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Case Management and the Chronic Care Model

A Multidisciplinary Role

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The core functions of case management, assessment, planning, linking, monitoring, advocacy, and outreach assume a new perspective in the context of systems that have adopted the Chronic Care Model. This article considers case management through the experience of three systems that have implemented the Chronic Care Model. A movement toward condition neutral case management, focused on care that is more wholly patient centric, is also examined.

The role of a case manager has long been central in assuring optimal care for people with chronic conditions. Case management functions of assessment, education, and coordination of services between settings provide critical services in today's healthcare system where care is often fragmented and discontinuous. In the current environment, healthcare systems are confronted with the accelerating epidemic of chronic diseases coupled with increasingly effective, yet complex treatments for major chronic illnesses. A population in which 45% of people with chronic conditions have more than one major chronic illness compounds the problem (Hoffman, Rice, & Sung, 1996).

The heart of the Chronic Care Model (see Fig 1) recognizes that quality care is predicated on productive interactions between patients, their families and caregivers, and the individual provider or provider team. Informed, activated patients have an understanding of their chronic condition, and know what to expect from the healthcare system. These informed patients understand the central role they play in managing their condition and have beliefs and skills that enable them to manage well. A prepared and proactive practice team uses evidence-based clinical information and is prepared with patient-specific data before the visit. Team members are empowered in their designated roles to contribute to an optimized patient experience and outcomes. The entire model is designed to enhance the productivity of these interactions, which lead to better outcomes, both functional and clinical.

The Chronic Care Model is composed of six elements encompassing the healthcare system and the community within which it resides: organization of healthcare, community linkages, self-management support, delivery system design, decision support, and clinical information systems. The first two elements consider care from a larger perspective.

Organization of healthcare addresses the culture and policies of the system in which effective chronic care takes place. The mission, business plan, and goals of the organization include initiatives to support improved chronic care. The organization aligns incentives to promote effective chronic care practices, and leaders of the organization visibly promote improvement, reduce barriers, and provide necessary resources. Quality improvement efforts use strategies that include behavior change support, and develop agreements and processes that facilitate care coordination within and across organizations.

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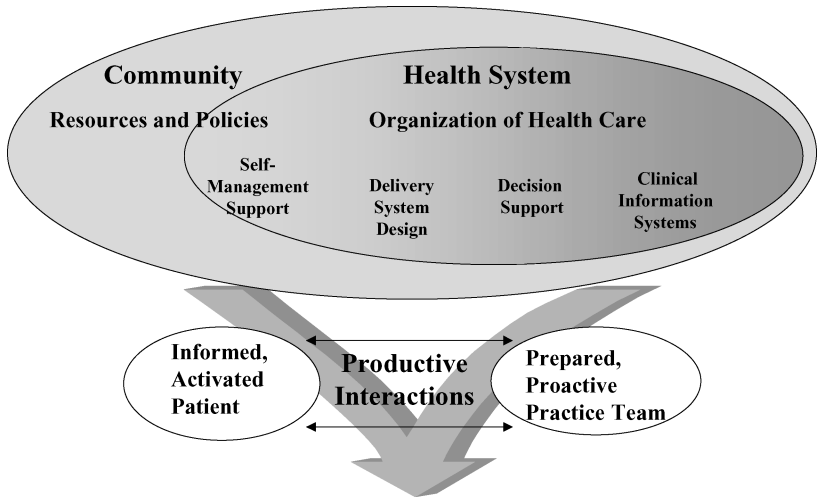

FIGURE 1
The Chronic Care Model.

Community resources acknowledges the growing importance of linking patients with community programs and services, particularly exercise or educational programs. Effective healthcare delivery organizations recognize their responsibility within the community by forming partnerships with organizations to offer services not otherwise available.

The remaining four elements focus on care delivery at the level of the practice team. Case managers will recognize many familiar roles and functions in the content.

Self-management support includes any activities that help patients understand their health behaviors and develop strategies to live as fully as possible. Patients with chronic conditions are confronted with complex medical regimens requiring multiple behavior changes; therefore, self-management support emphasizes the patients' central role in the management of their illness. Providers collaboratively set goals with patients that reflect both treatment recommendations and patient preference. Effective behavior change strategies are employed to develop a care plan with the patient that describes actionable steps and problem solves barriers. Ongoing follow-up assures appropriate care through exacerbations and other changes in the course of illness.

Delivery system design refers to the organization and scheduling of planned proactive care to assure effective intervention. A primary feature of a good delivery system design is the clear assignment of key roles and tasks among team members, particularly in the context of multidisciplinary teams. Access to clinical case management services is a major component of effective delivery system design. Proactive teams use planned visits that schedule patients with the same chronic condition in a series of appointments where they see several providers. Increasingly, providers are favoring group medical appointments, in which patient education and support group sessions can offer valuable self-management skills training as well as medical care. Patients appreciate an environment where there is an opportunity to interact with others with the same condition. Care is delivered in a way that patients understand and that is congruent with their cultural background.

Evidence-based interventions are more often implemented when guidelines are embedded within the system of care of *the patient, rather than simply being distributed* to *the patient.*

Decision support assures high-quality care through several mechanisms. Evidence-based interventions are more often implemented when guidelines are embedded within the system of care of the patient, rather than simply being distributed to the patient. Protocols, reminders, and the use of standing orders "make it hard to do it wrong." Provider training uses effective modalities such as academic detailing or motivational interviewing for behavior change. Regular access to specialist physicians is of particular utility to case managers, enhancing clinical management and follow-up. Activated patients receive guidelines for their care.

Clinical information systems allow practices to organize patient and population data to facilitate efficient and effective care. A registry (a list of patients and critical management criteria) is the most frequently used method for managing clinical information. Using a registry with appropriate clinical information, a practice can identify subpopulations with

particular care needs and generate reminders for preventive screening or interventions. Computer-generated patient-specific summaries are helpful in individual care planning and follow-up monitoring. Summary data on specific subpopulations gives critical insight into the performance of the practice.

Chronic Care Model Supports for Case-Management

The tasks of the case management role are supported by all elements in the model. In the context of the Chronic Care Model, clinical case managers would perform the following functions (pertinent Chronic Care Model elements are listed in parentheses):

- **Assessment:** regularly assess disease control, success of the care plan, and the patient's self-management status (Self-Management Support and Decision Support)
- **Clinical management:** adjust therapeutic regimen by protocol, or communicate the need for adjustment to the physician (Decision Support and Delivery System Design)
- **Behavior change support:** collaboratively develop a care plan with the patient that reflects both treatment indications and patient preference (Self-Management Support)
- **Ongoing follow-up:** provide follow-up, including structured problem solving to help maintain behavior change (Clinical Information Systems, Self-Management Support, and Delivery System Design)
- **Care coordination:** coordinate care across settings, within the healthcare system, and in the community and assist patients in negotiating the healthcare system through transitions (Organization of Healthcare and Community Resources)

System Supports

The literature demonstrates the effectiveness of nurse case management in interventions such as telephone counseling and group visits for specific chronic conditions such as CHF, diabetes, and cardiovascular disease (Aubert et al., 1998; De Busk et al., 1994; Graber & Elasy, 2002; McAlister et al., 2001; Rich et al., 1995). Experience with the Chronic Care Model points to increased effectiveness when these case managers are provided with specific system supports: evidence-based, formalized treatment protocols that include behavior change interventions which are embedded in the system of care, structured relationships with specialist expertise for consultation and support, and integration within the primary care setting or with strong links to the primary care provider to support coordinated care and ongoing follow-up (Aubert et al., 1998; Rich et al., 1995).

Figure 2 shows the Chronic Care Model with an overlay of the intervention components of a randomized trial testing a nurse case management program for diabetic patients in primary care (Aubert et al., 1998). Under each model element are listed the specific intervention activities used in the study. The study took place in private practice clinics in a group model health maintenance organization. Patients were recruited from the diabetes registry. Existing personnel, including a multidisciplinary team from the health maintenance organization, created the

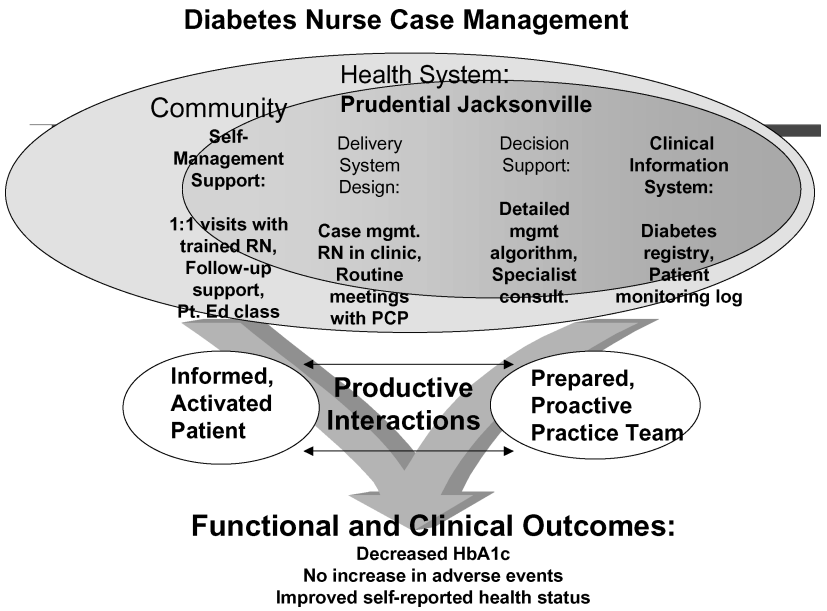

FIGURE 2
Chronic Care Model with case management overlay. From "Nurse Case Management to Improve Glycemic Control in Diabetic Patients in a Health Maintenance Organization. A Randomized Controlled Trial," by R. E. Aubert, W. H. Herman, J. Waters, W. Moore, D. Sutton, B. L. Peterson, et al., 1998, *Annals of Internal Medicine, 129* pp. 602–612.

guidelines. The case manager, a registered nurse, and certified diabetes educator was provided with a protocol containing management algorithms to move the patient toward improved glycemic control by adjustment of medication, meal planning, and exercise reinforcement. She had regular access to an endocrinologist to provide clinical decision support. Her office was located within the primary care practice setting to facilitate interaction with the primary care physician and coordination of care.

Intervention patients received a 5-week, 12-hour diabetes education program that included individual counseling by a dietitian, individual counseling by an exercise therapist, and group diabetes education classes. Subsequent in-person follow-up visits were scheduled quarterly. Follow-up by telephone occurred at intervals determined by intensity of treatment. The nurse reviewed the blood glucose log and discussed glucose values with the patient, after which medication regimens were adjusted as needed. She collaborated with patients to do planning and problem solving for dietary changes and exercise.

The nurse case manager met at least biweekly with the family medicine physician and the endocrinologist to review patient progress, medication adjustments, and other issues related to diabetes care. All medication adjustments or changes were communicated to the patients' regular primary care physicians. The intervention produced significantly lower HbA_{1c} levels, no increase in adverse events, and an improvement in self-reported health status for participants.

Despite evidence that effective case management can improve outcomes for patients, few systems have the resources to provide case management for all patients with chronic illness. Optimal care for any patient with a chronic condition would include functions case managers perform: assessment, education, behavior change support, care coordination, and intensive follow-up for some period after diagnosis until patients demonstrate an ability to manage well. Patients who can manage their chronic disease continue to benefit from support at a lower intensity. The examples which follow show how some innovative healthcare systems have met this challenge.

Case Management Innovations

The Chronic Care Model can be implemented in a variety of ways that work within different systems. The following three "case studies" demonstrate how organized teams fulfill the functions of case management utilizing a systems approach. The first two examples are from Community Health Centers that provide care to populations with complex medical and life issues. The third example demonstrates innovations within the context of an integrated system with primarily fee-for-service practices. Table 1 offers a concise comparison of how three systems

TABLE 1
Case Management Implementation

	Community Health Center One "Health Coaches"	Community Health Center Two "Depression Care"	Integrated Health System "Building Capacity"
Assessment	Outreach and assessment done by health coaches	Staff nurses do depression screening for all primary care patients	Registered nurses do annual checks Behavior change assessment by trained educators
Adjust treatment regimen	Protocols Telephone decision support	"Stepped care" by licensed practical nurses and behavioral health managers Shared decision making on treatment options	Registered nurse medication management for high-risk patients
Self-management support	Health coaches with behavior change training	Licenced practical nurses do problem solving with less complex patients Behavioral health providers case manage high-risk	Standardized teaching protocol using shared team roles Trained educators revisit action plans
Follow-up	Community linkages Health coaches do outreach	Licenced practical nurses and behavioral health managers divide follow-up by case complexity	Pilot project in supporting registered nurse phone follow-up
Care coordination	Partnerships with community agencies	Integrated primary care/behavioral health "Warm handoff" Team "huddles"	Build on hospital patient education program and referrals

have implemented the functions of case management.

Community Health Clinics

A heartening trend in chronic disease management is the high-quality care offered by a growing number of federally qualified community health centers, despite a large percentage of patients from underserved populations who may have many challenges besides chronic illness.

Health Coaches

One community health center provides an example of an innovative approach to scarce resources by distributing the role of the case manager among several staff members and using a variety of community connections to expand the effectiveness of the clinic staff. This community health center delivers primary and preventive care at six clinic locations serving over 29,000 low income and uninsured residents throughout a midwestern metropolitan area.

A former case manager and quality improvement specialist says,

> The case manager in our system is not necessarily a nurse. Here, everyone has the role. We take a team approach. The intake receptionist may ask about current smoking or about progress with a self-management goal. We have really redefined the boundaries of case management.

Because it serves a largely Hispanic population, the clinic has recruited and trained "promotoras," health coaches who help people manage chronic conditions. Clinic staff provides an 8-week training course teaching basic information on specific chronic conditions: diabetes, hypertension, asthma, and risk factors such as smoking. The coaches are cross trained to manage several chronic conditions. These health coaches practice with a specific protocol and have access by telephone to expertise from a clinic nurse or physician. Since the coaches and providers work as a team, and have defined roles, they build working relationships that expand the capacity of the team to provide effective care. Telephone access to clinical expertise enables the promotoras to be more effective in the community. In turn, promotoras can be the eyes and ears of the practice in the community, with whom patients may be more comfortable sharing than with professionals in a clinical setting.

Because of a large homeless and migrant population, a strong outreach component is necessary for case management to be effective in this population. Patients need to know when to come into the clinic and what to expect when they get there. They need to be followed for patient self-management and clinical monitoring. Coaches develop linkages with community resources serving their patients to assure continuous follow-up. The clerk at a nearby transient hotel is one of many community linkage points they may access in order to provide effective, ongoing care for patients.

The high rate of emergency room use by asthma patients at the local university hospital precipitated another community linkage. A partnership between the hospital and the clinic now assures follow-up by case managers for patients seen in the emergency room for asthma exacerbations. Follow-up tracking has resulted in reduced emergency room use for patients followed by the community health center after referral.

Mental Health Case Management for Depression

With 20 clinical providers and a staff of 170, this community clinic system serves 2,300 patients, 52% at or below poverty level, at seven sites in a rural, southeastern location. The clinic uses case managers to address the challenge of a prevalent comorbidity, depression. By instituting fully integrated behavioral health on site, depression care managers were made available to address the needs of patients living with symptoms of depression, whether alone or in conjunction with other chronic illnesses.

The Director of Behavioral Health comments, "We thought we were treating depression, but underneath we knew there was much more we could do." The clinic made a big delivery system design change by developing a protocol for nursing staff to administer depression screening assessments to all primary care patients 18 years of age and over. Providers review the assessment, using it as a jumping off point to determine if a true clinical diagnosis of depression is warranted. They use shared decision-making techniques to discuss options for treatment with patients, offering medication and/or behavioral health interventions. If the patient chooses cognitive-behavioral or problem-solving therapy, the behavioral health clinician becomes the depression care manager. Because behavioral health is integrated and the offices are co-located, the environment lends itself well to the team approach to care. The behavioral health clinicians are the primary mental health resource in this rural setting and offer support to primary care providers. "Because the offices are so close, the physician can simply walk the patient down the hall, giving a 'warm handoff,' saying 'I have someone who works with me on the team and we can all work together to make sure you get better.'

Because not all patients require full case management, the clinic provides stepped care," in which

trained licenced practical nurses (LPNs) follow-up with less acute patients on medication adherence, do basic problem-solving counseling, and reassess depression level. The behavioral health practitioners provide skills training for LPNs and are called in for case-specific specialty support. Team huddles provide the communication channel for physicians, LPN's and behavioral case managers. Care managers update self-management goals and action plans with information from follow-up telephone calls. They also review charts for the upcoming patient visits to arrange lab work or preventive screening. This provides a "heads up" for both the provider and behavioral health practitioners. The Behavioral Health director notes, "In a population where 40 percent have no insurance, the depression screening and behavioral health counseling services offer a way to decrease health disparities in a complex, but motivated group of patients."

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In this clinic, better chronic illness care is compatible with high productivity. Fifteen-minute visits with physicians can be very productive when the healthcare team is organized to do proactive planned care. When depression is identified early and behavioral health counselors are engaged, subsequent medical care visits are significantly less time-consuming. The primary care physicians in the clinic have noted increased compliance with treatment recommendations and greater well-being in patients with chronic illness and comorbid depression. With the depression screening, issues are identified and treated more consistently than before.

Integrated Health System Private Practices

In the fee-for-service setting, utilizing case managers to proactively manage patients with chronic conditions is still financially challenging. At this midwestern physician network of approximately 100 physician practices in 30 offices in a multicounty setting, several models are used to assure that the functions of case management are available. The RN Director of Clinical and Quality Systems says, "We must be able to make the case that bringing people in for proactive visits is revenue producing or at least revenue neutral." Some office practices within the system hire registered nurses to manage high-risk patients, offering critical medication management and coordination services, and assuring patients receive guideline-driven care. Then they utilize a team approach to assure self-management support and follow-up. For instance, family practice clinics intensively train staff members to work with diabetes patients, making sure to use an ADA-certified curriculum. Building on basic diabetes education classes provided by the local hospital, these educators do assessments, help with ongoing basic management, and revisit action plans for behavior change.

Quality improvement managers within the system create a variety of opportunities to introduce and support effective innovations in chronic care management and spread successful interventions to other practices. Working with the local medical school on a grant to study lipid management, they did a general mailing to coronary artery disease patients in eight benchmark practices that had focused on screening and dietary interventions for lipids. Case managers then followed up with those who received the mailing, doing outreach and support to assess success with the regimen. The Clinical and Quality Director says,

> Frequently physicians and teams know how to deliver optimal care, but they need help to make it happen. These innovative practices can offer an example of simple methods to do proactive management, a follow-up phone call after a mailing. They often have a great experience with patients and then get hooked on the effectiveness of proactive care.

Condition Neutral Case Management

In quality improvement initiatives across the United States, healthcare organizations have begun using the Chronic Care Model with pilot teams focusing on one specific chronic condition. Many repeated the process to learn and implement changes in a second condition, spreading the model to other teams and practices, and also applying the system changes to other conditions. Others have worked to apply the tenets of the model to cancer care and HIV/AIDS, and even to the realm of preventive medicine because it is an organized, system-wide approach to care delivery. Just as clinicians might understandably feel overwhelmed when presented with one after another clinical guideline that must be learned and applied, case managers may feel unsure about their ability to manage more than one or two disease conditions. Yet if patients with multiple conditions can be expected to follow complex treatment regimens and

employ effective self-management skills, can we not expect clinicians to practice more comprehensive care? Are there overarching skills and knowledge that would enable case managers to work across conditions, just as the Chronic Care Model has provided a structure for the delivery of care across conditions?

Care management models have most frequently been disease-specific interventions, usually delivered by nurse case managers located outside of the primary care practice setting. One concern with this model is that interventions tend to be disease specific, rather than patient specific. Because 48% of patients with chronic conditions have more than one disease condition (Partnership for Solutions, 2002), disease-specific programs may not address their needs comprehensively, adding to the probability of disjointed and less adequate care. When located outside the primary care setting, these case management programs may augment the problems of fragmented care by side stepping the patient–provider relationship.

There is limited research for implementing care coordination across multiple illnesses, and what has been done shows mixed results (Ferguson & Weinberger 1998; Fitzgerald et al., 1994; Weinberger et al.,1996). The studies might have shown stronger results if they had implemented a more systemwide, integrated care model, such as the Chronic Care Model, based in the primary care practice, working with a multidisciplinary team, and utilizing system supports.

In a recent analysis of care utilization among nonelderly people with multiple conditions, Starfield found that visits for comorbid conditions exceeded the number of visits for the index condition, and this was true both for primary and specialty visits (Starfield et al., 2003). The use of primary care exceeded that of specialty care for both index and comorbid conditions. She concludes that

> The burden is on primary care physicians to provide the majority of care, not only for the target condition but for other conditions. Thus, management in the context of ongoing primary care and oriented more toward patients' overall healthcare needs appears to be a more promising strategy than care oriented toward individual diseases.

The Chronic Care Model, centered in the primary care team and focused on productive interactions with patients, offers a framework for supplanting disease-specific silos of care with an integrated approach that is system-wide, and patient rather than disease centered.

Behavior change research initiatives are also exploring condition neutral care with an increased focus on interventions targeting multiple behavioral risk factors such as lack of physical activity, unhealthy diet, and smoking. These factors are important contributors to multiple diseases and impaired functional status. In conjunction with obesity and substance abuse, they are important indicators of the health of the nation that will be monitored by Healthy People 2010 (U.S. Department of Health and Human Services, 2000). Changing behaviors in these areas positively affects management of multiple chronic conditions, and supporting the changes is pivotal in effective self-management in people with chronic conditions. In an analysis of multiple health risk behavior interventions in primary care, Goldstein (Goldstein M, personal communication, August 2003) notes that

> An important barrier to the delivery of health behavior change interventions in primary care settings is the lack of an integrative screening and intervention approach that can cut across multiple risk factors and help clinicians and patients to address these risks in an efficient and productive manner.

Among principles for delivering multiple risk factor interventions in primary care, the authors find that more intensive interventions that include multiple contacts, multiple clinicians (e.g., nurses, physicians, and dieticians), and multiple modalities (self-help materials, telephone and face-to-face counseling, and tailored computer reports) have stronger effects across conditions. These findings strengthen the basis for additional research and wider implementation of innovations cited in the above examples from systems implementing The Chronic Care Model and using a variety of providers, settings, and modalities to support improved chronic care.

The Chronic Care Model provides the systemwide principles of ambulatory care for people with chronic conditions. One effective strategy for delivering effective chronic care is case management, but in order to meet the needs of all patients with chronic conditions utilizing the resources currently available, diverse implementation models must be explored. One promising avenue may be development of a condition neutral case management model applicable across conditions and risk factors.

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