

Fostering Cross-Sector Partnerships

Lessons Learned From a Community Care Team

Diane E. Holland, PhD, RN, Catherine E. Vanderboom, PhD, RN, and Tanya M. Harder, MSN, PHN, RN, CCM

ABSTRACT

Purpose/Objectives: The purpose of this study was to describe lessons learned during the development and implementation of a community care team (CCT) and the applicability of this model in movement toward cross-sector team-based care coordination.

Primary Practice Setting: Primary care.

Findings/Conclusions: Cross-sector CCTs composed of primary care and community service providers are a care coordination approach that attends to the individual's social determinants of health, enhances the individual's capacity to manage treatment and self-care demands of multiple chronic health conditions, improves the care experience, and impacts well-being. A collaborative CCT decreased the use of acute care services and the costs of care.

Implications for Case Management Practice: As reported in this study, use of interprofessional collaborative health care teams in planning care and services for individuals is a standard of practice for case management. Cross-sector partnerships provide the opportunity to maximize the contributions of health care and community service providers that address both chronic health conditions and social determinants of health, minimize fragmentation and costs of care, and promote collaborative care coordination. Community care teams offer sophisticated care coordination not otherwise available to medically complex high-need individuals who require assistance in navigating the medical and financial systems that exist in health care today.

Key words: *care coordination, integrated team-based care, social determinants of health*

The U.S. health care system is awakening to the fact that it can no longer afford to ignore the social determinants of health (SDH) of the nearly 164 million persons in the United States projected to be living with chronic health conditions by 2025 (Braveman & Gottlieb, 2014; Chaiyachati, Grande, & Aysola, 2016). Chronically ill individuals often have coexisting social needs (e.g., inadequate finances, housing and food insecurity, social isolation) equal to or greater than their medical needs, yet efforts to address these SDH have received inadequate attention in traditional primary care delivery systems (Institute of Medicine, 2012). Indeed, most health care providers have limited awareness of their patients' SDH even when these needs present important barriers to participation in their health regimens (Robert Wood Johnson Foundation, 2011). Social determinants of health are defined by the Centers for Disease Control and Prevention (2014) as "the complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities." They are often impediments to the effectiveness of health care treatment plans. In many cases, they are directly at odds with efforts to improve the health and well-being of older adults.

For many older adults, the needs in basic life domains, such as safety and security, community living, social interaction, and spirituality, are so great that they negatively impact other areas essential to experiencing a good quality of life. For example, inadequate finances limit access to reliable transportation, which restricts access to sources of healthy food and to attendance at regular medical appointments, and both are essential for persons to manage their existing health conditions and prevent new ones. Typically, an

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Address correspondence to Diane E. Holland, PhD, RN, Department of Nursing, Mayo Clinic, 200 First St SW, Rochester, MN 55905 (holland.diane@mayo.edu).

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objective of case management services is to identify issues and barriers that may prevent individuals from achieving their health care goals (Case Management Society of America, 2015). In meeting that objective, SDH needs must be addressed to enhance patients' capacity to meaningfully engage in their own long-term care regimens.

Primary care delivery models are being developed that highlight patient- and family-centered care that includes referrals to and use of community resources. Unfortunately, connection with community resources effectively can be problematic. Lack of experience in and processes for effective connections between health care team members and community resources lead to underuse of existing services (Cuadrado, 2015; Hong, Siegel, & Ferris, 2014; Marek et al., 2013; Vega & Thomas, 2012). Community resources may be available to address a patient's SDH. However, *interactions* between health care and community services are often limited to a referral after the patient's medical treatment plan is developed, rather than services directed to the design of the plan of care to proactively incorporate both health and community service perspectives. Lack of early and meaningful integration and collaboration between primary health delivery systems and community services to address SDH is known to result in care that is costly, fragmented, and only partially effective (Denny, 2012; LaVeist & Pierre, 2014).

The investment in addressing modifiable SDH is expected to have a substantial effect on health outcomes. The estimated number of deaths attributable to SDH rivals the number of deaths from heart attacks, strokes, and lung cancer combined (Galea, Tracy, Hoggatt, Dimaggio, & Karpati, 2011). Improvement in access to community resources is increasingly recognized as an important factor for improving health outcomes. The need is critical for new models of care delivery that foster cross-sector care coordination and collaboration through integration of primary care, public health, and community services.

Cross-sector community care teams (CCTs)—integrated interprofessional teams that include both primary care and community service providers—have been advanced as an approach to expand and

maximize collaborative care partnerships. Interprofessional collaborative practice has been described as a partnership among a team of providers and a client in a participatory collaborative approach to shared decision-making around health and social issues (Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011). These collaborative interactions are a blending of professional cultures and are achieved through the sharing of skills and knowledge to improve the quality of patient care. A CCT is an interprofessional community-based team that works with patients and families with a shared purpose to holistically address the self-identified social and medical needs of individuals and to minimize the lack of integration between health care and community services (Bielaszka-DuVernay, 2011; Losby et al., 2015). Integrated cross-sector interprofessional teams that address both medical needs and SDH minimize the fragmentation of care and improve the care experience of adults with multiple chronic health conditions (Vanderboom, Holland, Lohse, Targonski, & Madigan, 2014; Vanderboom, Thackeray, & Rhudy, 2015). The purpose of this article is to describe lessons learned during development of and the implementation experience over 2.5 years of one such CCT and to describe its applicability in moving toward integrated team-based care coordination.

THE OLMSTED COUNTY CCT

Initial development and testing of the CCT was completed in 2014 (Vanderboom, Holland, Targonski, & Madigan, 2013). For the past 2.5 years, the CCT was implemented in Olmsted County, Minnesota, as part of a state innovation model cooperative agreement, awarded to the Minnesota Department of Health and Department of Human Services by the Center for Medicare & Medicaid Innovation. The Olmsted County CCT is a cross-sector coalition of experienced, baccalaureate-prepared nurse care coordinators and social workers from primary care and of locally based community service providers. The community services coalition members include public health nurses, senior advocacy services, and community health workers.

Unlike many disease management strategies that rely on telephonic management, the CCT uses systematic processes that emphasize regular in-person contact with individuals and their families, community services, and primary care. A hallmark of the

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CCT is early and ongoing connection between individuals and their support system, primary care, and community services. The nurse care coordinators in primary care and social workers provide the bridge between health care and community services.

The CCT is operationalized through the wrap-around process, a well-tested community-based approach that helps individuals remain in the community and avoid institutional care (Quick, Coldiron, & Bruns, 2014; Schurer Coldiron, Bruns, & Quick, 2017). This process includes shared decision-making and problem-solving to overcome barriers such as psychosocial issues and lack of personal resources that confound care planning for persons with complex health needs. Creative solutions are collaboratively developed to address the patient-identified and prioritized needs that impact a patient's ability to self-manage multiple health conditions. The wraparound process reinforces the individual's and family's ability to identify and leverage their strengths to address self-management challenges, moving the CCT from a focus on disease and deficits to a strengths-based approach (Franz, 2008). Another key wraparound component is the development of a circle of support or a network of committed persons that promotes and sustains the individual's self-management efforts (Bruns et al., 2014).

CROSS-SECTOR TEAM-BASED CARE COORDINATION

Referrals to the CCT are accepted from both health care (most often from a nurse care coordinator or social worker) and community service personnel. The CCT begins with an initial assessment of the patient's and family's strengths and needs during a home visit by a community-based public health nurse and a community health worker. An interprofessional team meeting is subsequently scheduled with the patient and family to collaboratively develop solutions for their priority needs. On the basis of the assessed strengths and concerns, a shared action plan is created to address the priority concerns. The action plan includes identifying concrete tasks; delegating each task to a member of the CCT, the patient, or the caregiver; setting up a timeline for completion and follow-up; and indicating the expected results. In addition, an individualized crisis prevention plan is developed that includes early and frequently overlooked patient- or family-identified changes that can signal a difficult day and the need to obtain assistance before the problem spirals out of control (Vanderboom et al., 2013, 2014).

The development of a circle of support identifies a social network of family, friends, and community resource persons committed to assisting the patient as needed. Social support has been recognized as an

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important resource for patients who have limited capacity to address and sustain their social and health-related priorities. All services are tailored to meet the patient's priority needs, rather than provider-identified priorities. (The latter is often the case in usual care.) The patient's medical provider is notified of the individual's participation in the CCT through documentation placed in the patient's health record and conversations with health care team members and the nurse care coordinator or social worker.

After needed activities to address the priority problems are completed to the extent possible, the patient "graduates" from the program; successes are identified and celebrated in another group session (see Figure 1). If formal community services will continue, the CCT public health nurse acts as a bridge between the patient and the provider until a trusting relationship develops between them, thus further expanding the support circle. The period during which the patient stays in the CCT program is based on the complexity of addressing the individual's priority needs; it may vary from 1 to 6 months. For example, assistance in applying for U.S. Social Security takes much longer to accomplish than help in navigating to a food shelf accessible on a bus route.

EVALUATION OF CCT OUTCOMES

Our evaluation of the CCT included patient sociodemographic information and both patient- and community-focused outcomes. Patient-focused outcomes were evaluated with the following comparisons.

Patient Priority Problems

We used a standardized terminology, the Omaha System (Martin & Monsen, 2017), that allowed us to compare priority problems among our patients. In the Omaha System, problems are structured into 42 uniquely defined concepts that are categorized into four domains:

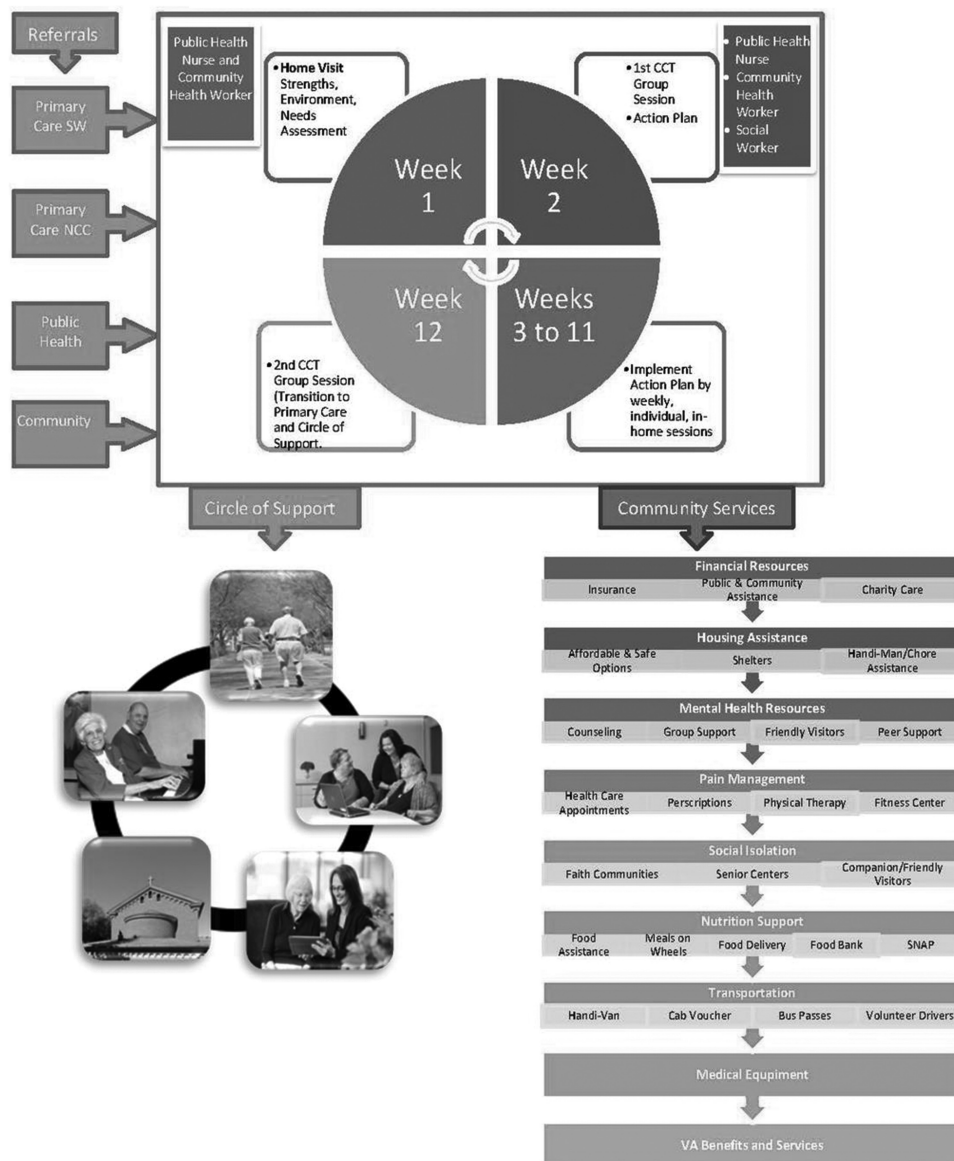


FIGURE 1

Community care team process and timeline. Used with permission of Mayo Foundation for Medical Education and Research. CCT = community care team; NCC = national certified counselor; SNAP = Supplemental Nutrition Assistance Program; SW = social worker; VA = Veterans Affairs.

1. Environmental,
2. Psychosocial,
3. Physiological, and
4. Health-related behaviors. (Holland, Vanderboom, Delgado, Weiss, & Monsen, 2016; Monsen et al., 2016)

Patient priority problems were identified at each patient's initial CCT group session. Problems were measured by counts and percentages.

Change in Knowledge, Behavior, and Status

The patient's knowledge, behavior, and status (KBS) related to each priority problem were measured with the Omaha System Problem Rating Scale for Outcomes

(Martin & Monsen, 2018). The Problem Rating Scale captures each of the three dimensions of a problem concept with use of descriptors unique to each problem. It is designed to enable population health assessments and to measure change in health status over time. The Problem Rating Scale was completed by CCT members immediately after the initial and final CCT group sessions with each patient. Change was indicated with the patient's final KBS scores minus the initial scores for each problem.

Additional patient-focused outcomes were collected through questionnaires completed by patients at the baseline home visit and at approximately 3 and 6 months after enrollment into the CCT program. The questionnaires included the following aspects:

Satisfaction With Care

The Patient Assessment of Chronic Illness Care (PACIC; Glasgow, Whitesides, Nelson, & King, 2005) measures patients' perceptions of their long-term care experience. It focuses on key elements of self-management support, including collaborative goal setting, problem solving, follow-up, and planned proactive care. The PACIC consists of 20 questions and includes five subscales: (1) patient activation, (2) delivery system design, (3) collaborative goal setting, (4) problem solving, and (5) follow-up and coordination. Scoring accounts for both a total mean score and a mean score for each subscale.

The Global Health Scale-10

The Global Health Scale-10 (Hays, Bjorner, Revicki, Spritzer, & Cella, 2009) consists of 10 items that assess the general domains of health and functioning, including questions assessing overall physical health (ability to carry out everyday physical activities such as walking, climbing stairs, and carrying groceries), mental health (including mood and ability to think), social health (carrying out usual social activities and roles), pain, fatigue, and overall quality of life. These items are used to derive two four-item health summary scales, Global Physical and Global Mental.

Individual domains included in the Global Health Scale-10 instrument are self-reported by the patients. For the domain of general health, patients use a 5-point rating scale to respond to the question, "In general, how would you rate your overall health?" Patients self-report their general quality of life using a 5-point scale to answer the question, "In general, how would you say your quality of life is?" For another of the domains, they rate their pain on a 10-point scale in response to the question, "In general, how would you rate your pain on average?"

The Self-Efficacy Scale

This scale (Holman & Lorig, 2004) measures the individual's confidence to manage chronic health conditions such as performing tasks and taking medications to reduce illness effects and judging when changes warrant calling a health care provider. This five-item instrument is rated on a scale of 1 (not at all confident) to 10 (totally confident). The score is the mean of the five items. A higher score indicates greater self-efficacy.

Connor-Davidson Resilience Scale-10

This resiliency scale (Connor & Davidson, 2003) measures the patient's self-reported ability to adapt to adversity. Items capture how well individuals perceive that they are able to stay focused and think clearly under stress, handle unpleasant or painful feelings, and adapt to changes. The 10-item instru-

ment is rated on a scale of 0 to 40. The score is the mean of the 10 items. Higher scores indicate greater resiliency (Jeste et al., 2013).

Well-Being Picture Scale

This well-being scale (Gueldner et al., 2005) is a picture-based instrument that describes how individuals currently feel. It can be used regardless of differences in vocabulary or language ability. The scale comprises 10 pairs of pictures representing high or low well-being at opposite ends of a 7-point unnumbered scale. The total score ranges from 10 to 70. Higher scores indicate a higher level of perceived well-being.

Slopes for individual persons were estimated by using the data collected over the time points for each patient-focused measure in the questionnaires. Data from each patient at each time point were plotted and fitted with a regression line to produce a slope estimate for each patient (Dupont, 2009). We then compared the slope values between the two groups using the rank sum test or two-sample *t* test as appropriate. For example, a positive slope estimate means improvement; a negative slope estimate indicates decline.

Community-Focused Outcomes

Community-focused outcomes included (1) types and counts of community services recommended for all patients during the CCT program, and (2) counts of barriers to use of the service.

Economic Evaluation

An economic evaluation focused on a subset of 52 patients, empaneled in primary care at one of the partnering medical centers, who received an initial CCT home visit between December 1, 2014, and February 15, 2017. This time frame allowed for at least 6 months for follow-up cost data. The analysis covered the cost of primary care visits, specialty care visits, emergency department (ED) visits, hospital admissions and lengths of stay, and overall costs. Cost data were not available for the other medical center partner.

RESULTS

Patient Sociodemographic Characteristics

Over 2.5 years, 142 adults with multiple chronic conditions were served by the CCT program. Among them, five individuals chose to participate only in the home visit assessment and 137 participated in at least one CCT group session. Most patients were female and older than 60 years. Racial/ethnic groups of CCT patients (primarily white/non-Hispanic) mirrored the county's overall population percentages, except for a

larger percentage (6.9%) of African Americans compared with their representation (5.9%) in the county (United States Census Bureau, 2016). The majority (69%) of patients received Medicare or Medicaid, with an additional 13% receiving both Medicare and Medicaid. Almost half (45%) of patients indicated that their income was not enough to make ends meet. Most patients (84%) had little to no confidence in filling out medical forms—a simple measure of health literacy (Sarkar, Schillinger, Lopez, & Sudore, 2011; Sudore et al., 2013). Patients had on average six chronic health conditions (range = 2–15) and were taking an average of 12 medications (range = 0–44).

Patient-Focused Outcomes

Patient Priority Problems

Overall percentages of patient priority problems are summarized in Figure 2. Not surprisingly, priority problems were overwhelmingly SDH, such as finances, housing and food insecurity, and social isolation. The most frequently occurring priority problem was insufficient income, followed by problems related to the patients' residence and communication with community resources. Variations in the problem profiles of individual patients are shown in Supplemental Digital Content Table 1 (available at: <http://links.lww.com/PCM/A7>).

Change in KBS Scores

Positive data trends were noted for the 79 patients for whom two sets of KBS scores were available (see Table 1). Patients demonstrated substantial improvements in knowledge related to communication with commu-

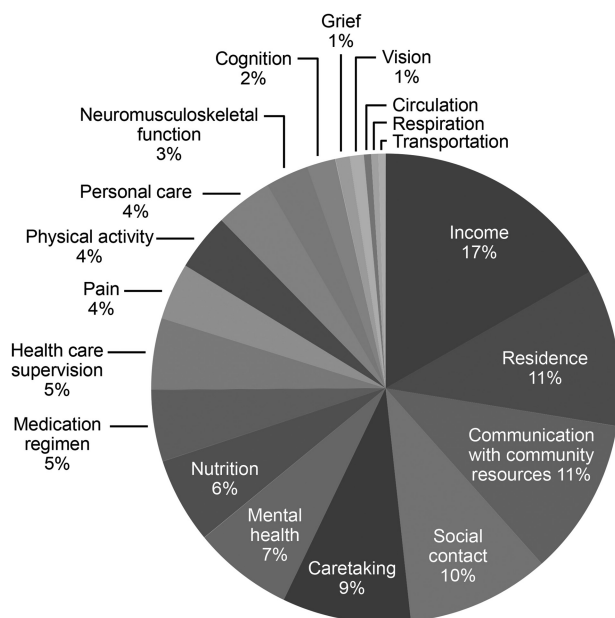


FIGURE 2
Percentages of priority problems for 350 patients.

TABLE 1
Change in Mean Scores of Knowledge, Behavior, and Status for Each Problem

Problem	Observation, <i>n</i>	Mean Score, Final Minus Initial ^a		
		Knowledge	Behavior	Status
Caretaking	25	0.25	0.31	0.65
Circulation	1	1.40	0.60	0.20
Communication with community resources	24	0.74	0.42	0.66
Income	37	0.33	0.24	0.52
Medication regimen	11	0.48	0.53	0.87
Mental health	18	0.55	0.42	0.79
Pain	9	0.53	0.15	0.64
Personal care	9	0.00	0.41	0.58
Physical activity	10	0.56	0.82	0.87
Residence	22	0.20	0.25	0.60
Social contact	20	0.43	0.53	0.68
Vision	1	2.00	2.67	1.00
Nutrition	11	0.44	0.74	0.58
Grief	2	0.38	0.72	1.15
Cognition	4	0.42	0.50	0.06
Neuromusculoskeletal function	8	0.77	0.72	0.71
Health care supervision	7	0.42	0.41	0.54

^aAll values are positive, indicating improvement.

nity resources, medication regimens, physical activity, nutrition, health care supervision, and vision. Similarly, patients demonstrated improved healthy behaviors related to physical activity, vision, nutrition, and dealing with grief. Finally, the patients' status was improved relative to medication regimen, mental health, physical activity, residence, social contact, and dealing with grief.

Additional Self-Reported Outcomes

Varying numbers (from 31 to 58) of the questionnaires were returned completed. The mean scores for the patient-focused outcomes were positive (indicating improvement), except for pain scores. Statistically significant changes were realized for general health, global health, global mental health, and well-being scores. Well-being and mental health showed the greatest improvements (see Table 2).

Community-Focused Intervention Outcomes

Most community connections made on the behalf of patients were successful. Barriers to equipment resource utilization included lack of or inadequate insurance coverage that often resulted in unaffordable

TABLE 2

Summary of Slope Analysis (Change Over Time) of Patient-Focused Measures

Measure	No. of Patients	Mean (SD)	p
PACIC overall	50	0.06 (0.73)	.95
Global physical	42	0.23 (5.16)	.84
Global mental	42	1.82 (5.84)	.04
General health	51	0.22 (0.87)	.04
General QOL	51	0.25 (0.81)	.01
Global pain rating	51	-0.07 (0.83)	.51
Resiliency	58	0.41 (6.31)	.53
Self-efficacy	54	0.18 (1.69)	.58
Well-being	31	4.55 (11.23)	.02

Note. PACIC = Patient Assessment of Chronic Illness Care; QOL = quality of life.

out-of-pocket costs to patients. Lack of insurance coverage was a barrier for some patients to obtain health-related resources. Not meeting qualifying criteria, such as having an income slightly greater than the medical assistance threshold, and not meeting waiver eligibility criteria were common barriers for patients to obtain financial resources needed to manage their medical needs. Lack of transportation was a barrier for some patients to access community resources such as food assistance. Unspecified patient refusal of services was a recurring and substantial barrier to the use of home or living environment items, housing supports, social resources, and training and education related to health improvement (see Table 3).

Economic Evaluation

The program's economic evaluation of 52 patients empaneled in primary care at one of the partnering medical centers included costs incurred in the 6 months preceding the initial CCT visit (*pre-CCT*) compared with the costs for 6 months following the CCT (*post-CCT*). Overall, total costs for these patients decreased by 23%. Nearly all utilization measures decreased from pre-CCT to post-CCT.

Hospitalization costs of CCT patients decreased by 38%. Twenty-one of 52 patients (40%) had at least one hospital admission in the 6 months before their initial CCT. Of the 52 patients, only 15 (29%)

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TABLE 3

Summary of Health and Community Services Connections

Category	Connections ^{a,b} (N = 142), n (%)
Care coordination or navigation activities	48 (9)
Equipment resources	55 (10)
Financial resources (medical)	42 (8)
Financial resources (nonmedical)	50 (9)
Food assistance (funding)	16 (3)
Food assistance (community resources)	41 (8)
Health-related services	51 (9)
Home or living environment items or improvements	37 (7)
Housing supports related to social determinants of health	34 (6)
Mental health	16 (3)
Social resources	46 (9)
Support group activities	22 (4)
Training or education for health improvement	34 (6)
Transportation	35 (7)
Other	11 (2)

^aOverall total connections equal 538.

^bThe average number of connections per participant is 3.78.

had a hospital admission post-CCT (for a 29% reduction). The total number of hospital stays post-CCT for all 52 patients increased by one admission, but the total number of inpatient days decreased by 27%. The total hospitalization cost for all patients decreased by 38%.

The total cost of ED visits of CCT patients decreased by 16% post-CCT. The total number of ED visits of CCT patients decreased by 14%. Although the per patient number of ED visits resulting in hospital admission increased, the total number of patients with an ED visit resulting in hospital admission decreased.

The average number of primary care and specialty visits post-CCT showed a decreasing trend compared with pre-CCT, although the changes were not statistically significant, likely because of the small sample size. The total number of evaluation and management visits in the clinic setting decreased by 14%. The decreases in average number and average cost of specialty evaluation and management visits per patient in the clinic were substantial. Although the average per patient costs associated with primary and specialty evaluation and management visits decreased, they remained statistically similar post-CCT.

DISCUSSION

A growing evidence base indicates that a collaborative interprofessional cross-sector CCT program can be an effective mechanism to holistically address a patient's

SDH needs while reducing the overall costs of care. This collaborative approach uses the strengths of all CCT members in the early and ongoing cooperative development of a care plan integral to CCT success. The highly skilled nurse care coordinator and the case manager have a pivotal role in making referrals and supporting communication and collaboration among CCT members. Instead of community service referrals as an afterthought to the provision of medically focused primary care, the cross-sector interprofessional team members contribute identifying and addressing the SDH of the patients that impact the patients' ability to self-manage chronic health conditions.

Our study had limitations that affect the generalizability of the lessons learned. The CCT was developed and implemented in one county in the Upper Midwest of the United States. The participation of racial/ethnic minority subgroups in the CCT mirrored the county population overall and was enhanced with the availability of interpreters (St. Sauver et al., 2012). The return rate for the questionnaires was low and was primarily related to loss of contact with the patient. The reason for patients' refusal of services was often unspecified. In addition, many patients simply lacked the energy or ability to comply with additional requests beyond the management of their chronic medical conditions. The economic analysis was limited by a small sample size plus the typically skewed distribution of utilization and costs. These characteristics limited our ability to conduct an adjusted analysis accounting for differences in patient characteristics.

Nevertheless, the results reported in this article provide promising support for early and meaningful integration and collaboration between primary health care and community services that can maximize their contributions in addressing patients' health and social needs, resulting in coordinated care that is less costly and less fragmented. Patients' health and well-being can improve with an interprofessional collaborative effort to holistically address SDH, which, in turn, enhance their ability to manage complex medical regimens. Although the CCT reported in this article was grant funded, our economic evaluation indicated that the health care system can save money through the utilization of an interprofessional CCT that decreases the use of costly services such as hospitals and EDs. Although the decrease in primary and specialty care visits was not statistically significant, this observation may signify the importance of maintaining regular, ongoing patient-provider relationships for individuals with complex long-term care needs. Finally, the community benefits from the appropriate input from and use of existing community services and the discovery of gaps in the available services. Although this CCT spanned more than 2 years, additional longitudinal research is needed.

Implications for Case Management Practice

The use of interprofessional collaborative teams in planning care and services is a standard of practice for case management. The holistic perspective of experienced nurse care coordinators and case managers is integral to the effective functioning of the collaborative teams. Cross-sector teams that span the health care system, public health, and community services promote collaborative care coordination and improve outcomes and the care experience for patients.

Primary health care services are neither equally distributed nor equally accessible to all patient populations, resulting in poor population-level outcomes. In addition, the primary care workforce is shrinking, which limits access to care (Bodenheimer & Pham, 2010). The challenges facing the U.S. health care system require development of innovative approaches such as the CCT to partner with community service providers to extend and enhance primary health care while lowering costs. Community care teams that include nurse care coordinators and case managers as key members of interprofessional teams are one such innovative approach. The benefits of CCTs have been recognized by such states as Vermont, North Carolina, and Montana (Patient-Centered Primary Care Collaborative, 2018). These early-adopter states report that CCTs provide an effective way to minimize barriers, coordinate care, and address a patient's health-related social needs (Bielaszka-DuVernay, 2011; Takach & Buxbaum, 2013).

Community care teams often fill a care coordination gap for some community-dwelling patients with challenging medical and social needs. The availability of public health nurses, community health workers, and other community providers in conjunction with care coordinators and case managers within the CCT offers the opportunity for sophisticated care coordination not otherwise available to medically complex, high-need individuals who require assistance in navigating both the medical and community systems that exist in health care today. The alignment and use of available health and community resources that address individuals' SDH are often key components needed to ensure that patients' self-management efforts stay on course.

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Diane E. Holland, PhD, RN, is a nurse scientist, Department of Nursing, and associate professor, Mayo Clinic College of Medicine and Science, Mayo Clinic, Rochester, MN. She is a fellow, Gerontological Society of America and American Academy of Nursing. Her research interests include transitioning adults from the hospital to primary care in the community.

Catherine E. Vanderboom, PhD, RN, is a nurse scientist, Department of Nursing, and assistant professor, Mayo Clinic College of Medicine and Science, Mayo Clinic, Rochester, MN. Her research interests include community-based interventions, especially care coordination, for older adults with multiple chronic health conditions.

Tanya M. Harder, MSN, PHN, RN, CCM, is a public health nurse manager, Olmsted County Public Health, Rochester, MN. Her interests include case management of low-income seniors in a community-based setting and interprofessional collaboration to ensure safe and effective transitions across care settings.

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