Supporting public health unit analyses of cancer registry data

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NAACCR 2012, Portland OR
Canada – provinces & territories
36 public health units

- Very different cancer profiles
- Wide range of analytic expertise
SEER*Stat

Datasets & Software

Datasets
- SEER Data 1973-2009
- Standard Population Data
  - US Mortality Data
  - US Population Data
  - County Attributes
  - SEER Linked Databases
  - Specialized SEER*Stat Datasets

Statistical Software
- SEER*Stat
  - Getting Started
  - Tutorials
  - FAQs
  - Analysis Data
  - Installation Files
- SEER*Prep

SEER*Stat Software
Latest Release: Version 7.0.9 - April 12, 2012

The SEER*Stat statistical software provides a convenient, intuitive mechanism for the analysis of SEER and other cancer-related databases. It is a powerful PC tool to view individual cancer records and to produce statistics for studying the impact of cancer on a population. SEER*Stat software is distributed with the SEER Research Data and you must have access to the data before using the software.

Visit the following sections to learn more about SEER*Stat:

- Getting Started - Learn how to access the software and data, get answers to frequently asked questions, and where to go for technical support.
- Tutorials - Follow step-by-step tutorials designed to demonstrate how to use SEER*Stat and to calculate the many statistics available.
- Analysis Data - Find out what databases can be analyzed in SEER*Stat.
- SEER*Stat Installation - Obtain software updates, learn how to use the auto-update feature, and access a list of technical specifications and revision history.

Other Resources:

Data source: Cancer Care Ontario (Ontario Cancer Registry, 2010)
Ontario Public Health Standards

...establish requirements for the fundamental public health programs and services carried out by boards of health...

The board of health shall collect or access the following types of population health data and information:

...Morbidity, including incidence of reportable diseases, surveillance of other infectious diseases of public health importance, incidence of injury as assessed by in-patient hospitalizations and emergency department visits, and prevalence of chronic diseases;
Registry data in SEER*Stat

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vii) Microscopic confirmation
The definition for microscopic confirmation was revised for this release of Ontario incidence data. Below is a graph of the percent of cases whose cancer was microscopically confirmed (MC) comparing the percent MC from the last release to this release. A difference in the percent MC is seen before 1990 when comparing the data from the latest release to this release. For this release, the percent of microscopic confirmed cases for all cases across the years increased from 80% to 86% between 1981 and 2007. This is also seen for most other cancer sites.

Figure 1. Central West and Mississauga Halton LHIN population, 1986–2007

Figure 2. Percent of all cases microscopically confirmed, Ontario, 1981–2007
Cancer reports
Workshop: collaboration

- Cancer Care Ontario
  - Presentation, problem sets, slide deck, handouts
  - Pre-dissemination of data in SEER*Stat for preloading

- Public Health Ontario
  - Classroom facility with computer hookups
  - Lunches

- Association of Public Health Epidemiologists in Ontario
  - Promotion
  - Registration
  - Workshop user-mentors
  - Morning & afternoon break refreshments
  - Evaluation
Core public health indicators

Incidence rate, age-specific incidence rate, SRATE and Standardized Incidence Ratio (SIR)

Mortality rate, age-specific mortality rate, SRATE and SMR for the following cancers:

- Female breast
- Cervical
- Colorectal
- Lung
- Malignant melanoma
- Oral
- Prostate
Workshop: cancer registries

North American cancer registries

United States
- SEER
- NPCR
- NAACCR

Canada
- PTCR
- CCR

Dimensions of data quality in cancer

- Four dimensions of data quality (Parkin & Bray (2009)):
  1. Comparability
  2. Completeness
  3. Accuracy (validity)
  4. Timeliness

Completeness

- Reporting sources for incident cases in the OCR, 2007

Day surgery: 34%
- Hospital discharges: 69%
- Path reports: 83%
- Deaths: 14%

Cancer Tx clinics: 63%

% Single Source:
- Hosp only: 5%
- Path only: 7%
- DC only: 2%
- Clinics only: 3%
- (Day surgery only +2%)

Missing residence

- Varies by site and time

<table>
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<tr>
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<tbody>
<tr>
<td>Melanoma</td>
<td>10.72%</td>
<td>0.77%</td>
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<tr>
<td>Oral Cavity</td>
<td>3.10%</td>
<td>0.53%</td>
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<tr>
<td>Thyroid</td>
<td>1.82%</td>
<td>1.58%</td>
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<tr>
<td>All Cases</td>
<td>1.37%</td>
<td>0.37%</td>
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Workshop: regional cancer rates

Exercise #1: Frequency Session
- For your Health Unit, create a frequency table of cancer incidence by age group and sex. Choose an appropriate time frame, and graph the data.

Exercise #2a: New variables
- Begin a Rates session and select the PHU incidence file.
- Create a new variable for sex, e.g., female, male, or oral, etc.

Exercise #2b: Crude rates
- Create a new variable for age, e.g., 0-19, 20-39, etc.
- Create a new variable for years, e.g., 2000-2004, etc.
- Using the same selection of years, calculate crude rates for each age-specific group, Ontario, your PHU, and all other PHUs.

Exercise #2c: Age-specific rates
- Using the same selection of years, calculate age-specific rates for each sex, Ontario, your PHU, and all other PHUs.

Exercise #2d: Age-standardized rates
- Using the same selection of years, calculate age-standardized rates for each sex, Ontario, your PHU, and all other PHUs.

Exercise #2e: Rate ratios
- Using the same selection of years, calculate rate ratios for the seven cancers of interest, sexes combined, comparing your PHU to Ontario.
- Include confidence intervals.
- How do these results differ from the crude rates?
- Any interesting results you’d like to share?
Evaluation

Rating of SEERStat Familiarity Prior to Workshop vs. Comfort Level Now

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<th>Familiarity Prior</th>
<th>Comfort Level Now</th>
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<tr>
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<tr>
<td>Very Familiar/Very Comfortable</td>
<td>11% (n=4)</td>
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<tr>
<td>Somewhat Familiar/Somewhat Comfortable</td>
<td>39% (n=14)</td>
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<td>Not at all Familiar/Not at all Comfortable</td>
<td>50% (n=18)</td>
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<td>60% (n=21)</td>
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<td>0%</td>
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Evaluation

• Excellent, knowledgeable presenter
• Thanks for the focus on cancer Core Indicators
• Handouts great for reference
• Hands-on exercises great – but no interactive demo
• Mentors great – more, please
• Should have recorded the presentation for others
• Registry data info great – more, please
• Advanced training, please
Ongoing support

SEER*Stat Cancer

Purpose

To support APHEO members to analyze cancer incidence and mortality data using SEER*Stat.

Membership

Membership is open to volunteers from the Association of Public Health Epidemiologists in Ontario (APHEO) who have received SEER*Stat training and/or are experienced with analysis of cancer data.

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<tr>
<th>Name</th>
<th>Health Unit</th>
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Documents and Resources

Terms of Reference

Frequently Asked Questions (FAQs) - posted November 2011

APHEO-CCO workshop SEER*Stat presentation - February 2011

Cancer-related reports - Public Health Units