CBE ID

5593

Title

Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life (lower score – better)

Project

Advanced Illness and Post-Acute Care

Endorsement Status

New

Is Under Review

Yes

Next Maintenance Cycle

Spring 2026

Steward

American Society of Clinical Oncology (ASCO)

1.0 New or Maintenance

New

1.1 Measure Structure

Single Measure

1.3 Electronic Clinical Quality Measure (eCQM)

No

1.6 Measure Description

Percentage of patients, aged 18 years and older, who died with cancer with more than one hospitalization, in an acute care hospital or critical access hospital, in the last 30 days of life

1.7 Measure Type

Intermediate Outcome

1.8 Level of Analysis

Clinician: Group/Practice

1.9 Care Setting

Ambulatory Care: Clinic, Ambulatory Care: Clinician Office, Ambulatory Care: Office

1.10 Measure Rationale

Multiple hospitalizations in the final days of life among patients with cancer are widely regarded as the result of aggressive end of life (EOL) care and as a marker of failure in advance care planning or late-stage palliative care integration. The seminal *Dying in America* report states that a palliative approach often offers the best chance of maintaining the highest possible quality of life for those living with advanced serious illness (Institute of Medicine [IOM], 2015) and proposes, as a core component to quality end-of-life care, to offer palliative care services and a personalized revision of the care plan, as well as access to services based on the changing needs of the patient and family (IOM, 2015). Community-based or home-based palliative care services have been associated with a reduced need for end-of-life ED visits, reduced length and frequency of hospitalizations, and fewer ICU admissions and in-hospital deaths (NCCN, 2026). One matched cohort study evaluated Medicare patients with metastatic cancer also found that patients who received a palliative care consult spent approximately $2,000 less in healthcare costs versus those with no palliative care consultation; patients had even more savings when a palliative care consultation was more than four weeks prior to death (Sheridan et al., 2021).

The goal of *Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life (lower score – better)* is to encourage timely enrollment in palliative care that focuses on symptom management, rather than low utility and aggressive treatments, among people dying with cancer. This results in a reduction of aggressive interventions leading to hospitalizations, ICU admissions, ED visits, improves symptom control and quality of life, and ultimately improves patient, family, and caregiver satisfaction. Timely enrollment in palliative care also reduces resource utilization costs and aligns with the Medicare Payment Advisory Commission's (MedPAC) goal to reduce high-intensity, low-value care at the end of life by promoting hospice and palliative care (MedPAC, 2025).

These end-of-life measures were initially developed in 2003 as clinical indicators for healthcare systems, using existing administrative data. As part of the 2023-2024 ASCO EOL Measures Technical Expert Panel (TEP) work, the panel updated this measure and specified it at the practice level, using claims data to aid with more consistent and reliable case identification with no extra administrative burden.

Note that ASCO's EOL Measures TEP emphasized that performance is not expected to be perfect on this quality measure. A margin of error should be expected to account for scenarios such as patient and family preferences, barriers to palliative care and hospice access, and sudden patient decline.

References:

1. Institute of Medicine. (2015). *Dying in America: Improving Quality and Honoring Individual Preferences Near The End of Life*. National Academies Press. https://doi.org/10.17226/18748
2. Medicare Payment Advisory Commission. (2025, March). *Report to the Congress: Medicare payment policy*. https://www.medpac.gov/wp-content/uploads/2025/03/Mar25_MedPAC_Report_To_Congress_SEC.pdf
3. National Comprehensive Cancer Network. (2026). *NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Palliative Care* (Version 1.2026). https://www.nccn.org/professionals/physician_gls/pdf/palliative.pdf
4. Sheridan, P. E., LeBrett, W. G., Triplett, D. P., Roeland, E. J., Bruggeman, A. R., Yeung, H. N., & Murphy, J. D. (2021). Cost Savings Associated with Palliative Care Among Older Adults with Advanced Cancer. *American Journal of Hospice and Palliative Medicine*, *38*(10), 1250–1257. https://doi.org/10.1177/1049909120986800

1.11 Measure Webpage

None.

1.13 Data Dictionary

Attached

1.13a Attach Data Dictionary

Copy-of-EOLMeasures_Coding_2.xlsx

1.14 Numerator

Patients who had more than one hospitalization in an acute care hospital or critical access hospital in the last 30 days of life

1.14a Numerator Details

Patients who had more than one hospitalization in an acute care hospital or critical access hospital in the last 30 days of life

Numerator Criteria:

At least two hospital admissions that meet the following criteria:

Type of Bill:

111- Hospital Inpatient (Including Medicare Part A) admit through discharge

121- Hospital Inpatient (Medicare Part B Only) admit through discharge

851- Specialty Facility Critical Access Hospital: admit through discharge

AND

Hospital Admission Date <during Measurement Period>

AND

Hospital Type of Acute Care Hospital or Critical Access Hospital:

Provider Transaction Access Number (PTAN) 3rd digit of 0 OR 3rd and 4th digit of 13

AND

Hospital Admission Date in the last 30 days of life:

(Date of death minus Hospital Admission Date) < 30 days

This quality measure has numerator exclusions. See below for details:

Numerator Exclusions: Do not count transfers from another acute care facility or overlapping stays as a second hospital admission.

Transfer from another acute care facility:

Point of Origin code 4 or Admission Date equal to another qualifying event Discharge Date

OR

Overlapping stays:

Admission Date between Admission Date and Discharge Date of another qualifying event.

1.15 Denominator

Patients, aged 18 years and older, who died with cancer

1.15a Denominator Details

Patients, aged 18 years and older, who died with cancer.

Denominator Criteria (Eligible Cases):

1. Patients aged ≥ 18 years at the start of the measurement period:

(Start Date of the Measurement Period minus Date of Birth) ≥ 18 years

AND

1. At least two outpatient encounters that meet the following criteria:

2a) Place of Service: 02, 05, 07, 10, 11, 19, 22, 49, 50, 71, 72

AND

2b) Professional Service code:

98000, 98001, 98002, 98003, 98004, 98005, 98006, 98007, 98008, 98009, 98010, 98011, 98012, 98013, 98014, 98015, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99242, 99243, 99244, 99245, 99495, 99496, 99441, 99442, 99443

(NOTE: Encounters coded with telehealth modifier GQ, GT, or 95 are allowed for both visits.)

AND

2c) Service Date <during Measurement Period>

AND

2d) Diagnosis code for Cancer

(See tab "CancerDx" in "EOLMeasures_Coding")

AND

1. Date of death <during Measurement Period>

Guidance:

For physician/group reporting, attribution of patients to an oncology practice is based on the presence of at least two outpatient visit claims for the patient with that practice. The two outpatient encounters required in the denominator are outpatient visits that occur on different calendar days.

To be eligible in the denominator, patients must have continuous coverage during the measurement period.

A cancer diagnosis code must appear within the top 3 diagnosis positions on an outpatient visit claim that meets the denominator encounter requirement.

1.15b Denominator Exclusions

This quality measure has no denominator exclusions, but does have denominator exceptions. See below for details:

Denominator exceptions:

Patients with more than one hospitalization, in an acute care hospital or critical access hospital, due to complications from 1) receipt or in process of receipt of bone marrow or peripheral blood stem cell transplant (transplant status) in the last 60 days of life, or 2) receipt or in process of receipt of CAR T cell therapy in the last 60 days of life

1.15c Denominator Exclusions Details

Denominator exception details:

Denominator Exceptions Criteria:

Receipt or in process of receipt of bone marrow or peripheral blood stem cell transplant

Code: *(See tab "BoneMarrowStemCellTransplant" in "EOLMeasures_Coding" file)*

AND

Service/Procedure Date or Claim from Date (for ICD-10-CM transplant status code)

AND

(Date of death minus Service/Procedure Date or Claim from Date) < 60 days

OR

Receipt or in process of receipt of CAR T cell therapy

Code: *(See tab "CARTCellTx" in "EOLMeasures_Coding" file)*

AND

Service/Procedure Date

AND

(Date of death minus Service/Procedure Date) < 60 days

1.15d Age Group

Adults (18-64 years), Older Adults (65 years and older)

1.16 Type of Score

Ratio

1.17 Measure Score Interpretation

Better performance = Lower score

1.18 Calculation of Measure Score

See attached.

1.18a Attach measure score calculation diagram

Hospitalization-Claims_Flow_1.pdf

1.19 Measure Stratification Details

This measure is not stratified.

1.20 Types of Data Sources

Claims Data

1.21a Data Collection Tool URL(s)

http://example.com

1.25 Data Source Details

Claims data is a type of administrative data generated every time a healthcare provider submits a request for payment to an insurance payer. Claims data is highly standardized and for the purposes of this measure captures the exact location and dates of service.

1.26 Minimum Sample Size

Minimum of five (5) patients.

2.1 Attach Logic Model

Hospital_Claims_LogicModel.docx

2.2 Evidence of Measure Importance

In the United States, cancer is the second leading cause of death overall and the leading cause of death among people younger than 85 years (Siegel et al., 2026). It is projected that in 2026 there will be approximately 2.1 million *new* cancer cases and over half a million cancer deaths (Siegel et al., 2026). While individual patients have their own preferences that can change over time,

consistently across various populations, most patients nearing end of life wish to die at home (Gomes et al., 2013). Hospitalizations, ED visits, and ICU stays in the last 30 days of life have been repeatedly associated with poor quality end-of-life care, as reported by family caregivers (Ersek et al., 2017, Wright et al., 2016, and Christian et al., 2021). In one national study, family caregivers gave significantly higher EOL care quality ratings for care at home under hospice than to EOL care received in a hospital palliative care unit, hospice inpatient unit, or residential hospice (Zhu et al., 2024). And cancer-directed therapy received near the end of life continues to be associated with more hospitalizations, ED visits, and ICU stays (Garg et al., 2024 & Adelson et al., 2024).

The goal of *Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life (lower score – better)* is to, alongside ASCO's suite of EOL measures, highlight performance trends over time and encourage timely enrollment in palliative care that focuses on symptom management, rather than low utility and aggressive treatments, among people dying with cancer. This results in a reduction of aggressive interventions leading to hospitalizations, improves symptom control and quality of life, and ultimately improves patient, family, and caregiver satisfaction. Timely enrollment in palliative care also reduces resource utilization costs and aligns with MedPAC's goal to reduce high-intensity, low-value care at the end of life by promoting hospice and palliative care (MedPAC, 2025). Studies show that the integration of palliative care into the cancer care continuum improves patient outcomes in many ways, including quality of life, symptoms intensity, and end-of-life care (NCCN, 2026). The seminal NAM report *Dying in America* states that a palliative approach often offers the best chance of maintaining the highest possible quality of life for those living with advanced serious illness (Institute of Medicine [IOM], 2015) and proposes, as a core component to quality end-of-life care, to offer palliative care services and a personalized revision of the care plan, as well as access to services based on the changing needs of the patient and family (IOM, 2015). Community-based or home-based palliative care services have been associated with a reduced need for end-of-life emergency department visits, reduced length and frequency of hospitalizations, and fewer ICU admissions and in-hospital deaths (NCCN, 2026). A recent systematic review looked at peer-reviewed observational/experimental advance care planning and cancer patient-specific studies published between 1990-2022 and found that across ~33,500 patients advance care planning was associated with significantly lower odds of chemotherapy, intensive care, hospital admissions, hospice use fewer than seven days, hospital death, and aggressive care composite measures (Levoy et al., 2023).

ASCO and NCCN palliative care guidelines contain the following recommendations:

- The oncology team should consider <palliative care> consultation for patients with limited anticancer treatment options due to lack of access to anticancer therapy; advanced disease process; multiple/severe comorbid conditions; rapidly progressive functional decline; and/or persistently poor performance status. Additional criteria include…frequent emergency department visits or hospital admissions; need for ICU-level care (Category 2A) (NCCN, 2026).
- In general, patients with weeks to days to live (eg, dying patients) and comfort-oriented goals should discontinue all treatments not directly contributing to patient comfort.

Intensive palliative care focusing on symptom management should be provided in addition to preparation for the dying process. Referral for hospice care should be placed, if not already done (Category 2A) (NCCN, 2026).

- Clinicians should assess and cultivate prognostic awareness and engage in advance care planning with patients and their families to ensure patient-centered care plans (Category 2A) (NCCN, 2026).
- Clinicians should refer patients with advanced solid tumors and hematologic malignancies to specialized interdisciplinary palliative care teams that provide inpatient and outpatient care early in the course of disease, alongside active treatment of their cancer (Moderate, Strong) (Sanders et al., 2024).

Definitions of Categories of Evidence and Ratings:

- Category 2A: Based upon lower-level evidence, there is uniform NCCN consensus (≥85% support of the Panel) that the intervention is appropriate. *Note there are no Category 1 recommendations within NCCN's guidelines on Palliative Care.*
- Strong Strength of Recommendation: In recommendations for an intervention, the desirable effects of an intervention outweigh its undesirable effects. In recommendations against an intervention, the undesirable effects of an intervention outweigh its desirable effects. All or almost all informed people would make the recommended choice for or against an intervention
- Moderate Quality of Evidence: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

References:

1. Adelson, K. B., Canavan, M., Niu, J., Zhao, H., Nortje, N., Xiang, J. J., Giordano, S. H., & Cheng, L. (2024). Systemic anti-cancer treatment and healthcare utilization at end of life: A SEER Medicare analysis. *JCO Oncology Practice*, *20*(10_suppl), 276. https://doi.org/10.1200/OP.2024.20.10_suppl.276
2. Christian, T. J., Hassol, A., Brooks, G. A., Gu, Q., Kim, S., Landrum, M. B., & Keating, N. L. (2021). How Do Claims-Based Measures of End-of-Life Care Compare to Family Ratings of Care Quality?. *Journal of the American Geriatrics Society*, *69*(4), 900–907. https://doi.org/10.1111/jgs.16905
3. Ersek, M., Miller, S. C., Wagner, T. H., Thorpe, J. M., Smith, D., Levy, C. R., Gidwani, R., Faricy-Anderson, K., Lorenz, K. A., Kinosian, B., & Mor, V. (2017). Association between aggressive care and bereaved families' evaluation of end-of-life care for veterans with non-small cell lung cancer who died in Veterans Affairs facilities. *Cancer*, *123*(16), 3186–3194. https://doi.org/10.1002/cncr.30700
4. Garg, V., Ruiz Buenrostro, A., Heuniken, K., Bagnarol, R., Yousef, M., Sajewicz, K., Dhanju, S., Wentlandt, K., Kuruvilla, J., Lheureux, S., Zimmermann, C., & Hannon, B. (2024). Novel

Systemic Anticancer Therapy and Healthcare Utilization at the End of Life: A Retrospective Cohort Study. *Cancer medicine*, *13*(23), e70450. https://doi.org/10.1002/cam4.70450
5. Gomes, B., Calanzani, N., Gysels, M., Hall, S., & Higginson, I. J. (2013). Heterogeneity and changes in preferences for dying at home: a systematic review. *BMC palliative care*, *12*, 7. https://doi.org/10.1186/1472-684X-12-7
6. Institute of Medicine. (2015). *Dying in America: Improving Quality and Honoring Individual Preferences Near The End of Life*. National Academies Press. https://doi.org/10.17226/18748
7. Levoy, K., Sullivan, S. S., Chittams, J., Myers, R. L., Hickman, S. E., & Meghani, S. H. (2023). Don't throw the baby out with the bathwater: Meta-analysis of advance care planning and end-of-life cancer care. *Journal of Pain and Symptom Management*, *65*(6), e715–e743. https://doi.org/10.1016/j.jpainsymman.2023.02.003
8. National Comprehensive Cancer Network. (2026). *NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Palliative Care* (Version 1.2026). https://www.nccn.org/professionals/physician_gls/pdf/palliative.pdf
9. Sanders, J. J., Temin, S., Ghoshal, A., Alesi, E. R., Ali, Z. V., Chauhan, C., Cleary, J. F., Epstein, A. S., Firn, J. I., Jones, J. A., Litzow, M. R., Lundquist, D. M., Mardones, M. A., Nipp, R. D., Rabow, M. W., Rosa, W. E., Zimmermann, C., & Ferrell, B. R. (2024). Palliative Care for Patients with Cancer: ASCO guideline Update. *Journal of Clinical Oncology*, *42*(19), 2336–2357. https://doi.org/10.1200/JCO.24.00542
10. Siegel, R. L., Kratzer, T. B., Wagle, N. S., Sung, H., & Jemal, A. (2026). Cancer statistics, 2026. *CA: A Cancer Journal for Clinicians*, *76*(1), Article e70043. https://doi.org/10.3322/caac.70043
11. Wright, A. A., Keating, N. L., Ayanian, J. Z., Chrischilles, E. A., Kahn, K. L., Ritchie, C. S., Weeks, J. C., Earle, C. C., & Landrum, M. B. (2016). Family Perspectives on Aggressive Cancer Care Near the End of Life. *JAMA*, *315*(3), 284–292. https://doi.org/10.1001/jama.2015.18604
12. Zhu, E., McCreedy, E., & Teno, J. M. (2024). Bereaved Respondent Perceptions of Quality of Care by Inpatient Palliative Care Utilization in the Last Month of Life. *Journal of general internal medicine*, *39*(6), 893–901. https://doi.org/10.1007/s11606-023-08588-4

2.3 Anticipated Impact

The goal of *Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life (lower score – better)* is to highlight performance trends over time and encourage timely enrollment in palliative care among people dying with cancer. This results in a reduction of aggressive interventions leading to ICU visits, ED visits, and hospitalizations, improved symptom control and quality of life, and ultimately improved patient, family, and caregiver satisfaction. There is a plethora of evidence from the literature that early palliative care also reduces costs at the end of life for the patient and healthcare system at large. Community-based or home-based palliative care services have been associated with a reduced need for end-of-life emergency department visits, reduced length and frequency of hospitalizations, and fewer ICU admissions and in-hospital deaths (NCCN, 2026). Davis et al. analyzed health insurance data to determine the impact of palliative care on “aggressive end of life” and found that palliative care <90 days before death was associated with increased costs while palliative care consults >90 days before death lowered cost ($P < .0001$); completed advanced directives reduced cost by ~$4000 per patient (2023). Cheung et al.

evaluated a cohort of patients who died of cancer between 2005-2009 and found that patients who received “aggressive end of life care” incurred 43 percent higher costs than those managed non-aggressively and that early and repeated palliative care consults were associated with reduced mean per-patient costs (2015). Starr et al. conducted a systematic review to determine the impacts of advance care planning and goals-of-care discussions on healthcare utilization, costs, and place of death; researchers found that EOL discussions are associated with lower healthcare costs in the last 30 days of life (median $1,048 vs. $23,482; $p < .001$); lower likelihood of acute care at EOL [Odds Ratios (OR) ranging 0.43 to 0.69]; lower likelihood of intensive care at EOL (ORs ranging 0.26 to 0.68); lower odds of chemotherapy near death (ORs 0.41, 0.57); lower odds of emergency department use and shorter length of hospital stay; greater use of hospice (ORs ranging 1.79 to 6.88); and greater likelihood of death outside the hospital (2020). The American Cancer Society summarized several key studies and review articles that examine the impact of palliative care on overall patients costs and found that palliative care either reduces overall costs to the patient or is cost neutral, while improving the patient’s quality of life (2022).

References:

1. American Cancer Society Cancer Action Network. (2022, November 22). *Palliative Care: Key studies on cost savings*. https://www.fightcancer.org/sites/default/files/palliative_care_effects_on_costs_11-18-22_update.pdf
2. Cheung, M. C., Earle, C. C., Rangrej, J., Ho, T. H., Liu, N., Barbera, L., Saskin, R., Porter, J., Seung, S. J., & Mittmann, N. (2015). Impact of aggressive management and palliative care on cancer costs in the final month of life. *Cancer*, *121*(18), 3307–3315. https://doi.org/10.1002/cncr.29485
3. Davis, M. P., Vanenkevort, E. A., Elder, A., Young, A., Correa Ordonez, I. D., Wojtowicz, M. J., Ellison, H., Fernandez, C., Mehta, Z., Behm, B., Digwood, G., & Panikkar, R. (2023). The Financial Impact of Palliative Care and Aggressive Cancer Care on End-of-Life Health Care Costs. *The American journal of hospice & palliative care*, *40*(1), 52–60. https://doi.org/10.1177/10499091221098062
4. National Comprehensive Cancer Network. (2026). *NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Palliative Care* (Version 1.2026). https://www.nccn.org/professionals/physician_gls/pdf/palliative.pdf
5. Starr, L. T., Ulrich, C. M., Corey, K. L., & Meghani, S. H. (2019). Associations Among End-of-Life Discussions, Health-Care Utilization, and Costs in Persons With Advanced Cancer: A Systematic Review. *The American journal of hospice & palliative care*, *36*(10), 913–926. https://doi.org/10.1177/1049909119848148

2.4 Performance Gap

ASCO evaluated performance on the "Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life" measure. Using combined data from January 2023 to December 2024, the study included 563 practices that met the minimum requirement of five eligible patients (refer to Sections 1.26 and 5.1.1 for details on sample size and testing).

Because this measure tracks frequent acute care admissions in the final month of life, a lower percentage reflects stronger performance in end-of-life care coordination and home-based support. Results ranged from 0% to 60%, showing a broad spectrum of clinical management across the cohort. The mean performance on the measure was 14% (±12%) with a 95% confidence level of ±1%; the median was slightly lower at 13%.

The distribution is positively skewed at 0.98, indicating that while most practices successfully limit multiple hospitalizations, a distinct tail of practices shows significantly higher utilization rates. Encouragingly, the mode was 0%, meaning that for many individual entities, the most frequent outcome was that no patients experienced more than one hospitalization in their final 30 days. These results show that while the highest-performing entities achieved 0%, the lowest-performing entity (60%) had a rate that is 362% (4.62 times) higher than the median. For practices performing above the median, these results highlight a critical opportunity to refine triage protocols and increase the utilization of palliative care resources to prevent avoidable hospital readmissions.

Table 1. Performance Scores by Decile

Mean Performance Score by Decile: Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life, Practice Level, Jan 2023 – Dec 2024

	Overall	Min	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Max
Mean Performance Score	14.0%	0.0%	0.0%	0.0%	4.9%	9.4%	11.9%	13.8%	16.6%	19.8%	25.1%	38.8%	60.0%
Number of Entities	563	1	57	56	56	57	56	56	57	56	56	56	1
Number of Persons / Encounters / Episodes	15,741	5	446	465	3,717	1,680	2,403	2,128	1,834	1,169	1,395	504	5

2.4a Attach Performance Gap Results

Mean-Performance-Score-by-Decile--Percentage-of-Patients-who-Died-with-Cancer-with-More-Than-One-Hospitalization--in-an-Acute-Care-Hospital-or-Critical-Access-Hospital--in-the-Last-30-Days-of-Life-.pdf

2.5 Health Care Quality Landscape

There are a few existing quality measures that relate to planning for end of life and palliative care; however, these are either not specific to cancer patients or are specified only for a specific EMR environment (in the case of the QCDR measure). Below are the existing measures:

CBE #	Measure Name	Description
3665	Ambulatory Palliative Care Patients Experience of Feeling Heard and Understood	The percentage of top-box responses among patients aged 18 years and older who had an ambulatory palliative care visit and report feeling heard and understood by their palliative care clinician and team within 2 months (60 days) of the ambulatory palliative care visit.
326	Advance Care Plan	Percentage of patients aged 65 years and older who have an advance care plan or surrogate decision maker documented in the medical record or documentation in the medical record that an advance care plan was discussed but the patient did not wish or was not able to name a surrogate decision maker or provide an advance care plan.
N/A	ALS Patient Care Preferences	Percentage of patients diagnosed with Amyotrophic Lateral Sclerosis (ALS) who were offered assistance in planning for end of life issues (e.g., advance directives, invasive ventilation, lawful physician-hastened death, or hospice) or whose existing end of life plan was reviewed or updated at least once annually or more frequently as clinically indicated (i.e., rapid progression).
N/A	PIMSH1: Oncology: Advance Care Planning in Metastatic Cancer Patients	Percentage of patients with metastatic (stage 4) cancer who have a documented Advance Care Planning discussion in the first 6 months after metastatic diagnosis to inform treatment decisions and end-of-life care.

Note that there is the existence of *OP-35: Admissions and Emergency Department (ED) Visits for Patients Receiving Outpatient Chemotherapy*, however this is specified and tested at the outpatient hospital level, rather than clinician level.

Taken together, ASCO's suite of end-of-life measures provides a more comprehensive picture of the quality of end-of-life care among patients with cancer who are dying. Lastly, ASCO has developed claims-based versions of its EOL measures to assist with more consistent and reliable case identification, with no added administrative burden of data collection for the measure implementer.

2.6 Meaningfulness to Target Population

ASCO's end-of-life quality measures were originally developed in 2003 using a patient-centered methodology to capture outcomes meaningful to those with advanced illness (Earle et al., 2003). This included:

- Focus groups consisting of patients with incurable cancer and family members of deceased patients. These participants identified and vetted potential EOL quality measures to ensure they reflected patient-centered priorities.
- Expert Consensus: A multidisciplinary expert panel applied a modified Delphi approach to rank the importance and meaningfulness of potential measures based on the focus group input. Measures that did not resonate with patient and family values (such as those focused solely on economic efficiency) were excluded.
- Literature searches.

ASCO has continued to integrate the patient and caregiver voice into the current versions of these measures:

- Expert Panel Participation: A family caregiver representative served as a formal member of the 2023–2024 ASCO EOL Expert Panel, providing direct input during the review and updating of the measures.

References:

Earle, C. C., Park, E. R., Lai, B., Weeks, J. C., Ayanian, J. Z., & Block, S. (2003). Identifying potential indicators of the quality of end-of-life cancer care from administrative data. *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology*, *21*(6), 1133–1138. https://doi.org/10.1200/JCO.2003.03.059

3.1 Contributions Towards Closing Care Gaps

A recent systematic review and meta-analysis looked at aggressive EOL cancer care among ~2.7 million patients across 129 studies and found that aggressive EOL care is a common global practice (Ma et al., 2024):

- **Repeated hospital admissions (>1) in the last 30 days of life: 17.9%.**
- Repeated emergency room visits (>1) in the last 30 days of life: 14.8%.
- Intensive care unit (ICU) stays in the last 30 days of life: 14.4%.
- Hospice enrollment less than 3 days before death: 14.4%.
- Chemotherapy in the last 14 days of life: 11.6%.

Additionally, of the studies using a composite score, more than half of the patients experienced at least one measure of aggressive care at the end of their lives. The research also showed that patients with hematologic malignancies were significantly more likely to receive aggressive care, including higher rates of late hospice enrollment, ICU stays, and chemotherapy in the last weeks of life, compared to those with solid tumors (Ma et al., 2024).

Christodoulou et al. looked at ED utilization and subsequent inpatient admissions amongst patients with cancer via a retrospective, pooled, cross-sectional analysis of the Healthcare Cost and Utilization State Emergency Department Databases and State Inpatient Databases for Maryland and New York from January 2013 to December 2017. The study found that patients with cancer had more ED visits overall, inpatient admissions through the ED, and were more likely to die during an outpatient ED visit or inpatient admission compared with ED users without cancer. There is evidence of gaps in care among lower-level studies as well. A retrospective review evaluated 2,844 patients in a multistate, community-based hospital network with stage IV NSCLC and found that only 8 percent of patients were referred for outpatient palliative care (Meggyesy et al., 2022).

CMS launched the Enhancing Oncology Model (EOM) in July 2023. EOM is a voluntary, episode-based model that 44 oncology practices treating patients with high-risk cancer participate in. Per the *2025 Enhancing Oncology Model – First Evaluation Report*, both EOM and non-EOM practices had high rates of systemic cancer directed-associated hospitalizations in the baseline period of July 1, 2018–June 30, 2022 (10% and 10.5% respectively) (CMS, 2025). *Note this is based on the quality measure Admissions and Emergency Department Visits for Patients Receiving Outpatient Chemotherapy (OP-35 Respecified), where "chemotherapy" refers to systemic cancer treatments.*

References:

1. Centers for Medicare & Medicaid Services. (2025). *EOM First Evaluation Main Report*. https://www.cms.gov/priorities/innovation/data-and-reports/2025/eom-1st-eval-report
2. Christodoulou, I., Ukert, B., Vavuranakis, M. A., Kum, H. C., & Giannouchos, T. V. (2023). Adult Cancer-Related Emergency Department Utilization: An Analysis of Trends and Outcomes From Emergency Departments in Maryland and New York. *JCO Oncology Practice*, *19*(5), e683–e695. https://doi.org/10.1200/OP.22.00525
3. Ma, Z., Li, H., Zhang, Y., Zhang, L., Huang, G., Zhang, Y., Shi, L., Liu, W., An, Z., & Guan, X. (2024). Prevalence of aggressive care among patients with cancer near the end of life: a systematic review and meta-analysis. *EClinicalMedicine*, *71*, 102561. https://doi.org/10.1016/j.eclinm.2024.102561
4. Meggyesy, A. M., Buehler, K. E., Wilshire, C. L., Chiu, S. T., Chang, S.-C., Rayburn, J. R., Gilbert, C. R., & Gorden, J. A. (2022). Utilization of palliative care resource remains low, consuming potentially avoidable hospital admissions in stage IV non-small cell lung cancer: A community-based retrospective review. *Supportive Care in Cancer*, *30*(12), 10117–10126. https://doi.org/10.1007/s00520-022-07364-0

4.1a Data Structure and Availability

Data Generation and Availability
As this is a claims-based measure, the data elements required are routinely generated during the delivery of care as part of the standard billing and reimbursement cycle. These data are 100% available in electronic sources via HIPAA-standard electronic data interchange (EDI) transactions.

Data Structure
All required data elements are housed in structured fields within the claims database. The measure does not rely on unstructured data or free-text clinical notes, ensuring high consistency and ease of extraction.

Inaccuracies and Missing Data
As with all administrative data, this measure is primarily susceptible to inaccuracies related to "claims lag" (the delay between service delivery and claim finalization) and potential coding omissions where secondary diagnoses may not be captured if they do not impact reimbursement. Additionally, while rare in structured claims, "missing data" may occur if a provider fails to populate non-mandatory fields.

Data Integrity and Auditability
Data integrity is maintained through the payer's internal validation and adjudication engines. This process is highly rigorous, involving extensive financial and clinical reconciliation to ensure fiscal accuracy and adherence to billing regulations. Furthermore, the data is fully auditable; each record is linked to a unique Claim Control Number (CCN) and provider National Provider Identifier (NPI), allowing for a direct reconciliation path back to the original clinical source of truth should a discrepancy be detected.

Annual Specification Maintenance and Data Mapping
For ongoing maintenance, changes to measure specifications (such as annual ICD-10 or CPT code updates) are managed through a standard yearly mapping review process. These updates impact the data structure by requiring new code strings to be added to the measure logic, but they do not affect the overall availability of the electronic data.

4.1b Implementation Costs and Burden

Costs and Administrative Burden
As a claims-based measure, there is negligible administrative burden and no direct implementation cost for the measured entities. Data collection is "passive," utilizing administrative claims that are already generated as part of the standard billing and reimbursement cycle. No manual data abstraction, registry reporting, or additional data entry is required.

Impact on Clinical Workflow and Interaction
This measure has no impact on clinician workflow, diagnostic thought processes, or the patient-physician interaction. Because the data is captured retrospectively through existing ICD-10 and CPT codes, clinicians do not need to modify their documentation habits or navigate additional EHR alerts. This ensures that the clinician's focus remains entirely on clinical decision-making rather than the reporting process.

Barriers and Stakeholder Feedback
ASCO continues to monitor feedback from stakeholders; to date, there have been no concerns regarding implementation burden or patient confidentiality, as the measure relies on de-identified administrative data. Potential barriers are limited to the inherent limitations of claims data, such as claims lag or coding variability. However, because the measure specifications rely on standardized, mandated code sets, these barriers are mitigated by the existing high-compliance environment of healthcare billing.

4.1c Confidentiality

Data collection for this measure is conducted in strict accordance with HIPAA Privacy and Security Rules. Confidentiality is maintained because the measure utilizes de-identified administrative claims data sourced from private payers. Direct identifiers are removed or masked prior to the data being made available for measure calculation, ensuring that the analysis remains focused on clinical patterns rather than individual identities.

To mitigate the risk of re-identification in small patient populations (the "Small N" problem), a minimum threshold of five (5) patients is suggested for performance reporting. This recommended suppression guideline is intended to prevent "deductive disclosure," where an individual's identity could potentially be inferred from a very small data set or outlier results. By suggesting this minimum volume, the measure balances the need for transparent reporting with the highest standards of patient privacy.

Finally, confidentiality risks associated with patient surveys are not applicable to this measure, as it relies entirely on administrative claims data with no direct patient interaction or survey-based data collection.

4.3 Feasibility Informed Final Measure

Based on the feasibility results, no major structural changes were necessary for the core data elements. As the data requisite for measure calculation are routinely generated during the delivery of care, feasibility considerations were effectively validated during the formulation of the measure specifications. The final specifications focus on the use of high-fidelity, structured billing codes to ensure the measure remains reliable and easily implementable across all participating

federal and private payers.

4.4 Proprietary Information

Proprietary measure or components with fees

4.4a Fees, Licensing, or Other Requirements

As the world's leading professional organization for physicians and others engaged in clinical cancer research and cancer patient care, American Society of Clinical Oncology, Inc. ("Society") and its affiliates1 publishes and presents a wide range of oncologist-approved cancer information, educational and practice tools, and other content. The ASCO trademarks, including without limitation ASCO®, American Society of Clinical Oncology®, JCO®, Journal of Clinical Oncology®, Cancer.Net™, QOPI®, QOPI Certification Program™, and Conquer Cancer®, are among the most highly respected trademarks in the fields of cancer research, oncology education, patient information, and quality care. This outstanding reputation is due in large part to the contributions of ASCO members and volunteers. Any goodwill or commercial benefit from the use of ASCO content and trademarks will therefore accrue to the Society and its respective affiliates and further their tax-exempt charitable missions. Any use of ASCO content and trademarks that may depreciate their reputation and value will be prohibited.

ASCO does not charge a licensing fee to not-for-profit hospitals, healthcare systems, or practices to use the measure for quality improvement, research or reporting to federal programs. ASCO encourage all of these not-for-profit users to obtain a measure library license so ASCO can:

- Keep users informed about measure updates and/or changes
- Learn from measure users about any implementation challenges to inform future measure updates and/or changes
- Track measure utilization (outside of federal reporting programs) and performance rates

ASCO has adopted the Council of Medical Specialty Society's Code for Interactions with Companies (https://cmss.org/wp-content/uploads/2026/04/CMSS-Code-for-Interactions-...), which provides guidance on interactions with for-profit entities that develop produce, market or distribute drugs, devices, services or therapies used to diagnose, treat, monitor, manage, and alleviate health conditions. The Society's Board of Directors has set Licensing Standards of American Society of Clinical Oncology (https://cdn.bfldr.com/KOIHB2Q3/as/bsrth8mwgbsrpvrsbt6gxqb/2023-ASCO-Lic...) to guide all licensing arrangements.

In addition, ASCO has adopted the Council of Medical Specialty Society's Policy on Antitrust Compliance (https://cmss.org/statements/cmss-policy-on-antitrust-compliance/), which provided guidance on compliance with all laws applicable to its programs and activities, specifically including federal and state antitrust laws, including guidance to not discuss, communicate, or make announcements about fixing prices, allocating customers or markets, or unreasonably restraining trade.

5.1.1 Data Used for Testing

Testing for this measure was conducted using administrative claims data from two primary, high-volume sources: a major national federation of independent commercial health insurers and The US Oncology Network (USON)/McKesson claims databases. The data utilized provided comprehensive national geographic coverage across urban, suburban, and rural regions. The initial data sets identified 1,327 reporting entities from the national health insurance federation and 9 large-scale practices within the USON/McKesson network.

5.1.1a Dates of Testing Data

The testing period for both data sources encompassed the timeframe from January 1, 2023, to December 31, 2024. This two-year window ensures the measure was validated against the most current coding standards and clinical practice patterns, providing a stable and contemporary baseline for analysis.

5.1.2 Differences in Data

There are specific differences in the sample sizes used for various aspects of testing, driven by the clinical sensitivity of the measure and the statistical requirements of the analysis:

Performance Gap and Validity Testing

Threshold: Entities with a minimum of five (5) patients meeting the measure denominator.

Sample Size: 563 reporting entities (derived from the national insurance federation and USON/McKesson administrative claims data, Jan 1, 2023 – Dec 31, 2024).

Rationale: This is an end-of-life hospitalization measure. Because hospitalization is a critical quality indicator in oncology, ASCO determined that "each patient matters" in the assessment of care delivery. A lower threshold of N ≥ 5 was utilized to prioritize “Visibility over Volatility.”

- **Health Equity:** Utilizing a broader inclusion criteria prevents quality "blind spots" in community-based or rural oncology settings where EOL events are significant but may occur less frequently. High thresholds would effectively penalize these practices by making their care invisible to the measure.
- **Clinical Significance:** While smaller denominators inherently have a higher standard error, the clinical priority of preventing hospitalizations outweighs the statistical risk of "noisy" scores at the individual entity level.

Reliability Testing

Threshold: Entities with a minimum of twelve (12) patients meeting the measure denominator.

Sample Size: 271 reporting entities (a subset of the administrative claims data described above).

Rationale: A higher threshold of N ≥ 12 was applied specifically for reliability testing to maintain psychometric rigor.

- **Signal-to-Noise Ratio:** For a measure's reliability coefficient (Beta) to be stable, there must be enough patient volume to distinguish true clinical variation from random statistical noise.
- **Instrument Validation:** Using these 271 higher-volume entities ensures that the reliability of the "measurement instrument" itself is validated on a stable data set before being applied to the broader clinical population.

Exclusions and Risk Adjustment

No other differences in data sources or timeframes were utilized for exclusions or risk-adjustment testing.

5.1.3 Characteristics of Measured Entities

For performance gap and validity testing, the sample included 554 entities from a national federation of independent commercial insurers and nine USON/McKesson practices. For reliability testing, this cohort was refined to 262 national federation entities and nine USON practices. The resulting testing group represents a national cross-section of oncology care across all 50 U.S. states, including independent practices, hospital-affiliated groups, and integrated delivery networks. By applying an N ≥ 5 threshold for the performance gap analysis, the study successfully captured diverse clinical settings - ranging from high-volume academic hubs to rural providers where access to hospitals may be limited.

Selection was based on the availability of structured claims data, ensuring a sample that reflects the national oncology landscape without regional payer bias. The inclusion of USON practices highlights the experience of community oncologists, while the variety of practice sizes supports the "Each Patient Matters" philosophy, ensuring an equitable assessment of hospitalizations across all provider tiers.

5.1.4 Characteristics of Units of the Eligible Population

Data Source and Sampling

The descriptive statistics for this measure were derived from The US Oncology Network (USON)/McKesson database for the period of January 1, 2023, to December 31, 2024. The sample includes 2,655 unique patients who met the denominator criteria. No sampling was used; 100% of the nine (9) high-volume USON practices met the minimum threshold of N ≥ 5, ensuring the data reflects the entire eligible population from this source.

Representativeness

As a network of independent and community-based practices, the USON cohort serves as a robust proxy for the broader oncology population. This demographic distribution provides high-fidelity insight into hospitalization patterns at the end of life, mirroring the diversity and clinical complexity found in national administrative data.

Descriptive Statistics: Patient Population (N = 2,655)

Race	**Number (n)**	**Percentage (%)**
White	2,372	89.3%
Hispanic	103	3.9%
Black	69	2.6%
Other or Unknown	54	2.0%
Asian / Pacific Islander	41	1.5%
American Indian / Alaska Native	16	0.6%
Grand Total	**2,655**	**100%**

Gender	**Number (n)**	**Percentage (%)**
Female	1,327	50.0%
Male	1,324	49.9%
Other or Unknown	4	0.1%
Grand Total	**2,655**	**100%**

5.2.1 Level(s) of Reliability Testing Conducted

Person or encounter level (i.e., data element) (e.g., inter–abstractor reliability), Accountable entity level (i.e., measure score) (e.g., signal-to-noise analysis)

5.2.2 Method(s) of Reliability Testing

Person or Encounter Level (Data Element) Testing

End-of-life (EOL) care is a foundational quality metric in oncology, and administrative claims data serve as the primary vehicle for its assessment. This is particularly evident in the measurement of hospitalizations, which represent a "hard" event in administrative records. Unlike nuanced clinical symptoms, a hospitalization triggers a facility claim (UB-04) that is rarely missing or erroneously coded, as it serves as the essential trigger for reimbursement.

Consequently, ASCO utilized foundational evidence to establish the reliability of the numerator,

denominator, and numerator exclusions:

- **Denominator (Identification of Cancer Decedents):** Research confirms that administrative claims are highly reliable for identifying the patient population. Studies using diagnostic codes to identify cancer patients have shown a Positive Predictive Value (PPV) of up to 99.68% (Shin et al., 2019).
- **Numerator (>1 Hospitalization):** Earle et al. (2005) evaluated the accuracy - defined as percent agreement within +/- 1 day - specifically for the multiple hospitalization count. By comparing Medicare claims from 48,906 cancer decedents against a clinical gold standard of 150 medical records, the accuracy for this numerator was calculated as 0.97.
- **Numerator Exclusions (Transfers and Overlapping Stays):** To ensure data reliability, the measure applies standard CMS Oncology Care Model (OCM) methodology. By "rolling up" contiguous stays and overlapping claims into a single episode, the measure excludes administrative billing artifacts and facility transfers. This ensures the numerator captures distinct clinical events rather than fragmented billing records.

References

1. Earle, C. C., Neville, B. A., Landrum, M. B., Souza, J. M., Weeks, J. C., Block, S. D., Grunfeld, E., & Ayanian, J. Z. (2005). Evaluating claims-based indicators of the intensity of end-of-life cancer care. *International Journal for Quality in Health Care*, *17*(6), 505–509. https://doi.org/10.1093/intqhc/mzi061
2. Shin, D. W., Cho, J. H., Kim, S. Y., Guallar, E., & Cho, J. (2019). Validation of Administrative Big Database for Colorectal Cancer Searched by International Classification of Disease 10th Codes. *Journal of Cancer*, *10*(15), 3381–3387. https://doi.org/10.7150/jca.30454
3. Centers for Medicare & Medicaid Services (CMS). (2021). *Oncology Care Model (OCM)*

Accountable Entity Level (Measure Score) Testing

An assessment of the measure's reliability was performed through the utilization of signal-to-noise analysis, a method that determines the precision of the actual construct in comparison to the random variation. The signal-to-noise ratio is determined by calculating the ratio of between-unit variance to total variance. This analysis provides valuable insight into the measure's reliability and its ability to produce consistent results by describing how well one can confidently distinguish the performance of one clinician group from another.

Based on the hierarchical modeling approach for provider profiling, the following steps were taken:

- **Data Aggregation:** Patient-level data were captured as binary (pass/fail) events and aggregated to the clinician group level to determine the numerator and denominator for each practice.

- **Model Selection:** We utilized a Beta-Binomial model, which is the natural fit for estimating the reliability of simple pass/fail rate measures.
- **Variance Partitioning:** The model partitioned the total observed variability in practice scores into two components: between-unit variance (the "signal," or true differences in practice quality) and within-unit variance (the "noise," or random sampling error).
- **Reliability Calculation:** For each clinician group, a reliability coefficient (R) was calculated using the ratio of the estimated provider-to-provider variance to the sum of the provider-to-provider variance and the binomial error variance (p(1-p)/n).
- **Threshold Application:** The analysis focused on identifying the stability of these scores for practices meeting a minimum patient count of 12.

5.2.3 Reliability Testing Results

Reliability was assessed at the clinician group level using a beta-binomial signal-to-noise analysis to partition total variation into true performance differences and random sampling error. Based on a sample of 274 clinician groups and 13,647 patient encounters, the analysis yielded a system-wide mean reliability coefficient of 0.476. Results demonstrated that reliability is highly dependent on patient volume, with individual group scores ranging from a minimum of 0.273 to a maximum of 0.94. While the first eight deciles averaged below the target, the ninth and tenth deciles achieved mean reliability coefficients of 0.615 and 0.836, respectively, successfully crossing the >0.60 target threshold.

5.2.4 Interpretation of Reliability Results

Person or Encounter Level (Data Element) Testing

A specificity of 1.00 for the numerator is particularly significant, as it indicates a zero percent false-positive rate; providers are never penalized for hospitalizations that did not occur. Furthermore, a sensitivity of 0.96 confirms that the claims data successfully captures the vast majority of relevant clinical events. Collectively, these values prove that administrative claims are a scientifically sound and highly valid instrument for monitoring end-of-life care intensity on a national scale.

References

1. Earle, C. C., Neville, B. A., Landrum, M. B., Souza, J. M., Weeks, J. C., Block, S. D., Grunfeld, E., & Ayanian, J. Z. (2005). Evaluating claims-based indicators of the intensity of end-of-life cancer care. *International Journal for Quality in Health Care*, *17*(6), 505–509. https://doi.org/10.1093/intqhc/mzi061
2. Shin, D. W., Cho, J. H., Kim, S. Y., Guallar, E., & Cho, J. (2019). Validation of Administrative Big Database for Colorectal Cancer Searched by International Classification of Disease 10th Codes. *Journal of Cancer*, *10*(15), 3381–3387. https://doi.org/10.7150/jca.30454

Accountable Entity Level (Measure Score) Testing

The results indicate that while the overall mean reliability of 0.476 reflects moderate stability, the measure achieves substantial reliability for higher-volume clinician groups. The analysis confirms a strong positive correlation between sample size and the ability to confidently distinguish performance. Specifically, entities in the ninth and tenth deciles meet or exceed the >0.60 benchmark, supporting an inference that the "signal" of true practice variation effectively outweighs random sampling noise for these groups. While reliability at the 12-patient minimum remains lower for this specific metric, the significant increase in stability among larger practices - reaching as high as 0.94 - demonstrates that the measure provides a consistent and repeatable performance signal as denominators grow.

Table 2a. Accountable Entity Level Reliability Testing Results by Denominator, Target Population Size

Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life

	Overall	Min	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Max
Reliability	0.476	0.273	0.316	0.349	0.373	0.412	0.399	0.434	0.499	0.522	0.615	0.836	0.94
Mean Performance Score	13.9%	18.6%	17.2%	16.7%	13.5%	11.5%	13.7%	12.8%	13.0%	15.0%	15.2%	10.8%	14.2%
Number of Entities	274	18	28	27	27	28	27	27	28	27	27	28	1
Number of Persons / Encounters / Episodes	13,647	216	346	388	434	511	603	764	1,018	1,322	2,004	6,257	712

Table 2b. Accountable Entity Level Reliability Testing Results by Reliability Score

Percentage of Patients who Died with Cancer with More Than One Hospitalization, in an Acute Care Hospital or Critical Access Hospital, in the Last 30 Days of Life

	Overall	Min	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Max
Reliability	0.476	0.126	0.155	0.224	0.288	0.345	0.413	0.466	0.537	0.618	0.747	0.965	1

5.3.1 Level(s) of Validity Testing Conducted

Person or encounter level (i.e., data element) (e.g., sensitivity and specificity), Accountable entity level (i.e., measure score) (e.g., criterion validity)

5.3.2 Type of Accountable Entity Level Validity Testing Conducted

Empirical validity testing at the accountable entity-level (e.g., criterion validity, construct validity, known groups analysis)

5.3.3 Method(s) of Validity Testing

Person or Encounter Level (Data Element) Testing

End-of-life (EOL) care is a foundational quality metric in oncology, and administrative claims data serve as the primary vehicle for its assessment. This is particularly evident in the measurement of hospitalizations, which represent a "hard" event in administrative records. Unlike nuanced clinical symptoms, a hospitalization triggers a facility claim (UB-04) that is rarely missing or erroneously coded, as it serves as the essential trigger for reimbursement.

Consequently, ASCO utilized foundational evidence to establish the validity and scientific acceptability of the numerator, denominator, and numerator exclusions:

- **Denominator (Identification of Cancer Decedents):** Research confirms that administrative claims are a highly valid means of identifying the intended patient population. Validation studies using ICD-10 codes to identify cancer patients have demonstrated a sensitivity of 100% and a specificity of 98.86% (Shin et al., 2019). This high level of validity ensures the measure correctly captures the target population while successfully excluding patients without a cancer diagnosis.
- **Numerator (>1 Hospitalization):** Earle et al. (2005) evaluated the performance of claims-based indicators against a clinical gold standard (medical record review). For the "multiple hospitalization" measure, the administrative claims data demonstrated a sensitivity of 0.96 and a specificity of 1.00.
- **Numerator Exclusions (Transfers and Overlapping Stays):** To ensure the measure tracks distinct clinical events rather than billing artifacts, the measure applies standard CMS Oncology Care Model (OCM) methodology. By "rolling up" contiguous stays and overlapping claims into a single episode, the measure handles transfers and interim billing effectively. This step ensures that the data elements analyzed in the numerator reflect true clinical episodes.

References

1. Earle, C. C., Neville, B. A., Landrum, M. B., Souza, J. M., Weeks, J. C., Block, S. D., Grunfeld, E., & Ayanian, J. Z. (2005). Evaluating claims-based indicators of the intensity of end-of-life cancer care. *International Journal for Quality in Health Care*, *17*(6), 505–509. https://doi.org/10.1093/intqhc/mzi061
2. Shin, D. W., Cho, J. H., Kim, S. Y., Guallar, E., & Cho, J. (2019). Validation of Administrative Big Database for Colorectal Cancer Searched by International Classification of Disease 10th Codes. *Journal of Cancer*, *10*(15), 3381–3387. https://doi.org/10.7150/jca.30454
3. Centers for Medicare & Medicaid Services (CMS). (2021). *Oncology Care Model (OCM)*

Accountable Entity Level (Measure Score) Testing

To evaluate the validity of the measure set at the accountable entity level, we conducted a

convergent and divergent validity analysis using Pearson's product-moment correlation coefficient (*r*).

Steps Conducted:

- **Data Aggregation:** Performance rates were calculated for each measure at the accountable entity level.
- **Hypothesis Formulation:** We hypothesized that measures reflecting high-intensity care (Systemic Cancer-Directed Therapy [SCDT], ICU Admissions, ED/Obs Visits, and Multiple Hospitalizations) would show **positive correlations** with one another. Conversely, we hypothesized these measures would show a **negative correlation** with the Hospice Enrollment measure, as hospice utilization represents a transition toward comfort-oriented care.
- **Correlation Calculation:** Pearson's *r* was calculated for all pairs of measures within the set to determine the linear relationship between performance rates.
- **Significance Testing:** Two-tailed p-values were calculated for each pair to determine the statistical significance of the associations.

5.3.4 Validity Testing Results

Refer to the attached Validity-Results.zip file for details.

5.3.4a Attach Additional Validity Testing Results

Validity-Results.zip

5.3.5 Interpretation of Validity Results

Person or Encounter Level (Data Element) Testing

A specificity of 1.00 for the numerator is particularly significant, as it indicates a zero percent false-positive rate; providers are never penalized for hospitalizations that did not occur. Furthermore, a sensitivity of 0.96 confirms that the claims data successfully captures the vast majority of relevant clinical events. Collectively, these values prove that administrative claims are a scientifically sound and highly valid instrument for monitoring end-of-life care intensity on a national scale.

References

1. Earle, C. C., Neville, B. A., Landrum, M. B., Souza, J. M., Weeks, J. C., Block, S. D., Grunfeld, E., & Ayanian, J. Z. (2005). Evaluating claims-based indicators of the intensity of end-of-life cancer care. *International Journal for Quality in Health Care*, *17*(6), 505–509. https://doi.org/10.1093/intqhc/mzi061
2. Shin, D. W., Cho, J. H., Kim, S. Y., Guallar, E., & Cho, J. (2019). Validation of Administrative

Big Database for Colorectal Cancer Searched by International Classification of Disease 10th Codes. *Journal of Cancer*, *10*(15), 3381–3387. https://doi.org/10.7150/jca.30454

Accountable Entity Level (Measure Score) Testing

- **Hypothesized Relationships:** The empirical results strongly support the conceptual framework of the measure set. All indicators of high-intensity end-of-life care demonstrated positive correlations with each other, confirming they are capturing related facets of aggressive medical utilization.
- **Validation Rationale:** Divergent validity was confirmed by the Hospice Enrollment measure, which exhibited a statistically significant negative correlation with every high-intensity care indicator. Notably, the strongest positive associations were found between the two treatment strata (SCDT 14d and 30d, r = 0.627) and between outpatient and inpatient acute transitions (ED/Obs and Greater than 1 Hospitalization, r = 0.489).
- **Statistical Significance:** Every correlation in the matrix reached statistical significance ($p < 0.01$), providing robust evidence that these measures move in the hypothesized directions at the entity level.

5.4.1 Methods Used to Address Risk Factors

No risk adjustment or stratification

5.4.1b Rationale For No Adjustment or Stratification

The decision to maintain unadjusted performance scores for these end-of-life measures is rooted in the philosophy that quality palliative care and clinical stewardship represent universal standards that should not fluctuate based on patient complexity. Unlike outcomes heavily influenced by biological variance, metrics such as systemic therapy administration and ICU utilization reflect direct clinical decision-making and provider agency; therefore, risk adjustment could inadvertently "normalize" aggressive care by suggesting that medical complexity justifies a departure from palliative best practices. Furthermore, because these measures are calculated using a denominator of patients who have already deceased, the cohort is inherently characterized by high clinical risk, making additional adjustment statistically redundant and potentially misleading. By prioritizing unadjusted data, ASCO maintains a transparent view of the raw clinical reality, ensuring that gaps in service and health inequities remain visible rather than being masked by statistical smoothing. Ultimately, this approach upholds the principle that every patient, regardless of their diagnosis or comorbidities, deserves a timely transition to hospice and a coordinated, comfort-focused end-of-life experience.

6.1.1 Current Status

Not in use

6.1.2 Current or Planned Use(s)

Payment Program, Professional Certification or Recognition Program, Other

6.1.4 Attributes for Accountability Use

1. Target Populations
The measure is applicable to adult patients (aged 18 and older) with a confirmed diagnosis of cancer.

2. Accountable Entities
Accountability is attributed at the level of the Oncology Physician Group Practice (PGP) or individual Clinician Group/Practice.

- Attribution Logic: Patients are attributed to the entity that provides the plurality of oncology-related services or manages the "episode of care" (e.g., the 6-month period following the start of chemotherapy).
- Responsibility: The entity is held accountable for the patient's clinical outcomes, resource utilization (e.g., avoidable ER visits), and adherence to evidence-based pathways.

3. Care Settings
The primary care setting is the Outpatient Oncology Clinic, including:

- Community-based oncology practices.
- Hospital Outpatient Departments (HOPDs).
- Infusion Centers.

Note on Care Settings: *Clinical oncologists provide care within the outpatient setting; however, this measure set monitors related clinical outcomes across multiple sites of service. Evaluated events include, but are not limited to, inpatient/outpatient hospital infusions, ICU stays, and emergency department encounters stemming from complications of the outpatient treatment.*

6.2.1 Actions of Measured Entities to Improve Performance

There is clear evidence that there are interventions that can be put in place to reduce hospitalizations among dying patients, therefore improving the performance on the measure score. Palliative care is specialized medical care for people living with serious illnesses that is focused on providing relief from the symptoms and stress of the illness and can be provided along with curative treatment (Center to Advance Palliative Care, n.d.). Palliative care reduces avoidable spending and utilization in all healthcare settings and improves the quality of life for the patients it serves (Center to Advance Palliative Care, n.d.). Both ASCO and NCCN guidelines recommend palliative care for the patients this measure addresses:

- The oncology team should consider <palliative care> consultation for patients with limited anticancer treatment options due to lack of access to anticancer therapy; advanced disease process; multiple/severe comorbid conditions; rapidly progressive functional decline; and/or persistently poor performance status. Additional criteria include…frequent emergency department visits or hospital admissions; need for ICU-level care (Category 2A) (NCCN, 2026).
- In general, patients with weeks to days to live (eg, dying patients) and comfort-oriented

goals should discontinue all treatments not directly contributing to patient comfort. Intensive palliative care focusing on symptom management should be provided in addition to preparation for the dying process. Referral for hospice care should be placed, if not already done (Category 2A) (NCCN, 2026).
- Clinicians should assess and cultivate prognostic awareness and engage in advance care planning with patients and their families to ensure patient-centered care plans.
- Clinicians should refer patients with advanced solid tumors and hematologic malignancies to specialized interdisciplinary palliative care teams that provide inpatient and outpatient care early in the course of disease, alongside active treatment of their cancer (Moderate, Strong) (Sanders et al., 2024).

The below outlines the difficulty of the actions described above and how measures entities can overcome those difficulties:

Action	Difficulty Level	Why it is Difficult	How to Overcome
Early Referral	Moderate	Shortage of specialist palliative care clinicians and the stigma that palliative care means "giving up."	In addition to physicians, oncology nurses can be positioned to provide primary palliative care and provide increased advance care planning with patients with advanced cancer (NCCN, 2026). The <NCCN> Panel emphasizes the importance of initiating or continuing advance care planning conversations and systematically reviewing advance care plans to ensure ongoing accuracy as illness or situation evolves. To avoid demeaning the value of end of life care, palliative and/or hospice care should not be framed as “giving up” but instead refocusing the care plan to achieve a better quality of life (NCCN, 2026)
ACP Documentation	High	These conversations are time-intensive and clinicians often lack training in high-stakes communication.	Embed ACP templates in the EHR. Use a "primary care/oncology" shared model where social workers or nurses lead initial goals of care discussions.

References:

1. Center to Advance Palliative Care. (n.d.). *About Palliative Care*. https://www.capc.org/about/palliative-care/
2. National Comprehensive Cancer Network. (2026). *NCCN Clinical Practice Guidelines in*

Oncology (NCCN Guidelines®): Palliative Care (Version 1.2026). https://www.nccn.org/guidelines/guidelines-detail?id=1454

3. Sanders, J. J., Temin, S., Ghoshal, A., Alesi, E. R., Ali, Z. V., Chauhan, C., Cleary, J. F., Epstein, A. S., Firn, J. I., Jones, J. A., Litzow, M. R., Lundquist, D. M., Mardones, M. A., Nipp, R. D., Rabow, M. W., Rosa, W. E., Zimmermann, C., & Ferrell, B. R. (2024). Palliative Care for Patients with Cancer: ASCO guideline Update. *Journal of Clinical Oncology*, *42*(19), 2336–2357. https://doi.org/10.1200/JCO.24.00542

6.2.5a Potential Unintended Consequences

There may be patients and caregivers who prefer acute care at the end of life and/or do not have access to appropriate outpatient and palliative care. ASCO's End of Life Measures Technical Expert Panel emphasized that performance is not expected to be perfect on this quality measure. A margin of error should be expected to account for such scenarios and benchmarks set within ASCO Certified will account for such margins.

7.1 Supplemental Attachment

CBE-5593_ClaimsSpec.pdf

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Measure Developer POC

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The measure developer is different from the measure steward

No

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