemographic information in a readily accessible format. None of





the managed care organizations operating programs under MA reported collecting sociodemographic information. One used its collected demographic information to determine if the majority of patients they were having trouble reaching or enrolling were of lower socioeconomic status. Another had used demographic information to support an effort to increase clinical testing frequency among African-Americans enrolled in the program. Only managed care organization specifically mentioned that their approach was very focused on cultural differences and diversity. While some managed care organizations stated that it might be possible to ascertain this information from their files, it was not being collected or reviewed in any meaningful manner. One managed care organization noted that patients were enrolled in C/DM based on clinical condition and predictive modeling, and therefore maintaining or analyzing demographic information “*seemed irrelevant*”. This sentiment - that demographic information was not relevant to the primary goal of reaching the right patients and therefore not analyzed - seemed to be echoed by most organizations.

Retention and Attrition

None of the case study sites or other managed care organization or vendor respondents indicated that attrition was a significant concern, with most noting that seniors are typically pleased to be contacted and rarely refuse invitation to participate in C/DM programs. While none of the interviewees reported tracking reasons patients chose not to participate, several hypothesized that those patients did not feel like they needed help, had privacy concerns, or already had an effective support network in place.



AIM 3: ROLE OF MA PLANS IN C/DM PROGRAMS

At the core of every C/DM program is the ability of the care management team to communicate with members on meeting care plan objectives, and of providers to complete the circle of care continuity with the C/DM team. C/DM plans are quite similar to each other in methods of communication with members and providers. Provider reception of care management efforts, however, varied across organizations.

Interaction with Members

The survey was able to provide detail on the prevalence of usual modes of contact with members, as well as broad educational approaches. Over three-quarters (78%) of the contracts indicated that they used the telephone as their usual mode of contact with individual members in care management, though research suggests that in-person communication produces better outcomes.²⁶ The interviews and case studies with MAOs and plan staff suggest that telephone was indeed the mode of choice, though several also offered in-person interaction with more frail, high-need beneficiaries in a limited way. These plans acknowledged that an in-person interface was ideal, but cost prohibitive and that the telephone-based support for both CM and DM programs were a much valued alternative. As shown in the survey, only four percent indicated their usual mode of contact was in person, and 1% indicated it was by mail.²⁶

Since one of the primary components of programs that improve care for persons with chronic conditions is patient education and self-management support²⁷, the survey sought to determine whether care management programs provided education, and how they provided it. Almost all contracts surveyed indicated that enrollees in care management received education about how to better manage chronic conditions or disabilities (96%).

Education about how to better manage chronic conditions or disabilities was provided in different ways, with almost all contracts indicating that they provided such education through teachable moments. Over three-quarters of contracts indicated that the staff provided written materials to members or had care management staff follow curriculum with individual members. A majority also said that staff used checklists or scripts provided by computer algorithm. When observing nurse managers providing telephone-based support during the site visits, every nurse had some variant of script, set of guidelines and checklists to shape and monitor the interaction with the member. All of these tools were also designed to be modifiable so that the nurse manager could use his or her clinical judgment to structure the nuances of the interaction.

Less common approaches included using a group-oriented curriculum, providing videos or DVDs to members, or referring members to community resources as shown in Table 3-1 below.

²⁶ Several respondents incorrectly responded to this question by selecting more than one response to the question (17%), and their response could not be categorized. Therefore, more than 78% may use this mode as their “usual mode of contact.”

²⁷ Bodenheimer, T, E Wagner and K Grumbach. 2002. Improving primary care for patients with chronic illness. JAMA; 288(14):175-1779.

Table 3-1. How is education provided to members in care management?

Method of providing education	Percent using	Percent not using
Staff follow curriculum with individual members	83%	17%
Staff follow curriculum addressing groups of members	28%	72%
Staff follow checklists	67%	33%
Staff use scripts provided by computer algorithm	55%	45%
Staff use teachable moments	98%	2%
Staff provide written material to members	89%	11%
Staff provide videos or DVDs to members	20%	79%
On-line education available to members	56%	44%
Other ways education is provided	27%	73%
(Other) Referral to community resource (support group or classes)	18%	82%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

Some of the assumptions of disease management include that exacerbations of chronic conditions can be avoided by better day-to-day management, and that periodic contact with members with these conditions can improve self-management.²⁸ Understanding how the programs contact, educate and interact with members therefore is crucial. Almost three-quarters (73%) of the surveyed contracts indicated that they used the telephone as their usual mode of contact with individual members in disease management. Another 2% indicated their usual mode of contact was in-person, and 4% indicated it was by mail. This was borne out in the interviews and case studies where telephonic outreach (reminders, “checking in”, or member initiated inquiry calls) comprised the base of all outreach with mailings (educational and reminders) supplementing the telephone-based interactions. Because of the low cost and convenience of these approaches, they are used frequently and for many members. As one MAO staff member said of a letter being sent to all members about the importance of flu shots, “It may not help much, but it certainly won’t hurt.” Automated telephony with interactive voice recognition (IVR) or prerecorded messages was in use at all six case study sites, however opinions are mixed regarding the effectiveness of IVR when used with the Medicare population.

Email and/or SMS (text messaging) are also used at all but one of the MAOs case study sites for outreach, however only one MAO (KPSC) reported that the use of these technologies was as frequent with MA members as with the rest of their population. Other MAOs reported that seniors were less inclined to prefer email or text message outreach. Of the five MAOs that offer email or text message outreach, only two use these techniques by request.

Outreach Support

Much of the detailed learnings on how plan staff interact with members on C/DM came through the interviews and case studies. In terms of their program orientation and philosophy, organizations varied, with some focusing on having a single point of contact from their program,

²⁸ Bott D, M Kapp, L Johnson and L Magno. 2009. Disease management for chronically ill beneficiaries in traditional Medicare. *Health Affairs* 28(1):86-98.



and others involving a web of staff communications unique to a patients' condition(s). Staff training and focus also varied among managed care organizations and vendors – some encourage critical thinking among staff members, with less reliance on scripts and/or case management certification, while others facilitate health coaching, teaching self-management techniques and behavior change motivation to patients. Several managed care organizations reported developing dedicated geriatric case management teams that include nurses, social workers, and/or behavioral health specialists, pharmacists and dieticians. Almost all organizations reported nurse telephone contact as the primary means of communication, outside of direct mailings to patients targeted for education and care/screening reminders. Most often, the initial contact was comprised of a telephone review of an already completed health risk assessment or an effort to complete an assessment confirming the patient's status and needs.

The nature of the calls made to a given patient and the individual staff person calling would depend on the reason they were identified as a C/DM participant and the information the participant provided. The combination of this information with the managed care organization or vendor's approach and staffing ratios would generally result in the development of a care or action plan consistent with the goals established for the patient and the organization.²⁹ The frequency of calls and extent to which the nurse might become more actively involved in communicating with that patient and/or their providers would also be dictated by these factors.

Outside of special programs such as SNPs, other demonstrations, and staff model case management programs, managed care organizations and vendors reported that home visits occur infrequently for MA members.³⁰ While a few discussed the value of home visits for certain frail elderly patients, these visits were considered too costly for the marginal benefits accrued unless the patients are selected very carefully. One managed care organization executive estimated that approximately five percent of the MA population would be eligible for home visits, but they always expect that some will turn down the offer. Home visits are especially cost prohibitive in rural areas where skilled nurses spend much of their time driving from one home to another. One managed care organization that conducts home visits reported considering sending non-clinical staff to conduct the initial health risk assessments and identify medications, for example, before determining whether a visit from an RN would be of value.

The internal data systems developed by managed care organizations and vendors offer varying degrees of guidance and prompting for the nursing staff, and include recommended questions and approaches or care plan elements based on internally developed guidelines and corresponding care algorithms. This kind of program software was typically developed early on to be disease specific. Many organizations' internal systems were then modified to offer

²⁹ Several vendors emphasized the need to discuss end-of-life patients' goals prior to helping them develop an advanced care plan, which influences how to proceed. One managed care organization executive said they always ask the participating member: *"Do they want to focus on longevity, function or comfort?"*

³⁰ One national managed care organization has recently incorporated some "on-site management" for the top three percent of its population in certain metro areas where there are enough patients to warrant this approach. Another large national managed care organization recently completed a pilot program for transitional care in which a vendor made post discharge home visits resulting in a 33% reduction in readmissions after 3 months. This organization intends to expand this program beyond the test city to other areas where their market share is significant enough to make it worth the investment.





guidance for patients with multiple co-morbidities or other challenges, sorted into a hierarchy. This guidance provides nurses direction on the most critical issues to tackle first with a patient. Each system has its own branching logic based on patients' responses to screening questions and other information provided which appear to vary widely in terms of sophistication and ease of use. If a patient gives a positive response to a depression screening, for instance, some systems will trigger more questions with varying degrees of specificity or suggest potential appropriate responses.³¹ Some systems also include reminders for staff to conduct follow-up calls at the appropriate time. A managed care organizations' and vendors' software systems actually identify actionable gaps in care and areas where care needs to be carefully coordinated for the staff, already prioritized. However, depending on the organization's approach, these system-driven suggestions are used as a guide and can be modified by the nursing staff involved. All vendors reported using national guidelines and evidenced-based medicine in developing and at least annually updating their clinical support software. At least two mentioned the use of scientific advisory committees to update and continuously refine their software and the corresponding prompts and guides.³²

While only 4% of the contracts surveyed reported in-person interactions as a usual mode of contact for CM, it is likely that MAOs do incorporate in-person interactions in some capacity. All of the case study MAOs reported using in-person interaction with members, though this varied greatly. In primary care-based C/DM programs, in-person outreach occurs more frequently, as the system ensures most everyone involved in a member's day to day care has access to C/DM information as well as clinical data from across settings. When a member in a primary care-centered C/DM program interacts with the care system, unless the encounter is out of network or outside that large physician group's normal referral stream, the information is typically part of the unified care management information system. For example, a member who goes to the doctor for back pain may be seen by a nurse, physician, and/or nutritionist during one visit. Each of these individuals will have access to the member's EMR and be able to assess care accordingly. In the primary care centered models with the most highly integrated information systems, a home health nurse or case manager may have previously visited the member in the home and made a note in the file that the member sleeps on a couch in his son's house. The doctor, seeing this, can assess if the sleeping arrangement is the cause for the pain, and can refer the senior to a social worker who can ensure the senior has access to financial resources to get a proper bed. Without this information the root cause for the back pain might otherwise be overlooked.

In-person outreach takes a different form in payer-based C/DM models, or MAO networks that include more loosely affiliated providers that do not share common information systems. In these cases, in-person care management might be used when home visits are most appropriate for an assessment, when a member is hospitalized, or when a member is very frail and a care manager

³¹ One vendor actually has a series of screening questions used to determine how motivated the patient is and whether they are likely to be amenable to making changes. The vendor is experimenting with this "patient activation screen" as a method of determining what the nurse should try and address. So far they have found a high correlation with this screen and their ability to get good results.

³² When speaking of quality assurance initiatives and the importance of adhering to nationally recognized clinical guidelines, several managed care organizations also mentioned the importance of meeting NCQA's and URAC's quality and utilization management standards in order to maintain accreditation standards.





accompanies the member to appointments. For the two case study MAOs with integrated delivery systems (KPSC, UPMC), and for those with hybrid arrangements (Tufts), in-person contact with care team members was frequent for those with chronic conditions, primarily at the PCP's office, but also across settings as needed. Conversely, in-person contacts are likely to take place only when a member is particularly frail, if at all, outside of care transitions in most payer-centered C/DM programs. In other words, primary care-centered C/DM programs strive to offer in-person care management at every appointment with a participating provider, and sometimes even when they come in for a lab test or prescription refill, since C/DM permeates much of the overall care delivery across settings rather than focusing on key conditions or episodes of care. Those members in a payer-based C/DM program will generally see in-person, designated care managers (or home health nurses sent on their behalf) when they are too ill or frail to leave home alone, or are being assisted during a care setting transition.

In Tufts' hybrid model of delegated medical groups that perform their own C/DM, their local provider teams interact personally for any members coming in for patient care. These groups normally have employed care managers onsite that develop close relationships with the doctors and nurses in the practice and are considered part of the care team. While not as extensive as the collaboration seen in the IDNs at KPSC or within UPMC that additionally incorporates lab operations, radiology, specialists, and sometimes pharmacy, this arrangement also offers primary care based C/DM. Humana also functions somewhat as a hybrid model in terms of providing in-person care management. In certain parts of the country their medical director is an active part of the local medical community and they have field staff collaborating more closely with primary care practices.

The frequency and methods of communications with members depends on the urgency and severity of the health issue being addressed, and varies broadly across the MAOs. A frail elder with multiple comorbidities would require much more intense, hands-on, and frequent intervention than would a member in overall good health. The least frequent, least intense type of outreach reported among the six case study MAOs is an annual flu shot reminder postcard sent to all seniors regardless of health status. The most frequent, hands-on intervention reported is the presence of a care manager on site at a hospital to address patient needs, or a care manager accompanying a member to appointments and working intensely to guide and assist caregivers.

In addition to the C/DM outreach activities discussed above, it should be noted that primary care based C/DM programs have the added capability to conduct "in-reach". In-reach can occur when a member is at the doctor, pharmacist, or any associated lab or facility within the health network. Access to EMRs (and other shared data sets) usually allows care teams in this environment to address care gaps when the member is present and doing so is feasible, regardless of the purpose of the member's visit. KPSC notes that any member can opt-out of outreach, but in-reach is "what it means to be a KPSC member."

Care Transitions and Discharge

Most surveyed contracts indicated that they identified care transitions by having hospitals routinely notify the contract holder of all members admitted or discharged. The majority of contracts reported that their staff received information based on pre-admission screening or



benefit advisory review or that staff routinely reviewed facility admissions logs. Smaller percentages said that their staff relies on primary physicians to report transitions or members or caregivers to report transitions. About one-third of contracts indicated that they identified care transitions in another way than listed. Only 3% indicated they identified transitions by having staff on site at selected hospitals as shown in Table 3-2 below.

Table 3-2. How do care managers identify care setting transitions?

Method of identifying	Percent using	Percent not using
Staff receive information based on pre-admission screening or benefit advisory review	73%	27%
Staff routinely review facility admissions logs	62%	38%
Hospitals routinely notify contract holder of all members admitted or discharged	93%	6%
Staff relies on primary physicians to report transition	14%	86%
Staff relies on members or caregivers to report transition	40%	60%
Other ways care transitions are identified	36%	64%
(Other) Staff on site at selected hospitals	3%	97%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

For DM programs, care setting transitions (such as hospital or nursing home discharges) are identified in a variety of ways, but a little more than half of contracts said they relied on review of facility admission logs and hospital notifications, and are less likely to rely on pre-admission screening results or other sources. A small number (13%) used utilization reports.

Response to Transitions

With respect to care setting transitions such as facility discharges, surveyed contracts overwhelmingly reported reaching out to members via telephone to follow up on discharge arrangements (96%). From the interviews and case studies, it was clear that MAOs do not necessarily have established relationships or interfacing data systems to ensure timely information exchange on hospitalized members. Several MAOs reported that they may not hear about a discharge until days afterwards, and because they may not have working relationships with hospital staff, feel confined to reaching out to their members via telephone to follow-up and review discharge plans. The majority of contracts also reported reviewing medications via telephone or in-person and making arrangements with providers identified in the discharge contracts as well as visiting members to follow up on discharge arrangements. A little more than one-third reported working with facility staff throughout the member's stay. Far fewer contracts reported only working with staff prior to discharge, or with other partners such as care/case managers

Most surveyed contracts indicated that they identified care transitions by having hospitals routinely notify the contract holder of all members admitted or discharged. The majority of contracts reported that their staff received information based on pre-admission screening or benefit advisory review or that their staff routinely reviewed facility admissions logs. What is unclear from the survey is to what extent these activities are able to occur in a timely manner,

especially since about one-third of contracts indicated that they identified care transitions in another way than listed.

Contracts reported that they used various methods to respond to setting transitions such as a facility discharge. Almost all contracts indicated that they telephoned members to follow-up on discharge arrangements. Large numbers also assisted with implementing the facility discharge plan, and working with facility staff throughout the member’s stay. Less than half said that they only worked with facility staff in advance of discharge, or visited with members to follow-up on discharge arrangements. Just 4% indicated that they worked with concurrent review staff, and 3% indicated that they worked with family or informal caregiver as shown in Table 3-3 below.

Table 3-3. How do care managers respond to setting transitions such as facility discharges?

Method of responding	Percent using	Percent not using
Work with facility staff throughout stay	89%	11%
Work with facility staff only in advance of discharge	42%	58%
Assist with implementing facility discharge plan	91%	9%
Make arrangements with providers identified in discharge plan	91%	8%
Telephone members to follow up on discharge arrangements	96%	4%
Visit members to follow up on discharge arrangements	41%	59%
Review member medications either by telephone or visit	93%	7%
Other ways your staff help with a facility discharge	24%	76%
(Other) Work with concurrent review staff	4%	96%
(Other) Work with family/ informal caregiver	3%	97%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

Medication Management

Medication management is an important aspect of many patients’ conditions in care management.²⁷ Almost all contracts indicated that care management included identifying and resolving member problems related to medication (97%).

Nearly all contracts indicated that they addressed problems with medications when members discussed medications and problems with care managers during routine contacts. A large majority of contracts also indicated that care managers, pharmacists or other staff reviewed reports on prescription drug claims. Seventy percent or more also had a Pharmacy Benefit Manger (PBM) identify problems, had care managers administer a screening instrument, or had primary care physicians and other providers report medications and related problems to care managers as shown in Table 3-4 below.

Table 3-4. How are member problems with medications identified?

Method of Identifying Medication Problem	Percent of contracts using	Percent of contracts not using
Pharmacy Benefit Manager (PBM) identifies problems	70%	30%
Care managers, pharmacists, or other staff review reports on prescription drug claims (possibly using software that identifies potential problems)	90%	10%
Care managers administer screening instrument to members concerning medications taken	78%	22%
Members discuss medications and problems with care managers during routine contacts	98%	2%
Primary care physicians or other providers report medications and related problems to care managers	74%	26%
Other ways problems with medications are identified	15%	84%
(Other) Medication therapy management program	5%	94%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

Most contracts indicated that in the case of member problems with medications, care managers notified primary care physicians to resolve them. Some of the case study sites reported having PharmD staff available to care managers for consult, with some co-located with the care managers. Almost all surveyed contracts also provided member education or referred member to a Medication Therapy Management Program or notified member of the problem and suggested a solution. Around three-quarters of contracts indicated that they asked pharmacist to review medications and identify a solution, or notified all relevant physicians to resolve.

Assistance with Support Services

Another key element of supporting patients with chronic illnesses is linking patients to community resources.²⁷ Almost all surveyed contracts indicated that care management included assisting members with access to support services such as personal care, transportation to medical appointments, assistance with applying for Medicaid or financial assistance programs (97%).

Almost all contracts indicated that the need for support services was identified by periodic assessments. Almost all also indicated that they identified the need for support services through physician or other provider referrals. A little less than a quarter indicated that they used some other method to identify members needs. Smaller numbers indicated that used member/caregiver referrals, health risk assessment (HRA) scores, Customer Service/Member Services, and members nearing coverage gap as shown in Table 3-5 below.

Table 3-5. How do care managers identify member need for support services?

Method of Identifying Need for Support Services	Percent of contracts using	Percent of contracts not using
Periodically assess need for support services of members receiving care management	97%	3%
Physicians or other providers refer members requiring support services	92%	8%
Other ID need for support	23%	77%
(Other) Member/Caregiver referral	20%	80%
(Other) HRA scores	7%	93%
(Other) Customer Services/Member Services	5%	95%
(Other) Members nearing coverage gap	21%	79%

Source: Evaluation of Care and Disease Management under Medicare Advantage Survey. Survey completed by health organizations (for their contracts) August through October of 2008.

Note: Responses are weighted by non-response weights. Rows may not sum to 100% due to item non-response.

The case study site visits revealed that care managers typically sit at the center, or help to “quarterback” the care team, drawing on social workers or health educators to link members with non-clinical needs to services. Given the limited integration of several of these sites with the provider network, most needs were identified internally, through care manager discussions with members. It was noted that typical care management outreach calls to members focus on needs that were peripheral to the care plan at hand, such as transportation or home safety, but core to the member’s ability to be ultimately successful in meeting the care plan goals.

Unpaid Helpers

Family members or other unpaid helpers are often important parts of patients’ care.²⁴ Almost all contracts (99%) responded that they did assess the availability of care from family members, health care decision makers, friends or other unpaid helpers.

C/DM Duration and Discharge

On average, surveyed contracts reported that the average duration of a member in care management was 131 days. Contracts reported various ways they determined whether a patient should be discharged from care management. A little more than three-quarters of contracts indicated that members were discharged from care management when needs or goals were met. Other reasons for discharge included member refusal or non-compliance, or the presence of a caregiver or the ability of individual to provide care, be independent or stable. Remaining reasons given included: patients were discharged when the member enrolled in a different Medicare plan, or member enrolled in hospice or higher level of care. Among all contracts, 73% of members were discharged within one year of starting the care management program.

Members can leave DM for a variety of reasons, including improvements, or worsening of condition. As reported in the survey, many DM programs are of unlimited duration as many conditions are life-long and behavior change may not be permanent.²⁴ Contracts reported an average duration of 201 days in DM programs, though 67% indicated that duration was not limited.



Among those with limited program duration, 60% indicated that they used the ability to self-manage as a criterion for discharge. A little less than half used the closure of clinical gaps as a criterion for discharge and 31% indicated meeting or achieving goals was a criterion. Smaller percentages reported member refusal, opt-out or non-compliance was a criterion for discharge.

Interactions with Providers

A crucial element of C/DM programs is the ability of the care management team to interact with the PCP as a two-way communication- the provider needs to know about any patient information or status change that the care manager learns of, and vice versa. As is true of other aspects of C/DM discussed, the primary factors influencing the nature of provider/CM interactions are the integration of delivery and the data system capabilities. The physician is an important partner in the care of chronically ill patients.^{24,27} While the survey could not allow us to characterize the nature or intensity of the physician-plan interactions, there was strong evidence that contracts view themselves as a support system to physicians and rely on them as a partner in C/DM activities. While very few contracts reported requiring contractual collaboration (5%), a large majority of contracts encourage physicians to collaborate with care and disease managers. Only 15% of contracts do not expect physicians to collaborate with care and disease.

While surveyed contracts largely did not use contractual tools to encourage interactions, most supported physicians by making decision support tools, feedback and case-specific information available. Almost all provided decision support tools such as evidence-based practice guidelines or patient-specific reports (93%) and nearly three-quarters (73%) offered feedback on provider performance concerning patients receiving care or disease management services.

In the case studies, all managed care organizations and vendors acknowledged the importance and inherent challenges of involving patients' physicians in the care planning for these programs. Some also indicated that their focus was on filling in the gaps and assisting physicians by providing the necessary support to ensure patients receive the care they need. A few managed care organizations reflected the sentiment that the current system seems to depend on C/DM programs to address these gaps rather than a more integrated model where the care managers and physicians work as part of the same team. Most of the communication in C/DM programs was described as focused on working with the patients rather than with the physicians and their practices.

Most of the case study MAOs send notices to physicians when certain concerns/risks were identified, but do not regularly contact physicians directly unless an immediate change in care plans appeared to be necessary, such as a potential change in medication, additional medical examinations and assessments, etc. Such communications often takes place between the C/DM nurse and an office staff person rather than the patient's primary care physician. Some managed care organizations and vendors have developed more intense communications systems with physicians that include contacting their offices via fax to confirm a patient's diagnosis, disease



state, and current treatment plan and indicate the program's plan to support this plan with the participant.³³

Outside of staff model managed care organizations, or those where physicians are at financial risk, organizations did not generally report using approaches that were physician-centered. Two large regional managed care organizations, however, both with significant market share, regularly work with physicians in areas where they have high penetration by using provider relations representatives. Designated nurses visit primary care physician offices, providing feedback reports, discussing those patients enrolled in the organization's C/DM programs and how to best assist the physicians in coordinating their patient's care as well as offer educational and other support.³⁴

More typically, engaging providers in C/DM programs is a challenge for managed care organizations when a provider may have very few patients enrolled. One medical director commented, "*We have difficulty getting providers to cooperate. They may have only one or two of our patients in the program, and we are not on their radar.*" Physician engagement was reported to be directly proportional to the number of patients a physician had enrolled in a managed care organization's C/DM program.

On the whole, MAOs in this study communicate regularly with physicians working with care and disease management programs, but this contact is not universal. Collaboration is best characterized as C/DM programs asserting themselves to fill gaps, rather than a model where care managers and physicians work together as a team. Evidence from stakeholder interviews suggests that this communication is often a one sided conversation initiated by contractors hired to provide C/DM services for the health plan, either as employees of the plan's C/DM program or from a third party vendor. In these instances, physicians do not commonly respond. This is likely a result of the fact that most contractor communication occurs between the C/DM staff and office staff at the physician's practice rather than directly with the physicians. In many instances, however, only a few patients per physician are enrolled in any given C/DM program, leaving physicians little incentive to engage fully with each and every C/DM staff member that approaches them.

The survey notes that a large majority of contractors encourage physicians to collaborate with care and disease managers, but only a very small number of physicians are contractually required to do so. Furthermore, surveyed contracts report physicians are nearly universally provided with decision support tools such as evidence-based practice guidelines or patient specific reports showing gaps in care, though it is unclear how and to what extent physicians actively leverage

³³ One vendor mentioned they always notify physicians that they would like a patient to participate in their C/DM program. They reported only occasionally hearing back from the physicians and then modifying specifics for those patients.

³⁴ One of these managed care organizations also provides a report to each physician showing each patient in that plan cared for by that physician that has one of the top five chronic conditions, whether the evidenced based care recommendations have been followed for each, and comparative reports to their same specialty peers. They also provide an individual page on each patient designed to be pulled out and put in the patient's chart, identifying the patient's conditions, gaps in care, tests needed, dates, etc.

this information. The case study findings suggest that physicians outside of highly integrated structures may not be doing so.

Provider Communication: System Differences

The case studies documented how differences in the infrastructure largely dictated the MAO's success in working with providers. The non-integrated systems, and MAOs without contracts that include significantly aligned financial incentives, generally had much lower reported levels of physician engagement. The MAOs reported that physicians in these networks sometimes perceive C/DM outreach as a nuisance or a challenge to their ability to provide quality patient care. Further, several MAOs pointed out that as health insurance companies, they bear a stigma for micro-managing patient care with the intent of denying services. When a PCP has members from many different MAOs or C/DM programs, receiving faxes, calls, or emails from many varied sources asking for updates can become a burden. One MAO mentioned that C/DM outreach to network providers was much more successful when the provider had a high volume of patients from the care management program as the physician had a greater incentive to work collaboratively with the care management team and had more opportunities to see the benefits of such collaborations. Even for physicians without significant MAO patient volume, once they have one positive experience with a C/DM provider or a specific care manager, these interactions are more often viewed as a helpful tool rather than an intrusion. As noted, the most efficient form of PCP and C/DM communication occurs when a care manager is onsite (or on staff) at the provider's office or works with a small enough number of practices allowing her/him to develop ongoing trust and collaboration.

In a primary care-centered C/DM program, the PCP plays a central role in the care planning, but is assisted in doing so by a team focused on population management, identifying care gaps, and overall care management efforts. This team takes on responsibilities that free the PCP to provide more focused patient care. This integrated and collaborative approach, as illustrated in Figure 2 above, streamlines contact among members of the care team and even across settings. For example, a social worker responsible for several groups may call a physician team member directly with a concern as opposed to having to go through an external care manager or office manager who gatekeeps information that may improve member care.

Role of Data Systems in CM/Physician Interaction

The transfer and accessibility of data between CM team members and physicians sets the stage for the level of effectiveness of communications with physicians. When there is an EMR (as seen at KPSC, UPMC and Tufts' delegated groups) the PCP and care management team often share the same information and communication can be seamless, as long as the provider and care manager both enter appropriate notes into the file and there is a mechanism, either electronic or telephonic, to allow rapid transfer of information. In these systems, the PCP directly inputs to and accesses the data system. Less clear is how often it is the physician him/herself accessing and using the system, versus a nurse or other proxy in the office. Even if contacted indirectly through a colleague, MAOs reported these PCPs as being engaged with the data system as part of their care delivery approach.



Without an EMR and/or integrated case management system accessible to all of those involved in the care planning, the level and value of critical information to be shared among and between practitioners is by its nature more limited. While data sharing and CM software helps care managers work with physicians in payer based C/DM models, the data and actions taken may not be as complete or timely as is possible in primary care based C/DM model supported by EMRs and integrated information systems.

Without an EMR or physician-accessible CM software, communication with physicians becomes far more dependent on the relationship C/DM program staff can establish with PCPs telephonically. MAOs report that many physicians are not very responsive to care managers trying to remotely address care issues, which can lead to a duplication of efforts that occasionally alienate both members and physicians. BCBSMN care management staff report that they see themselves strictly in a complementary role to the physician and will “bow out” of the care scenario in certain cases so as not to disrupt physician-directed care plans. In these situations, the care managers monitor the member and focus on member empowerment to ask questions about their health during office visits, as opposed to initiating active interventions. Humana reported that they have a physician portal linked to their claims data system that allows physicians to access member claims information. However, they have found that physicians largely do not use this resource and that significant provider education is necessary to encourage its use.





AIM 4: EVALUATION OF CARE AND DISEASE MANAGEMENT PROGRAMS

In recent years, several articles have suggested that C/DM programs are highly effective at reducing care costs while improving health outcomes, though these findings are often controversial.³⁵ While some researchers have found that commercial C/DM program providers are unlikely to be successful at cutting costs or significantly improving health outcomes³⁶, others found that C/DM programs can be cost effective for treatment of certain conditions, particularly heart failure.^{37,38} Some C/DM programs have been shown to improve health outcomes and quality of care, again for specific conditions or using specific management techniques.^{39,40} However, evaluations of C/DM programs do not currently utilize uniform indicators that would allow for direct comparisons.

While overall effectiveness remains unclear, there are two sets of characteristics often referenced in discussions of C/DM program success. First, the Disease Management Association of America lists eight essential facets of any effective disease management program, which align with the CCM model used to structure the data collection for this project:

1. An identified population with specific health and disease conditions
2. The application of evidence-based practice guidelines to treat those patients
3. A process that encourages collaboration among physicians and other providers
4. Risk stratification, matching interventions with needs
5. Patient self-management education
6. Process and outcomes measurement, evaluation, and management
7. Routine reporting and feedback loops that include communication with the patient, physician, health plan, and ancillary providers
8. Appropriate use of information technology.⁴¹

Additionally, it has been suggested that C/DM programs are highly effective at improving quality of care in areas with significant health disparities- geographic regions with large concentrations of minorities, older adults, and/or people with lower socio-economic status, and areas with limited access to health care. Older adults, particularly minorities, have been shown to receive poorer quality diabetes care, regardless of their Medicare status.⁴² C/DM programs

³⁵ Linden, A and N Roberts (2005). "A user's guide to the disease management literature: recommendations for reporting and assessing program outcomes." *Am J Manag Care* **11**(2): 113-120.

³⁶ Geyman, JP (2007). "Disease management: panacea, another false hope, or something in between?" *Ann Fam Med* **5**(3): 257-260.

³⁷ McAlister, FA. (2001). "A Systematic Review of Randomized Trials of Disease Management Programs in Heart Failure." *American Journal of Medicine* **110**: 7.

³⁸ Goetzel, RZ, RJ Ozminkowski, et al. (2005). "Return on investment in disease management: a review." *Health Care Financ Rev* **26**(4): 1-19.

³⁹ Ibid.

⁴⁰ Geyman. (2007).

⁴¹ Goetzel et al. (2005).

⁴² Coberley, CR, GA Puckrein, et al. (2007). "Effectiveness of disease management programs on improving diabetes care for individuals in health-disparate areas." *Disease Management* **10**(3): 147-155.



aimed at reaching these populations or underserved areas may be more successful than those with a general, or broad, aim.⁴³

Effectiveness from a cost perspective varies from program to program, but some factors have been shown to impact cost efficiency and return on investment. One factor is the severity of the condition- mild cases of a given condition may be less likely to respond to C/DM than more severe cases. Another factor is the quality of local usual care, as strong community-based networks of care might make the effects of C/DM negligible. Lastly, the design of the C/DM program may affect return on investment (ROI). For example, while telephone outreach may be less costly than in-person communication, it is less likely to impact a change in patient health and thus may ultimately result in higher health care costs.⁴⁴ Only a case-by-case analysis can show the particular ways these factors affect any given plan.

In both the stakeholder interviews and case studies, most MAOs noted the multiple difficulties in capturing high quality evidence of effectiveness due to data limitations imposed by their information systems. These included problems in measuring quality criteria, identifying the treatment group (e.g. C/DM program participants) and even which C/DM programs activities have been administered to members.

The survey documented that contractors report using improved member satisfaction, whether specific care is received, reduced rates of preventable admissions, reduced costs of care, specific health outcomes, and meeting operational performance standards as measures of program success. However, it was clear from the case studies, that these broad measures are not always attributable to the C/DM programs, again, due to adequate data availability.

Although the vast majority of surveyed contractors reported using formal criteria, it is impossible to tell what standards contract holders are setting to define effectiveness and whether these standards are in-line with best practices in C/DM. Almost all contractors view their C/DM programs as quality management and utilization/risk management tools, but less than half view them as a separate marketable plan benefit and very few see these programs as a way to improve member clinical outcomes. These survey results suggests that contractors currently view C/DM programs primarily as an advanced cost management tool, though interviews suggest that they are striving to shape these programs into clinical tools and member benefits.

Much of the detail on how MAOs are or are not able to measure program effectiveness came through the case studies and preliminary key informant interviews. Of these, all of the MAOs conduct ongoing evaluations of C/DM programs to simultaneously demonstrate the value of the programs to both administrative and clinical leadership, their own providers, and well as other customers such as CMS and its beneficiaries. To demonstrate program effectiveness, MAOs deploy a variety of evaluation methods using performance metrics ranging from process and

⁴³ Coberly et al. (2007).

⁴⁴ Sidorov, J. (2006). "Reduced health care costs associated with disease management for chronic heart failure: a study using three methods to examine the financial impact of a heart failure disease management program among medicare advantage enrollees." *J Card Fail* 12(8): 594-600.





outcome measures, and evaluation tools such as in-depth analysis of population data (discussed below) or pilot activities to test out which variants of a particular intervention is most cost-effective. This structural difference not only defines the kinds of programs MAOs can develop but also constrains the evaluations they are able to conduct and the way they are able to use member data for analysis.

Vis a vis the eight factors listed above, MAOs appear to have some basic features in place, namely a minimum capacity to identify members with particular conditions and health needs, care plans and guidelines that support nurse managers to provide C/DM interventions, ability to stratify members by severity and structure plans to meet more intensive needs, tools within the care plans that encourage patient self-management, feedback loops between the patient and the health plan and at least some availability of information technology and data.

Where MAOs appear to face significant challenges are in the areas of plan-provider collaboration (particularly when the providers are not financially or otherwise aligned with the plan), processes for capturing and analyzing data for monitoring and evaluation at a population level (individual care plans are often monitored, but these details are not necessarily aggregated to allow for program-level assessments), and information systems that provide consistent, timely and comprehensive data. Additional details on these facets, as observed through the case studies, are presented in the following sections.

Factors Influencing MAOs' Evaluations of their C/DM Programs

The most significant distinction among the evaluations that the case study MAOs conduct occurs at the point of intervention with the member. Organizations such as UHG, Humana, BCBSMN and non-delegated groups at Tufts that have not been able to fully integrate PCPs into their C/DM programs and therefore operate outside of the doctor's office. These organizations generally attempt to perform care management telephonically and often times remotely (from outside a given member's region). These MAOs expressed that they sometimes felt stuck on the outside looking in, and try to do whatever they can to get as many providers as possible to participate and recognize the value in C/DM activities. With these MAOs this most often happens one provider at a time. Thus, the point of intervention and interaction with physicians drives not only the nature of a C/DM program but also how MAOs are able to operate and evaluate those programs.

Conversely, MAOs that are able to work with providers within integrated health systems, such as UPMC or KPSC, or are comprised of large organized medical groups, are better positioned to build C/DM programs that center care management activities locally and even inside primary care practices. This provider-centered model offers the advantage of direct access to physicians and their staff, which can result in better access to patient health data, increased provider compliance with C/DM program goals and procedures, and the opportunity for MAOs to more effectively encourage providers to adopt new approaches to care and population management.

One way Tufts has partly overcome the challenge of engaging physicians has been to align financial incentives for large groups of participating providers, including both the more sophisticated medical groups and hospitals. The managed care market in the Massachusetts





region is highly competitive and many of the providers are accustomed to sharing financial risk and rewards with payers through capitation and other means. Tufts' contractual agreements that include performance incentives and standards for C/DM programs for any group to which they delegate C/DM allows Tufts to ensure collaboration with them and network providers to deliver more carefully coordinated care.

Although structure fundamentally affects the way MAOs design and evaluate their C/DM programs, all of the MAOs visited conduct evaluations for the same reasons. When MAOs create C/DM programs, they are driven by the goal of controlling or reducing health care costs without sacrificing the quality of care delivered to their members. Ultimately, the MAOs hope to both control costs and improve the quality of care delivered by increasing their focus on effective health care delivery. MAOs develop evaluations to quantitatively track both the business value of C/DM efforts and the clinical effectiveness of their programs, but do so with mixed levels of success.

On the business side of the analysis, the MAOs universally report the perception that C/DM programs add value to each of their organizations' bottom lines. One C/DM executive describes a business rationale that asserts that effective C/DM programs are one of the few areas in which MAOs can truly compete and generate profit for their company. Non-profit MAOs indicate C/DM programs are vital to ensuring limited resources are used effectively and continuously improving health care delivery and the health of their members. The perception is that the current health plan market suffers from falling reimbursement levels and rising costs, compounded by a situation where it is impractical to cut benefits or raise premiums. Given this, the ability of C/DM programs to improve health outcomes while simultaneously reducing net costs creates a strong incentive for MAOs to improve and expand their C/DM offerings. The evidence behind these perceptions is found in metrics used by several MAOs, such as: overall ROI, calculating the effect C/DM programs may have on Per Member Per Month (PMPM) costs, and assessing the overall reduction in readmissions and inappropriate use of the emergency room. MAOs with more sophisticated information systems are able to report ROI for targeted subsets of their member population by condition (e.g. diabetics, cancer patients, etc.).

Despite this general confidence among MAOs in the value of their C/DM programs, one MAO explains how difficult it is to show a consistent ROI from C/DM programs. Solid ROI numbers are hard to come by in the first year or two of an initiative, as the cumulative effect of programs focused on lifestyle changes take time to build momentum. Since MA products are relatively new, few MAOs visited had sufficient historical data to observe even a full year's worth of data specific to a given intervention. Analysis is also hampered by small sample sizes and the natural lack of a control group for comparison.

A greater challenge mentioned by multiple MAOs is the reality that they are working in a constantly changing environment where it is impossible to control all the variables being measured and determine the individual impact of multiple interventions. The challenges in measurement increase over time as the most extreme and easily identifiable outliers have been reduced through sometimes both intense and multiple interventions. Furthermore, as programs have been in place over time, it is not realistic to expect the same level of returns without additional program modifications. For example, as readmissions rates decline, MAOs eventually



have to adjust their baseline or focus of evaluations in order to see a continued increase in savings.

On the clinical side, evaluations are driven by a very different mindset. Clinical leadership is focused on ensuring that these programs are adhering to the best practices as established in evidence-based guidelines and work towards delivering positive health outcomes for members. The most common approach taken by the MAOs is to track a variety of both leading and lagging indicators to demonstrate changes following intervention and improve clinical effectiveness whenever possible. These indicators are generally either process measures that gauge how well program procedures (interventions, member touches, etc.) are followed, or outcome measures such as changes in the lab values of diabetics following a campaign to with members to better control their insulin levels. Greater detail on these measures follows below. However, few of the MAOs report outcomes-oriented evaluations at the program level. Results are reported more in terms of overall changes in readmissions or other clinical indicators for the MAO.

Tools Used by MAOs for C/DM Evaluations


All MAOs are confronted by the common challenge of establishing causal links between their C/DM programs and the impact of these programs on the MAO or clinical care. This is largely due to ethical concerns linked to intentionally withholding C/DM services to create a true control group and the many other factors that can affect members' health outcomes in the absence of a controlled experimental study. To overcome this problem, MAOs can leverage a wide variety of tools including nationally recognized quality measures, such as HEDIS and NCQA guidelines, and those established by specialty associations and societies for specific diseases and treatments. These guidelines are often incorporated into common methods of evaluation including structural, process and outcome measures, as well as more complex analyses as multivariate testing, pilot programs, and controlled studies.

Structural, Process, and Outcomes Measures

At the most basic level, structure and process measures can be used to establish patterns of performance for a C/DM program, allowing for direct comparisons over time. Such measures might include the frequency and nature of "member touches" per care manager, or the completion rate of health risk assessments by members before and after follow-up calls from staff. All of the sites visited were using such measures and other similar measures to determine the effectiveness of their telephonic and direct mail outreach activities.

All of the MAOs reported interest in identifying meaningful outcome measures, although clinical outcome measurement was challenging given the long period of time needed to show clinical improvement from C/DM services. For many reasons, none of the MAOs were able to empirically link improved levels of health for a given population directly to C/DM efforts. They nonetheless felt that process measures that indicated an increase in screening rates for certain diseases such as breast and colon cancer, and the number of patients who received a combination of process measures, were critical to showing a positive outcome. Some examples include:

- Rate of HbA1C levels, foot and eye and glucose screenings for patients with diabetes

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- 
- ACE inhibitors or ARB with beta-blocker used in HF patients
 - Use of lasiks in heart failure patients

All of the MAOs reported at least some modest data analysis efforts to better understand how programs were working and to assess at least crude ROI measures. Specific tools and approaches ranged depending on the comprehensiveness of available data, and leadership interest in demonstration a return on C/DM activities. Specific analytic methods reported by MAOs include the following:

Multivariate Analyses: MAOs with more sophisticated information systems or more substantial resources indicated that they develop and utilize more complex evaluation methodologies. All of the MAOs observed conduct some type of data mining of patient health information to establish trends related to their C/DM programs (calculating hospital days and ER visits/1000, # of readmissions within 30 days, number of hospice days utilized, etc.). However, the sophistication of those data mining efforts varied widely depending on the design of the MAO's information system, the accuracy and completeness of clinical data available for analysis, and the amount of resources it has available to commit to custom analyses. The most critical threshold for advanced data mining (mostly by UPMC, KPSC and to a certain extent, UHG) is whether MAOs are able to effectively isolate subsets of their member population by health plan type, condition type or demographic data, and whether they are restricted to analysis of their entire member population (in the case of other MAOs). The MAOs that perform these kinds of assessments are generally large regional or national players, with a critical mass of enrollees to facilitate robust comparisons across different C/DM approaches and interventions in different counties, states or regions.

UHG specifically referred to conducting extensive multivariate analysis on its programs to study nearly 20 different methods of telephonic and direct mail interventions across more than 6,000 members. This analysis identified eight of those methods as being effective, including the importance of combining monthly "touches" with printed education materials and follow up calls. MAO executives and case managers alike were somewhat surprised to learn which interventions seemed to have the most impact on patient behavior. This multivariate analysis also identified the value of a close partnership between traditional case management and behavioral health management for members taking antidepressants or having anxiety-related diagnoses. As a result of these findings, UHG program staff refocused C/DM activities to leverage these learnings.

Pilot Programs: Several of the MAOs observed have taken the initiative to internally develop specialized C/DM programs begun as small pilot programs that, after a year of experience and measurement, are deployed broadly as part of their C/DM offering. For example, UPMC described several programs they have implemented such as palliative care, wound care and a program that utilizes certified EMTs with additional training to conduct home health evaluations for SNP members recently discharged from the hospital. In addition, Tufts enhanced its palliative care and fall prevention programs after identifying a need among its members.

Controlled Studies: Despite the constraints inherent to conducting scientific research among MAO members, some MAOs have been able to implement semi-controlled studies of members



enrolled in their C/DM programs by relying on pre- and post-intervention measures to demonstrate effectiveness. For example, Tufts conducted pre/post studies on healthcare utilization and member cost data, and also directed one of its vendors to use statistical modeling software to project the risk for readmissions among COPD and CHF DM program members.

Overall, the MAOs visited were very interested in improving their ability to demonstrate program effectiveness. Each MAO expressed a commitment to continuing to invest in and improve C/DM programs and work hard to have them become a more integral part of their MAO if they were not already. Challenges in measurement varied significantly by MAO, as did results. None of the MAOs, however, were willing to consider that their efforts were not of value.

Obstacles to Using Member Data for Analysis

As a consequence of MAOs' information systems design and the corresponding variation in the availability of clinical data, MAOs have varying abilities to conduct complex analyses of their member populations. Some have difficulty unifying their data systems or simply lack sufficient sample sizes to conduct robust analysis. For example, UHG's array of data systems on multiple platforms presents a challenge to analysts seeking to perform population level analyses, requiring significant resources to custom design the patches necessary to make any such analysis possible. This inhibits their ability to conduct exploratory analyses of member data to identify best practices and precise performance measures, even if those analyses promise to deliver substantial results for the organization. BCBSMN, on the other hand, is faced with more fundamental problems, as the viability of the regional plan arrangement is unclear enough that there is reluctance to invest too heavily in the data infrastructure. Although they have a relatively simplistic information system, its core limitation is a small member population with a short history of data collection.

Another obstacle in evaluating program efficacy is the time frame in which the MAOs (or their sister companies, and/or vendors) must demonstrate results. As mentioned earlier, the health effects of C/DM programs can sometimes take years to manifest in statistically significant ways at the population level. However, it is not practical for MAOs to operate their programs or to invest in vendors programs for long periods of time without any type of performance measurement and deliberately not instituting changes they identify as necessary midstream. In these situations, most of the MAOs regularly rely on current results from process measures in combination with past data to project the likely effect of their ongoing C/DM program performance on health care utilization.



CONCLUSIONS

While MAOs are a tenured fixture in the U.S. health care system, they have undergone a fairly volatile market transformation within the Medicare program. Despite a long history in cost-, pre-paid- and Medicare+Choice contracts, MAOs have only recently gained a strong foothold in the Medicare market, due in part to implementation of Medicare Part D and the influx of baby boomers more accustomed to managed care products. When looking at C/DM programs, it is important to consider that while MA plans have only been around a few years, MAOs consider these programs as core elements. In a 2001 survey, Whellan and colleagues documented that 89% of MAOs had or were developing C/DM programs as part of their plan offerings. The 2008 survey conducted for this study documents an even greater prevalence within MA plans, where virtually every contract included both care and disease management programs. While broad evidence on C/DM program effectiveness in improving member health and managing costs is somewhat limited, it appears that C/DM programs are here to stay. As one MAO executive noted, competitive advantage is gained in the margins of effective health management.

From the survey results, it is clear that C/DM programs share numerous features, including a reliance on nurse-directed, telephone-based interface with members, the use of guidelines and evidence-based medicine to structure the course of the interaction, and use of data to identify and monitor program participants. Applying the DMAA list of key C/DM component features and the CCM framework, it is difficult to tell where the C/DM programs of these MA contracts lie along the spectrum of effectiveness. The survey offers up the prevalence of these core characteristics, but is not able to distinguish how well established or well functioning these features are across MAOs. In just six case studies, and with additional individual expert interviews with MAOs and vendors, it is abundantly clear that this variation is wide. There are C/DM programs that likely provide low intensity member “touches” and have limited data and infrastructure to sustain timely delivery and monitoring of care, as well as programs that operate in near real-time with fully engaged care teams utilizing systems and data that support the care delivery process. As noted from the case study findings, it appears that MAO structure and care delivery systems may play a large role in determining where along the spectrum an MAO operates.

Every MAO interviewed as a key informant or as part of the case studies reported similar C/DM program goals and basic common features. While they may have historically focused on individual DM programs, MAOs increased experience working with the Medicare population has shifted this practice away from silo-like DM programs to focus more broadly on identifying the members most in need of care coordination, help with managing transitions and very expensive treatments, and/or dealing with terminally ill patients or those with multiple chronic conditions. In the C/DM program departments, C/DM staff members dedicate significant time on improving their ability to predict those members most likely to need assistance and refine the most parsimonious interventions in order to use their limited care management resources as wisely as possible.

The six case study MAOs all reported heavy reliance on evidence-based medicine to help manage complex conditions, and on well-qualified RNs to facilitate the development of care plans and care coordination across patient care settings. While there was some variation in a



minimum periodicity for care manager outreach (oft referred to as member “touches”) dependent on member health and needs, all C/DM programs offered near-identical types of care manager help. Guideline-based protocols for care management outlined the structure of the C/DM interaction, but in the end, it is the trained RN using his or her own clinical judgment that develops and works with members (and primary care physicians when possible) on a care plan.

Each MAO also had systems in place to support efforts to identify members most at risk for high utilization and those with care gaps that could be remedied through C/DM. While some relied on vendors to perform key tasks, their ability to function smoothly and efficiently was directly related to three core factors – their ability to collect timely and accurate clinical data from multiple settings; share this information with the entire care team (including key providers); and to engage physicians (typically driven by shared goals and aligned financial incentives). How well and to what extent an MAO is able to leverage these three areas essentially tells the tale of how well a C/DM program functions. MAOs were able to function without addressing all three areas well or overcoming every associated challenge. However, the most streamlined and comprehensively targeted C/DM programs were particularly strong in all three areas and most C/DM activities were shaped by how well the MAO managed them.

Best Practices in C/DM Programs

While there was evidence of many innovative approaches across all types of plans visited in the case studies, the plans that were able to engage providers as a result of either established health system integration or building truly collaborative relationships with them (usually with substantially aligned financial incentives) had a distinct advantage in care management and evaluating the impact of their intervention efforts.

KPSC, UPMC, and Tufts’ larger delegated provider groups managed to locally integrate their care management efforts into the primary care team’s day-to-day activities. In addition to caring for patients already regularly visiting their office, these arrangements allow for the primary care teams to also pay attention to those members who may not have previously visited the practice but need medical attention or patient education to appropriately manage their condition(s). Each of these systems, with the support of internally developed processes and decision support, helped physicians and office staff to identify and begin to address gaps in care. Care managers (usually RNs) were generally embedded in the practices or worked with a set number of physicians at multiple sites with whom they had established trust and an ongoing relationship. These nurses or the entire primary care team used tools interfaced through the information systems and EMRs, to identify members in need of special attention. They then either worked with the member telephonically or got the member in to see a physician, nurse, or nutritionist, depending on the identified care gap. Members of the care team were advised of the care gaps through the single integrated platform that supports functioning of these teams function more like a true medical home.

Challenges in C/DM Programs

Clearly the biggest challenges for all MAOs were in the areas of actively engaging physicians in better coordinating care and closing gaps in care through the use of effective and actionable





information and building trust at the local level. Short of aligning physician incentives so that they had both financial and organizational reasons to support MAO efforts to better coordinate care, building trust and collaborative relationships, especially with PCPs, remains a challenge.

MAOs addressed this in various ways, including the use of utilization reports, sharing individualized member care plan items and physician portals offering providers useful information and details about their members' care gaps that are accurate and actionable. However, MAOs in non-integrated systems (or in the portion of their networks without the capacity to have primary care centered C/DM) generally reported that physicians did not respond to outreach from the C/DM staff. MAOs often reported that neither they nor C/DM staff know how or if the information they are sharing is used by the physicians.

These MAOs also face information gaps when it comes to identifying potential hospitalizations and ER visits as early as possible. The notification systems and expedited claims systems that can sometimes reduce these delays are not always in place. C/DM staff in these MAOs report that they may not know a member has been discharged until days after the fact, and therefore cannot participate in discharge planning or follow up in a timely manner. While some MAOs invested resources at the local and regional level when they determined they had enough volume in a given market to justify it, they also readily acknowledge that the main approach to engaging provider is to do so 'one provider at a time'. Alternatively, most MAOs in this situation focus on provider engagement by working through the members, empowering them with questions to ask during a provider visit and coaching them to share information on their care plans with their providers. MAOs hope to demonstrate the real benefits of their C/DM programs to their contracted providers, and have reported that when providers see how the C/DM staff can actually alleviate their workload and provide additional support to their patients, they come to understand the value and start working with the care manager. However, this approach can be very slow and is highly dependent on having the provider observe the benefit in action in order to achieve that "aha" moment.

MAOs continuously strive to improve their methods for identifying, predicting and reaching members with care gaps on an ongoing basis. While completeness and timeliness of data have a direct impact on an MAO's ability to effectively stratify and target membership, data issues also directly impact the ability to measure program effectiveness. MAOs with the capacity to begin smaller pilot projects with certain providers in a given locality and then test their impact have been able to identify successful interventions they hope to make scalable across larger markets. The challenge of building trust and identifying both administrative and clinical champions for new initiatives remains.

Another challenge identified by all of the MAOs visited was in helping members deal with shrinking community resources at a time of increasing medical needs and costs. Each of the MAOs had strategies in place to identify community resources to assist members not having access to basic resources such as food, transportation to and from medical visits, and money to pay for copayments and/or contend with the costs of drugs when they reached the donut hole. Some MAOs found that hiring local social workers either at the group practice level or in individual states helped facilitate necessary community engagement to get members much



needed services. Others developed formal relationships with community service centers, or state-specific databases of available resources to be used as references for their care management staff.

Finally, all of the MAOs continuously sought to improve their ability to measure the effectiveness of their initiatives both in terms of conserving valuable resources and improving care coordination and patient outcomes. Regardless of the model, they face the inevitable challenge of working in a real-time environment with many uncontrolled variables over time. Thus, they are often attempting to measure moving targets using limited data; interventions typically result in distal outcomes that are hard to measure and tie to the intervention (e.g. improved overall health), and more proximal outcomes (e.g. HbA1c levels, absence of readmission) are only crude indicators of effectiveness.

Overall Assessment Against Chronic Care Model (CCM) Features

As the CCM framework was used as a guide to shape the data collection process and focus, it is useful to review the findings against the core components to help assess where C/DM programs under MA currently stand. It is important to note that much of the detail on these components drew from the stakeholder interviews and case studies, which represent only a fraction of the total plans. The survey, while generalizable to the overall MAO universe, serves best to document the presence of various features, but does not include the important context and detail necessary to evaluate against the CCM framework. With this project we are able to begin the narrative, with hopes that additional research will provide a better sense of how many and what types of MAOs fall into which ends of the spectrums for each of these domains. With each of the data collection activities taken together, the results suggest that C/DM programs under MA today fare in the following ways according to the CCM model:

1. **Strong self-management support** – From the stakeholder interviews and case studies, we observed that while contract staff can be highly involved in CM programs, particularly for members transitioning care settings, support is primarily telephone-based. MAOs report that even telephone-based support can be highly valuable and allows for diagnosis of ancillary issues that can impact a member’s adherence to a care plan. In-person support is viewed as a gold standard, though MAOs reported that this approach was cost-prohibitive and when used, tended to be restricted to use with the most frail members.
2. **Involvement of non-physician members on the care team** – Registered nurses staff the vast majority of programs, with many also using LPNs, NPs, advanced practice, or vocational nurses. CM programs in particular leverage social workers and other types of non-clinical staff to round out care teams. Managed care organizations reported great difficulty engaging network physicians unless they had staff that were willing to ‘round’ the physician offices to discuss particular member cases, or the physician was part of an integrated delivery network and/or were otherwise financially aligned with the MAO.
3. **Planned interactions and proactive follow-up** – In observing nurse managers across the case study sites, the C/DM programs were all structured around a tailored care plan that

called for a minimum periodicity of contact with the member, health goals, and reminders on what to address with a member, given a particular diagnosis or need. The survey results are variable on the extent to which C/DM program staff are very proactive in identifying problems, particularly in care transitions. Most programs report relying on members to raise issues with their providers, though there is also evidence that C/DM programs typically involve at least some minimal utilization review.

4. **Use of guidelines and decision support systems** – Surveyed MAOs report widespread use of clinical practice guidelines and other tools to help providers and other care team members deliver and monitor care. What is less clear from the survey, though suggested in the MAO interviews, is the extent to which providers and C/DM program staff have the appropriate input data on hand when they need it to make full use of these guidelines. From the six case studies, it is clear that this can be highly variable and that the best functioning information systems reflect infrastructure and highly integrated models of care that facilitate the data collection and dissemination.
5. **Interactive education** – The degree to which C/DM programs offer interactive education remains unclear. In the stakeholder interviews and case studies, managed care organizations note that interpersonal education, unless they are able to get members to attend group sessions, is not very cost-effective. Oftentimes vendors are hired to place outbound reminder and education calls. Survey responses suggest that all C/DM programs attempt to leverage ‘teachable moments’, but also note a reliance on written materials as a primary source of education. At least from the interviews and case studies, it is clear that care managers spend significant time educating members with respect to their individualized care plans, but do not appear to provide interactive education on health topics for the purposes of C/DM.
6. **Nimble clinical information systems** – The survey results suggest that a rich array of data is housed in the MAOs, from administrative and billing details to claims information, pharmacy records, electronic health records and lab values. The resounding finding from the stakeholder and case study interviews is that most of these systems were built for reimbursement and other administrative purposes, not for research or evaluation. Therefore, while these data sources may exist within the organization, they often cannot be merged. One striking finding from the questionnaire development phase was that organizations were largely unable to report basic descriptive information about the members that were enrolled in their C/DM programs (e.g. age, race/ethnicity, gender), or that these reports were difficult to generate. Further, survey results suggest that contracts look at a wide variety of outcomes to determine effectiveness. However, very few of the key informant MAOs were able to report on the effectiveness of their programs beyond broad metrics such as general satisfaction levels, reductions in hospital readmission rates and HEDIS measures during and after C/DM intervention. None were able to produce these statistics for just the population enrolled in C/DM.

On average, C/DM programs offered through MA plans appear to be in the early stages of development. There is certainly strong evidence that managed care organizations are invested in C/DM and believe that these programs are important offerings to members, but are still in the



process of crafting appropriate and efficient information systems to support C/DM care teams and integrate data sources across different platforms (e.g. lab data, pharmacy data, administrative data) to facilitate effective monitoring and evaluation efforts.

