ABSTRACT
Purpose/Objectives: Before integrating advanced practice registered nurse (APRN) case management, we compared managed Medicare clients’ hospital admissions for 12 months prior to and 12 months after registered nurse (RN) or social worker case management.
Primary Practice Setting(s): Our clients are cared for by a multispecialty physician group and five local hospitals.
Findings/Conclusions: The 12-month admissions dropped from 351 to 101. There was a 75.5% reduction for Level 1 clients, a 72% reduction for Level 2 clients, and a 25% reduction for Level 3 clients.
Implications for Case Management Practice: (1) RNs, APRNs, and social workers are educated to holistically manage care for elders with chronic disease who require physiological, psychosocial, spiritual, and environmental interventions, not just disease treatment. (2) The complex interaction between aging and chronic disease in elders necessitates RN, social worker, and/or APRN case management. (3) Although RNs, social workers, and APRNs can work independently, dyads may be more effective.
Key words: advanced practice registered nurse, elder case management, registered nurse, social worker.

Chronic disease is the major cause of death and disability worldwide (Coleman, Austin, Brach, & Wagner, 2009). In 2009, 75% of all health care expenditures were for chronic disease care and 70% of all deaths in the United States were caused by chronic diseases (Centers for Disease Control and Prevention [CDC], 2009). CDC (2011) found that approximately 80% of elders had one chronic disease, and approximately 50% had at least two chronic diseases. Because baby boomers are reaching Medicare age and people over age 85 represent the fastest growing age group in the United States, the impact of the chronic disease burden on Medicare has reached a crisis point (MetLife Mature Market Institute, 2010). The costs for Medicare are not sustainable at current funding levels (Social Security Online, 2012). So a new care delivery system is needed to meet the needs of the growing number of seniors who will enroll in Medicare in the next several years.

As a result of the proposed Affordable Care Act, the United States is moving forward with health care reform. Chronic disease care is one of the major foci. For the Medicare population, the Center for Medicare and Medicaid Services is providing funding for one of the major pillars of the act, accountable care organizations (ACOs). According to Berenson and Burton (2011), ACOs will have three major characteristics: shared savings, accountability for quality, and clients’ free choice of providers. The ACO concept is expected to result in better health, better health care, and lower costs. Health care providers and facilities will team to share responsibility for client care. ACO participation by elders on Medicare will initially be voluntary. But if ACOs result in significant cost savings without decreased care quality, participation by Medicare participants may eventually become mandatory.

In addition to the proposed changes in health care for elders, residences for aging elders are also changing. “Aging in place” means staying in one’s home or community for as long as possible. Because the majority or elders would prefer to live independently (MetLife Mature Market Institute, 2010), senior living complexes are being built in most communities. However, even though elders say they wish to live independently for as long as possible, there is little clinical research to address best practices in this area. MetLife Mature Market Institute (2010) recommended a customized plan of care for each client that matches client needs with available resources.

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Proposed goals were seamless delivery of services through care transitions and keeping clients safely independent through support.

**THE CURRENT GORDIAN HEALTH MANAGEMENT GROUP CASE MANAGEMENT PROGRAM**

Gordian Health Management Group provides utilization review and case management services for managed care Medicare clients. We currently employ full time RN and social work case managers (CMs) and are hoping to expand our case management services with the addition of advanced practice registered nurses (APRNs) in the near future to more effectively meet the needs of future Medicare clients.

Our current process for intake begins with a detailed collection of client data. Then our RN CMs conduct a comprehensive needs assessment, develop an individualized integrated care plan in concert with the client, and identify best evidence-based practices for care of the client. Care processes are monitored and adjusted, if necessary, to meet client needs. Expected outcomes of case management include seamless continuity of care as clients transition across care settings, the highest quality of care based on the best available evidence, cost containment resulting in effective use of money, proactive prevention of complications, and tri-level satisfaction with care (client, health care provider, and insurance provider).

Clients can be referred to our Medicare case management service by physicians, nurses, or inpatient CMs. Once admitted, each client is entered into one of three acuity levels. Table 1 provides an overview of acuity levels and services.

At Level 1, clients are either healthy or at end of life. The ultimate goal is health promotion and disease prevention for clients who are healthy. The ultimate goal for clients at end of life is palliative care.

Both goals are accomplished through individualized care management by an RN or social worker.

**Case Study for Healthy Adult**

Mr. M, age 60, comes in for a physical examination. He has not had one for 5 years. Past medical history reveals he has no health issues, and his physical examination and diagnostic testing confirm this. The CM would focus on health promotion and disease prevention. Actions would include:

*Comprehensive individualized health assessment with identification of risk factors.* Mr. M spends about 8 h per day outside. The risk for skin cancer increases as unprotected sun exposure increases, so he is at risk.

Mr. M has a strong family history for colon cancer, the cause of his father’s and grandfather’s death. He is at risk for colon cancer.

Mr. M’s mother died from metastatic breast cancer, as did her mother and sister. He is at risk for breast cancer.

*Predictive modeling.* Because of Mr. M’s risk factors for three types of cancer, the CM would enter him into the predictive modeling system, even though his use of services has not been excessive.

*Episodic client care management.* The CM would monitor Mr. M during any future episodes of acute illness to ensure that he follows the medical plan of care and recovers without complications.

*Promotion of healthful behaviors and client education.* Because of Mr. M’s risk factors for cancer, interventions should focus on prevention or early recognition of this disease. Teaching about prevention of skin cancer, colon cancer, and breast cancer is appropriate. Genetic

Questions remain about the best way and the best people to provide these services. As health care reform moves forward there will be those who continue to believe non-nurses will be less expensive alternative for case management. Proposed individuals run the gambit from high school graduates with two days of training to individuals with advanced degrees in health care related fields. For some patients a less qualified individual may suffice. (but).....Because registered nurses (RNs and APRNs) and social workers are educated with a holistic perspective, they possess the skills and abilities to manage care and care transitions for elders with chronic disease who require physiological, psychosocial, spiritual, and environmental interventions, not just treatment of disease.
testing for breast cancer and colon cancer genes may also be warranted. If Mr. M decides he would like to be screened, obtaining a referral for genetic counseling would be indicated. To decrease his risk for skin cancer, Mr. M should be educated about limiting sun exposure and appropriate use of sunscreen. To decrease his risk for and early detection of breast cancer, Mr. M should be educated about the risk factors, preventative strategies, and early identification of breast cancer. The CM should educate Mr. M about the risk factors associated with colon cancer. The CM should encourage him to have an initial colonoscopy and follow-up colonoscopies at the interval recommended by his gastroenterologist.

Other health promotion behaviors that the CM should teach Mr. M include the importance of an annual physical examination, adhering to the adult immunization schedule, recommended diet changes for older adults, adequate exercise, and managing stress.

### Case Study for End of Life

Ms. C is 65 years old and has a history of hypertension and hypothyroidism. She is admitted to the hospital with jaundice and weight loss. She has mild pain and nausea. Following diagnostic testing, she is diagnosed with Stage IV pancreatic cancer. Her prognosis is grim, and she is told that she has 6 months to live. She is discharged to home and referred to case management. Because treatment options for advanced pancreatic cancer are limited, the CM should focus on palliative care measures. Actions would include:

**Comprehensive individualized client and family assessment.** Assessment of physical symptoms shows that Ms. C’s pain and nausea are under adequate control with medications. However, she continues to lose weight. Ms. C also complains of itchy skin caused by the jaundice.

Psychosocial assessment shows that Ms. C and her husband and children are devastated by the diagnosis and prognosis. The family is close knit though and can provide significant support for Ms. C. They
also have a large network of friends and extended family for support.

**Comfort care.** Comfort care for terminally ill clients encompasses any intervention for symptom management of physical symptoms. The CM recommends medication and massage for Ms. C’s pain. For her nausea, the CM recommends small frequent meals along with antinausea medication. The CM recommends a high calorie diet with between meal nutritional supplements to stabilize Ms. C’s weight. For her jaundice, the CM calls Ms. C’s physician and requests and order for cholestyramine, a drug used to treat itching in patients with pancreatic cancer. The CM also recommends a soothing body wash and lotion.

**Psychological support.** Psychological support for Ms. C and her family would include interventions to facilitate coping, address spiritual distress, and manage grief. Because Ms. C regularly attends a local church, the CM recommends psychological and spiritual support from her clergy. The CM also offers referral to a grief counselor.

**Individualized client/family education.** The CM focuses client/family education on the disease process and symptoms that will develop as the disease progresses. Social support systems available in the community are also discussed. Education about hospice care is essential for Ms. C and her family. The CM discusses the services provided by hospice and the benefits for Ms. C of using hospice.

**Prevent concomitant complications.** The CM institutes home health visits for Ms. C to manage increased pain, malnutrition, new-onset diabetes, bowel obstruction, pressure ulcer formation, and venous thromboembolism. The CM provides needed durable medical equipment to stop preventable complications.

**Peaceful death.** Following a family meeting facilitated by the CM, Ms. C and her family decide that hospice is the best option for Ms. C. The CM coordinates a referral to hospice. Ms. C dies peacefully 5 months after his diagnosis. Her family subsequently joins a community grief support group.

At Level 2, clients have acute or chronic illnesses. The ultimate goal for acute illness is resolution. The ultimate goal for chronic illness is stabilization. Both goals are accomplished through individualized case management by an RN or social worker.

**Case Study for Acute Illness**

Mr. P is a physically fit 60-year-old man who goes to his health care provider because of 8 days of cough, intermittent fever, and shaking sweats at night. A chest X-ray shows pneumonia. He is given a prescription for 7 days of levofloxacin and asked to return in 2 weeks for a repeat chest X-ray. He is also referred to case management. The goal for this client is disease resolution. The role of the CM involves:

**Comprehensive individualized health assessment with identification of risk factors and identification of care deficits.** The CM conducts a health assessment on Mr. P. He has no care deficits. His father died of heart disease at 88 years of age. His mother is in an Alzheimer’s care center, having been diagnosed with Alzheimer’s disease 6 years ago. So Mr. P is at risk for heart disease and dementia.

**Predictive modeling.** Because of Mr. P’s risk factors for heart disease and dementia, the CM would enter him into the predictive modeling system, even though his use of services has not been excessive.

**Interdisciplinary care coordination.** The CM contacts Mr. P to ensure that he has filled his antibiotic prescription and to discuss over-the-counter medications for fever and cough. The CM also ensures that Mr. P has a follow-up appointment set and will contact Mr. P following the appointment to ensure that the pneumonia is resolved. Addressing his risk factors the CM reinforces the need to regularly monitor his blood pressure at home and to get an annual physical examination, including blood tests for lipid levels. The CM also recommends that the Mr. P and his family monitor for memory issues seen in Mr. P.

**Prevention of concomitant complications.** The CM discusses how to identify complications that may occur with community-acquired pneumonia including respiratory distress and sepsis. Mr. P understands what symptoms might indicate that a complication is developing. He also can identify whether he should call his health care provider or seek emergency treatment.

**Client education.** Mr. P’s educational needs include how to treat his symptoms, prevent recurrence of community-acquired pneumonia, recognize pneumonia complications, and assess his risk factors. The CM discusses pharmacological and nonpharmacological treatments that can be used by Mr. P to treat his symptoms. He can tell the CM what complications he needs to look for and what type of treatment he should seek based on the symptoms. The P family knows to assess Mr. P’s ability to perform instrumental activities of daily living and to recognize other indications of memory loss.
Case Study for Chronic Illness

Ms. K is 68 years old and has a long history of poorly controlled hypertension. She is admitted for evaluation of 1 h of inability to move her left side. Her diagnosis is transient ischemic attack (TIA). For clients with chronic illnesses, the goal is stabilization. With many chronic diseases, clients decline over time. Interrupting the downward trajectory of the disease and stabilization of the client at the highest functional level possible is essential. The role of the CM in caring for Ms. K is to provide:

Comprehensive individualized health assessment with identification of risk factors and identification of care deficits/needs. The CM conducts a health assessment on Ms. K and identifies a continued significant risk for another TIA or cerebral vascular accident (CVA) due to her uncontrolled hypertension. She lives on a fixed income. Ms. K says she cannot afford the copays for her antihypertensive medications. She also has difficulty following her prescribed diet; the recommended food is too expensive. Because of the resolution of her left-sided weakness, Ms. K has no care deficits.

Predictive modeling. Because of Ms. K’s significant risk for recurrent TIA, CVA, cardiac, or renal complications, the CM would enter her into the predictive modeling system even though her use of services has not been excessive.

Interdisciplinary care coordination for chronic disease management. The goal of treatment for Ms. K is to help her control her hypertension. The CM discusses Ms. K’s issues with her health care provider, who agrees to substitute her current hypertension prescriptions with less expensive alternatives. The CM then contacts local pharmacies to identify the one with the lowest cost that is closest to Ms. K’s home.

The CM contacts the health care provider for orders for a nutritional consultation and home health visits. The CM then schedules Ms. K for a consult with a dietician to identify ways that Ms. K can follow her diet and stay within her food budget. The CM also explores the possibility of obtaining food stamps for Ms. K and contacts local food banks to determine whether Ms. K qualifies for assistance there. The CM initiates home health services to monitor Ms. K’s compliance with blood pressure treatment. Ms. K agrees to both the nutritional consultation and home health visits.

Prevent concomitant complications. Because complications of uncontrolled hypertension can affect many organ systems, the CM identifies a broad spectrum of signs and symptoms for Ms. K to identify. The CM also educates Ms. K about where to seek medical attention if they occur.

The CM contacts a community organization that provides free blood pressure cuffs to those in need. The organization agrees to provide a unit for Ms. K. The CM helps Ms. K arrange for a family member to deliver the blood pressure cuff to her.

Client education. The CM educates Ms. K on the proper use of her new blood pressure monitor, how often to monitor and record her readings, and when to contact her health care provider about her readings. Ms. K verbalizes understanding of blood pressure monitoring.

The CM discusses symptoms of myocardial infarction with Ms. K, including those signs and symptoms frequently seen in women, symptoms of a CVA, and symptoms of renal failure. The CM also discusses the need to frequently monitor associated laboratory values, including cholesterol, triglycerides, brain natriuretic peptide, blood urea nitrogen, serum creatinine, and creatinine clearance.

Because Ms. K lives on a fixed income, the CM educates her about community resources that can help her. The CM provides Ms. K with the contact information for those resources. Ms. K agrees to contact those resources.

At Level 3, clients have acute or chronic complex illnesses. The ultimate goal for both acute and chronic complex illnesses is resource integration. It is accomplished by coordination of multiple needs for care. RN CMs currently provide these case management services, but APRNs will soon be integrated at this level.

Excessive use of services is the major trigger for a change in client acuity requiring complex case management. Predictive modeling is also used to identify high-risk patients who are not identified by excessive service use, but need complex case management. Through predictive modeling, an admission score and a cost score are calculated. The formula for the admission score includes number of emergency department visits, age, specialty consultation, high-risk medication use (e.g., Coumadin), chest pain, and certain diseases (pneumonia, chest pain, hypotension, chronic heart failure, dementia, cancer, chronic obstructive pulmonary disease, and coronary artery disease). The cost score is predicted using Poisson regression. The formula for the cost score includes number of emergency department visits, the presence of chest pain, specialty consultation, high-risk medications (e.g., Coumadin, diuretics), and certain diseases (pneumonia, cancer, acute myocardial infarction, dementia, diabetes, chronic obstructive pulmonary disease, chronic heart failure, and coronary artery disease).
Case Study for Acute and Chronic Complex Illness

Mr. S is a 66-year-old man who lives alone. He is involved in a single vehicle high-speed accident and suffers multiple trauma. He is admitted to a trauma center, unconscious with no spontaneous movement of his arms or legs. Diagnostic tests reveal a spinal cord transaction at the level of the sixth cervical vertebra, a closed head injury, a fractured right ankle, and an elevated blood alcohol level. He is taken to the operating room to stabilize his cervical spine and repair his fractured ankle. The goal for both acute and chronic complex illness is resource integration. The CM accomplishes this through:

**Comprehensive individualized health assessment with identification of risk factors and identification of care deficits/needs.** A comprehensive assessment reveals the Mr. S is a quadriplegic but can manage his airway. His ankle fracture has been pinned. He regains consciousness and admits to heavy daily drinking. He is medicated to prevent delirium tremors. He spends 2 weeks in the intensive care unit. His only complication is the development of a Stage 2 pressure ulcer on his coccyx that is healing with treatment.

Mr. S has no savings and $10,000 of revolving debt. He works part-time as a handyman. He lives in an apartment and totaled his vehicle in the accident. The only health insurance he has is Medicare. His auto insurance has lapsed. He will need significant rehabilitation once he is discharged from acute care. He has no close family.

Mr. S is at risk for complications associated with quadriplegia, including pressure ulcers, venous thrombus emboli, respiratory issues, autonomic dysreflexia, spasticity, and pain. He is also at risk for relapse into alcoholism.

**Complex disease case management.** The CM focuses on care transition to an appropriate Medicare-approved rehabilitation facility. Because of his finances and the catastrophic nature of his injuries, the CM will also try to certify him as dual eligible for Medicare and Medicaid.

The CM will monitor Mr. S’s hospital care to identify complications in his recovery and collaborates with the treatment team to arrange the best care transition setting as possible.

**Client education.** Because the CM is part of an interdisciplinary team educating Mr. S, the CM will focus Mr. S’s education on health care services he will need following hospital discharge. Mr. S agrees to the application for coverage under Medicaid in addition to his Medicare coverage. He decides on one of the three rehabilitation centers that the CM presents to him.

**Interdisciplinary care coordination.** The CM updates the treatment team on discharge arrangements and requests input about any specific discharge needs. The CM also addresses recommendations for postdischarge care.

**Seamless transitional care between facilities.** When Mr. S is ready for discharge from the acute care facility, the CM arranges for transportation to the rehabilitation facility, copies records to be sent with him, calls report to the CM at the rehabilitation facility, and notifies the health care team of the date and time of Mr. S’s discharge.

**FINDINGS**

Before integrating APRNs into our case management system, we wanted to evaluate our current level of effectiveness, so we conducted a retrospective chart review. We looked at managed Medicare clients’ hospital admissions for 12 months prior to admission to our system and 12 months after admission to our system.

Our managed Medicare clients are cared for by one multispecialty physician group composed of 850 physicians. They are admitted to a leading health care system with 14 acute care hospitals in our geographical area. The hospitals vary in size and range from Level 1 trauma centers to small community hospitals.

The total of 351 admissions across all acuity levels occurred in the 12 months prior to implementation of our case management services. After instituting case management services, the 12-month total admissions dropped to 101. There was a 75.5% reduction for Level 1 clients, 72% reduction for Level 2 clients, and a 25% reduction for Level 3 clients. Figure 1 shows a bar graph of the findings.

The percentage of admissions decreased as the acuity level increased, an expected finding. As clients’...
disease processes worsen, admissions become more difficult to prevent. However, reductions in admissions were significant across all levels. For the payer (Medicare-managed plans), the cost savings from 250 fewer admissions is justification enough for using RNs and social workers as CMs. For the client, the physiological and psychological benefits from proactive management to prevent complications necessitating admission are profound.

Conclusions

Questions remain about the best way and the best people to provide these services. As health care reform moves forward, there will be those who continue to believe nonnurses will be less expensive alternative for case management. Proposed individuals run the gambit from high school graduates with 2 days of training to individuals with advanced degrees in health care related fields. For some patients, a less qualified individual may suffice.

Because registered nurses (RNs and APRNs) and social workers are educated with a holistic perspective, they possess the skills and abilities to manage care and care transitions for elders with chronic disease who require physiological, psychosocial, spiritual, and environmental interventions, not just treatment of disease. The American Nurses Association (ANA) defines professional nursing as “the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities and populations (American Nurses Association (ANA), 2012). The Consensus Model for APRN Regulation (APRN Joint Dialogue Group, 2008), a pivotal document for advanced nursing practice, stated “the defining factor for all APRNs is that a significant component of the education and practice focuses on direct care on individuals” (p. 8). It also stated the APRN practice “builds on the competencies of RNs by demonstrating a greater depth and breadth of knowledge, a greater synthesis of data, increased complexity of skills and interventions, and greater role autonomy” (p. 8). Both definitions demonstrate that RNs and APRNs ability to holistically assess, plan, implement, and evaluate the care needs for elders with chronic conditions.

The National Association of Social Workers (NASW) defines social workers as college graduates holding either a bachelor’s, master’s, or doctoral degrees in social work. They use their knowledge and skills to provide social services for a broad range of clients. They increase clients’ problem solving and coping skills, help clients obtain needed resources, help clients interact effectively with others and their environments, and advocate for clients in organizational and regulatory arenas. Social workers work at the individual and systems level to develop effective programs for clients (NASW, 2012). All of the skills represented in this definition make the social worker role integral to case management either at the individual or dyad level.

At Gordian Health Management Group, we believe the RNs, APRNs, and social workers are the only appropriate individuals to deliver case management services to elders with chronic illnesses. The complexity of the interaction between aging and chronic disease in elders necessitates RN, social worker, and/or APRN case management.

Although RNs, social workers, and APRNs can work independently in case management, creating dyads may be more effective. The RN—social worker dyad is believed to be essential in many settings (Powell & Tahan, 2010). We plan to implement the APRN—RN or APRN—social worker dyad concept for complex clients with multiple comorbidities.

References


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