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Quality Measures for Hospice and Palliative Care: Piloting the PEACE Measures

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Abstract

Background: The Carolinas Center for Medical Excellence launched the PEACE project in 2006, under contract with the Centers for Medicare & Medicaid Services (CMS), to identify, develop, and pilot test quality measures for hospice and palliative care programs.
Objectives: The project collected pilot data to test the usability and feasibility of potential quality measures and data collection processes for hospice and palliative care programs.
Settings/subjects: Twenty-two hospices participating in a national Quality Improvement Collaborative (QIC) submitted data from 367 chart reviews for pain care and 45 chart reviews for nausea care. Fourteen additional hospices completed a one-time data submission of 126 chart reviews on 60 potential patient-level quality measures across eight domains of care and an organizational assessment evaluating structure and processes of care.
Design: Usability was assessed by examining the range, variability and size of the populations targeted by each quality measure. Feasibility was assessed during the second pilot study by surveying data abstractors about the abstraction process and examining the rates of missing data. The impact of data collection processes was assessed by comparing results obtained using different processes.
Results: Measures shown to be both usable and feasible included: screening for physical symptoms on admission and documentation of treatment preferences. Methods of data collection and measure construction appear to influence observed rates of quality of care.
Conclusions: We successfully identified quality measures with potential for use in hospices and palliative care programs. Future research is needed to understand whether these measures are sensitive to quality improvement interventions.

Introduction

In recognition of the growing proportion of Americans living longer and dying from chronic diseases, the Institute of Medicine (IOM) identified improving care for frail adults and persons nearing end of life as a national priority area for quality improvement.[1] The need for improved data and measurement systems for hospice and palliative care programs was subsequently highlighted.[2] Measurement of care for seriously ill and dying patients faces numerous methodological challenges, including, for example, a dearth of well-validated measures, the fact that many patients at the end of life are too sick to provide self-report assessments of quality, and concerns about the accuracy of proxy reports.[2]

The National Consensus Project for Quality Palliative Care (NCP) issued Consensus Clinical Practice Guidelines, now in the third edition.[3] The guidelines describe high-quality palliative care practices in eight broad domains: structure and processes; physical symptoms; psychological symptoms; social concerns; spiritual and existential aspects; cultural competency; care of the imminently dying patient; and, ethical and legal aspects of care. These guidelines were endorsed by the National Quality Forum (NQF), along with 38 preferred practices for hospice and palliative care programs.[4]

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The guidelines and preferred practices provide guidance to providers on what constitutes good quality care. However, they stop short of recommending specific quality measures. A quality measure is based on an accepted standard of care and uses detailed eligibility specifications and item definitions to generate numerators and denominators.[5]

In 2008, Centers for Medicare and Medicaid Services (CMS) published revised Conditions of Participation (COPs) for hospices mandating all Medicare-certified hospices implement systematic quality assessment and improvement.[6] Recognizing the need for quality measurement tools for hospice care, CMS asked The Carolinas Center for Medical Excellence (CCME) to identify, develop, and pilot test a set of quality measures and a procedure to assess and monitor the quality of care. The PEACE project recommended 34 quality measures and a data collection tool to assist hospice and palliative care programs in monitoring their care.[7] This article describes the pilot data processes and results used in the selection of the PEACE measures.

Methods

The PEACE project team first identified 174 potential quality measures consistent with the NCP domains of quality from numerous sources.[8] Measures deemed to have the greatest potential for use in quality improvement in hospice and palliative care programs were selected for further testing. Investigators completed two data collection pilots. The first pilot was undertaken in response to an invitation from the National Hospice and Palliative Care Organization (NHPCO). Member hospices participating in a Quality Improvement Collaborative (QIC) were eager to participate in the testing of quality measures addressing care for physical symptoms. The second pilot, designed by the study team, relied on volunteer hospices that tested the data collection processes but were not involved in organized efforts to address the quality measures. These pilots were used to assess the usability and feasibility of potential quality measures, and data collection approaches.

The first pilot: Physical symptom measures in a QIC

During a 7-month period in 2007, hospices participating in a QIC submitted data monthly on 10 newly admitted patients to NHPCO staff, who shared deidentified, individual level data with the PEACE project team. Hospices addressing pain collected data on four measures: screening for pain on admission, targeted assessment of pain, treatment of pain within 24 hours, and improvement within 24 hours. Hospices addressing nausea collected data on four similar measures for nausea: screening, assessment, improvement and treatment within 24 hours. All hospices collected data on the percent of patients with weekly screening for physical symptoms. These measures represent a subset of the PEACE measures.

The second pilot: Measures from multiple domains with fourteen volunteer hospices

In summer 2007, 14 hospices from 7 states, representing both freestanding and hospital-based providers responded to an invitation to participate in a data collection pilot to test quality measures from multiple domains. Each hospice contributed data from 9 patient records, with 9 hospices submitting data on their most recent 9 discharges and 5 hospices submitting data on their most recent 9 admissions.

Hospices collected data for denominator and numerator elements separately using a structured data collection tool with operational definitions for each data element. Abstractors did not know how the data would be used in quality measures or whether a quality measure was or was not met. Hospices were instructed not to institute new clinical documentation procedures for the pilot. If a data item could not be found, they were told to mark the item as ''unable to determine.''

For quality measures calculated from both admission and discharge records, we examined rates separately for admission charts and discharge charts. Few differences were noted, so the data from both admission and discharge charts were pooled to calculate aggregate rates.

Hospices in this pilot also completed an organizational assessment of policies, standard processes of care, and care coordination. Additionally, the chart abstractor from each hospice in was asked to complete a Web-based survey about the ease with which they could find specific types of data (extremely easy or easy, and difficult or extremely difficult) and how useful selected quality measures would be to their hospice in trying to improve quality of care (very useful or useful, and somewhat or not useful at all).

Assessment of measure usability and feasibility

Criteria to assess quality measures include usability and feasibility.[9] A usable measure provides results that can be understood and used to improve quality. A feasible measure includes data that can be retrieved without undue burden. We assessed usability of quality measures by examining the proportion of patients eligible for each quality measure, the mean and range of values obtained, and chart abstractors' assessment of the usefulness of each quality measure. We assessed feasibility by examining the time it took to perform the chart abstractions (in the second pilot), the quantity of missing data for each measure, and abstractors' assessment of the difficulty of finding data needed for the measures. We assessed the impact of different data collection methods by comparing results obtained for measures that were used in both pilots.

Results

In the first data pilot, 21 hospices worked on pain, providing 38 data submissions representing 367 chart reviews. Two hospices worked on nausea, providing 5 data submissions reporting on 45 chart reviews (Table 1).

In the second pilot, 14 hospices submitted data for 126 patients on 14 physical symptom measures (Table 2) and 9 measures in other domains (Table 3). All 14 hospices completed the organizational assessment. Thirteen hospices participated in the Web-based survey on ease of gathering the quality measure data and usability of the quality measures.

Usability: Percent of patients eligible

All patients in the first pilot were eligible for screening for the symptoms of pain and nausea (Table 1). Quality measures addressing targeted assessment and treatment were limited to

Table 1. PEACE Quality Measures: Results from the first Pilot[a]

Quality measure	*Number of patients represented*	*Aggregate quality measure rate*	*Range of individual hospice scores*
Percent of patients who were screened for pain on admission	367	94%	70%–100%
Percent of patients who have pain identified on initial screening with a targeted comprehensive assessment within 24 hours of admission	200	94%	33%–100%
Percent of patients who have pain identified on initial screening who receive treatment within 24 hours of admission	199	95%	60%–100%
Percent of patients with pain on admission who report their pain was improved within 24 hours of admission	199	68%	50%–100%
Percent of patients screened for nausea on admission	45	98%	92%–100%
Percent of patients with nausea on admission who have a targeted comprehensive assessment within 24 hours of admission	12	100%	100%
Percent of patients with nausea who report their nausea was improved within 24 hours of admission	12	75%	40%–100%
Percent of patients who have nausea identified on initial screening who receive treatment within 24 hours of screening	12	92%	80%–100%
Percent of patients for whom physical symptom screening is repeated weekly	392	91%	0%–100%

[a]The first pilot included 22 hospices participating in a quality improvement collaborative.

Table 2. PEACE Quality Measures: Results for Physical Measures from the Second Pilot[a]

Measure	*Number patients affected* n *(%)*	*Missing or UTD*[b] n *(%)*	*Aggregate rate*	*Range*
Percent of patients who were screened for pain on admission	126 (100%)	6 (5%)	78%	22%–100%
Percent of patients who have pain identified on initial screening who have a targeted comprehensive assessment within 24 hours of admission	52 (41%)	14 (27%)	62%	0%–100%
Percent of patients who have pain identified on initial screening who receive treatment within 24 hours of admission	52 (41%)	16 (31%)	60%	33%–100%
Percent of patients with pain on admission who had an order for regularly scheduled (not as-needed) pain medication in 24 hours	52 (41%)	11 (21%)	48%	0%–100%
Percent of patients with pain on admission who report their pain was improved within 24 hours of admission	52 (41%)	17 (33%)	15%	0%–100%
Percent of patients whose pain was at comfortable level within 48 hours of admission (among patients in moderate or severe pain)	29 (22%)	19 (66%)	17%	0%–100%
Percent of patient with cognitive and language problems receiving targeted pain assessment	68 (54%)	32 (47%)	44%	0%–100%
Percent of patients who were screened for shortness of breath on admission	126 (100%)	4 (3%)	78%	22%–100%
Percent of patients who have shortness of breath identified on initial screening who receive treatment within 24 hours of admission	40 (40%)	19 (47%)	47%	0%–100%
Percent of patients who have shortness of breath who report their shortness of breath was improved within 24 hours of admission	40 (40%)	22 (55%)	7.50%	0%–33%
Percent of patients who have nausea identified on initial screening who receive treatment within 24 hours of screening	14 (11%)	7 (50%)	50%	0%–100%
Percent of patients who have constipation identified on initial screening who receive treatment within 24 hours of admission	19 (15%)	6 (32%)	53%	0%–100%
Percent of patients with bowel regimen initiated within 24 hours of an opioid among those treated with narcotics	29 (23%)	11 (38%)	52%	0%–100%
Percent of patients who had moderate to severe pain in last week of life	80 (100% of discharged patients)	17 (21%)	30%	0%–57%

[a]The second pilot included 14 hospices who volunteered to participate in a data collection pilot.
[b]Percent missing or unable to determine (UTD) is calculated as follows: the numerator includes all patients for whom one or more elements needed to calculate the quality measure were not found in the chart or the response option unable to determine was checked; the denominator includes all patients who were affected by the symptom.

Table 3. PEACE Quality Measures: Results of Nonphysical Domain Measures from the Second Pilot[a]

Measure	*Number patients affected*	*Missing or UTD*[b] n *(%)*	*Aggregate rate*	*Range*
Percent of patients for whom the comprehensive assessment is completed in ≤5 days of admission[c]	80 (100% of discharged patients)	48 (60%)	25%	0%–78%
Percent of residents who screen positively for depression for whom follow-up was initiated	12 (10%)	1 (8%)	17%	0%–50%
Percent of patient with diagnosis of depression who receive treatment within 2 weeks	12 (10%)	3 (25%)	43%	0%–100%
Percent of patients with anxiety who received treatment	22 (17%)	1 (5%)	82%	0%–100%
Percent of patients who have documented discussion of to identify spiritual or religious concerns as they affect care	126 (100%)	3 (2%)	91%	57%–100%
Percent of patients with written documentation of their preference for life-sustaining treatments prominently display in chart	126 (100%)	4 (3%)	82%	0%–100%
Percent of patients who have advanced directive or documentation of discussion	126 (100%)	32 (25%)	44%	12%–90%
Percent of patients who have documentation of surrogate decision-maker	126 (100%)	29 (23%)	57%	0%–100%
Percent of patient with dementia, coma, or other altered mental status who have documentation of surrogate decision-maker in chart in 48 hours	57 (45%)	28 (49%)	37%	0%–75%

[a]The second pilot included 14 hospices that volunteered to participate in a data collection pilot.
[b]Percent missing or unable to determine (UTD) is calculated as follows: the numerator includes all patients for whom one or more elements needed to calculate the quality measure were not found in the chart or the response option unable to determine was checked; the denominator includes all patients affected by the symptom or all patients who could benefit from the care being measured.
[c]Comprehensive assessment included assessment of the following: prognosis, functional status, physical symptoms, psychological symptoms, spiritual needs, and social needs.

patients who were found to have the targeted physical symptom on admission: 54% of patients had pain and 27% had nausea.

In the second pilot, six measures were applicable to all patients: screening on admission for pain and shortness of breath; assessment of spiritual concerns; documentation of preferences for treatments; advanced directive or documentation of discussion; and documentation of surrogate decision-maker (Tables 2 and 3). Two additional measures were applicable to all discharge records: comprehensive assessment within 5 days of admission and moderate or severe pain the last week of life. The remaining measures applied only to patients with specific symptoms or conditions.

Of the measures not universally applicable, the measure targeting patients with communication problems represented the largest proportion of patients, 54%, followed by the measure targeting patients with cognitive programs, which applied to 45%. Measures for assessment and treatment of pain and dyspnea applied to nearly half of patients. However, since few patients had nausea (11%), depression (10%) and anxiety (17%), quality measures for treatment of these symptoms applied to only a small proportion of the study group.

Usability: Mean and range of values

Mean scores of the quality measures from the first pilot were, on the whole, fairly high, reaching 90% or higher for seven of the nine measures (Table 1). Only two measures had aggregate rates less than 90%: improvement in pain (68%) and improvement in nausea (75%). However, individual hospice scores varied widely for most measures, except for targeted assessment among those with nausea, for which all hospices reported 100%.

In contrast, most measures in the second data pilot indicated substantial room for improvement (Tables 2 and 3). Only three measures had aggregate rates above 80%: assessment of spiritual concerns; treatment for patients with anxiety and documentation of preferences for life-sustaining treatments. The observed rates for the remaining measures varied from a low of 7.5% for the percent of patients who had dyspnea improved within 24 hours of admission to a high of 78% for screening for pain and dyspnea.

Usability: Rating by abstractors in the second pilot

Eight types of measures, representing 19 tested quality measures, were assessed as useful or very useful by 75% or more of abstractors (Table 4). Measures rated as being most useful included those that assessed screening, treatment and improvement of physical symptoms, treatment for psychological concerns, assessment of spiritual concerns, documentation of preferences for treatment, advance directives, and documentation of surrogate decision makers.

Feasibility

Information about the time required for chart abstraction was collected from hospices in the second pilot that examined discharge records ($n = 80$). The data collection generating information on 60 quality measures took less than 1 hour for 40% of the charts, 1–2 hours for 44% of the charts, and over 2 hours for 6% (abstraction time was not reported in 8 charts).

Table 4. Assessment of Usefulness of Quality Data from Chart Abstractors in the Second Pilot[a]

Description of data rated by charted abstractor	*Related measure*	*Useful or very useful (percent)*
Screening for physical symptoms within a timeframe from admission	Percent of patients who were screened for pain on admission Percent of patients who were screened for shortness of breath on admission Percent of patients screened for nausea on admission	77%
Receiving treatment for physical symptoms within a timeframe	Percent of patients who have pain identified on initial screening who receive treatment within 24 hours of admission Percent of patients with pain on admission who had an order for regularly scheduled (not as-needed) pain medication in 24 hours Percent of patients who have shortness of breath identified on initial screening who receive treatment within 24 hours of admission Percent of patients who have nausea identified on initial screening who receive treatment within 24 hours of screening Percent of patients who have constipation identified on initial screening that receive treatment within 24 hours of admission Percent of patients with bowel regimen initiated within 24 hours of an opiate among those treated with narcotics	77%
Improvement in physical symptoms	Percent of patients with pain on admission who report their pain was improved within 24 hours of admission Percent of patients whose pain was at comfortable level within 48 hours of admission (among patients in moderate or severe pain) Percent of patients who have shortness of breath who report their shortness of breath was improved within 24 hours of admission	85%
Treatment of psychological symptoms	Percent of residents who screen positively for depression for whom follow-up was initiated Percent of patients with diagnosis of depression who receive treatment within 2 weeks Percent of patients with anxiety who received treatment	85%
Discussion of spiritual concerns	Percent of patients who have documented discussion of to identify spiritual or religious concerns as they affect care	85%
Documentation of end of life treatment preferences	Percent of patients with written documentation of their preference for life-sustaining treatments prominently display in chart	85%
Advanced directive documentation	Percent of patients who have advanced directive or documentation of discussion	77%
Documentation of surrogate decision maker for those with cognitive problems	Percent of patients with dementia, coma, or other altered mental status who have documentation of surrogate decision maker in chart in 48 hours	77%

[a]The second pilot included 14 hospices that volunteered to participate in a data collection pilot. Thirteen abstractors from these hospices responded to the survey on the data collection process.

In the second data pilot, the extent of missing data varied greatly. The six measures with the least missing data (missing for less than 10% of patients) were: screening for pain and dyspnea on admission, discussion of spiritual concerns, treatment of depression and anxiety, and treatment preference documentation. Four measures had missing data levels of 50% or higher: achieving comfort for those in pain within 48 hours; improvement of shortness of breath in 24 hours; treatment of nausea within 24 hours; and completion of a comprehensive assessment within 5 days of admission.

Four types of measure data were universally noted by abstractors as easy to find: screening for physical symptoms (e.g., pain, nausea, dyspnea); comprehensive assessment for those with physical symptoms; reassessment of physical symptoms; and documentation of spiritual concerns. Abstractors reported difficulty finding included assessment of and improvement of psychological symptoms, and assessments of spiritual, family, social, or grief concerns.

Impact of different data collection processes

Four measures were collected in both pilots: screening for pain on admission, assessment and treatment for pain within 24 hours; and treatment of nausea within 24 hours. For each of these measures, the rates in the first pilot were over 90%, although there were variations at the hospice level (Table 1). During the second pilot, no rates above 90% were observed. The highest observed rate was 78% for screening for pain; rates for the other three measures were considerably lower.

We compared results from chart data and organizational data documentation of advanced directives and two data items used to construct measures: the use of numeric scores for pain and dyspnea. In the organizational data, 93% of hospices reported advanced directive information was always documented. However, in the chart abstraction, it was missing 25% of the time. Similarly, 100% of hospices reported using numeric scores to assess pain and 85% reported using

numeric scores for dyspnea. Yet, we found numeric scores in 69% of patient records for pain assessment and in 0% of the records of patients with dyspnea.

Discussion

We identified five measures as both usable and feasible: screening for pain, screening for dyspnea, screening for nausea, documentation of spiritual concerns, and documentation of preferences for end-of-life treatments. These measures are applicable to all patients, demonstrate room for improvement, were assessed by hospice staff as useful, and are based on data elements hospice staff assessed as easy to locate. Four of these measures also had very little missing data (screening for pain and dyspnea, documentation of spiritual concerns, and end-of-life preferences). We could not assess missing data for the nausea screening measure, but its similarity to the other screening measures suggests that it would likely be associated with very little missing data. Two additional ''all patient'' measures were assessed as useful by hospice staff and created with data elements deemed easy to locate: advanced directives and documentation of a surrogate decision maker. However, these two measures had relatively high missing data rates (25% and 23%, respectively), suggesting they were less feasible.

Of the symptom specific measures, those addressing care for pain (41%) and dyspnea (32%) affected the largest portion of the population. One of these measures, the percent of patients with moderate or severe pain on admission who are comfortable within 48 hours has been designated by CMS as a measure for which hospices will be required to report data beginning in 2014.[10] However, this measure, when collected through chart review, had high rates of missing data. Other important symptoms—nausea, constipation, depression, and anxiety—were less prevalent in the patient population. For measures that address less prevalent symptoms, missing data can be more problematic, further reducing an already a small denominator Quality measures based on small numbers of patients, whether due to prevalence of the symptom or missing data, will be statistically unstable, making them less useful for quality improvement.

Our results suggest that data collection method matters. For the four measures common to both pilots, quality measure rates in the first pilot were considerably higher. The approach in the first pilot, which involved recording measures as met or unmet, is a commonly used approach in quality improvement initiatives. The approach in the second pilot involved recording the numerator and denominator elements separately with subsequent calculation of quality measures. Although it is possible that the quality of care was simply higher in the first group of hospices, it is also possible the approach in the first pilot overestimates performance. Seven of the nine measures collected using this approach exhibited a ceiling effect, with rates of 90% and higher. These observations suggest caution is needed when comparing quality measure data collected using different measurement procedures. Additional work exploring the influences of the data collection processes is needed to identify preferred data collection methods.

Our results suggest organizational measures, such as the presence of policies and procedures, cannot be seen as a reflection of high-quality care at the individual level. A structural measure, the presence of a quality improvement program in hospices, has been proposed by CMS as a measure for hospice reporting in 2014.[10]

Our pilots also identified gaps in quality measures. Two measures representing core aspects of hospice care, pain relief and improvement of shortness of breath, were rated as very useful by chart abstractors. However, these measures had extremely high rates of missing data. In the organizational assessment, the most common response to the question about how often screening was repeated was ''as-needed.'' The lack of specified rescreening intervals makes it unclear what constitutes a ''timely'' care plan (Preferred Practice 6)[6] and makes quality measurement in this domain difficult.

Measures for providing culturally sensitive care, promoted by two of the NQF preferred practices (#24 and #25),[4] were not available. We asked hospices in the second pilot about their collection of information on the ethnicity and primary language of their patients, staff and surrounding communities. Only half the hospices indicated they collected this information for all three populations. Simply knowing this information is not sufficient to assure culturally sensitive care, but it is a necessary first step.

Similarly, we were unable to identify measures for assessing the quality of spiritual care. Our measure on screening for spiritual concerns indicated high rates of assessment of concerns but reveals little about whether spiritual concerns are addressed.

Our pilots relied on volunteer hospices that may have different care practices and documentation from other hospices. Additionally, both pilots occurred prior to the implementation of the 2008 Conditions of Participation. It is possible that documentation of care and the ability to capture elements of care has improved.

Conclusions

Quality data serve many audiences and purposes.[9] Providers can use quality measures to identify and improve care processes. Consumer can use them to identify better performing providers. Governmental agencies and payers can use them for accountability. At the time of this project, there was much speculation that public reporting of quality measures in hospice was imminent, and that a ''Hospice Compare'' website might be on the horizon, similar to those CMS created for hospitals, nursing homes and home health agencies.[11–13] While public reporting of quality provided by hospices has not yet materialized, the Affordable Care Act requires hospices to report quality data to CMS beginning in 2014.[14]

The PEACE data pilots have highlighted a few quality measures with potential for use in hospices and palliative care programs. These measures offer hospices the potential to identify areas of care that can be improved. Hospices vary in their capacity to collect and use quality data. Hanson and colleagues[15] found hospices that were smaller, in rural settings, and those with for-profit tax status were less prepared to implement quality improvement. Identifying a few usable and feasible quality measures could be a step towards increasing the ability of hospice providers to use quality measure to improve care.

Our study also identified measures that do not seem to work and areas where additional work is needed. A number of

measurement concerns were identified: measures that represent a few of patients, measures where data are frequently missing, and measures that demonstrate a ceiling effect. Additional testing of the measures and measurement processes is needed in hospice and palliative care programs. A comprehensive system to *measure* quality care for seriously ill and dying patients is an important goal. Scientifically sound and usable quality measures are needed to achieve that goal.

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Author Disclosure Statement

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