# NATIONAL QUALITY FORUM

**Measure Submission and Evaluation Worksheet 5.0**

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. The evaluation criteria, evaluation guidance documents, and a blank online submission form are available on the submitting standards web page.

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**NQF #:** 0212      **NQF Project:** Cancer Project

(for Endorsement Maintenance Review)
**Original Endorsement Date:** Aug 10, 2009   **Most Recent Endorsement Date:** Aug 10, 2009

## BRIEF MEASURE INFORMATION

**De.1 Measure Title:** Proportion with more than one hospitalization in the last 30 days of life

**Co.1.1 Measure Steward:** American Society of Clinical Oncology

**De.2 Brief Description of Measure:** Percentage of patients who died from cancer with more than one hospitalization in the last 30 days of life

**2a1.1 Numerator Statement:** Patients who died from cancer and had >1 hospitalization in the last 30 days of life

**2a1.4 Denominator Statement:** Patients who died from cancer.

**2a1.8 Denominator Exclusions:** None

**1.1 Measure Type:** Process
**2a1. 25-26 Data Source:** Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Management Data, Paper Records
**2a1.33 Level of Analysis:** Clinician : Group/Practice, Facility, Health Plan, Integrated Delivery System, Population : County or City, Population : National, Population : Regional, Population : State

**1.2-1.4 Is this measure paired with another measure?** No

**De.3 If included in a composite, please identify the composite measure** (*title and NQF number if endorsed*):

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## STAFF NOTES  (*issues or questions regarding any criteria*)

Comments on Conditions for Consideration:

Is the measure untested?  Yes☐  No☐  If untested, explain how it meets criteria for consideration for time-limited endorsement:

1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure (*check De.5*):
5. Similar/related endorsed or submitted measures (*check 5.1*):
Other Criteria:

Staff Reviewer Name(s):

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## 1. IMPACT, OPPORTUNITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT

Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See guidance on evidence.
*Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.*
(evaluation criteria)

**1a. High Impact:**   H☐ M☐ L☐ I☐
(*The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.*)

**De.4 Subject/Topic Areas** (*Check all the areas that apply*):   Cancer
**De.5 Cross Cutting Areas** (*Check all the areas that apply*):   Palliative Care and End of Life Care

**1a.1 Demonstrated High Impact Aspect of Healthcare:**  High resource use, Patient/societal consequences of poor quality

**1a.2 If "Other," please describe:**

**1a.3 Summary of Evidence of High Impact** (*Provide epidemiologic or resource use data*):
Multiple hospitalizations near the end of life may indicate a lack of discussion about advance directives, and/or inattention to symptoms. Hospital care is expensive and usually not desired by patients or their families.

Although, when operationalized as a claims-based measure, this does not take patient preferences into account, the idea is for the measure to be seen as an overall indication of practice style and/or available palliative resources. An individual patient experiencing this process of care has not necessarily received poor quality care, but unless there is a reason to think that the patients in one setting have a significantly greater proportion with differing preferences, aggregate rates of the measure can justifiably be compared across settings. In this way it is a reflection of the quality of end-of-life care.

NOTE: THIS MEASURE IS NOT INTENDED TO IDENTIFY A 'NEVER' EVENT. RATHER, IF THIS IS HAPPENING MORE FREQUENTLY THAN IN COMPARABLE PRACTICES, IT MAY INDICATE A QUALITY PROBLEM RELATED TO SUCH THINGS AS COMMUNICATION, PATIENT-CENTERED DECISION-MAKING, OR THE AVAILABILITY OF SUPPORTIVE END-OF-LIFE SERVICES IN THE PRACTICE SETTING.

**1a.4 Citations for Evidence of High Impact cited in 1a.3:**  Earle CC, Park ER, Lai B, Weeks JC, Ayanian JZ, Block S. Identifying potential indicators of the quality of end of life cancer care from administrative data. J Clin Oncol. 2003;21(6):1133-8.

The measures identified in that publication have been cited in peer-reviewed publications indicating their application to analyses in a broad array of countries and settings, including Canada, Taiwan, Italy, and the U.S. Veterans Administration. A sample of these citations are:

Early palliative care for patients with metastatic non–small-cell lung cancer
[PDF] from palliumindia.org
JS Temel, JA Greer, A Muzikansky… - New England Journal …, 2010 - nejm.org
Of the 151 patients who underwent randomization, 27 died by 12 weeks and 107 (86% of the
remaining patients) completed assessments. Patients assigned to early palliative care had a
better quality of life than did patients assigned to standard care (mean score on the …
Cited by 197 - Related articles - All 27 versions

Place of death: Correlations with quality of life of patients with cancer and predictors of bereaved caregivers´ mental health
[PDF] from ascopubs.org
AA Wright, NL Keating, TA Balboni… - Journal of Clinical …, 2010 - jco.ascopubs.org
Patients and Methods Prospective, longitudinal, multisite study of patients with advanced cancer
and their caregivers (n = 342 dyads). Patients were followed from enrollment to death, a median
of 4.5 months later. Patients´ QoL at the EOL was assessed by caregiver report within 2 …
Cited by 16 - Related articles - All 6 versions

Use of chemotherapy at end of life in oncology patients
[HTML] from oxfordjournals.org
S Kao, J Shafiq, J Vardy… - Annals of Oncology, 2009 - Eur Soc Med Oncology
Results: Seven hundred and forty-seven patients died during this period; median age 67 years
(range 20–96); female 44%. Three hundred and ninety-eight (53%) received chemotherapy:
18% and 8% within 4 and 2 weeks of death, respectively. Younger age (P < 0.01), cancer …

experience within the VA system, including Dr. Steven Krasnow (DC VAMC), Dr. Judith ...
Cited by 2 - Related articles - All 3 versions

Propensity for Home Death Among Taiwanese Cancer Decedents in 2001-2006, Determined by Services Received at End of Life
ST Tang, EW Huang, TW Liu, KM Rau... - Journal of pain and ..., 2010 - Elsevier
Rates of home death decreased significantly over time (from 35.67% to 32.39%). Dying at home
was associated with patient demographics (gender, age, and marital status) and disease characteristics
(cancer type, metastatic status, postdiagnosis survival time, and comorbidity level). ...
Cited by 1 - Related articles - All 5 versions

Determinants of ICU care in the last month of life for Taiwanese cancer decedents, 2001 to 2006
SC Wu, JS Chen, HM Wang, YN Hung... - Chest, 2010 - chestjournal.chestpubs.org
Results: Rates of hospital ICU care in the last month of life did not change significantly from 2001
to 2006 (11.27%-12.71%). ICU use in the last month of life was more likely for single male patients
aged < 65 years who had hematologic malignancies or esophageal cancer and more ...
Cited by 1 - Related articles - All 7 versions

Understanding provision of chemotherapy to patients with end stage cancer: qualitative interview study
[HTML] from nih.gov
HM Buiting, ML Rurup, H Wijsbek... - BMJ Supportive & ..., 2011 - spcare.bmj.com
Contributors HMB, MLR, HW, and GdH designed the study. HMB carried out the study. HMB,
MLR, HW, GdH, and LvZ were involved in interpreting the study findings. HMB wrote the
manuscript, which was critically read by all the authors. HMB is guarantor of the study. All ...
Cited by 1 - Related articles - All 5 versions

Influence of patients´ preferences and treatment site on cancer patients´ end-of-life care
AA Wright, JW Mack, PA Kritek, TA Balboni... - Cancer - Wiley Online Library
Drs. Prigerson and Wright had full access to all data in the study and take responsibility for the
integrity of the data and the accuracy of data analysis. Drs. Wright and Prigerson were responsible
for the study design and conception; Dr. Prigerson obtained funding for the study and was ...
Cited by 2 - Related articles - All 3 versions

Aggressive End-of-Life Care Significantly Influenced Propensity for Hospice Enrollment Within the Last Three Days of Life for
Taiwanese Cancer Decedents
ST Tang, EW Huang, TW Liu, HM Wang... - Journal of pain and ..., 2010 - Elsevier
Rates of hospice enrollment within the last three days of life (16.80%–18.73%) remained constant
over 2001–2006. After adjustment for patient demographics and disease characteristics, physician
specialty, availability of health care resources at the hospital and regional levels, and ...
Related articles - All 7 versions

[PDF] Clinical governance benchmarking issues in oncology: aggressiveness of cancer care and consumption of strong opioids. A
single-center experience on ...
[PDF] from tumorionline.it
P Giovanis, G De Leonardis, A Garna, V Lovat... - Tumori, 2010 - tumorionline.it
Key words: benchmarking issue, pal- liative care, quality of care. ... Acknowledgments: We thank
Mrs. Is- abella Pruneri for her revision of the manuscript. ... Correspondence to: Petros
Giovanis, MD, Operative Unit of Medical Oncol- ogy, City Hospital of Belluno, Viale Eu- ...
Related articles - View as HTML - All 5 versions

[PDF] Chemotherapy use at the end of life. A retrospective single centre experience analysis
[PDF] from tumorionline.it
F Andreis, A Rizzi, L Rota, F Meriggi... - Tumori, 2011 - tumorionline.it
Page 1. Key words: end-of-life treatment, palliative chemotherapy, solid tumors.
Correspondence to: Alberto Zaniboni, UO di Oncologia Medica, Fondazione

Poliambulanza, Via Bissolati 57, 25124 Brescia, Italy. E-mail zanib@numerica.it ...
Related articles - View as HTML - All 3 versions

End-of-life care in medicare beneficiaries dying with pancreatic cancer
KM Sheffield, CA Boyd, J Benarroch-Gampel... - Cancer, 2011 - Wiley Online Library
Overall, 56.9% of patients enrolled in hospice, and 35.9% of hospice users enrolled for 4 weeks
or more. Hospice use increased from 36.2% in 1992-1994 to 67.2% in 2004-2006 (P <
.0001). Admission to the ICU and receipt of chemotherapy in the last month of life ...
Related articles - All 2 versions

[HTML] 2010 INTERNATIONAL SURVEY ON END-OF-LIFE CARE
[HTML] from wildirismedical.com
N Evans - wildirismedical.com
Wild Iris Medical Education (CBRN Provider #12300) is approved as a provider of continuing
education for RNs, LVNs, and respiratory therapists by the California Board of Registered
Nursing. ... Wild Iris Medical Education is an approved provider of case manager ...
Related articles - Cached - All 2 versions

Survival prediction and frequency of anticancer treatment in cancer patients hospitalized due to acute conditions. Role of clinical
parameters and PaP score
G Numico, M Occelli, EG Russi, N Silvestris... - Supportive Care in Cancer - Springer
Abstract Purpose Survival prediction is useful in selecting patients for palliative care or active
anticancer therapy. The palliative and prognostic (PaP) score was shown to predict 1-month
survival in terminally ill patients. Its application to patients with less advanced disease is a ...
Related articles

[HTML] Volume 96 Numero 3 maggio-giugno 2010 I documenti sono in formato PDF, consultabili utilizzando Acrobat Reader
[HTML] from tumorionline.it
P Giovanis, G De Leonardis, A Garna, V Lovat... - tumorionline.it
We found that 5% and 9% of all treated patients were still receiving antiblastic treatment near
the end of life within respectively 14 and 30 days prior to death (respectively 29.6% and
51.5% of deceased patients). All but 2 patients died from progressive disease, one patient ...
Related articles - Cached

Why do our patients get chemotherapy until the end of life?
Annals of Oncology Advance Access published on September 13, 2011 Ann Oncol 2011 22: 2345-2348

Palliative chemotherapy during the last month of life
Annals of Oncology Advance Access published on March 14, 2011
Ann Oncol 2011 22: 2375-2380

**1b. Opportunity for Improvement:** H☐ M☐ L☐ I☐
(*There is a demonstrated performance gap - variability or overall less than optimal performance*)

**1b.1** Briefly explain the benefits (improvements in quality) envisioned by use of this measure:
Avoiding hospital admissions would improve quality of life and save resources.

**1b.2** Summary of Data Demonstrating Performance Gap *(Variation or overall less than optimal performance across providers)*:
[*For* _Maintenance_ *– Descriptive statistics for performance results* _for this measure_ *- distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.*]
There is 2.4-fold regional variation in the rates of hospital admission among similar cancer patients.

**1b.3** Citations for Data on Performance Gap: [*For* _Maintenance_ *– Description of the data or sample for measure results reported in 1b.2 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*]
Earle CC, Neville BA, Landrum ME, Souza JE, Weeks JC, Block SD, Grunfeld E, Ayanian JZ. Evaluating claims-based indicators of

the intensity of end-of-life cancer care. Int J Qual Health Care. 2005;17(6):505-9.

**1b.4** Summary of Data on Disparities by Population Group: [*For __Maintenance__ –Descriptive statistics for performance results for this measure by population group*]

A composite measure of aggressive care that included this measure showed that African-Americans, particularly those treated in the community setting, are more likely to experience aggressive care.

**1b.5** Citations for Data on Disparities Cited in 1b.4: [*For __Maintenance__ – Description of the data or sample for measure results reported in 1b.4 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*]

Earle CC, Neville BA, Landrum ME, Ayanian JZ, Block SD, Weeks JC. Trends in the aggressiveness of cancer care near the end of life. J Clin Oncol. 2004;22(2):315-21.

Earle CC, Landrum MB, Souza JM, Neville BA, Weeks JC, Ayanian JZ. Aggressiveness of cancer care near the end of life: is it a quality-of-care issue? J Clin Oncol. 2008 Aug 10;26(23):3860-6.

**1c. Evidence** (*Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.*)
**Is the measure focus a health outcome?** Yes☐ No☐ **If not a health outcome**, rate the body of evidence.

Quantity: H☐ M☐ L☐ I☐  Quality: H☐ M☐ L☐ I☐  Consistency: H☐ M☐ L☐ I☐

| Quantity | Quality | Consistency | Does the measure pass subcriterion1c? |
|---|---|---|---|
| M-H | M-H | M-H | Yes☐ |
| L | M-H | M | Yes☐ IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise **No**☐ |
| M-H | L | M-H | Yes☐ IF potential benefits to patients clearly outweigh potential harms: otherwise **No**☐ |
| L-M-H | L-M-H | L | No ☐ |

| Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service | Does the measure pass subcriterion1c? Yes☐ IF rationale supports relationship |
|---|---|

**1c.1** Structure-Process-Outcome Relationship (*Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process- health outcome; intermediate clinical outcome-health outcome*):

A structural feature: regional availability of hospice, has been shown to correlate with a composite measure of the aggressiveness of cancer care near the end of life that contains this measure. Mostly it is a process measure indicating a possible inadequate focus on palliation and supportive care, that can affect quality of life.

In the NIH-funded Cancer Care Outcomes Research and Surveillance Consortium, bereaved family members of 706 lung or colorectal cancer patients rated the quality of end-of-life care their loved one had received. Adjusted for age, sex, marital status, income, education, stage, comorbidity, health system type, census region, and the respondent´s relationship to the patient, respondents were significantly more likely to report that there had been no unmet need for help with anxiety or depression (83.9 vs 63.6%) or breathing (85.7 vs 70.5%) if they had had one or less hospitalizations in the last month of life (Landrum MB et al, under review).

**1c.2-3** Type of Evidence (*Check all that apply*):
Selected individual studies (rather than entire body of evidence)

**1c.4** Directness of Evidence to the Specified Measure (*State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population*):
The cited evidence specifically investigates this measure.

**1c.5** Quantity of Studies in the Body of Evidence (*Total number of studies, not articles*): 4

**1c.6 Quality of Body of Evidence** (*Summarize the certainty or confidence in the estimates of benefits and harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events)*: The studies are qualitative and observational using administrative data, consequently there are limitations to the quality of the data.

**1c.7 Consistency of Results across Studies** *(Summarize the consistency of the magnitude and direction of the effect):* All studies have shown similar results. As per Ho TH, Barbera L, Saskin R, Lu H, Neville BA, Earle CC.Trends in the Aggressiveness of End-of-Life Cancer Care in the Universal Health Care System of Ontario, Canada. J Clin Oncol April 20, 2011 vol. 29 no. 12 1587-1591, rates were similar in Canada in a comparison with U.S. Medicare patients at ~ 8%.

**1c.8 Net Benefit** *(Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms)*:
Less use of ICU near death can result in better quality of life (death) as well as resource savings.

**1c.9 Grading of Strength/Quality of the Body of Evidence**. Has the body of evidence been graded?  No

**1c.10 If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias:**

**1c.11 System Used for Grading the Body of Evidence:**  Other

**1c.12 If other, identify and describe the grading scale with definitions:**  does not apply

**1c.13 Grade Assigned to the Body of Evidence:**

**1c.14 Summary of Controversy/Contradictory Evidence:**  The argument is made that because providers cannot predict the future, measures based on decedent cohorts are unfair. However, as described above in 1a.a, the idea is for the measure to be seen as an overall indication of practice style and/or available palliative resources. An individual patient experiencing this process of care has not necessarily received poor quality care. If explanations other than practice style and resource availability, such as unusually poor prognostic ability on the part of the provider or unexpected toxic deaths (whether unavoidable, from overly aggressive treatment, or poor patient selection) are enough to influence the overall aggregate rates, it is still justifiable to consider it a 'red flag' that should prompt examination of the care provided.

**1c.15 Citations for Evidence other than Guidelines***(Guidelines addressed below)*:
The underlying evidence was obtained by expert consensus, as described in Earle CC, Park ER, Lai B, Weeks JC, Ayanian JZ, Block S. Identifying potential indicators of the quality of end of life cancer care from administrative data. J Clin Oncol. 2003;21(6):1133-8. The panel consisted of oncologists, nurses, palliative care specialists, etc, and used a modified Delphi process to evaluate measures.

**1c.16 Quote verbatim, <u>the specific guideline recommendation</u>** *(Including guideline # and/or page #)*:

**1c.17 Clinical Practice Guideline Citation:**

**1c.18 National Guideline Clearinghouse or other URL:**

**1c.19 Grading of Strength of Guideline Recommendation**. Has the recommendation been graded?  No

**1c.20 If guideline recommendation graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias:**

**1c.21 System Used for Grading the Strength of Guideline Recommendation:**  Other

**1c.22 If other, identify and describe the grading scale with definitions:** N/A

**1c.23 Grade Assigned to the Recommendation:**

**1c.24 Rationale for Using this Guideline Over Others:**

Based on the NQF descriptions for rating the evidence, **what was the <u>developer's assessment</u> of the quantity, quality, and consistency of the body of evidence?**
**1c.25** Quantity: High    **1c.26** Quality: Moderate **1c.27** Consistency: High

Was the threshold criterion, *Importance to Measure and Report*, met?
(*1a & 1b must be rated moderate or high and 1c yes*)   Yes☐  No☐
Provide rationale based on specific subcriteria:

For a new measure if the Committee votes NO, then STOP.
For a measure undergoing endorsement maintenance, if the Committee votes NO because of 1b. (no opportunity for improvement),  it may be considered for continued endorsement and all criteria need to be evaluated.

## 2. RELIABILITY & VALIDITY - SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, <u>as specified</u>, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **(<u>evaluation criteria</u>)**
Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field.  Supplemental materials may be referenced or attached in item 2.1. See <u>guidance on measure testing</u>.

**S.1 Measure Web Page** *(In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications  can be obtained).* Do you have a web page where current detailed specifications for <u>this</u> measure can be obtained? No

**S.2 If yes, provide web page URL:**

**2a. RELIABILITY. Precise Specifications and Reliability Testing:  H☐ M☐ L☐ I☐**

**2a1. Precise Measure Specifications.**  (*The measure specifications precise and unambiguous.*)

**2a1.1 Numerator Statement** *(Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome)*:
Patients who died from cancer and had >1 hospitalization in the last 30 days of life

**2a1.2 Numerator Time Window** *(The time period in which the target process, condition, event, or outcome is eligible for inclusion)*:
30 days before death

**2a1.3 Numerator Details** *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
MEDPAR only:
did not include SNF claims
counted number of admissions (using admitdate variable) per person during last 30 days before death

No codes used.

**2a1.4 Denominator Statement** *(Brief, narrative description of the  target population being measured)*:
Patients who died from cancer.

**2a1.5 Target Population Category** *(Check all the populations for which the measure is specified and tested if any)*:  Adult/Elderly Care

**2a1.6 Denominator Time Window** *(The time period in which cases are eligible for inclusion)*:
None

**2a1.7 Denominator Details** (*All information required to identify and calculate the target population/denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
Medicare patients in the death registry with cancer as their cause of death. In the cited analyses by the measure submitter, this is a field in the cancer registry or denominator file not requiring specific codes. This may be different in other administrative data sets.

**2a1.8 Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*:
None

**2a1.9 Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
N/A

**2a1.10 Stratification Details/Variables** *(All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses )*:
No stratification was used in the measure´s development or evaluation, however, it would be reasonable to apply the Deyo modification of the Charlson score (Deyo RA, Cherkin DC, Ciol MA: Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. J Clin Epidemiol 45:613-619, 1992)to claims and stratifying for comorbidities, e.g., scores of 0, 1, or 2+.

**2a1.11 Risk Adjustment Type** *(Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13)*:  No risk adjustment or risk stratification     **2a1.12 If "Other," please describe:**

**2a1.13 Statistical Risk Model and Variables** *(Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.)*:
No risk adjustment or risk stratification is necessary because the measure is intended to be used for comparison among similar providers; unless there is a reason to believe that one providers' patients have significantly different risks than others, it will not affect relative comparisons. Since, however, comorbidity risks coule increase the likelihood of experiencing this process of care, stratification or adjustment as described above can be considered.

None. No risk adjustment is necessary.  The Deyo modification of the Charlson score can be applied to claims as this measure may be sensitive to comorbidity, omitting 'Cancer' as a comorbid condition in the calcluation, and used as an independent variable in a regression model to predict an adjusted rate.

**2a1.14-16 Detailed Risk Model Available at Web page URL** (or attachment). Include coefficients, equations, codes with descriptors, definitions, and/or specific data collection items/responses.  Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL. Please supply login/password if needed**:**

**2a1.17-18. Type of Score:**  Rate/proportion

**2a1.19 Interpretation of Score** *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*:  Better quality = Lower score

**2a1.20 Calculation Algorithm/Measure Logic***(Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.)*:

**2a1.21-23 Calculation Algorithm/Measure Logic Diagram URL or attachment:**

**2a1.24 Sampling (Survey) Methodology.** If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):

**2a1.25 Data Source** *(Check all the sources for which the measure is specified and tested)*. If other, please describe:
Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Management Data, Paper Records

**2a1.26 Data Source/Data Collection Instrument** (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*): Medicare claims and denominator file

**2a1.27-29 Data Source/data Collection Instrument Reference Web Page URL or Attachment:**

**2a1.30-32 Data Dictionary/Code Table Web Page URL or Attachment:**

**2a1.33 Level of Analysis** (*Check the levels of analysis for which the measure is specified and tested)*: Clinician : Group/Practice, Facility, Health Plan, Integrated Delivery System, Population : County or City, Population : National, Population : Regional, Population : State

**2a1.34-35 Care Setting** *(Check all the settings for which the measure is specified and tested)*: Hospital/Acute Care Facility

**2a2. Reliability Testing.** (*Reliability testing was conducted with appropriate method, scope, and adequate demonstration of reliability.*)

**2a2.1 Data/Sample** *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
The measure was developed using the Medicare claims of all continuously-enrolled patients who died of cancer after having been diagnosed in a SEER region between 1991 and 1996.

**2a2.2 Analytic Method** *(Describe method of reliability testing & rationale)*:
Evaluation was carried out on 150 consecutive patients treated for advanced cancer at Dana-Farber Cancer Institute and Brigham and Women´s Hospital in Boston. The percent accuracy of death ascertainment for includion into this cohort is unknown but is likely high as the cancer registry regularly uses the death index for ascertainment. Ascertainment would be expected to be highly specific. Hospital billing claims were obtained and analyzed and the accuracy was compared to detailed medical record review.

**2a2.3 Testing Results** *(Reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
Sensitivity 0.96, Specificity 1.00, where sensitivity = # true positives (both claims and charts)/(# true positives + # false negatives, i.e., not in claims but present in charts) and specificity =  # true negatives/(# true negatives + false positives, i.e., present in claims but not in charts).

**2b. VALIDITY. Validity, Testing, <u>including all Threats to Validity</u>:**   H☐ M☐ L☐ I ☐

**2b1.1 Describe how the measure specifications** *(measure focus, target population, and exclusions)* **are consistent with the evidence cited in support of the measure focus (***criterion 1c***) and identify any differences from the evidence:**
They are identical

**2b2. Validity Testing.** (*Validity testing was conducted with appropriate method, scope, and adequate demonstration of validity.)*

**2b2.1 Data/Sample** *(Description of the data or sample including number of measured entities; number of patients; dates of data; if*

*a sample, characteristics of the entities included)*:
Evaluation was carried out on 150 consecutive patients treated for advanced cancer at Dana-Farber Cancer Institute and Brigham and Women´s Hospital in Boston. Claims were obtained and analyzed and the accuracy was compared to detailed medical record review.

**2b2.2 Analytic Method** *(Describe method of validity testing and rationale; if face validity, describe systematic assessment)*:
Face validity was determined by focus groups and structured interviews with end-of-life cancer patients and bereaved caregivers, and then vetted by an expert panel of cancer providers. The percent agreement between claims and medical record review was calculated.

**2b2.3 Testing Results** *(Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment)*:
The measure was 97% accurate (percent true positives + true negatives).

**POTENTIAL THREATS TO VALIDITY**. (*All potential threats to validity were appropriately tested with adequate results.*)

**2b3. Measure Exclusions.** (*Exclusions were supported by the clinical evidence in 1c or appropriately tested with results demonstrating the need to specify them.*)

**2b3.1 Data/Sample for analysis of exclusions** *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
None

**2b3.2 Analytic Method** (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference)*:
N/A

**2b3.3 Results** *(Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses):*
N/A

**2b4. Risk Adjustment Strategy.** (*For outcome measures, adjustment for differences in case mix (severity) across measured entities was appropriately tested with adequate results.*)

**2b4.1 Data/Sample** *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
N/A

**2b4.2 Analytic Method (***Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables)*:
N/A

**2b4.3 Testing Results** *(Statistical risk model: Provide quantitative assessment of relative contribution of model risk factors; risk model performance metrics including cross-validation discrimination and calibration statistics, calibration curve and risk decile plot, and assessment of adequacy in the context of norms for risk models.  Risk stratification: Provide quantitative assessment of relationship of risk factors to the outcome and differences in outcomes among the strata)*:
N/A

**2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment:**  No risk adjustment or risk stratification is necessary because the measure is intended to be used for comparison among similar providers; unless there is a reason to believe that one providers' patients have significantly different risks than others, it will not affect relative comparisons. Since, however, comorbidity risks coule increase the likelihood of experiencing this process of care, stratification or adjustment as described above can be considered.

**2b5. Identification of Meaningful Differences in Performance**. (*The performance measure scores were appropriately analyzed and discriminated meaningful differences in quality.*)

**2b5.1 Data/Sample** *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a*

*sample, characteristics of the entities included)*:
We used the Medicare claims of all 28,777 continuously-enrolled patients who died of cancer after having been diagnosed in a SEER region between 1991 and 1996. This was an analysis of SEER-Medicare linked data obtained from NCI (http://healthservices.cancer.gov/seermedicare/).

**2b5.2 Analytic Method** *(Describe methods and rationale  to identify statistically significant and practically/meaningfully differences in performance)*:
Benchmarks were established to identify the outlying 10th decile of practice: The proportion of patients experiencing each process of care in each Health Care Service Area (HCSA) was computed and ranked from best (least aggressive) to worst. A new cohort was created by sequentially adding HCSAs in order starting with the least aggressive until they contained at least 10% of the original cohort and the proportion experiencing each process of care was then recalculated to arrive at the 'Achievable Benchmark of Care). More detail on this, as well as a reference for the Achievable Benchmark of Care method can be found in our publication: Earle CC, Neville BA, Landrum ME, Souza JE, Weeks JC, Block SD, Grunfeld E, Ayanian JZ. Evaluating claims-based indicators of the intensity of end-of-life cancer care. Int J Qual Health Care. 2005;17(6):505-9.

**2b5.3 Results** *(Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
A benchmark target of < 4% of patients experiencing multiple hospital admissions in the last 30 days of life corresponds to that achieved by the highest performing regions in the country.

**2b6. Comparability of Multiple Data Sources/Methods.** (*If specified for more than one data source, the various approaches result in comparable scores.*)

**2b6.1 Data/Sample** *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
Administrative claims and chart review, as described above: 77 entities (HCSAs), 215,484 patients, between 1991 and 2000.

**2b6.2 Analytic Method** *(Describe methods and rationale for  testing comparability of scores produced by the different data sources specified in the measure)*:
We have also assessed the stability of these measures over time by examining the stability of relative aggressive care over time. If the relative aggressiveness of a provider or organization´s practice appeared to change from year to year, then these measures might not be assessing a stable property of practice. To investigate this, we used hierarchical regression models to estimate regional variation in both levels and trends of each measure. We used as our geographic unit of analysis the Health Care Service Area (HCSA). HCSAs are groupings of Metropolitan Statistical Areas defined by the Centers for Medicare & Medicaid Services (CMS) based on observed patient flow patterns in Medicare for tertiary care. As such, each HCSA can be considered to be a self-contained regional health system with a related group of providers. We ranked each region according to the model-estimated rate of each indicator and computed the correlation among relative ranks of each region during the 10-year study period.

**2b6.3 Testing Results** *(Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted)*:
We observed significant variation both in levels of aggressive care and in trends in aggressiveness over time, but generally stability of regional practice patterns: Year to year correlation on this measure was 0.97, and over a 5 year span was 0.78. This provides supportive evidence of the reliability of these measures.

**2c. Disparities in Care:   H☐ M☐ L☐ I ☐  NA☐** (*If applicable, the measure specifications allow identification of disparities.*)

**2c.1 If measure is stratified for disparities, provide stratified results** *(Scores by stratified categories/cohorts)*: N/A

**2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:**
N/A

**2.1-2.3 Supplemental Testing Methodology Information:**

Steering Committee: Overall, was the criterion, *Scientific Acceptability of Measure Properties*, met?
(*Reliability and Validity must be rated moderate or high*)  Yes☐  No☐
Provide rationale based on specific subcriteria:

If the Committee votes No, STOP

## 3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (**evaluation criteria**)

**C.1** Intended Purpose/ Use *(Check all the purposes and/or uses for which the measure is intended)*:  Public Reporting, Quality Improvement (Internal to the specific organization), Quality Improvement with Benchmarking (external benchmarking to multiple organizations)

**3.1** Current Use *(Check all that apply; for any that are checked, provide the specific program information in the following questions)*:  Public Reporting, Quality Improvement with Benchmarking (external benchmarking to multiple organizations)

**3a. Usefulness for Public Reporting:**  H☐ M☐ L☐ I☐
(*The measure is meaningful, understandable and useful for public reporting.*)

**3a.1. Use in Public Reporting - disclosure of performance results to the public at large** *(If used in a public reporting program, provide name of program(s), locations, Web page URL(s)).* If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement:  [*For Maintenance – If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.*]
To obtain sufficient sample size, this measure is generally reported at the level of the region, rather than physician.

Because this measure is publically available, all of its uses are not known. This has been reported as part of Cancer Care Ontario´s Cancer System Quality Index (www.csqi.cancercare.on.ca)

Cancer Care Ontario's report of this measure can be found at http://www.csqi.on.ca/cms/one.aspx?portalId=89621&pageId=92410 as part of the Cancer Quality Council of Ontario's Cancer System Quality Index. A summary of the recent findings follows:

What do the results show?
More than half of Ontario cancer deaths took place in an acute care hospital setting, and these rates are not decreasing (Figure 4)
•        In 2007, 52% of Ontario cancer patients died in an acute care hospital setting.
•        This is essentially unchanged from the previous three years.
•        Variations continue between Local Health Integration Networks (LHINs), with a low of 39% in Central West and a high of 69% in the North East LHIN.
Median length of stay in acute care holding steady (Figure 5)
•        The median length of stay in acute care has remained relatively constant over the last 4 years at around 13 days. The lack of adequate home care and hospice services along with -deficiencies in advance care planning may contribute to this rate.
•        North West LHIN has the highest median value in 2007, at 16 days, while Hamilton Niagara Haldimand Brant's median value is lowest, at 10 days.
Why is this important to patient care?
Aligning care with patients' needs and wants
•        Improving discussions about end of life care, ensuring adequate palliative care, primary care, hospice and home care resources can help us align the delivery of end-of-life care with what patients need and prefer. Preferences and needs can change during the illness and resources should be put in place to respond appropriately.
•        The goal of palliative care is to improve the quality of life of patients, and their families, by providing relief from the physical and psychosocial symptoms of life-threatening illness.
•        Appropriate symptom management and palliative care throughout a patient's disease experience not only improves the patient's outcomes and quality of life during their illness, it also maximizes the appropriateness of an individual's care at the end of

their life.
-         Research suggests that most cancer patients would choose to die outside of an acute care hospital setting2.
-         Acute care settings, such as hospitals or emergency departments, are generally not designed to provide the best possible end-of-life care for terminally ill cancer patients.
-         Regional variability in end-of-life indicators likely reflects differences in the availability of palliative care services and resources throughout the province.

The Canadian Cancer Society´s Canadian Cancer Statistics 2010 reports that the proportion of patients with more than one hospitalization in the last month of life varied from 11.7% in Nova Scotia to 15.6% in Ontario between 1998-2002.

**3a.2.Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting**. Is usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results: This measure was established based on focus groups and interviews with patients, followed by a modified Delphi process with an expert panel. The Ontario example above in 3a.1 demonstrates the meaningfulness and understandability for public reporting.

**3.2 Use for other Accountability Functions (payment, certification, accreditation).** If used in a public accountability program, provide name of program(s), locations, Web page URL(s):

**3b**. Usefulness for Quality Improvement:  H☐ M☐ L☐ I☐
(*The measure is meaningful, understandable and useful for quality improvement.*)

**3b.1. Use in QI.** If used in quality improvement program, provide name of program(s), locations, Web page URL(s):
[*For Maintenance – If not used for QI, indicate the reasons and describe progress toward using performance results for improvement*].
The measure potentially indicates whether symptoms have been controlled and whether advance directives discussions have taken place. The Ontario data above indicate large unexplained variation. Consequently, there is significant room for improvement. A study examining factors associated with hospitalization of elderly hospice patients with cancer and to describe their hospital experiences found that of the 23608 patients, 1423 (6.0%) were hospitalized after hospice enrollment (Cintron A, Hamel MB, Davis RB. Hospitalization of hospice patients with cancer. J Palliat Med. 2003; 6(5): 757-768.).  Hospitalization declined over time by 7.0% per year of hospice enrollment.  Factors associated with higher hospitalization rates were younger age, male gender, black race/ethnicity, local cancer stage at diagnosis, and hospice enrollment within 4 months of cancer diagnosis. Additionally, of the 1423 patients hospitalized, 34.6% received aggressive care and 35.8% died in the hospital.

**3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement.** Is usefulness was demonstrated (*e.g., QI initiative),* describe the data, method and results:
The measure has face validity and to some degree is under the control of the treating physician.

**Overall, to what extent was the criterion, *Usability*, met?**  H☐ M☐ L☐ I☐
Provide rationale based on specific subcriteria:

## 4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. **(evaluation criteria)**

**4a**. Data Generated as a Byproduct of Care Processes: H☐ M☐ L☐ I☐

**4a.1-2 How are the data elements needed to compute measure scores generated?** *(Check all that apply).*
Data used in the measure are:
Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

**4b. Electronic Sources:**  H☐ M☐ L☐ I☐

**4b.1 Are the data elements needed for the measure as specified available electronically** *(Elements that are needed to compute measure scores are in defined, computer-readable fields)*:  ALL data elements in electronic claims

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| **4b.2** If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources: | |
| **4c. Susceptibility to Inaccuracies, Errors, or Unintended Consequences:** H☐ M☐ L☐ I☐ | |
| **4c.1** Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results: 97% accuracy. There have been no reports of unintended consequences with this measure. | |
| **4d. Data Collection Strategy/Implementation:** H☐ M☐ L☐ I☐ | |
| **A.2** Please check if either of the following apply (*regarding proprietary measures*): **4d.1** Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues (*e.g., fees for use of proprietary measures*): None | |
| **Overall, to what extent was the criterion, *Feasibility*, met?** H☐ M☐ L☐ I☐ Provide rationale based on specific subcriteria: | |

## OVERALL SUITABILITY FOR ENDORSEMENT

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| **Does the measure meet all the NQF criteria for endorsement?** Yes☐ No☐ Rationale: |
| If the Committee votes No, STOP. If the Committee votes Yes, the final recommendation is contingent on comparison to related and competing measures. |

## 5. COMPARISON TO RELATED AND COMPETING MEASURES

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| If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure before a final recommendation is made. |
| **5.1** If there are related measures (*either same measure focus or target population*) or competing measures (*both the same measure focus and same target population*), list the NQF # and title of all related and/or competing measures: 0210 : Proportion receiving chemotherapy in the last 14 days of life 0211 : Proportion with more than one emergency room visit in the last days of life 0213 : Proportion admitted to the ICU in the last 30 days of life 0214 : Proportion dying from Cancer in an acute care setting 0215 : Proportion not admitted to hospice 0216 : Proportion admitted to hospice for less than 3 days |
| **5a. Harmonization** |
| **5a.1** If this measure has EITHER the same measure focus OR the same target population as NQF-endorsed measure(s): Are the measure specifications completely harmonized? **5a.2** If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden: |
| **5b. Competing Measure(s)** |
| **5b.1** If this measure has both the same measure focus and the same target population as NQF-endorsed measure(s): Describe why this measure is superior to competing measures (*e.g., a more valid or efficient way to measure quality*); OR provide a rationale for the additive value of endorsing an additional measure. (*Provide analyses when possible*): |

| CONTACT INFORMATION |
|---|
| **Co.1 Measure Steward (Intellectual Property Owner):** American Society of Clinical Oncology, 2318 Mill Road, Suite 800, Alexandria, Virginia, 22314 |
| **Co.2 Point of Contact:** Craig, Earle, MD, craig.earle@ices.on.ca, 416-480-6047- |
| **Co.3 Measure Developer if different from Measure Steward:** Institute for Clinical Evaluative Sciences, 2075 Bayview Ave, G-wing, room 106, Toronto, Ontario, M4N 3M5 <br><br> **Co.4 Point of Contact:** Craig, Earle, MD, craig.earle@ices.on.ca, 416-480-6047- |
| **Co.5 Submitter:** Craig, Earle, MD, craig.earle@ices.on.ca, 416-480-6047-, Institute for Clinical Evaluative Sciences |
| **Co.6 Additional organizations that sponsored/participated in measure development:** |
| **Co.7 Public Contact:** Craig, Earle, MD, craig.earle@ices.on.ca, 416-480-6047-, Institute for Clinical Evaluative Sciences |


| ADDITIONAL INFORMATION |
|---|
| **Workgroup/Expert Panel involved in measure development** <br> **Ad.1** Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development. <br> Co-investigators on grant: Jane Weeks, John Ayanian, Mary Beth Landrum, Susan Block, Joe Newhouse |
| **Ad.2** If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward: |
| **Measure Developer/Steward Updates and Ongoing Maintenance** <br> **Ad.3** Year the measure was first released: 2005 <br> **Ad.4** Month and Year of most recent revision: 06, 2011 <br> **Ad.5** What is your frequency for review/update of this measure? q3years <br> **Ad.6** When is the next scheduled review/update for this measure? 12, 2013 |
| **Ad.7** Copyright statement: |
| **Ad.8** Disclaimers: |
| **Ad.9** Additional Information/Comments: |
| **Date of Submission** (*MM/DD/YY*): 01/08/2012 |