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Implementation of a Palliative Care Program in Rural Minnesota

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Abstract

Background: Rural areas have higher percentages of older adults with multiple chronic illnesses yet disparities exist with access to palliative care (PC) in rural areas. Palliative care can improve quality measures that positively impact care and health outcomes.

Objective: The evidence-based project's (EBP) objective was to implement a community-based PC program in a rural primary care clinic in rural Minnesota, US and evaluate quality metrics to further support program sustainability.

Design: The project developed and implemented a community-based PC program in rural Minnesota. A tool kit was created for use for the site's care providers and leaders.

Setting/Subjects: The project included older adults in three long-term care (LTC) and three assisted living facilities in a rural community in Minnesota in the United States and included 15 participants.

Methods: Quality of life (QOL), symptom assessment, and hospital utilization were measured to evaluate effectiveness and efficacy of a new rural community-based PC program. Data collection was completed on QOL using The McGill Quality of Life-Revised (MQOL-R) survey was used to collect data on QOL. Chart review was used to obtain clinical assessment of symptoms. A retrospective analysis was used to analyze hospital utilization.

Results: Participants had higher psychological well-being but perceived their life as having less meaning. Analyzing the influence of number of participant illnesses on the MQOL-R physical subscale demonstrated marginal significance ($p = 0.073$) with a higher number of illnesses decreasing QOL.

Conclusion: PC programs in rural communities can play an important role in support older adults in their experience with chronic diseases and decrease hospital utilization. Quality measurements related to symptom assessment are feasible to collect in rural PC programs. Hospital utilization rates may positively impact with PC.

Key words: Palliative care, quality of life, symptom assessment, symptom management, hospital utilization, rural healthcare.

Introduction

Palliative care (PC) is an approach to prevent, manage, or eliminate symptoms of chronic illnesses. Relief of suffering and improved quality of life for patients are the focus with this model of care. PC delivers safe, efficient, comprehensive care specific to a disease and can prolong life (National Quality Forum, 2012).[1] Depending on individual needs, the goal is to decrease symptoms, improve quality of life (QOL), and decrease healthcare utilization.

Palliative care access is limited in rural Minnesota, yet there is a greater need due to a disproportionate amount of disease, disability, low-income, and elderly.[2,3] Demographic data identifies 20% of the rural Minnesota population is older than 65 years with leading causes of death including heart disease, chronic lower respiratory disease, stroke, and cancer.[4] Older adults with advanced illness have multimorbidities, more advanced illness, and more visits to primary care.[5] Based on this data, PC can positively impact the rural population's health and well-being.

How to Measure PC's Effectiveness and Efficacy

The evidence in the literature supports PC's positive impact of PC on QOL, symptom management, and decrease in hospital utilization is supported in the literature. Assessment of QOL can determine correlation between improved QOL and PC interventions. QOL data is a measure that is reasonable to collect in rural PC programs to improve care.[6] QOL was positively associated with PC interventions for chronic and life-limiting conditions.[2, 7-12] Early integration of specialist PC provider demonstrated a small effect on QOL for patients with cancer and other chronic conditions.[8] Promoting early PC interventions for patients with chronic conditions is vital as even small effects can be beneficial.[8] Communication during PC interventions empowers patients, further improving QOL.[9, 13] Incorporating holistic PC with heart failure-specific QOL indicators and spiritual well-being can improve overall QOL.[10, 12,14] Integrating advanced care

planning (ACP) with PC was shown to improve QOL at end of life.[15] Synthesis of literature

supports PC interventions positively impact QOL. Further implications suggest improvement in

symptom management, can improve QOL.

Management of symptoms is a quality measure identified by the National Quality Forum

(NQF)[1] to collect and trend. Chronic obstructive pulmonary disease (COPD) and heart failure are

the most common advanced illnesses resulting in more healthcare visits.[5] Positive correlations

were noted for PC interventions and improvement in symptom management in those with these

symptoms.[7, 11, 12, 17-19] Improved symptom management, including depression, occurs with

integration of PC for persons with heart failure ($p = 0.009$).[14,16] Early initiation of PC on

diagnosis of a chronic illness is vital to management of symptoms.[8, 16]

Patients with life-limiting conditions experience different disease trajectories causing

difficulty with symptom management and may increase hospital utilization. Evidence supports a

positive correlation on decreased hospital utilization with PC interventions.[11, 16, 20-24] Decreased

hospital utilization was demonstrated with frequent symptom assessment and when preference of

site of death was assessed on admission to PC. [20] The number of primary care visits increase with

presence of advanced illness and symptoms.[5] In one rural hospital PC program, a 25% reduction

in charges was noted.[22] Integration of PC validated decreases in percentages of hospitalizations,

length of stay days, and intensive care unit days.[21, 22] Advanced illness creates higher symptom

distress leading to decreased QOL and higher hospital utilization. Evidence supports

improvement of QOL and decreased symptoms with PC.

Methods

This evidence-based project (EBP) was conducted in a primary care clinic which is part

of a small system in rural Minnesota, US. The organization also includes a 125-bed hospital,

primary care clinic, and orthopedic clinic. Project team members include the chief medical

officer (CMO), three providers, one nurse practitioner, two nurse managers, and a doctoral

nursing practice student as the project lead. Eligibility for patient participation in the EBP

included: 1) the presence of any illness, regardless of placement on the disease trajectory; 2)

chronic, life limiting, or curable diseases; 3) provider prognosis of death possible within one to

two years; and 4) frail elderly dependent on others for daily cares, nutrition, and mobility.

Participants who met PC criteria were identified by providers of residents in three LTC

and three assisted living facilities. Exclusion criteria included symptoms or conditions that

impair decision making. Thirty-eight residents met criteria for PC eligibility during the initial

phase of the EBP. At the time of selection, six residents were deceased, two were receiving

hospice care, and four had dementia. Twenty-six residents met eligibility criteria for the PC

project. Due to the onset of the SARS-CoV-2 (Covid-19) pandemic, interviews could not be

scheduled for 11 eligible individuals resulting in a final sample size of 15. Participants ranged

from 65 to 104 years of age. Participants included twelve females and three males with the

number of participant illnesses ranging from one to 11. The EBP and data collection methods

were reviewed and approved by the Winona State University Institutional Review Board.

Informed consent was obtained by the project lead. Microsoft Excel was used to calculate

MQOL-R survey results and clinical assessment data, and record hospital utilization measures

and demographic data.

A PC toolkit was developed by the project lead to align with National Consensus Project

Clinical Practice Guidelines (NCP CPG), [25] and NQF[1] quality measures to ensure sustainability

of the program. PC criteria and a referral protocol was established based on Stratis Health[26]

guidelines. Education sessions were provided to nursing staff and providers on PC, program

referral and admission, PC versus hospice, and data collection of the EBP. Policy development

was included in the toolkit to align with the NCP CPG,[25] NQF,[1] based on recommendations from

the Center to Advance Palliative Care (CAPC).[27] (See Appendix 1: *PC Policy Alignment*).

Consultation with a nurse informaticist provided electronic health record (EHR) flow sheets for

provider documentation. Continuing education requirements for interdisciplinary PC team

members were identified and included in the toolkit.

Measurements of QOL, clinical assessment of symptoms, and hospital utilization to

support a new rural community-based PC program were completed. To assess participant's

perception on QOL, the McGill Quality of Life-Revised (MQOL-R)[28] survey was used with

author's permission. The survey was administered during face-to-face interviews within 60 days

following admission to the program. As a result of Covid-19, MQOL-R post-surveys could not

be obtained following three months of PC to make comparisons between pre- and post-PC

perceptions of QOL.

Chart review and data abstraction for pain and dyspnea was obtained to analyze timely

assessment and implementation of symptom management as specified by the NQF[1] quality

measures for PC. The NCP CPG[25] identifies this data as essential components of PC. Pre- and

post-PC hospital utilization data for PC patients was obtained from the organization's quality

department and include hospital readmissions rates, emergency department (ED) visits, and

inpatient stays for the quarters preceding and following implementation of PC. See Table 1.

Table 1: *PC EBP Quality Measures*

Symptom	PC Quality Measurement
Pain	1. Percentage of PC patients screened for pain during initial PC encounter.

	2. Percentage of PC patients who screened positive for pain and received a clinical pain assessment within 24 hours of screening.
Dyspnea	1. Percentage of PC patients screened for dyspnea during initial PC encounter.
	2. Percentage of PC patients who screened positive for dyspnea and received clinical treatment within 24 hours of screening
	Hospital Utilization Measurement
Hospital Readmission	1. Readmission rates prior to implementation of the PC program. 2. Readmission rates three months after implementation of the PC program.
Emergency Department	3. ED visits prior to implementation of the PC program 4. ED visits three months after implementation of the PC program.
Inpatient Stays	5. Number of inpatient stays prior to implementation of the PC program. 6. Number of inpatient stays three months after implementation of the PC program.

Results

QOL perceptions were collected using the MCQOL-R survey[28] within 60 days of admission to the PC program. Data analysis was completed using Jmp Version 15. Statistical analysis of MQOL-R included descriptive statistics, Oneway analysis, and Bivariate Fit. Overall mean score for the EBP participant's QOL is 7.4 with a standard deviation (SD) of 1.31 for 15 participants. Comparison of the project participant's QOL results with the McGill results shows higher mean scores for EBP project participants and a lower SD. The SD from this EBP indicates QOL scores are more consistent among participants than the McGill QOL SD. See Table 2.

Table 2: *Comparison of Rural PC Program and McGill QOL*

	Rural PC Program Data			McGill QOL	
	Mean	SD	n	Mean	SD
Overall	7.40	1.31	15	6.80	1.50

Descriptive statistics analysis shows little effect of gender on the overall QOL mean [SD] score (female mean [SD] 7.35, [1.37] and male mean [SD] 7.61 [1.23]. One-way analysis of overall QOL by gender revealed no significant difference in the average overall scores for males and females (t = 0.32, DF 3.6, *p* = 0.765).

Bivariate Fit provided further analysis of overall QOL effect on number of illnesses and age. Trend lines for the number of illnesses and age demonstrated a negative slope implying that as each variable increase, the overall QOL score decreases; however, evaluation of the p-value shows no linear relationship between the overall QOL score for number of illnesses (*p* = 0.186) and age (*p* = 0.379). Comparison of the p values between these variables indicates the number of illness is more closely related to QOL.

The MQOL-R measures QOL based on four subscales of physical, psychological, existential, and social aspects. The rural PC project overall subscale scores were compared with the McGill QOL. The social subscale had the highest QOL scores with rural PC project participants having a slightly lower mean [SD] 8.27 [1.91] compared to MQOL-R mean [SD] 8.43[1.88]. The mean for the rural PC project may indicate participants are more similar. The psychological subscale resulted in the second highest mean [SD] 7.95 [2.14] which differs from the McGill subscale mean [SD] 6.55 [2.45]. Reviewing the existential subscale mean [SD] 6.92 [1.76] shows a lower score from the McGill mean [SD] 7.11 [1.84]. Analysis of the psychological and existential subscore suggest participants had higher psychological well-being

but perceive their life has less meaning. Basic summary statistics of the MQOL-R subscales was

completed to compare differences between the rural PC project and McGill. See Table 3.

Table 3: *Rural Project and McGill QOL Subscale Comparison*

	Your Data			McGill QOL	
	Mean	SD	n	Mean	SD
Physical	6.47	2.13	15	5.12	2.25
Psychological	7.95	2.14	15	6.55	2.45
Existential	6.92	1.76	15	7.11	1.84
Social	8.27	1.91	15	8.43	1.88

Analysis of the MQOL-R subscales was completed to determine effect of number of

illnesses and age on individual subscales for QOL using bivariate analysis. Results demonstrated

the number of illnesses on the physical subscore for QOL were marginally significant ($p = $

0.073). Trend lines demonstrate negative slope for both number of illnesses and age on physical

subscale for QOL with the number of illnesses having a greater slope. This suggests as number

of illnesses increase, QOL scores decrease. No statistical significance was noted for effect of age

on physical subscore for QOL ($p = 0.123$). Comparison of number of illnesses and age on the

psychological ($p = 0.2864$; $p = 0.406$), existential ($p = 0.932$; $p=0.926$), and social ($p = 0.596$; $p

= 0.101$) subscales for QOL demonstrated no statistical significance.

Data collection on pain and dyspnea was collected with a chart review of the participant's

EHR following specifications from the NQF[1] quality metric measures for PC. Data collection for

the two pain measures included the number of patients who were screened for pain during the

initial PC consult and for those who screened positive, a clinical assessment of pain was

completed within 24 hours. The percentage of patients screened for pain was 63%. Of the

patients screened for pain on initial assessment, 11% were positive for pain and received clinical

assessment of pain within 24 hours. Calculations for dyspnea measures included the number of

participants who received an initial screening for dyspnea with their initial assessment and for

those screening positive, the number who received clinical assessment and management within

24 hours. Results demonstrate 100% of participants (n=15) were screened for dyspnea on initial

PC encounter. Of the participants screened for dyspnea on initial encounter, 47% screened

positive. For participants screened positive for dyspnea, 100% received a clinical assessment and

management implemented within 24 hours.

C ED visits decreased 35% for patients receiving PC during this time frame. Readmission

rates decreased from five to four patients in the pre- to post-PC timeframe. Due to small numbers

in this measurement, a 20% reduction is noted from pre- to post-PC implementation and data

collection. Inpatient stays for PC patients decreased significantly by 78%. See Table 4 and

Figure 1 for hospital utilization rates.

Table 4: *Hospital utilization rates*

N = 335					
3 Months Pre-PC			3 Months Post-PC		
ED Visits	Readmission	Inpatient Stay	ED Visits	Readmission	Inpatient Stays
63	5	36	41	4	8

Figure 1: *Hospital utilization rates*
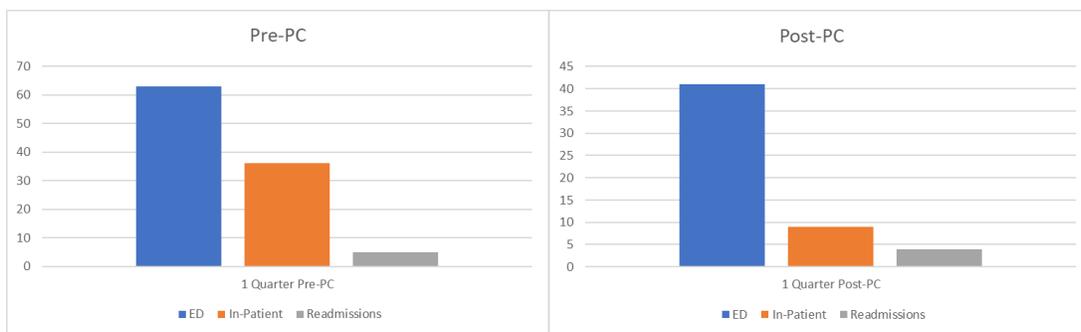
Discussion

This EBP accomplished the objective to implement a community-based PC program in a

rural Minnesota community and evaluate quality metrics to further support program

sustainability. The EBP was multifaceted with the primary focus being implementation of the PC

program. An additional facet was data collection of quality metrics. Evidence was presented to

nursing personnel and providers during education sessions. Ongoing education will be necessary

as changes in nursing personnel and providers occur. The program processes of care are

supported with the creation of a tool kit that includes PC criteria, referral protocol, required

education for those providing PC, policy development with alignment to NCP CPG[25] and NQF[1]

Preferred Practices, and sustainability practices that can be revised to fit the organization's need.

Descriptive analysis of project participant's mean [SD] QOL was compared to the

MQOL-R mean [SD]. Findings suggest consistency between rural project participant MQOL-R

scores. Relationship was shown with overall MQOL-R score and number of illnesses and age,

but was not further supported with statistical significance. Further evaluation of the MQOL-R

physical subscore with number of illnesses demonstrated marginal significance ($p=0.073$)

indicating that as number of illnesses increase, QOL decreases. Inference can be made that

individuals who have more illnesses have more symptoms that negatively affects QOL. This

relationship is supported in the literature.

Analysis of symptom assessment and management through chart reviews validated the

feasibility in measuring this quality metric. This measurement identified an area of needed

improvement with assessment of pain on initial visits. Using EHR flow sheets specific for PC

can ensure needed data is documented. Ongoing communication and education to nursing

personnel and providers including areas of excellence and where improvement is indicated.

Hospital utilization measures were collected to trend data as PC can have an economic

impact on the organization. ED visit measurements compared pre-PC and post-PC utilization

data resulting in a moderate decrease in ED visits for PC patients in the post-PC time interval.

For the same time interval, hospital readmissions for PC patients had minimal decline. Inpatient

stays for PC patients had a significant decrease from pre-PC to post-PC evaluation. Each of these measures reflect positively on the organization and can result in value-based care services. Hospital utilization trends may reflect the PC program; however, it is not possible to link these improvements solely to PC as data collection coincided with the onset of the Covid-19 pandemic. Elective procedures were suspended during this time decreasing inpatient stays. Reductions in ED visits occurred as participant needs were addressed and managed rapidly in the LTC and assisted living facilities to support prevention efforts related to Covid-19 among this population.

A limitation encountered with this EBP included the onset of Covid-19 resulting in a small sample size (n=15). Participants were residents in LTC and assisted living facilities and strict visitor restriction were implemented preventing further interviews, data collection, and chart reviews. Due to the small sample size, limited data from statistical analyses of the MQOL-R resulted. Analysis of hospital utilization rates demonstrates a decrease in the quarter following PC interventions. The positive trend in these measures cannot be attributed exclusively to PC as elective procedures were suspended leading to decreased inpatients stays and ED visits. Hospital readmission rates had a slight decline. Patient needs were addressed and treated promptly in the facilities that may have resulted in decreased readmission rates.

The population in this EBP is older adults in LTC and assisted living facilities primarily with the chronic illnesses of cardiovascular, lower respiratory, and diabetes. This limits generalizability to other populations and conditions. Exclusionary criteria of this project limits generalization to all persons with a chronic illness who may benefit from PC. Similar to the literature, limited knowledge on differences between palliative care and hospice exists. A myth

surrounding PC is that life expectancy is limited when receiving PC. Accompanying that belief is a focus on curative versus supportive care in healthcare.

This project supports literature defining a relationship between symptoms or number of illnesses and QOL. Future research with an adequate sample size is recommended to validate this relationship. Efforts to improve symptom assessment and management should be explored as management of symptoms has been correlated to improved QOL for individuals. PC practices can be delivered by any health care clinician and in any setting. Integration of PC principles and practices in nursing and healthcare education is recommended to prepare graduates for implementation in their practice. Providing PC on diagnosis of a chronic illness is recommended to deliver optimal care in management of chronic illnesses.

Conclusion

Integrating PC programs in rural areas will promote access to this care model for individuals with serious and chronic illnesses to improve management of symptoms and QOL. Palliative care offers value-based services that benefit patients and their families, and positively impacts healthcare utilization rates. Quality measurements in PC programs promote sustainability of PC programs and are reasonable to collect in rural PC programs.

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Appendix 1: PC Policy Alignment

Policy/Protocol/Resource	NQF Preferred Practice (2012)	NCP CPG Domain (2018)
1. Extensive Care Unit: Scope of Practice Policy	1, 5, 22, 32	1.2, 1.3; 2.2.1, 2.2.2; 8.1.1
2. Referral Process Policy	2	1.2, 1.3
3. Extensive Care Team/Committee Policy	3. 4, 5, 9	1.1, 1.3, 1.6, 1.9, 2.2; 2.3.9, 2.3.13; 3.1.1, 3.1.3; 6.1.6, 6.1.8, 6.1.9; 7.3.1; 8.1.12
4. Extensive Care Unit: Care Planning Policy	6, 12, 18, 19, 20, 23, 24, 28, 33	1.3; 4.1.1 – 4.4.1; 5.1.1 – 5.4.2; 6.1.1-6.1.5, 6.1.7, 6.1.9-6.1.11, 6.3.1-6.4.6; 8.2.7, 8.3.1-8.4.2
5. Extensive Care Unit: Continuity of Care/Care Coordination Policy	7, 34	1.4, 1.5, 1.7; 3.1.5; 4.1.1 – 4.4.1; 5.1.1–5.4.2
6. End-of-Life Care Policy	8, 17	7.2.1-7.2.3
7. Care of the Imminently Dying Policy	8, 17, 26, 27, 29, 30, 31	7.3.1-7.5.8
8. Patient Self-Determination Policy	10, 11, 27	3.2.2, 3.2.4; 3.3.5b
9. Extensive Care Unit: Patient/Family/Caregiver Education Policy	10, 11, 27	1.6; 2.3.6, 2.3.8; 3.3.5a;
10. Extensive Care Unit: Assessment and Treatment of Physical and Psychosocial Symptoms Policy	12, 13, 14, 15, 16	2.2.1 – 2.2.5, 2.2.7; 2.3.1, - 2.3.5, 2.3.7, 2.3.12, 2.3.14; 2.4.1; 3.1.2, 3.1.3, 3.1.4; 3.2.1, 3.2.4, 3.2.5; 3.3.1 – 3.3.7; 3.4.1, 3.4.2
11. Extensive Care Unit: Pain Management and Opioid Prescribing Policy	12	2.2.6; 2.3.2, 2.3.10, 2.3.11
12. Extensive Care Unit: Interpreter Services/Culturally Competent Care Policy	25	6.2.1-6.2.6; 8.1.8, 8.2.6
13. Extensive Care Unit: Ethics Committee Consultation Policy	37	3.3.8; 8.1.3-8.1.7, 8.1.9-8.1.11, 8.2.1-8.2.5, 8.2.8, 8.4.3-8.4.10
14. Extensive Care Unit: Removal of Mechanical Ventilation in the Dying Patient Policy	26,29	7.1, 7.3; 8.1
15. Infection Prevention and Control Policy		8.1, 8.2