Evaluating the Effectiveness of *Care Choices,* a Home-based Palliative Care Program

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Abstract

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Background: There is a growing need for home-based palliative care services, especially for seriously ill individuals who want to avoid unnecessary hospitalizations and remain with their regular outside care providers.

Objective: To evaluate the effectiveness of *Care Choices*, a new in-home palliative care program provided by the Visiting Nurse Services of Northeastern New York and Ellis Medicine, a community healthcare system serving New York's Capital District.

Design: A prospective cohort study tracking patient outcomes over the course of one year.

Subjects and setting: One hundred twenty-three patients (49 men, 74 women) with serious illnesses who were new enrollees in *Care Choices*

Measurements: Patient satisfaction, symptom management, and hospital utilization were used to measure effectiveness. Phone interviews were conducted assessing satisfaction after one month of care and again around three months later. Quality of life was assessed at baseline and after 1 month on service. The number of emergency room visits and in-patient hospitalizations was recorded pre- and post-enrollment.

Results: Patients were highly satisfied with their initial care and reported greater satisfaction and stable symptom management over time. Fewer emergency room and inpatient hospital admissions occurred while enrolled in the program.

Conclusion: An in-home palliative care program offered jointly through a visiting nurse service and community hospital may be a successful model for providing quality care that satisfies chronically ill patients' desire to remain at home, avoid hospital admissions, and retain the option of outside care while on the program.

Introduction

Currently, the United States is experiencing a healthcare crisis as medical interventions prolong life, life expectancy increases, and costs grow relentlessly.[1] People are living longer but also experiencing chronic illnesses associated with aging that require specialized care that many acute care hospitals are ill-prepared to manage. It has been predicted that over 81 million Americans will suffer from multiple chronic illnesses by 2020. [2,3] This rapidly changing illness landscape along with changes driven by the Affordable Care Act has resulted in significant efforts to restructure the delivery of health care. This is especially true for elderly members of the community whose declining health prompts increased demand on resources for conditions that have no cure.

The Institute for Healthcare Improvement (IHI) has proposed a framework for maximizing a health care system's effectiveness that includes three key components: improving quality of care and patient satisfaction, improving health outcomes, and reducing costs. [4] One key way of achieving this "triple aim" is to introduce palliative care early in the evolution of chronic illness. Palliative care is increasingly recognized as a vital component of care for seriously ill patients and their families. Several studies have shown that early in-home palliative care services can improve a number of patient outcomes including increasing satisfaction and quality of life, [5, 6] improving survival[7], and reducing the use of hospitalization services and healthcare costs. [8, 9]

It has been persuasively argued that palliative care needs to be introduced earlier on and not be solely administered in hospital settings. [7] Patients treated in a home setting have been shown to have better physical and psychological health and better quality of life compared to those treated in a hospital.[10] By delivering palliative care in the home, it is possible to improve quality of life earlier on and likely circumvent the need for unnecessary hospitalizations. Additionally, in-home palliative care initiatives have been taking form due to patient preference, convenience, and increasing need of care for chronically ill populations who cannot go to a healthcare facility. Commonly patients suffering with chronic illness have decreased mobility due to symptoms leading to difficulties in transport.[11] Using in-home care alleviates the physical, financial and emotional burden associated with transportation. Patient's comfort and independence are also better respected in the care of their own home, leading to a higher satisfaction of care.[8, 11] To keep patients in this setting, it is important that complex symptoms that can lead to hospitalization are managed. Symptoms such as dyspnea, pain, nausea and anxiety have been shown to prompt hospitalizations and disrupt the preferred care setting.[12]

Dyspnea, the feeling of uncomfortable awareness of breathing, [13] is a prevalent symptom in seriously, chronically ill patients suffering from diagnoses like cancer, cardiovascular disease, and secondary conditions such as chronic obstructive pulmonary disease and asthma.[13-15] There are several options available for alleviating dyspnea that can be offered to patients in the home. In many cases, the most effective way of treating dyspnea is by treating the underlying problem. For example, hypoxemia, a contributing factor in most cases of dyspnea can be treated using oxygen therapy.[13] When dyspnea is the result of inflammation, corticosteroids can be prescribed to reduce swelling in patient's airways.[14] Opioids are an additional drug intervention for treating dyspnea.[13, 16] There are also nonpharmacologic approaches to treating dyspnea in the home. For example, patients can be encouraged to try *activity pacing* to reduce symptoms throughout the day and to try relaxation techniques to lessen the pace of breathing. If breathlessness can be improved at home, this can keep patients out of the hospital and in their most comfortable setting.

Some treatments of dyspnea can be used to treat other symptoms common in seriously ill populations. For example, opioids can be used to treat pain – the top symptom reported in hospital and outpatient palliative care programs. Pain can take a variety of forms: pain that is episodic, where pain can occasionally breakthrough opioid use, pain that responds poorly to opioid use, or pain that is caused by non-physical factors, such as psychosocial stress.[17] These characterizations and causes makes pain a difficult symptom to control in the home.[18]Pain, like dyspnea, can be managed with both pharmacologic and nonpharmacologic treatments.[18-20]

Nonpharmacologic approaches toward treatment focus on manipulating psychosocial factors that can contribute to pain.[20] Cognitive control techniques, in which patients regulate psychological aspects of their symptoms, work by emphasizing deep breathing exercises and making positive statements. Distraction techniques, where patients direct their attention away from painful stimuli, can also be used. Both cognitive control and distraction techniques have been shown to be effective in pain management.[20] After treatment options like these are taught, patients can use them in their homes or at anytime they are experiencing pain.

Pharmacologic treatments for pain are used depending on the characterization of the pain; some approaches treat the symptom while others treat the underlying cause. Patients that have pain resulting from nerve damage typically are prescribed gabapentin.[18] Gabapentin reduces the release of the neurotransmitter glutamate, which is involved in the excitement of nerves. Corticosteroids, such as dexamethasone, can be used to reduce inflammatory responses and the pain associated with the response. Most frequently, patients are prescribed opioids such as morphine, the recommended opioid to control pain, but other opioids like fentanyl dermal patches, methadone and oxycodone are sometimes also used.[18, 19] Though opioids can be beneficial for in-home treatment of pain, side effects such as nausea and vomiting also need to be managed. It has been shown that about 40% of patients using opioid treatments experience opioid-induced nausea and vomiting.[21] In addition, patients who are opioid users have a tendency to have gastroesophageal reflux disease and other gastrointestinal issues.[22] Nausea is a common problem affecting all chronically ill populations, whether it is the result of primary disease diagnosis, side effects of therapies and medications, or unrelated comorbidities.[23, 21] To treat all varieties of nausea there are a vast array of options ranging from pharmacologic to alternative medicine treatments.

The most frequently prescribed pharmaceutical for acid reflux disease, a main cause of nausea, is prokenitics.[21] Prokinetics reduce nausea by strengthening the lower esophageal sphincter so that stomach acid cannot climb up the esophagus. When seriously ill patients develop intractable vomiting and nausea, commonly caused by chemotherapy, dopamine receptor antagonists, antihistaminic agents and selective 5HT receptor antagonists can be used.[21] Nonpharmacologic approaches can be combined with medications and are encouraged for all patients who suffer from nausea and vomiting. Patients can be encouraged to stay away from stimuli that cause their nausea and to try herbal remedies such as ginger or pepermint.[21] Recent studies also suggest that alternative medicine approaches such as acupuncture and massage therapy could be helpful in alleviating nausea in a palliative setting.[21] These treatments are all suitable for in-home care, and therefore offer hope that symptoms associated with serious illness can be managed at home by an in-home care support program.

When suffering with symptoms like nausea, seriously ill patients also have a higher likelihood of experiencing anxiety.[24] Nausea and anxiety are so interconnected that, in order to treat certain cases of nausea, benzodiazepines, such as lorazepam, are often prescribed.[21] Anxiety is unique in that its treatment can include the use of social workers in addition to traditional antianxiety medications. Social workers have been shown to significantly reduce patient anxiety by helping patients solve problems associated with serious illness, and by helping them to find financial resources.[25] Using in-home social work has been shown to increase rates of remission and lower severity of anxiety.[25] If improvement of anxiety can be achieved in the home, patients should experience a higher rate of satisfaction and an increase in wellbeing, factors that may also keep patients out of the hospital.[26]

Palliative care programs are on the rise and if symptoms like dyspnea, pain, nausea and anxiety can be well controlled in the home, this can improve patient's quality of life while reducing resource use[8]. According to the Center to Advance Palliative Care, as of 2010 66%, of U.S. hospitals with more than 50 beds had a palliative care team and 88% of hospitals with more than 300 beds provide palliative care teams.[10] This growing capacity is a sign of positive change. In order to expand palliative care to the home, hospitals could partner with visiting nurse services to keep patients where they desire to be-in the home.

Visiting Nurse Associations of America (VNAA) are evolving to expand their services to include palliative and end of life care to allow the visiting nurses to respond to healthcare needs across the full continuum of care and to control symptoms like dyspnea, pain, nausea and anxiety.[27] Visiting nurse organizations are well-positioned to meet the growing needs for home-based care for chronic disease management and palliative care in seriously ill members of the community who may be ineligible for, or unwilling to consider, hospice services. In New York's Capital District, the Visiting Nurse Services of Northeastern New York partnered with Ellis Medicine, a community health system, to launch a new in-home palliative care program called *Care Choices*. The program offers interdisciplinary in-home care by a team (medical director, nurse, social worker, chaplain, and home health aides) exclusively dedicated to palliative home care to meet the patient's physical, emotional and spiritual needs.

Care Choices was initiated through the use of reserve funds of the Visiting Nurse Service of Northeastern New York, an affiliate of Ellis Medicine. Currently, *Care Choices* operations are paid for by existing reimbursement mechanisms for Certified Home Health Agency (CHHA) home health care service, supplemented by grants and fund-raising. Approximately 75% of the total expense budget is covered by CHHA reimbursement with the remaining being covered by grants and private fundraisers. Approximately 50% of Care Choices patients are covered by commercial insurance companies, including Medicare and Medicaid managed care products. These companies are developing contracts with Care Choices to establish a palliative home care per diem reimbursement that supplements the CHHA rates in recognition of the additive services that the Care Choices program provides.

In addition to skilled nursing, home visits offer education about pain and symptom management, psychosocial and spiritual support, anticipatory guidance for problem solving at home to avoid unnecessary hospitalizations, management of medications, communication among caregivers and providers, and facilitation of conversations related to serious illness, goals of care, and advance directive planning. Enrollees are not required to give up their outside care providers and remain under the care of their primary care physicians. For patients who become medically appropriate for hospice, they are counseled regarding transfer to a certified Hospice program. This report presents an assessment of the *Care Choices* program in meeting its intended goals of symptom management, quality of life, satisfaction with care, and a proxy for cost savings.

Methods

Participants

A review of patient records was completed on all patients in the *Care Choices* palliative care program who were first time enrollees between March 1st 2014, and March 7th 2015. All patients were referred internally from the existing Certified Home Health Agency (CHHA) caseload, from the Ellis Medicine health system, or from physicians in private practice. The admission criteria were serious illness diagnosis (any disease, any age), evidence of symptomology (recent ER visit or hospitalization), desire to stay at home, and eligibility for CHHA admission. The patient's attending physician and the Care Choices admission nurse verified patient appropriateness. The sample included 123 (49 men; 74 women) patients of the 235 original enrollees. All patient were from New York's Capital district with the majority (N= 109) from Schenectady County and the rest from Saratoga County (N=11) and Albany County (N= 3). The average age of the participants was 79.37 (range 48 to 102).

Measures

Patient demographic and admission data including patient's identification code, date of birth, sex, zip code, admission date, discharge date, and reason for discharge were obtained via *Allscripts* (Chicago, IL), the electronic medical record used by the visiting nurse service. Quality of life was measured using a modified Edmonton Symptom Assessment Survey ESAS.[28, 29] The survey included questions that asked patients to rate their symptoms on a scale from 0 to 10, with 0 representing the best and 10 representing the worst possible. Symptoms included in the survey included pain, nausea, fatigue, depression, anxiety, appetite, dyspnea and overall well-being. Satisfaction with *Care Choices* was measured using a modified Reid Gundlach 10-question satisfaction survey.[30] Sample items included "Overall I think the services provided by the *Care Choices* program are…" and "the staff treats me like I am an individual with unique needs and concerns" and "The information I have received in the program has generally been…" Possible responses ranged from "poor" to "excellent" or from "easy to understand" to "difficult to understand." Hospitalization data was obtained through Ellis Medicine using patient identification codes to determine the number of admissions to the emergency room pre-and post-enrollment in Care Choices and number of inpatient admissions pre- and post-enrollment in *Care Choices.* The window of time for patient hospitalizations was based on each enrollee's time on the *Care Choices* program. For example, if a patient had been enrolled in the program for 2 months, then hospitalization records over a two-month time period prior to enrollment was used for comparison. All data was analyzed using the IBM Statistics Package of the Social Sciences (SPSS) version 19.

Procedure

In order assess to quality of life the ESAS was administered telephonically at two different time points, baseline (ESAST1) and approximately one month later (ESAST2).[8] Callers determined whether they could interview patients directly or whether a another person (i.e. caregiver) would be providing information on the patient's behalf. Questions were presented in a consistent, neutral tone to minimize bias.

Reid-Gundlach Satisfaction surveys were conducted telephonically approximately 1 month after enrollment (RGT1) and again three months later (RGT2).[8] Surveys were introduced in the same manner as the ESAS including whether the patient or caregiver would be completing the survey.

Results

Initial analyses were aimed at identifying the demographics of *Care Choices* enrollees from 3/1/2014 through 3/7/2015. During this time period, 235 were enrolled, of which123 responded to calls yielding a 52% response rate. The primary diagnoses of these respondents were: circulatory system (27.6%, N=34), cancer and neoplasms (23.6%, N=29), respiratory system (17.1%, N=21), nervous system and sense organs (6.5%, N=8), endocrine nutritional metabolic and blood forming organs (5.7%, N=7), surgical (4.9%, N=6), skin subcutaneous, musculoskeletal system and connective tissues (4.1%, N=5), genitourinary system (3.3%, N=4), digestive system (2.4%, N=3), other ill-defined conditions (2.4%, N=3), injuries and poisonings (0.8%, N=1), Mental disorders (0.8%, N=1), and infectious and parasitic disease (0.8%, N=1). Patients' median time on service was 113 days (range 8 to 508 days). For those patients who had been discharged during the 1 year window (N=92), the reasons for discharge included goals met (20.3%, N=25), hospice placement (19.5%, N= 24), death (14.6%, N=18), certification lapse due to hospitalization (13%, N=16), nursing home placement (3.3%, N=4), no longer met criteria (2.4%. N=3), switched services (0.8%, N=1) and moved out of area (0.8%, N=1). The remaining patients were active *Care Choices* patients as of March 7, 2015 (25.2%, N=31). A 52% response rate was found for both the Reid and Edmonton surveys.

Patient satisfaction with *Care Choices*

In order to assess patient satisfaction with *Care Choices* services, frequency analyses were performed on the responses to the RGT1 and RGT2. Analyses revealed that surveys were completed by patients 64.3% of the time and by the caregiver 35.7% of the time for RGT1, and by patients 59.3% of the time and caregivers 40.7% of the time at RGT2. The average number of days between start of care and the first call was 68 (range 11 to 177 days). The average number of days between RGT1 and RGT2 was 103 (range 90 to 137).

Table 1 presents frequency data reflecting patients' overall satisfaction with the program at both assessment periods. The frequency of patients rating their satisfaction as a four or five (*very to extremely*; *usually to almost always*) on a five-point scale was calculated. Results revealed that at least 80% of respondents surveyed at RGT1 reported satisfaction on all questions except for the question "I have asked people in the program for information and have received it…" where 72.7% respondents reported satisfaction (Table 3). At RGT2, 95% or more of respondents reported satisfaction on all survey questions except for the question “The information I have received in the program has been (helpful)” where 75% of respondents reported high satisfaction.

A paired samples T-test was conducted to compare changes in satisfaction from RGT1 to RGT2. Results revealed that there was a significant increase in satisfaction between RGT1 and RGT2 for all Reid-Gundlach survey questions except, “Overall I think the services provided by the Care Choices program are…” and “The information I have received in the program has generally been (easy to understand)…”(Table 2).

In order to test for a difference in responses provided by patients in comparison to caregivers, an independent groups t-tests was conducted. For the question “The staff treats me like I am an individual with unique needs and concerns“ at RGT1, caregivers had greater satisfaction (M=4.79, SD=0.41) than patients (M=4.50, SD=0.642); $t(79)=-2.22$, $p<0.05$. Additionally for the question “The information I have received in the program has generally been (understandable)“means indicated that caregivers were more satisfied (M=1.29, SD=0.71) than patients (M=1.76, SD=0.96); $t(76)=2.28$, $p<0.05$. There were no significant differences found between patient and caregiver responses for RGT2.

<u>Quality of life</u>

Frequency analyses revealed that the ESAST1 was completed by patients 65.2% of the time and by caregivers 34.8% of the time, and at ESAST2, 72.7 % of responses were from patients and 27.3% from caregivers. Given the variability and time lag that occurred before patients or caregivers could be reached by phone, only patients responding within 16 days of enrollment were considered for baseline comparison. A paired samples t-test was conducted to compare changes in quality of life from

ESAST1 to ESAST2. Results revealed that there were no significant changes reported for any symptom (Table 3).

There was no significant difference found between patient and caregiver responses for ESAST1. In ESAST2, significantly higher scores for patient tiredness were reported by caregivers (M=6.87, SD=2.07) than for patients (M=4.32, SD=3.42); $t(50)=-2.68$, $p=0.01$. Additionally, significantly higher scores for patient anxiety were reported by caregivers (M=3.71, SD=2.40) than for patients (M=1.97, SD=3.21); $t(50)=-2.06$, $p<0.05$.

Hospitalization records

In order to test for changes in hospitalizations, paired samples t-test were conducted comparing the average number of ER and in-patient admissions pre- and post- enrollment to *Care Choices*. There was a significant decline in the average number of emergency room visits after enrollment in *Care Choices* (M=1.00, SD=1.08) compared to the average number of visits before enrollment (M=1.79, SD=1.46) $t(81)=4.46$, $p<.0.001$. The number of inpatient admissions to the hospital was also significantly lower after admission (M= 0.38, SD=0.70) compared to hospitalizations occurring prior to enrollment in the program (M= 1.21, SD= 1.02) $t(81)=6.54$, $p<0.001$ (Table 4).

Discussion

These results suggest that the *Care Choices* program is achieving a number of desired outcomes. For example, most patients reported that they were highly satisfied with the program and average satisfaction scores increased over time for those who continued in the program. While the data indicates high levels of satisfaction with *Care*

Choices, slightly lower mean satisfaction scores were reported on indices related to information (i.e. whether it was received when requested, whether it was understandable, and whether it was easy to understand), a topic that can be addressed in staff training. Patient reports on quality of life did not change over time while on the program, indicating effective symptom management for the duration of the evaluation window. While reductions in symptoms reported did not decline over time, ratings for all symptoms tended to be below 4 and consistent with early reports on the program. This suggests that patients' symptoms were being managed early on and were kept from escalating despite serious illness diagnoses usually characterized by trajectories of decline.

Average scores for dyspnea, pain, nausea and anxiety were less than 5 at baseline and less than 4 at the follow up assessment, a sign that patients' symptoms that often drive hospitalizations were being managed. New quality measure guidelines outlined from the American Academy of Hospice and Palliative Medicine and Hospice and Palliative Nurses Association suggest that pain treatment, dyspnea screening and management, and discussion of emotional or psychological needs are part of the top ten quality indicators.[31] Therefore, *Care Choices* appears to be showing early signs of success in this regard.

One of the most encouraging findings observed was a significant decline in both in-patient admissions and ER visits after enrollment in the *Care Choices* program. While hospitalization data was only available for patients admitted to the regional community hospital, the majority of patients in this study (88.6%) were from Schenectady County, the primary catchment area for this hospital. These patients made significantly fewer visits to the emergency room and were hospitalized significantly less often after enrollment in the program compared to the same time period prior to enrollment. The results provide evidence that that the *Care Choices* program is achieving it's goal of stabilizing patients, fulfilling their desire to remain at home, and preventing excess hospital resource use. The significant decrease in emergency room visits and inpatient stays, while a quality of life and satisfaction issue for patients, is also a proxy for cost savings. A comparison of cost per day indicates the cost savings. For the first year of 2014, the Care Choices direct cost per day was $52.76 while the average inpatient stay for Ellis Hospital was $1,042.63

Limitations

There are a number of limitations that impact the conclusions that can be drawn in this report. Our results are observational in nature. No attempt was made to randomize patients to one form of care compared to another. Data collection was not blinded but no quality of life or experience of care questions were asked by those providing the care. We did this intentionally to reduce observer bias.

Although attempts were made to obtain data at pre-determined time points (i.e. baseline, 1-month post admission), patients were not always available or able to answer questions. This led to variations in times considered "baseline" and "1-month follow up." In some cases baseline symptoms were not recorded until weeks on service after care visits had already occurred. This may explain why declines in symptom reporting were not observed over time, as "baseline" was at a time during initial efforts to stabilize symptoms. Furthermore, patients were not always willing or able to complete both satisfaction and symptom surveys, and only patients with both T1 and T2 data could be included in analyses tracking change. Finally, during the yearlong tracking of patients, 15% died and 20% were discharged to hospice. Therefore, assessments on quality of life and satisfaction with the program could only be reported in a small group of enrollees.

Tracking the progress of patients in an in-home palliative care setting is challenging. This is particularly true early in a pilot program when funding depends upon the outcomes under measurement. Additional challenges exist when collecting longitudinal data on palliative care patients, as it may not be feasible or ethical to establish appropriate controls. Subjects are also seriously ill and frequently die or are too tired or ill to respond to survey questions. [32] While the overall response rate (52%) was in line with other studies[33], we had to rely on assessments of caregivers about one-third of the time, as patients were not always able to respond to the telephone survey on their own. Despite slight differences in satisfaction scores reported by caregivers and patients, scores on both indices averaged above 4 (usually or almost always) on a 5-point scale for both caregiver and patient populations, indicating high levels of satisfaction with the program for both. In RGT2 satisfaction scores there were no differences found, suggesting that as time progressed on the program, patients and caregivers were similarly satisfied.

Studies comparing patient/caregiver dyads have shown that patients and caregivers share similar perceptions, that the magnitude of difference is small to moderate, and that differences are more marked for psychological than for physical symptoms.[34-36] We were unable to examine whether there was concordance between patient and caregiver responses because caregivers answered questions only when the patient was unable to do so. In a recent report outlining the top 10 measures that matter most in palliative care populations, it is recommended that input be obtained from both patients and caregivers when measuring quality in any care,[12] an approach that we will consider in future assessments of our program.

With the exception of tiredness and anxiety, analyses completed comparing patient responses against caregiver responses showed that in most cases there was not a significant difference. For tiredness and anxiety, caregivers rated symptoms higher than patients. This difference was also reported in a recent study finding that patients and caregivers differed in ratings of symptoms such as feeling drowsy, sad, worried and nervous[36]. This difference has been attributed to potential difficulties in rating symptoms that tend to be more subjective, thereby making it harder for caregivers to gauge symptoms by using physical indicators.[37] It has also been suggested that higher scores could be the result of caregivers who feel burdened, leading to a tendency to think that their loved one's condition is worse then it really is.[36] The results suggest that the *Care Choices* program is contributing to satisfaction among caregivers, something that could helping decrease caregiver depression and burden.[35] Studies show there is an inverse association between caregiver depression and burden, and the caregiver's sense of effective communication and care provided by health care professionals.[35]

Although patients' symptoms seemed to be managed well while on the *Care Choices* program, we were unable to determine whether it was this management of symptoms that led to fewer hospitalizations while enrolled in the *Care Choices* program. When hospitalization data was collected, the specific dates of hospitalization were not included. This limited our ability to determine whether more severe symptom reports could have lead to the hospitalizations that occurred during a patient's time on the program. In future studies, it would be interesting to see which symptoms, if any, may have prompted hospitalization.

Conclusion

This study offers some interesting results suggesting that *Care Choices* is meeting its projected goals. The results indicate that patients were satisfied with the care they were provided, their symptoms were stabilized, and they were less likely to be hospitalized. Care Choices represents a unique partnership between a community hospital and a visiting nurse service that serves a very diverse patient population from inner-city, suburban, and rural regions of the Capital District of New York. The program is also unique in that it was designed to provide all-inclusive services to patients who want to continue their regular care while on the program, thereby avoiding one of the main concerns reported by those considering programs such as the Program of All-Inclusive Care for the Elderly (PACE).[40] As population health becomes the focus of healthcare organizations nationwide, grassroots palliative care initiatives are resulting in a myriad of models to meet the unique needs of the community at large. Recently, Gomes et al., reviewed palliative care models coordinated through a wide variety of organizations including hospitals, hospices, managed care organizations, cancer centers, palliative medicine units, visiting nurse associations, veterans affairs, and outpatient clinics noting partnerships launching early phase trials, new interventions, pilot studies, as well as demonstration projects. Some palliative care programs have targeted specific patient populations (multiple sclerosis, cancer, AIDS, only non-cancer diagnoses such as COPD) while others, like ours, have included mixed patient populations.[41]

As palliative care programs grow, it is clear that a “one size fits all” model will not suffice and outcomes and indicators of success may vary across programs as care moves out of institutional settings and in to patients’ homes both by need and by desire[40]. Reductions in hospitalizations have been reported in some “Hospital at Home” programs where acute level care was provided in patients’ homes[42] but not all have resulted in reduced hospitalizations. [43] While reduced hospitalizations should not be the driving force behind in-home palliative care programs, it is an important outcome not only for cost-savings but also for the prevention of hospital-associated infections and avoidance of environments that can disrupt sleep, mobility, and daily routines associated with well-being. Care Choices enrollees not only reported increased satisfaction and stable symptom management over time; they exhibited a significant reduction in both ER visits and in-patient hospitalizations.

Like *Care Choices,* programs that show the most success in keeping patients out of the hospital are those that have relied on a comprehensive team of providers offering a wide range of services including; support services for at home oxygen use, skilled therapies and pharmacy arrangements[42]. One in-care home program replaced acute care hospital visits entirely.[42] In order to do so, patients were chosen based on diagnosis so that all treatments were guaranteed to be delivered in home. *Care Choices* does not have these same restrictions leading some treatments to be administered outside the home, but this approach allows a broader population of patients to access the program. In studies that did not show a reduction of hospitalization, there was concern that patients were not enrolled early enough for a true intervention in care management to occur.[43] Most patients in the study by Grande et al. did not make the transition into in-home care until a few months to a few weeks before death. The *Care Choices* program's success may have been due, in part, to its connection to CHAH and referral from the VNS so that palliative care treatment could begin early.

In the future it has been suggested that there is a need for studies to show medication reconciliation and management of pharmaceuticals for patients at home.[38] In chronically ill populations with multiple physicians, medication errors like medication duplication between physicians and inconsistencies with patients using medications that physicians told them to omit are particularly common.[38] Physicians have also been shown to prescribe a more expensive drug due to lack of knowledge of less expensive options.[39] These extra pharmaceutical costs can have a significant effect on the amount that a patient's healthcare can cost. Management of these costs could help decrease expenses of in home care and help secure more health insurance coverage for patients.

Currently, this study provides evidence of a successful collaboration between a community hospital and visiting nurse service that was able to offer the full spectrum of palliative care services in patients' home thereby satisfying their desire to remain at home, manage their symptoms, remain with their regular outside care providers, and reduce unnecessary hospitalizations. In development are shared savings and bundled payment mechanisms for palliative home care as part of Accountable Care Organizations (ACO's) and the New York State Delivery System Reform Incentive Payment (DSRIP) program being designed for Medicaid patients in New York State. Hopefully, the many Center for Medicare and Medicaid Services

(CMS) Innovation projects currently underway, as well as the Hospice concurrent care project, will result in Medicare establishing payment models for palliative home care within the standard Medicare program, similar to the Hospice Part A Medicare Benefit.

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Table 1. Satisfaction scores of 4 or 5 on the Reid-Gundlach Satisfaction Survey

Question	Time 1 Percent Satisfied % (N)	Time 2 Percent Satisfied % (N)
	Usually or Almost Always	
1. The people that I have been involved with answer my questions	90.1 (73)	96 (24)
2. The people I have come in contact with have been very helpful in explaining the services I need	90.3 (74)	100 (25)
3. The staff treats me like I am an individual with unique needs and concerns	97.5 (79)	100 (25)
4. The staff is available to help me when I have questions	88.5 (69)	100 (25)
5. The staff understands the service needs of patients with serious illness	88.5 (69)	100 (25)
6. I have asked people in the program for information and have received it	72.7 (56)	100(24)
7. Would you tell your friends that they should use these services if they had needs like yours	91.3 (73)	100(26)
	Very Good or Excellent	
8. Overall I think the services provided by the Care Choices program are	85.4 (70)	96.3 (26)
	Very Helpful or Extremely Helpful	
9. The information I have received as been	83.8 (67)	100 (25)
	Somewhat Easy to Understand or Easy to Understand	
10. The information I have received in the program has generally been	85.9 (67)	75.0(18)

Table 2. Average ratings of satisfaction from Reid-Gundlach Satisfaction Survey at time 1 and time 2 (0=unsatisfied; 5=satisfied)

Question	Time 1 M (SD)	Time 2 M (SD)	t	df	p
1. The people that I have been involved with answer my questions.	4.48(0.59)	4.84(0.47)	-2.22	24	0.036*
2. The people I have come in contact with have been very helpful in explaining the services I need.	4.17(0.92)	4.96(0.20)	-4.39	23	0.000***
3. The staff treats me like I am an individual with unique needs and concerns.	4.52(0.59)	4.87(0.34)	-2.34	22	0.029*
4. The staff is available to help me when I have questions.	4.54(0.66)	4.96(0.20)	-2.85	23	0.009**
5. The staff understands the service needs of patients with serious illness.	4.54(0.66)	4.96(0.20)	-2.85	23	0.009**
6. I have asked people in the program for information and have received it.	3.61(1.56)	4.87(0.34)	-3.994	22	0.001**
7. Would you tell your friends that they should use these services if they had needs like yours?	4.54(0.58)	4.92(0.27)	-3.43	25	0.002**
8. Overall I think the services provided by the Care Choices program are…	4.33(0.78)	4.63(0.57)	-1.55	26	0.133
9. The information I have received as been (helpful).	4.00(0.91)	4.48(0.51)	-2.21	22	0.038*
10. The information I have received in the program has generally been (easy to understand). (1=easy, 5= difficult)	1.59(0.85)	1.68(1.36)	-0.271	21	0.79

* p<.05
** p<.01
*** p<.001

Table 3. Average ratings of symptoms from Edmonton Symptom Assessment Survey at ESAST1 and ESAST2 (0=best; 10=worst)

Symptom	Baseline M (SD)	Follow-up M (SD)	t	df	p
Pain	3.30(3.05)	2.30(3.11)	1.43	19	0.169
Nausea	0.91(2.13)	0.70(1.64)	0.43	22	0.670
Tiredness	4.52(2.46)	4.43(3.19)	0.18	20	0.860
Depression	1.74(2.70)	1.39(1.99)	0.82	22	0.421
Anxiety	2.55(2.72)	2.00(2.64)	1.015	21	0.322
Drowsiness	3.24(2.57)	3.38(3.19)	-0.22	20	0.825
Appetite	4.35(2.81)	4.26(3.11)	0.10	22	0.926
Wellbeing	4.04(2.65)	4.00(2.52)	0.08	22	0.940
Shortness of Breath	4.09(3.23)	3.26(3.45)	1.37	22	0.184

* $p<.05$
** $p<.01$
*** $p<.001$

Table 4. Average number and type of hospital admissions pre- and post-enrollment to *Care Choices*

Hospitalization	Pre M (SD)	Post M (SD)	t	df	p
Emergency Room	1.79(1.46)	1.00(1.08)	4.46	80	0.000***
Inpatient	1.21(1.02)	0.38(0.70)	6.54	80	0.000***

*   p<.05
** p<.01
***p<.001

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