Renal Disease

Grace Johnston
Lynn Lethbridge

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Background

• It is increasingly being recognized that end of life (EOL) care requires greater attention

• As death approaches, health services required vary depending on health conditions

• Much of the research on EOL care has focused on cancer
  • Other diseases have a terminal phase
  • The occurrence of co-morbidities can affect service requirements

• Administrative data linked at the individual level are a valuable tool to study EOL care issues
Data Sources

- Link data from 3 disease registries, 3 Palliative Care Programs to Vital Statistics Death Certificate data

- Registry data:
  - Cancer
  - Diabetes
  - Cardio Vascular

- PCP data
  - Capital Health
  - Cape Breton
  - Colchester
Causes of Death

• All causes of death from death certificate utilized

• Can be up to 13 causes of death listed

• Disease types were identified through ICD coding used on the death certificate
Age and Sex Distribution
All Deaths and Individuals with a Renal Cause of Death

Sex Distribution

- Females: 49.51%
- Males: 50.50%
- With a renal cause: 52.05%

Age Distribution

- 0-9: 0.00%
- 10-19: 5.00%
- 20-29: 10.00%
- 30-39: 15.00%
- 40-49: 20.00%
- 50-59: 25.00%
- 60-69: 30.00%
- 70-79: 35.00%
- 80-89: 40.00%
- 90-99: 45.00%
- >=100: 50.00%

- All deaths:
  - Females: 45.00%
  - Males: 46.00%
  - With a renal cause: 47.00%
  - 48.00%
  - 49.00%
  - 50.00%
  - 51.00%
  - 52.00%
  - 53.00%

- With a renal cause: 48.00%
# Cause of Death Frequencies

## All Deaths 1995-2009

<table>
<thead>
<tr>
<th>Program</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>32.2%</td>
</tr>
<tr>
<td>Cardiovascular Disease</td>
<td>31.6%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>10.6%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>11.7%</td>
</tr>
<tr>
<td>COPD</td>
<td>11.5%</td>
</tr>
<tr>
<td>Dementia/Alzheimer’s</td>
<td>10.2%</td>
</tr>
<tr>
<td>Renal</td>
<td>8.8%</td>
</tr>
<tr>
<td><strong>observations</strong></td>
<td><strong>121,458</strong></td>
</tr>
</tbody>
</table>

* Categories are not mutually exclusive.*
Percentage with a Renal Cause of Death by Year
Number of Death Causes

<table>
<thead>
<tr>
<th>Causes</th>
<th>All Deaths</th>
<th>Renal Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>2</td>
<td>27.3%</td>
<td>13.5%</td>
</tr>
<tr>
<td>3</td>
<td>24.8%</td>
<td>24.8%</td>
</tr>
<tr>
<td>4</td>
<td>25.6%</td>
<td>15.6%</td>
</tr>
<tr>
<td>5+</td>
<td>33.6%</td>
<td>13.1%</td>
</tr>
</tbody>
</table>

Mean all deaths: 2.85
Mean renal patients: 4.02
Co-Morbidities with Renal Disease
Causes of Death for Individuals with Renal Cause

<table>
<thead>
<tr>
<th>Program</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>16.9%</td>
</tr>
<tr>
<td>Cardiovascular Disease</td>
<td>44.8%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>22.0%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>11.4%</td>
</tr>
<tr>
<td>COPD</td>
<td>10.7%</td>
</tr>
<tr>
<td>Dementia/Alzheimer’s</td>
<td>7.0%</td>
</tr>
<tr>
<td>observations</td>
<td>10,717</td>
</tr>
</tbody>
</table>

* Categories are not mutually exclusive.
Percent in Disease Registries

All Deaths and Those with Renal Cause

Note: Since the CV registry started in late 1997, only years 1998-2009 are included for that registry only.
Diabetes Registry Enrolment Over time

Diabetes Registry Enrolment
1995-2009

- all deaths
- with renal cause
Cardiovascular Registry Enrolment Over Time

CV Registry Enrolment
1998-2009

- all deaths
- with renal cause
Cancer Registry Enrolment Over time

Cancer Registry Enrolment
1995-2009

all deaths
with renal cause

- all deaths
- with renal cause
Palliative Care Programs

- Have data form 3 District Health Authorities
  - Capital Health (CH)
  - Colchester East Hants (CEH)
  - Cape Breton (CB)
- CH ICD-9 coding
  - Primary
  - Co-morbidities
- CEH and CB – free text
  - ‘renal’, ‘kidney’
  - includes renal/kidney cancer
Renal Patients in PCPs

<table>
<thead>
<tr>
<th></th>
<th>CH (%)</th>
<th>CEH (%)</th>
<th>CB (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal Cause</td>
<td>6.55%</td>
<td>6.69%</td>
<td>6.48%</td>
</tr>
<tr>
<td>Renal Diagnosis</td>
<td>3.28%</td>
<td>4.91%</td>
<td>4.64%</td>
</tr>
<tr>
<td>Renal Cause or Diagnosis</td>
<td>7.51%</td>
<td>8.99%</td>
<td>8.83%</td>
</tr>
<tr>
<td>Renal Cause and Diagnosis</td>
<td>2.37%</td>
<td>2.61%</td>
<td>2.29%</td>
</tr>
<tr>
<td>observations</td>
<td>12,976</td>
<td>1,569</td>
<td>5,631</td>
</tr>
</tbody>
</table>
Renal Patients in PCPs Over Time

Either a Renal Cause or Diagnosis by Year
## PCP Enrollment for Renal Patients

<table>
<thead>
<tr>
<th>Location</th>
<th>% in PCP for Those with Renal Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Health (1996-2009)</td>
<td>20.1%</td>
</tr>
<tr>
<td>Colchester East Hants (2003-2009)</td>
<td>21.6%</td>
</tr>
<tr>
<td>Cape Breton (1996-2009)</td>
<td>21.5%</td>
</tr>
</tbody>
</table>
PCP Enrollment for Renal Patients Over time

Enrollment in PCPs for Decedents with a Renal Cause of Death
by DHA
Place of Death

• Location of death is an indicator of quality care near the end of life
• Most patients prefer to die at home
• An algorithm developed by CCNS is used to determine place of death
• The variable constructed indicates if the death occurred in the hospital, a nursing home or “other”
Place of Death

- Hospital: 62.1% all deaths, 77.2% with renal cause
- Nursing home: 17.3% all deaths, 13.4% with renal cause
- Others: 20.6% all deaths, 9.4% with renal cause
Thank you for your attention!