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Hospitalization and Hospital Discharge Destinations After Chemotherapy: Using the Oncology Care Model Methodology in 2012–2015 Medicare Data

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Introduction

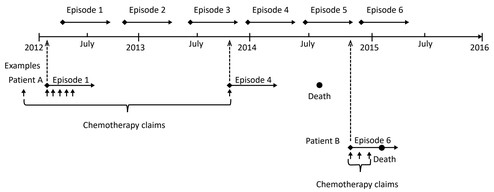
- In 2016, the Centers for Medicare & Medicaid Innovation Center (CMMIS) initiated the Oncology Care Model (OCM) in an effort to improve oncology care and reduce costs[1]
  - OCM is a payment model that combines standardization of oncology care at a practice level and financial incentives for providing quality care of oncology patients and improved outcomes
- To establish a reference of performance-based expenditures, CMMIS analyzed baseline period episodes using Medicare claims data from January 2012 to June 2015
  - Episodes were identified and assigned to a particular practice; however, the data were analyzed without consideration of cancer type, which can induce different types and rates of hospitalization
- Understanding cancer type and reasons for hospitalization can greatly influence assessment of practice performance and the implications of variation in hospitalization rates. Thus, we reconstructed 6-month episodes using OCM methodology in Medicare claims data and analyzed reasons for hospitalizations and discharge destinations
  - Rates of hospitalizations and emergency department/observation stays in reconstructed Medicare claims are reported in poster #112

Study Objectives

- To describe the distribution in reasons for hospitalization and discharge destinations during the 6-month chemotherapy episode

Methods

Study Design



Each episode was 6 months in duration.

- This was a retrospective cohort study of Medicare patients with cancer who received chemotherapy between 2012 and 2015
- Using OCM methodology, up to six 6-month chemotherapy episodes were created
- Hospitalizations were evaluated during each 6-month episode

Data Source

- CMS Medicare 20% random sample data, Parts A/B,D (2012–2015)

Key Eligibility Criteria

- Medicare beneficiaries who
  1. were enrolled in Medicare Part A and B during a 6-month episode
  2. had Medicare as primary payer
  3. received chemotherapy treatment for cancer
  4. had at least one evaluation and management visit with a cancer diagnosis during the 6-month episode
- Medicare beneficiaries were excluded for end-stage renal disease benefit or enrollment in Medicare Advantage or other group health care program

Methods (Continued)

Reconstruction of Patient-Episodes

- A patient-episode was defined as the 6-month period starting with the first chemotherapy claim (trigger claim) with a qualifying cancer diagnosis code during the specified time period
- Subsequent episodes were defined when earlier episodes for the same patient were completed (up to 6 episodes/patient)
- Each episode was assigned an associated clinical practice using Taxpayer Identification Numbers

Episode Number	Episode Beginning Dates	Episode End Dates
1	1/2/2012 – 7/1/2012	7/1/2012 – 12/31/2012
2	7/2/2013 – 1/1/2013	1/1/2013 – 6/30/2013
3	1/2/2013 – 7/1/2013	7/1/2013 – 12/31/2013
4	7/2/2013 – 1/1/2014	1/1/2014 – 6/30/2014
5	1/2/2014 – 7/1/2014	7/1/2014 – 12/31/2014
6	7/2/2014 – 1/1/2015	1/1/2015 – 6/30/2015

Assignment of Cancer Type

- Cancer type was assigned using ICD-9-CM diagnosis codes, and the cancer type resulting in the most evaluation and management visits was assigned to the episode

Hospital Admissions

- Hospital admissions were identified from Medicare Part A inpatient claims during the episode and were limited to short-term acute-care facilities or critical access hospitals
- Reasons for hospitalization were defined using ICD-9-CM codes in the first five positions of Medicare Part A hospital claims

Discharge Destinations

- Hospital discharge destination was defined using CMS patient discharge status codes on Medicare Part A hospital claims and were summarized in categories
  - Home
  - Skilled nursing facility (SNF)
  - Hospice
  - Death
  - Other destination

Statistical Analyses

- Reasons for hospitalization and discharge destinations were summarized overall and by cancer type
- Data are reported as percentages
- Analyses were performed at the episode level

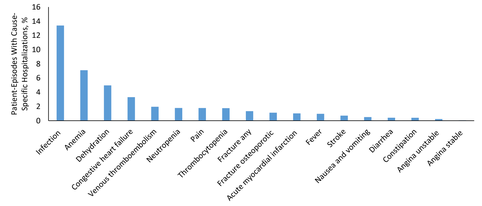
Results

Reasons for Hospitalization Overall

- Of 485,186 6-month patient-episodes occurring in 255,229 patients, 121,866 (25%) patient-episodes had at least one hospitalization
- Across all tumor types combined, the most frequent cause-specific reasons for hospitalization were infection (13%), anemia (7%), dehydration (5%), and congestive heart failure (3%)

Results (Continued)

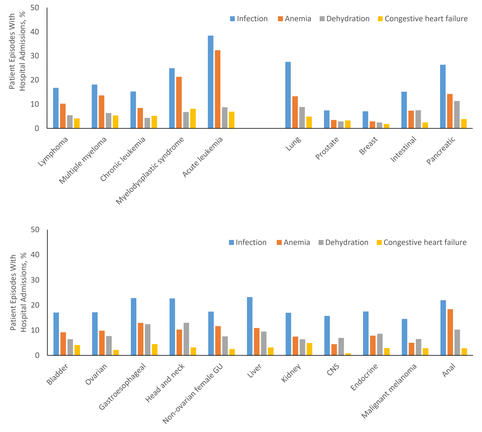
Percent of Patient-episodes With Cause-specific Hospital Admissions for All Cancers Combined



Reasons for Hospitalization by Cancer Type

- The main reasons for hospitalization varied by cancer type
- The greatest occurrence of infection was in patients with acute leukemia (38%), lung (28%) and pancreatic (26%) cancer, and myelodysplastic syndrome (25%)
- Anemia was most frequent in acute leukemia (32%), anal cancer (28%), and myelodysplastic syndrome (25%)

Percent of Patient-episodes With Cause-specific Hospital Admissions by Cancer Type



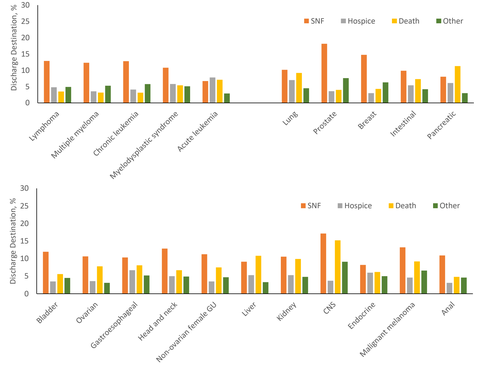
CNS, central nervous system; GU, genitourinary.

All-Cause Hospitalization Discharge Destinations Overall and by Cancer Type

- Overall, hospitalized patients were discharged to home (71%) or a SNF (13%), or hospice (5%); some died in the hospital (6%)
- The highest incidences of hospital discharge death occurred in patients with central nervous system (15%), pancreatic (11%), liver (11%), kidney (10%) and lung (9%) cancers
- Home discharges ranged from 69% to 77% across cancer types

Results (Continued)

Discharge Destination by Cancer Type



Limitations

- Some patient-episodes may not have been captured because of lack of coverage by Medicare Part D
- These data reflect hospital diagnoses and, therefore, do not reflect the large number of similar diagnoses that may be cared for in the outpatient setting and would not be captured in this study

Conclusions

- Among Medicare beneficiaries receiving chemotherapy, hospitalizations most often occurred as a result of infection or anemia
- Although most patients were discharged to home, other patients were often discharged to a SNF
- Variations across cancer types in the reasons for hospitalization, as well as discharge destinations, should be considered when evaluating OCM practice performance

References

1. Oncology Care Model. Centers for Medicare & Medicaid Services. https://innovation.cms.gov/initiatives/Oncology-Care/

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