CBE ID

5594

Title

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 / 30 Days of Life (lower score – better) (Claims version)

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 receiving systemic cancer-directed therapy in the last 14 days of life

Percentage of patients, aged 18 years and older, who died with cancer receiving systemic cancer-directed therapy 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

Cancer is the second leading cause of death in the United States overall and the leading cause among people younger than 85 years (Siegel et al., 2026). Use of systemic cancer-directed therapies at the end of life is associated with higher rates of hospitalization, including ICU stays, delayed utilization of hospice, worse quality of life, and higher costs (Canavan et al., 2024) *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 and access to services based on the changing needs of the patient and family (IOM, 2015). The purpose of this measure 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 ICU visits, ED visits, and hospitalizations, a reduction in resource utilization costs, improved symptom control and quality of life for the patient, and ultimately improved patient, family, and caregiver satisfaction. As there are challenges to capturing palliative care consults from a measure perspective, aggressive treatments at the end of life serve as a proxy for the purposes of this measure. ASCO's End of Life Measures Technical Expert Panel emphasized that performance is not expected to be perfect (i.e., 0) on this quality measure. A margin of error should be expected to account for scenarios such as patient preferences or the receipt of appropriate cancer-directed treatment where the patient passes unexpectedly.

References:

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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 received systemic cancer-directed therapy in the last 14 days of lifePatients who received systemic cancer-directed therapy in the last 30 days of life

1.14a Numerator Details

Patients who received systemic cancer-directed therapy in the last 14 days of life

OR

Patients who received systemic cancer-directed therapy in the last 30 days of life

–

Guidance:

The measure includes intramuscular, intravenous, oral, and subcutaneous routes of administration of systemic cancer-directed therapy. Oral systemic cancer-directed therapy is oral prescription of extension of same oral drug or prescription of new oral drug.

Definition:

Systemic Cancer-Directed Therapy

Includes:

- Cytotoxic chemotherapy
- Drugs and biologics which activate or inhibit the hallmarks of cancer (e.g., kinase inhibitors)

Excludes:

- Hormones and hormone antagonists
- Red Blood Cell (RBC) growth factors used to treat chemotherapy-induced anemia
- White Blood Cell (WBC) growth factors used to treat chemotherapy-induced neutropenia
- Bisphosphonates and biologics used to treat osteopenia or osteoporosis
- Antiemetics and antinauseants
- Pain medications

Example:

Drugs and biologics under the World Health Organization's (WHO) Anatomical Therapeutic Chemical (ATC) classification "Antineoplastic Agents" and select "Immunostimulants" and "Immunosuppressants".

–

"Antineoplastic and Immunomodulating Agents" Drug Classes and Identifiers:

NOTE: To find the drug members under each class, go to https://mor.nlm.nih.gov/RxClass/ and

enter the class name or ID on the “Search” field of the RxClass browser.

Antineoplastic Agents

- Alkylating agents (id: L01A)
- Antimetabolites (id: L01B)
- Cytotoxic antibiotics and related substances (id: L01D)
- Monoclonal antibodies and antibody drug conjugates (id: L01F)
- Other antineoplastic agents (id: L01X)
- Plant alkaloids and other natural products (id: L01C)
- Protein kinase inhibitors (id: L01E)
    - *Exclude: Cyclin-dependent kinase (CDK) inhibitors (id: L01EF)*

Immunostimulants *(Includes only those that apply to cancer)*

- Interferons (id: L03AB)
- Include only: interferon alfa-2b, ropeginterferon alfa-2b, and ropeginterferon alfa- 2b-njft
- Interleukins (id: L03AC)
    - Include only: aldesleukin
- Other immunostimulants (id: L03AX)
    - Include only: sipuleucel-T

Immunosuppressants *(Includes only those that apply to cancer)*

- Selective immunosupressants (id: L04AA)
    - Include only: alemtuzumab, everolimus, and sirolimus
    - Other immunosuppressants (id: L04AX)
        - Include only: lenalidomide, pomalidomide, and thalidomide

NOTE*:* For the purposes of the measure, only medications approved by the United States Food and Drug Administration (FDA) qualify for the measure.

Numerator Criteria:

Systemic cancer-directed therapy Administration:

Systemic cancer-directed therapy Encounter code (ICD-10-CM):

Z51.11- Encounter for antineoplastic chemotherapy

Z51.12- Encounter for antineoplastic immunotherapy

OR

Systemic cancer-directed therapy administration Procedure code (CPT, HCPCS and ICD-10-PCS) *(See tab “SystemicCancerDirectedTx_Proc” in “EOLMeasures_Coding” file*)

OR

Systemic cancer-directed therapy Administration Revenue code:

0331- Chemotherapy administration, injected

0332 - Chemotherapy administration - oral

0335- Chemotherapy administration, IV

OR

Systemic cancer-directed therapy (oral medications) (NDC – National Drug Codes) *(See tab "SystemicCancerDirectTxOral" in "EOLMeasures_Coding" file)*

AND

Most Recent Systemic cancer-directed therapy Administration Date or Date Filled

AND

(Date of death minus ***Most Recent***Systemic cancer-directed therapy Administration Date or Date Filled) < 14 days /< 30 days

Numerator exclusions:

Patients given hydroxyurea or BTK inhibitors.

NOTE: Hydroxyurea and BTK inhibitors may be inappropriate to withdraw at the end of life and/or are used for palliative purposes.

Numerator Exclusion Criteria:

Receipt of hydroxyurea or BTK inhibitors

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

AND

Most Recent Date Filled

AND

(Date of death minus ***Most Recent*** Date Filled) < 14 days / <30 days

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" file)

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 received systemic cancer-directed therapy due to 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

NOTE: Patients typically given bridging chemotherapy and other cancer-directed therapies while awaiting transplant or CAR T cell therapy.

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

SystemicCancerDirectedTx-Claims_Flow.pdf

1.19 Measure Stratification Details

This measure is stratified by the timeframe (lookback period) preceding the date of death to assess varying intensities of systemic therapy at the end of life.

Stratification Variables:

Lookback Period: Defined as the number of days prior to the patient's date of death.

Stratum Definitions:

- **Stratum 1 (14-Day Lookback):** Percentage of patients in the denominator who received one or more systemic cancer-directed therapies (chemotherapy, immunotherapy, or targeted therapy) within 14 days of the date of death.
- **Stratum 2 (30-Day Lookback):** Percentage of patients in the denominator who received one or more systemic cancer-directed therapies (chemotherapy, immunotherapy, or targeted therapy) within 30 days of the date of death.

Code and Value Sets: The clinical identifying codes for "Systemic Cancer-Directed Therapy" are

identical for both strata. These include HCPCS, CPT, and ICD-10-PCS codes for chemotherapy administration, immunotherapy, and targeted therapy agents.

- See attached data dictionary for the comprehensive list of systemic therapy value sets and descriptors.

Risk Adjustment: The measure is currently not risk-adjusted. Results are reported as observed rates for each stratum to identify clinical practice patterns across the population.

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

SCDT_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). Patients with early referral to palliative care (90 days or more prior to death) are less likely to receive chemotherapy in the last 30 days of life (Woldie et al., 2022) and cancer-directed therapy received near the end of life continues to be associated with higher rates of hospitalizations, ED visits, ICU stays, hospital deaths, and lower hospice use (Canavan et al., 2025, Garg et al., 2024 & Adelson et al., 2024). Furthermore, cancer-directed therapy received at the end of life does not affect overall survival - a recent cohort study specifically looking at overall survival amongst the highest and lowest CBE 0210 quintiles at the practice level found no statistically significant difference in survival rates (Canavan et al., 2024).

The goal of *Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 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. 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 (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). A 2023 systematic review of cancer-specific studies published from 1990 to 2022 found that advance care planning (ACP) significantly reduces the odds of aggressive end-of-life care. Analyzing a cohort of approximately 33,500 patients, researchers found that ACP was associated with a lower likelihood of chemotherapy, ICU stays, hospitalizations, and in-hospital deaths, as well as fewer late-stage hospice referrals of less than seven days (Levoy et al.).

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).

ASCO, Choosing Wisely, and NCCN guidelines contain the following recommendations:

- Patients with months to weeks to live should be provided with guidance regarding the anticipated course of the disease. Physicians should reassess prognostic awareness and goals of therapy. As functional status worsens, these patients may become more concerned about the side effects of cancer-directed treatment and consider focusing their care on maintaining quality of life. The option of discontinuing cancer treatment aligned with goals of care and initiating goal-directed supportive care should be discussed. (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 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)
- Don't use cancer-directed therapy for solid tumor patients with the following characteristics: low performance status (3 or 4), no benefit from prior evidence-based interventions, and no strong evidence supporting the clinical value of further anti-cancer treatment. (Schnipper et al., 2012)
    - Cancer directed treatments are likely to be ineffective and more toxic for solid tumor

patients who meet the above-stated criteria.
    - Exceptions may include when disease characteristics (e.g., an extremely chemo-sensitive tumor, or a sensitive and targetable alteration in the tumor) suggest a high likelihood of a response to therapy that may reverse functional limitations related to the cancer.
    - While this Choosing Wisely statement originally referred to cytotoxic chemotherapy, it also applies to novel, purportedly less-toxic treatments such as immunotherapy and off-label targeted therapy in patients who meet the above-stated criteria.

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

In addition to the literature, ASCO received positive feedback on measure importance via its May 2025 public comment; almost all respondents strongly agreed or agreed with the following statements across all of ASCO's updated EOL measures: "I believe this measure captures what it intends to capture, i.e., promoting early palliative care among dying patients and reducing aggressive interventions at the end of patients' lives" and "I believe this measure differentiates good from poor quality care among providers of healthcare services."

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2.3 Anticipated Impact

The goal of *Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 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 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 hospitalization, 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 costs ($P < .0001$); completed advanced directives reduced costs 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 patients 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:

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2.4 Performance Gap

ASCO evaluated performance on the 14-day stratum of the "Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy" measure. Using combined data from January 2023 to December 2024, the study included 561 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 aggressive intervention near the end of life, a lower percentage reflects stronger performance in aligning care with palliative goals. Results spanned from 0% to 67%, showing a wide range in treatment intensity across the cohort. The mean performance on the measure was 16% (±12%) with a 95% confidence level of ±1%; the median was slightly lower at 14%.

The distribution is positively skewed at 0.95, indicating that while most practices maintain low rates of late-stage therapy, a significant tail of practices shows much higher utilization. Interestingly, the mode was 0%, meaning that for many individual entities, the most frequent outcome was the complete avoidance of systemic therapy in the final 14 days of life. These results show that while the highest-performing entities achieved the ideal of 0%, the lowest-performing entity (67%) had a rate that is 379% (4.79 times) higher than the median. For practices performing above the median, these results highlight a critical opportunity to review clinical protocols and ensure that end-of-life care transitions are timed to maximize patient comfort and quality of life.

ASCO also evaluated performance on the "Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 30 Days of Life" stratum of the measure to analyze performance variation. Using combined data from January 2023 to December 2024, the study included 561 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 aggressive intervention near the end of life, a lower percentage reflects stronger performance in aligning care with palliative goals. Results spanned the full range from 0% to 100%, showing a wide variance in treatment intensity. The mean performance on the measure was 38% (±16%) with a 95% confidence level of ±1%; the median was also 38%.

The distribution is slightly positively skewed at 0.30, indicating a relatively balanced spread but with a tail of practices showing higher-than-average utilization. Notably, the mode was 50%, indicating that for many individual entities, the most frequent outcome was that half of the terminal patient population received systemic therapy in their final month. These results show that while the highest-performing entities achieved 0%, the lowest-performing entities (100%) had a rate that is 163% (2.63 times) higher than the median. For practices performing above the median, these results highlight a critical opportunity to re-evaluate the timing of transitions from curative-intent therapy to comfort-directed care.

Table 1. Performance Scores by Decile

Mean Performance Score by Decile (Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 Days of Life - Claims version)

	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	15.6%	0.0%	0.0%	1.0%	7.7%	11.1%	13.4%	15.7%	18.3%	21.1%	27.4%	40.8%	67.0%
Number of Entities	561	1	57	56	56	56	56	56	56	56	56	56	1
Number of Persons / Encounters / Episodes	15,027	5	466	689	2,827	2,562	1,434	2,739	1,852	1,118	895	445	5

Mean Performance Score by Decile (Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 30 Days of Life - Claims version)

	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	37.9%	0.0%	11.1%	20.9%	27.5%	31.9%	35.5%	39.4%	42.2%	48.2%	54.2%	69.0%	100.0%
Number of Entities	561	1	57	56	56	56	56	56	56	56	56	56	1
Number of Persons / Encounters / Episodes	15,098	12	603	2,002	1,857	1,789	2,243	2,251	1,532	1,435	900	486	6

2.4a Attach Performance Gap Results

Mean-Performance-Score-by-Decile--Percentage-of-Patients-who-Died-with-Cancer-Receiving-

Systemic-Cancer-Directed-Therapy-in-the-Last-Days-of-Life---Claims-version-.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 measures). 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.
N/A	PIMSH9: Oncology: Supportive Care Drug Utilization in Last 14 Days of Life	Percentage of patients receiving supportive care drugs (including colony stimulating factors, bone health, supplemental iron medications, and neurokinin 1 (NK1) receptor antagonist antiemetics) during the 14 days prior to and including the date of death.

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.
- May 2025 Public Comment Period: Following the updates, ASCO held a public comment period to ensure the measures remained valuable to stakeholders. Of the respondents, which included a patient representative, a significant majority agreed that the measures effectively differentiate between high- and low-quality care and assess what they intend to assess (i.e., quality of end-of-life care). The patient representative specifically "strongly agreed" that 1) this measure captures what it intends to capture , i.e., promoting early palliative care among dying patients and reducing aggressive interventions at the end of patients' lives and 2) this measure differentiates good from poor quality care among providers of healthcare services.

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).

Another study analyzed EMR data from ~60,000 patients with advanced cancer who died between 2015 and 2019 and found that over 30 percent of patients received systemic treatment within 30 days of death (Canavan et al., 2023). Study authors found disparities as well; White patients were more likely to receive EOL systemic therapy within 30 days of death than Black patients (36.6% v 32.7% [P<.001]) and within 14 days of death (15.7% v 13.6% [P < .001]). Commercially insured patients were more likely to receive EOL systemic therapy within 30- and 14-days compared with those covered by Medicare or Medicaid (30-day rates were 43.3% v 37.3% and 37.0%, respectively (P <.001), and 14-day rates were 18.6% v 15.6% and 14.9%, respectively (P < .001)) (Canavan et al., 2023). A retrospective cohort study looked at EMR data from deceased adult patients with cancer and found that ~12 percent received cancer treatment in the last two weeks of life. Among these 92 patients, almost 60% had metastatic disease and 60% died in the hospital. Only about 30 % had advanced directives or dedicated palliative care that lasted longer than one week (Wilkerson et al., 2021).

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 a high share of episodes where patients received systemic cancer-directed treatment in the last 14 days of life (16.8% and 15.6% respectively), indicating room for improvement on this measure (CMS, 2025).

References:

1. Canavan, M., Wang, X., Ascha, M., Miksad, R., Showalter, T. N., Calip, G., Gross, C. P., & Adelson, K. (2023). End-of-Life Systemic Oncologic Treatment in the Immunotherapy Era:

The Role of Race, Insurance, and Practice Setting. *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology*, *41*(30), 4729–4738. https://doi.org/10.1200/JCO.22.02180
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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. Wilkerson, D. H., Santos, J. L., Tan, X., & Gomez, T. H. (2021). Too Much Too Late? Chemotherapy Administration at the End of Life: A Retrospective Observational Study. *The American journal of hospice & palliative care*, *38*(10), 1182–1188. https://doi.org/10.1177/1049909120966619

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: 561 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 systemic cancer directed therapy utilization measure. Because

systemic cancer directed therapy utilization in the last days of life 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 harmful systemic cancer directed therapy utilization 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 552 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 treatment access 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 systemic cancer directed therapy utilization 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 2,058 unique patients who met the denominator criteria. No sampling was used; 100% of the nine (9) high-volume USON practices exceeded the minimum threshold of N ≥ 5 ensuring the full clinical population was represented.

Representativeness
The USON cohort serves as a robust proxy for the national oncology population. As a network of independent and community-based practices, it captures a diverse mix of patients across varying geographic settings, providing a high-fidelity look at treatment patterns during both the final 14 and 30 days of life.

Race	**Number (n)**	**Percentage (%)**
White	1,848	89.8%
Hispanic	77	3.7%
Other or Unknown	47	2.3%
Black	39	1.9%
Asian / Pacific Islander	34	1.7%
American Indian / Alaska Native	13	0.6%
Grand Total	**2,058**	**100%**

Gender	**Number (n)**	**Percentage (%)**
Female	1,062	51.6%
Male	993	48.3%
Other or Unknown	3	0.1%
Grand Total	**2,058**	**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. Systemic cancer-directed therapy is reliably captured in administrative datasets because the administration of these agents triggers specific billing codes (e.g., HCPCS "J-codes," CPT codes) that are mandatory for provider reimbursement. These represent "hard" events in administrative data; a chemotherapy infusion generates a claim that is rarely missing or erroneously coded, as it is the primary trigger for facility and professional payment.

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 intended 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 and Numerator Exclusions (Systemic Therapy in the Last 14 Days):** Earle et al. (2005) evaluated the accuracy - defined as percent agreement within +/- 1 day - specifically for the chemotherapy administration indicator. 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 0.92.

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
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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

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 Days of Life

Reliability was assessed at the clinician group level using a beta-binomial signal-to-noise analysis, which partitions observed variation into true performance differences and random sampling error. Based on a sample of 271 clinician groups and 12,927 patients, the analysis yielded a system-wide mean reliability coefficient of 0.294. Results demonstrate that reliability is heavily dependent on patient volume, with individual group scores ranging from a minimum of 0.161 to a maximum of 0.853. While the first nine deciles averaged below the benchmark, the tenth decile achieved a mean reliability coefficient of 0.644, successfully crossing the >0.60 target threshold.

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 30 Days of Life

Reliability was assessed at the clinician group level using a beta-binomial signal-to-noise analysis, a method that partitions total observed variation into "true" performance differences and random sampling error. Based on a sample of 271 clinician groups and 12,990 patients, the analysis yielded a system-wide mean reliability coefficient of 0.381. Results confirm that reliability is heavily dependent on patient volume, with individual group scores ranging from a minimum of 0.238 to a maximum of 0.926. While the first nine deciles averaged below the benchmark, the tenth decile achieved a mean reliability coefficient of 0.769, successfully crossing the >0.60 target threshold.

5.2.4 Interpretation of Reliability Results

Person or Encounter Level (Data Element) Testing

An accuracy value of 0.92 for the numerator and a PPV of nearly 1.00 for the denominator indicates an exceptionally high level of agreement between administrative datasets and clinical reality. While chemotherapy coding involves more technical complexity than, for example, a general hospitalization claim, a 92% agreement rate confirms that the risk of misclassifying a patient's treatment status is minimal. For the purposes of national endorsement, this level of precision proves that administrative claims are a highly reliable instrument for monitoring chemotherapy utilization at the end of life, ensuring that provider performance is assessed on a transparent and verifiable basis.

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

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 Days of Life

The results support an inference of reliability for higher-volume groups where the "signal" of true performance variation effectively overcomes random sampling noise. With a mean performance score of 14.7%, the measure is not susceptible to "topping out" effects, ensuring sufficient range to detect true performance differences as patient volume increases. The relative stability of performance scores across the reliability deciles - ranging narrowingly from 12.2% to 16.2% - suggests that the significant increase in reliability observed in the tenth decile is driven by increased denominators rather than performance outliers. While reliability at the 12-patient minimum remains modest for this specific metric, the measure demonstrates substantial repeatability for larger practices, achieving a maximum reliability of 0.853.

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 30 Days of Life

The results support an inference of reliability for higher-volume clinician groups, as the "signal" of true performance variation effectively outweighs random sampling noise in the top decile. With a mean performance score of 37.20%, the measure is not susceptible to "topping out" effects, ensuring sufficient range to detect true differences in practice style as patient volume increases. The relative stability of performance scores across the reliability deciles - ranging from 33.30% to 40.10% - suggests that the significant increase in reliability observed in the tenth decile is driven by increased patient denominators rather than performance outliers. While reliability at the 12-patient minimum remains modest for this specific metric, the measure demonstrates high repeatability for larger practices, achieving a maximum reliability of 0.926.

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

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 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	0.294	0.161	0.301	0.197	0.199	0.197	0.207	0.224	0.243	0.319	0.412	0.644	0.853
Mean Performance Score	14.7%	15.2%	12.2%	13.5%	15.5%	15.8%	16.2%	15.7%	16.2%	14.7%	14.2%	12.7%	15.9%
Number of Entities	271	17	28	27	27	27	27	27	27	27	27	27	1
Number of Persons / Encounters / Episodes	12,927	204	347	392	437	498	605	772	986	1,322	2,039	5,529	710

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy 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	0.381	0.238	0.221	0.216	0.247	0.256	0.308	0.349	0.401	0.475	0.576	0.769	0.926
Mean Performance Score	37.2%	40.1%	38.7%	38.3%	36.1%	37.9%	36.2%	38.8%	37.5%	38.0%	37.0%	33.3%	37.7%
Number of Entities	271	16	28	27	27	27	27	27	27	27	27	27	1
Number of Persons / Encounters / Episodes	12,990	192	349	392	439	502	609	776	988	1,326	2,053	5,556	710

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

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy in the Last 14 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	0.294	0.056	0.079	0.108	0.133	0.163	0.201	0.238	0.295	0.379	0.505	0.85	1

Percentage of Patients who Died with Cancer Receiving Systemic Cancer-Directed Therapy 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	0.381	0.166	0.182	0.211	0.238	0.265	0.308	0.358	0.414	0.477	0.586	0.781	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. Systemic cancer-directed therapy (chemotherapy) is reliably captured in administrative datasets because the administration of these agents triggers specific billing codes (HCPCS "J-codes," CPT codes, or ICD-10-PCS codes) that are required for provider reimbursement.

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

- **Denominator (Identification of Cancer Decedents):** As established in validation studies using ICD-10 codes, administrative claims are highly valid for identifying the intended patient population, demonstrating a sensitivity of 100% and a specificity of 98.86% (Shin et al., 2019). This ensures the measure accurately targets patients with a confirmed cancer diagnosis.
- **Numerator and Numerator Exclusions (Systemic Therapy in the Last 14 Days):** Earle et al. (2005) evaluated the performance of claims-based chemotherapy indicators against the clinical gold standard of medical record review. For the "chemotherapy in the last 14 days of life" measure, the administrative claims data demonstrated a sensitivity of 0.92 and a specificity of 0.94.

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
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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 0.94 indicates that the claims data is highly reliable at identifying patients who did *not* receive chemotherapy, minimizing the risk of false-positive results. A sensitivity of 0.92 confirms that the vast majority of chemotherapy administrations recorded in the clinical chart are successfully captured in the administrative record. These values provide strong scientific justification for using claims data to monitor the use of systemic therapy near the end of life.

References

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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 evidence that there are interventions that can be put in place to reduce unnecessary systemic cancer-directed therapies in the last weeks of life:

- Patients with months to weeks to live should be provided with guidance regarding the anticipated course of the disease. Physicians should reassess prognostic awareness and goals of therapy. As functional status worsens, these patients may become more concerned about the side effects of cancer-directed treatment and consider focusing their care on maintaining quality of life. The option of discontinuing cancer treatment aligned with goals of care and initiating goal-directed supportive care should be discussed. (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 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)
- Don’t use cancer-directed therapy for solid tumor patients with the following characteristics: low performance status (3 or 4), no benefit from prior evidence-based interventions, and no strong evidence supporting the clinical value of further anti-cancer treatment. (Schnipper et al., 2012)
    - Cancer directed treatments are likely to be ineffective and more toxic for solid tumor patients who meet the above-stated criteria.
    - Exceptions may include when disease characteristics (e.g., an extremely chemo-sensitive tumor, or a sensitive and targetable alteration in the tumor) suggest a high likelihood of a response to therapy that may reverse functional limitations related to the cancer.
    - While this Choosing Wisely statement originally referred to cytotoxic chemotherapy, it also applies to novel, purportedly less-toxic treatments such as immunotherapy and off-label targeted therapy in patients who meet the above-stated criteria.

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

Action	Difficulty Level	Why it is Difficult	How to Overcome

Providing guidance on disease trajectory, reassessing prognostic awareness, and discussing the discontinuation of treatment.	High	• Clinicians often feel inadequately trained to deliver bad news or navigate the "prognostic transition." There is a fear that being too honest will destroy a patient's hope. • Even in 2026, predicting the exact "months to weeks" window remains an imprecise science. Clinicians may wait for "perfect certainty" before having the talk, which often results in the talk happening too late. • These are not quick conversations. They require emotional space and time that the standard 15-minute oncology follow-up appointment does not provide.	• Implement mandatory training modules that give oncologists "scripts" for navigating these conversations. • Use a dedicated "Goals of Care" tab in the Electronic Health Record (EHR) to track these discussions. If the tab isn't updated every 30–60 days for advanced patients, the system can trigger a reminder. • Frame these talks as a standard part of high-quality care rather than a "crisis intervention."
Stopping all treatments not contributing to comfort, initiating intensive symptom management, and placing hospice referrals.	High	• Family members often view the cessation of therapy as "giving up" or "letting the patient die," leading to intense pressure on the physician to continue futile treatments. • Once a patient is on a systemic therapy cycle, it is logistically easier to keep the next appointment than it is to stop everything, coordinate hospice, and manage the emotional fallout. • Patients in the "weeks to days" phase often experience sudden symptoms (shortness of breath, pain) that lead them to the Emergency Room, where the default is "stabilize and treat" rather than "comfort and release."	• For hospitalized patients, a mandatory palliative care consult for any stage IV patient with an acute decline ensures that comfort is prioritized over further diagnostic testing. • Using non-physician staff to support the family's emotional transition helps the physician focus on the clinical transition to comfort meds. • Use prognostic tools and multidisciplinary team reviews (doctors, nurses, social workers) to assess decline more holistically.

Early Referral	Moderate	Shortage of specialist palliative care clinicians and the stigma that palliative care means "giving up." Clinician reluctance to initiate "hospice" talk, often due to a desire to pursue further curative lines of therapy.	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) Frame hospice as an "extra layer of support" that maximizes quality of life (QOL) alongside or following treatment.
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. 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
2. 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
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6.2.5a Potential Unintended Consequences

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 patient preferences, lack of access to palliative care, etc.

7.1 Supplemental Attachment

CBE-5594_ClaimsSpec.pdf

Developer POC email

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Measure Developer POC

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The measure developer is different from the measure steward

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