Overview of All SEER-Medicare Publications

Outcomes Insights, Inc.

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Overview

- Information was extracted from the National Cancer Institute (NCI) online reference database for "SEER-Medicare" publications
  - [http://healthcaredelivery.cancer.gov/seermedicare/overview/pubsearch.html](http://healthcaredelivery.cancer.gov/seermedicare/overview/pubsearch.html)
  - Data accessed July 18, 2018 - articles published in 2018 may be underrepresented due to reporting lag
  - 1675 citations retrieved
  - NCI classified all publications according to the following:
    - 21 tumor types (e.g., colorectal, leukemia, etc.)
- Summary measures were calculated by year, tumor site, journal, and author
- Exploratory analyses were conducted to assess publication frequency relative to cancer incidence, prevalence, and deaths
- All analyses were conducted using R version 3.4.1 (2017-06-30)
- All data were extracted from internet-based sources on July 18, 2018 using the rvest package (version 0.3.2)
- Figures were created using the ggplot2 package (version 3.0.0)
- This report was generated using the ReporteRs package (version 0.8.10)

SEER-Medicare Publications Search

Tumor Sites:
- Breast
- Prostate
- Colorectal
- Lung
- Other
- Urinary Bladder
- Renal
- Head and Neck
- Pancreas
- Ovary
- Lymphoma
- Liver
- Esophagus
- Leukemia
- Corpus Uteri
- Gastric
- Brain & Other Nervous System
- Cervical
- Skin
- Testis
- Multiple Myeloma
Summary of Publications

Publications by tumor site: 1994-2018

Publications by tumor site: 2011-2017

Tumor Site
Publications by year

Publications by year and top 4 tumor sites
Exploratory Analyses: Publications Relative to Population Size

Methodology

- Publication counts were plotted against tumor types
- Counts of incident and prevalent patients, as well as deaths from cancer, were taken from SEER published estimates
- Ratios of publications to these patient counts were estimated
  - Publications divided by incidence (per 1,000 patients)
  - Publications divided by prevalence (per 10,000 patients)
  - Publications divided by deaths (per 1,000 patients)
  - Higher numbers reflect more publications per patient
  - The median publication ratio across all tumors was used as an index for establishing high versus low ratios

![Graph showing publications relative to incidence for different tumor sites](image_url)
### Publications per patient according to incidence, prevalence, and deaths

<table>
<thead>
<tr>
<th></th>
<th>Breast</th>
<th>Prostate</th>
<th>Colorectal</th>
<th>Lung</th>
<th>Urinary Bladder</th>
<th>Renal</th>
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<th>Corpus Uteri</th>
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<th>Cervical</th>
<th>Skin</th>
<th>Testis</th>
<th>Multiple Myeloma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Publications</strong></td>
<td>422</td>
<td>395</td>
<td>361</td>
<td>250</td>
<td>88</td>
<td>81</td>
<td>80</td>
<td>71</td>
<td>63</td>
<td>55</td>
<td>46</td>
<td>29</td>
<td>27</td>
<td>22</td>
<td>15</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>% incident patients 65 years or older (2010-2014)</td>
<td>43%</td>
<td>57%</td>
<td>59%</td>
<td>68%</td>
<td>73%</td>
<td>49%</td>
<td>66%</td>
<td>47%</td>
<td>53%</td>
<td>46%</td>
<td>59%</td>
<td>43%</td>
<td>61%</td>
<td>38%</td>
<td>20%</td>
<td>48%</td>
<td>3%</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Pub/incidence ratio per 1,000 (2018)</strong></td>
<td>1.6</td>
<td>2.4</td>
<td>2.6</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
<td>1.4</td>
<td>3.2</td>
<td>0.8</td>
<td>1.3</td>
<td>2.7</td>
<td>0.5</td>
<td>1.0</td>
<td>0.9</td>
<td>1.1</td>
<td>0.0</td>
<td>0.4</td>
<td>0.0</td>
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<tr>
<td><strong>Pub/prevalence ratio per 10,000 (2018)</strong></td>
<td>1.2</td>
<td>1.3</td>
<td>2.7</td>
<td>4.6</td>
<td>1.2</td>
<td>1.6</td>
<td>11.7</td>
<td>3.2</td>
<td>0.7</td>
<td>7.6</td>
<td>9.7</td>
<td>0.4</td>
<td>2.8</td>
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<td>0.6</td>
<td>0.0</td>
<td>0.2</td>
<td>0.1</td>
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<tr>
<td><strong>Pub/deaths ratio per 1,000 (2018)</strong></td>
<td>10.3</td>
<td>13.4</td>
<td>7.1</td>
<td>1.6</td>
<td>5.1</td>
<td>5.4</td>
<td>1.8</td>
<td>5.0</td>
<td>3.0</td>
<td>1.8</td>
<td>2.9</td>
<td>2.6</td>
<td>2.5</td>
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<td>0.4</td>
<td>10.0</td>
<td>0.1</td>
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</table>

Notes: Higher numbers indicate more publications per patient (see table for comparisons to the median ratios)
Publications per patient according to incidence, prevalence, and deaths, standardized to the median ratio

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<td>Pub/incidence ratio per 1,000 (2018)</td>
<td>1.4</td>
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<td>2.3</td>
<td>1.0</td>
<td>1.0</td>
<td>1.1</td>
<td>1.3</td>
<td>2.9</td>
<td>0.7</td>
<td>1.2</td>
<td>2.4</td>
<td>0.4</td>
<td>0.9</td>
<td>0.8</td>
<td>1.0</td>
<td>0.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Pub/prevalence ratio per 10,000 (2018)</td>
<td>1.0</td>
<td>1.0</td>
<td>2.1</td>
<td>3.6</td>
<td>1.0</td>
<td>1.2</td>
<td>9.0</td>
<td>2.4</td>
<td>0.5</td>
<td>5.9</td>
<td>7.5</td>
<td>0.3</td>
<td>2.1</td>
<td>1.0</td>
<td>0.4</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Pub/deaths ratio per 1,000 (2018)</td>
<td>3.5</td>
<td>4.5</td>
<td>2.4</td>
<td>0.5</td>
<td>1.7</td>
<td>1.8</td>
<td>0.6</td>
<td>1.7</td>
<td>1.0</td>
<td>0.6</td>
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Notes: Ratios reflect the tumor-specific publication ratio relative to median publication ratio (see table for non-standardized ratios)
Values above 1.0 indicate ratios higher than the median, and values below 1.0 indicate ratios below the median (shaded orange)
Conclusions

- There has been steady growth in the number of publications over time using the SEER-Medicare data
- Breast, prostate, colorectal, and lung are the tumor sites with the highest number of publications
  - This corresponds well with estimates of incidence and prevalence in the United States population
- The number of publications appears to align better with incidence and prevalence than with death, particularly for more common cancers
- Leukemia, lymphoma, lung, and renal might be under-represented in terms of the absolute number of publications

Data Sources

- Proportion of patients age 65 or older at diagnosis (2010-2014)
- All Site and Morphology classifications were aligned among all data sources with a few exceptions:
  - Head and Neck was defined using SEER/CDC category: Oral Cavity and Pharynx
  - Corpus Uteri was defined using SEER/CDC category: Endometrial Cancer

Acknowledgements

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Contact Information

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