Dying Trajectory in the Last Year of Life: Does Cancer Trajectory Fit Other Diseases?

Joan M Teno, M.D. M.S.
Associate Professor
Brown University School of Medicine
Dying in the US

- Institutionalization of Death - historical changes from home to institutional death (hospital and NH)

- Hospice Medicare Benefit based on cancer disease trajectory
Hospice Medicare Benefit

- Created early 1980s, as both cost containment and improving the quality care of the dying
- For persons with “expected six month survival”, but never defined that term.
- Recent debate as focused on issue of ACCESS and ABUSE
Goals

- Describe functional trajectory in the last year of life for cancer and leading non-cancer causes of death.
- Examined its association with site of death and hospice involvement
Methods-Sample

- National Mortality Followback Survey-1993
- Death Certificate and Questionnaire
- 1% sample of ≥ 15 yr olds in US
- Deaths from chronic, progressive illnesses
- N(weighted)=1,980,388
• ADLs:
  • Getting in and out of bed or chair
  • Eating
  • Using the toilet
  • Dressing
  • Bathing

• Ex of question: “During ___ entire life, how long did ___ have difficulty bathing” measured in days
### Sample Description

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cancer</th>
<th>CHF</th>
<th>DM</th>
<th>COPD</th>
<th>CVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993 US Decedents</td>
<td>526,432</td>
<td>83,640</td>
<td>51,927</td>
<td>101,202</td>
<td>151,134</td>
</tr>
<tr>
<td>Survey Sample Total</td>
<td>1655</td>
<td>291</td>
<td>157</td>
<td>1059</td>
<td>452</td>
</tr>
<tr>
<td>Age – Mean</td>
<td>70</td>
<td>78</td>
<td>70</td>
<td>75</td>
<td>79</td>
</tr>
<tr>
<td>- Median</td>
<td>62</td>
<td>68</td>
<td>65</td>
<td>74</td>
<td>81</td>
</tr>
<tr>
<td>Gender (% Male)</td>
<td>52</td>
<td>45</td>
<td>36</td>
<td>53</td>
<td>44</td>
</tr>
<tr>
<td>Race (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>87</td>
<td>90</td>
<td>76</td>
<td>94</td>
<td>86</td>
</tr>
<tr>
<td>African American</td>
<td>11</td>
<td>10</td>
<td>18</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>&lt;1</td>
<td>6</td>
<td>&lt;1</td>
<td>3</td>
</tr>
<tr>
<td>Site of Death (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>47</td>
<td>42</td>
<td>62</td>
<td>64</td>
<td>62</td>
</tr>
<tr>
<td>Nursing Home</td>
<td>14</td>
<td>31</td>
<td>14</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>Home</td>
<td>36</td>
<td>23</td>
<td>22</td>
<td>16</td>
<td>9</td>
</tr>
</tbody>
</table>
Results - Functional Decline

Figure 1

Age Adjusted ADL Scores by Month before Death

- Cancer
- CVA
- COPD
- Diabetes
- CHF

P < .001
Results - Functional Decline

Figure 2

Adjusted Proportion of People with Trouble Getting in and out of Bed or Chair

Month Before Death

Proportion

Cancer
CVA
COPD
Diabetes
CHF
Table 2: Association of Functional trajectory with Hospice Involvement and Dying at Home

<table>
<thead>
<tr>
<th>ADL change from 5 months prior to death to day before death</th>
<th>Weighted Number of Decedents</th>
<th>Hospice Involved (%)</th>
<th>Died at Home (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>491,599</td>
<td>6.5</td>
<td>20.3</td>
</tr>
<tr>
<td>1 ADL</td>
<td>73,635</td>
<td>10.2</td>
<td>33.6</td>
</tr>
<tr>
<td>2 ADLs</td>
<td>34,923</td>
<td>23.7</td>
<td>37.4</td>
</tr>
<tr>
<td>3 or more ADLs</td>
<td>250,211</td>
<td>29.0</td>
<td>40.7</td>
</tr>
</tbody>
</table>

P < .001, for the Mantel-Hanzel Test of Linear Trend
Study Limitations

- Data obtained retrospectively, from proxy respondents
- Secondary analysis-limited to questions that were asked in NMFS
- No Questions about patient preferences for site of death
Conclusions

- Non-Cancer Diagnoses have different patterns of functional decline in last year of life. The pattern of functional decline was associated with site of death and hospice involvement.

- Cancer Patients are more likely to die at home--because of more predictable trajectory.