Introduction

- In 2013, the Centers for Medicare & Medicaid Innovation Center (CMMI) initiated the Oncology Care Model (OCM) in an effort to improve oncology care and reduce costs.
- OCM is a payment model that combines coordination 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 were created who received chemotherapy between 2012 and 2015.

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 5 episodes/patient).
- Each episode was assigned an associated clinical practice using Taxpayer Identification Numbers.

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 hospital claims during the episode and were limited to short-term acute-care facilities or critical access hospitals.
- Reasons for hospitalization were determined 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 (Continued)

Reasons for Hospitalization Overall

- Of 485,186, 8-month patient-episodes occurring in 255,229 patients, 121,846 (25%) patient-episodes had at least one hospitalization.
- Across all tumor types combined, the most frequent cause-specific reasons for hospitalization were infection (23%), anemia (17%), dehydration (5%), and congestive heart failure (3%).

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 performance.

References


Acknowledgments

- The study was funded by Amgen Inc.
- Medical writing assistance in the development of this poster was provided by Ben Scott, PhD (Scott Medical Communications, LLC) and was funded by Amgen Inc.

Disclosures

- Y. Peng, J. Raskin, L. Hernandez, R. Lyman, have received funding from Amgen Inc. and Biogen Inc. to conduct research.
- L. Hernandez, R. Lyman, have received travel funding from Amgen Inc.

Study Design

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

Study Objectives

- To understand cancer type and reasons for hospitalization can greatly influence assessment of practice performance and the implications of different types and rates of hospitalization.
- Understanding cancer type and reasons for hospitalization can greatly improve oncology care and reduce costs.
- To establish a reference of performance-based expenditures, CMMIS were created who received chemotherapy between 2012 and 2015.
- Understanding cancer type and reasons for hospitalization can greatly improve oncology care and reduce costs.

Results

- Overall, hospitalized patients were discharged to home (73%) or a SNF (10%) and lung (9%) cancers.
- Home discharges ranged from 69% to 77% across cancer types.
- The highest incidences of hospital discharge death occurred in patients with chronic myeloid leukemia (10%), prostate (11%), liver (11%), kidney (10%), and lung (9%) cancers.
- Home discharges ranged from 60% to 77% across cancer types.

Study Design

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

Episodes by Cancer Type

Patient Episodes With Cause-Specific Hospitalizations, %

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Patient Episodes</th>
<th>Hospitalizations</th>
<th>Hospital Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal</td>
<td>4.7</td>
<td>12.9</td>
<td>11.8</td>
</tr>
<tr>
<td>Bladder/Genitourinary</td>
<td>5.7</td>
<td>7.2</td>
<td>6.0</td>
</tr>
<tr>
<td>CNS</td>
<td>25.0</td>
<td>14.5</td>
<td>13.0</td>
</tr>
<tr>
<td>Breast</td>
<td>7.1</td>
<td>9.9</td>
<td>8.9</td>
</tr>
<tr>
<td>Prostate</td>
<td>28.5</td>
<td>22.9</td>
<td>21.7</td>
</tr>
<tr>
<td>Lung</td>
<td>5.8</td>
<td>7.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Other</td>
<td>6.0</td>
<td>5.5</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Reasons for Hospitalization

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Hospital Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection</td>
<td>23%</td>
<td>22%</td>
</tr>
<tr>
<td>Anemia</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>Dehydration</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Allocation 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.

Reasons for Hospitalization Overall

- Of 485,186, 8-month patient-episodes occurring in 255,229 patients, 121,846 (25%) patient-episodes had at least one hospitalization.
- Across all tumor types combined, the most frequent cause-specific reasons for hospitalization were infection (23%), anemia (17%), dehydration (5%), and congestive heart failure (3%).

Episode End Dates

<table>
<thead>
<tr>
<th>Episode</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/1/2013</td>
</tr>
<tr>
<td>2</td>
<td>1/1/2014</td>
</tr>
<tr>
<td>3</td>
<td>1/1/2015</td>
</tr>
<tr>
<td>4</td>
<td>1/1/2016</td>
</tr>
<tr>
<td>5</td>
<td>1/1/2017</td>
</tr>
<tr>
<td>6</td>
<td>1/1/2018</td>
</tr>
</tbody>
</table>

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 (39%), lung (28%) and pancreas (25%) cancer, and myeloproliferative syndrome (25%)
- Anemia was most frequent in acute leukemia (26%), anal cancer (26%), and myeloproliferative syndrome (26%)

Limitations

- Some patient-episodes may not have been captured because of lack of coverage by Medicare Part B.
- 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.

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- R. Hernandez, R. Lyman, have been employed by Amgen Inc.