Working with Epidemiologists for Heart Disease & Stroke Prevention Program Development

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Overview

• Epidemiology definitions
• Data sources you should know
• Epidemiologists: “What DO you do?”
• What an epidemiologist can do for your programmatic activities
• “Stroke Warning Signs Media Campaign”
• Hands-on Practice
Key Definitions

- **Epidemiology** “is the study of how often diseases occur in different groups of people and why. Epidemiological information is used to plan and evaluate strategies to prevent illness and as a guide to the management of patients in whom disease has already developed.”
  (Source: [http://bmj.bmjjournals.com/collections/epidem/epid.1.shtml](http://bmj.bmjjournals.com/collections/epidem/epid.1.shtml))

- **Public Health Surveillance** — “The systematic collection, analysis, interpretation, and dissemination of health data on an ongoing basis, to gain knowledge of the pattern of disease occurrence and potential in a community, in order to control and prevent disease in the community.”
  (Source: [www.cdc.gov/reproductivehealth/epi_gloss2.htm](http://www.cdc.gov/reproductivehealth/epi_gloss2.htm))
Common Epidemiology Data Sources

- **Surveys**
  - Risk factor data (BRFSS, YRBS)
  - Self-report, disease & disability
  - Economic data
  - Demographics

- **Census**
  - Population estimates
  - Births
  - Deaths (Cause-specific)
  - Economic data
  - Socioeconomic indicators

(Source: Chronic Disease Surveillance in Canada, 2003)
Common Epidemiology Data Sources

• Administrative databases
  – Hospital discharge data
  – Health insurance (claims) data
  – Prescription Drug use datasets
  – Mortality
  – Morbidity
  – Health Services utilization

• Registries
  – Disease-specific incidence mortality

• Vital Statistics
  – Birth Records
  – Death Certificates

(Source: Chronic Disease Surveillance in Canada, 2003)
## Using Data in a Logic Model

### Figure 2: The Scope of Interest for Chronic Disease Data

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Pre-clinical</th>
<th>Clinical</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATA EXAMPLES:</strong></td>
<td><strong>DATA EXAMPLES:</strong></td>
<td><strong>DATA EXAMPLES:</strong></td>
<td><strong>DATA EXAMPLES:</strong></td>
</tr>
<tr>
<td>genetics: prevalence of breast cancer gene familial disease</td>
<td>screening: PAP testing blood pressure blood glucose</td>
<td>diagnosis: modes of diagnosis time to diagnosis</td>
<td>mortality: cause specific deaths survival rates</td>
</tr>
<tr>
<td>risk behaviour: smoking dietary fat intake</td>
<td>risk reduction: smoking cessation program uptake physical activity rates</td>
<td>treatment and procedures: surgery systemic therapy radiation palliation</td>
<td>morbidity: complications degree of disability quality of life</td>
</tr>
<tr>
<td>environment: occupational exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>socioeconomic: housing income level education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pharmaceutical: drug use complications and interactions</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>DATA SOURCES*: surveys census workplace monitoring</td>
<td>DATA SOURCES*: screening databases surveys public health program databases primary care physicians</td>
<td>DATA SOURCES*: hospital databases Discharge Abstract Database registry data provincial data repositories</td>
<td>DATA SOURCES*: vital statistics coroner’s database multiple causes of death</td>
</tr>
</tbody>
</table>

* These are potential sources, not necessarily currently available

Source: Canada Disease Surveillance

Essential Functions of Chronic Disease Epidemiology in State Health Departments

• **White paper** by the Council of State and Territorial Epidemiologists – Chronic Disease Epidemiology Capacity Building Workgroup (September 2004)
  (Find it at: [http://www.cste.org](http://www.cste.org))

• **Role of chronic disease epidemiologists** to support the “Ten Essential Public Health Services,” prioritized:
  – Tier 1 – Essential functions
  – Tier 2 – Supportive or coordinating role
  – Tier 3 – Limited role
Epidemiologist Functions & Public Health Essential Services

Tier 1 – Essential Functions
1. Surveillance
2. Communication
3. Consultation

Tier 2 – Supportive &/or Coordinating Role
4. Evaluation
5. Education
6. Investigation
7. Mobilization

Tier 3 – Limited Role
8. Innovation
9. Regulation
10. Utilization
Tier 1 - Surveillance

Monitor health status to identify and solve community health problems

- Use surveillance to:
  - Assess, identify and evaluate
  - Analyze and implement quality control

- Coordinate information and resources across multiple systems to ensure comprehensive disease surveillance
Tier 1 - Communication
Inform, educate and empower people about health issues

- Disseminate information
- Identify high risk populations, create appropriate messages
- Ensure target audiences understand messages

Tier 1: Essential  Tier 2: Supportive  Tier 3: Limited Role
Tier 1 - Consultation

Develop policies and plans that support individual and community health efforts

• Provide surveillance and evaluation data and scientific information for:
  – Program planning
  – Evaluation
  – Policy development

• Provide technical assistance to help interpret and apply data
Tier 2 - Evaluation

Evaluate effectiveness, accessibility, and quality of personal and population-based health services

• Design, implement, and coordinate scientifically-sound evaluations

• Using evaluation results
  – Increase existing program effectiveness
  – Design new programs to address identified needs

Tier 1: Essential   Tier 2: Supportive   Tier 3: Limited Role
Tier 2 - Education
Assure a competent public health and personal health care workforce

• Training and technical assistance
  – Use of surveillance tools, study design, data analysis methods and tools, data interpretation
• Ensure consistent surveillance and evaluation approaches and methods
• Integrate chronic disease epidemiology expertise into program planning and implementation
Tier 2 – Investigation

Diagnose and investigate health problems and health hazards in the community

• Investigate unusual chronic disease occurrences

• Identify/quantify health risks associated with environmental exposures, personal and social risk factors
Tier 2 – Mobilization

Mobilize community partnerships and action to identify and solve health problems

- Use data collected to inform community, policy makers, and others to develop action plans to solve defined health problems
Tier 3 Functions

• **Innovation:** Research for new insights and innovative solutions to health problems

• **Regulation:** Enforce laws and regulations that protect health and ensure safety

• **Utilization:** Link people to needed personal health services; Assure the provision of health care when otherwise unavailable
Bringing this together

What epidemiologists can do for your programmatic activities
When Planning / Developing a Program...

**Epidemiologist:**
- Surveillance: Provide surveillance data to identify subpopulations that you can target interventions for

**Program Manager:**
- The type of program you are thinking of developing: (e.g., educational, environmental change, policy change, etc.)
- The population you are thinking of working with

Tier 1: Essential  Tier 2: Supportive  Tier 3: Limited Role
When Planning / Developing a Program...

Epidemiologist:  
- Communication: Provide guidance for reaching targeted audiences

Program Manager:  
- Age and educational level of the audience
- The program’s message (so we can provide the statistics)

Tier 1: Essential  Tier 2: Supportive  Tier 3: Limited Role
When Planning/Developing a Program...

Epidemiologist:
• Consultation: Provide scientific basis for developing evaluation activities, help with the development of logic models for interventions

Program Manager:
• The indicators you should be tracking;
• The outcomes/outputs you want out of the program/activity

Tier 1: Essential  Tier 2: Supportive  Tier 3: Limited Role
When Planning / Developing a Program...

Epidemiologist:
- Evaluation: Provide guidance for developing an evaluation plan: What kinds of data to collect, how to collect the data, how to analyze and interpret the findings

Program Manager:
- The mission, goals and objectives of your program/activity
- Inventory of software and staff capability to collect and analyze data

Tier 1: Essential Tier 2: Supportive Tier 3: Limited Role
When Planning/Developing a Program...

Epidemiologist:
- Education; Investigation; Mobilization; Innovation:
  Present the science behind your program to collaborators and targeted audience

Program Manager:
- Meet and work out an agreement on the specifics the program will address, and the scientific support the epidemiologist will provide

Tier 1: Essential  Tier 2: Supportive  Tier 3: Limited Role
When Monitoring a Program...

Epidemiologist:
- **Consultation**: Provide guidance in setting up surveillance systems to track activities: What kinds of data to collect, how to collect the data, tools for collecting data, how to analyze and interpret the findings

Program Manager:
- **Available resources** (staff and software) to manage the system

| Tier 1: Essential | Tier 2: Supportive | Tier 3: Limited Role |
When Evaluating a Program…

**Epidemiologist**
- **Consultation:** Provide guidance for collecting data for your evaluation plan: What kinds of data to collect, how to collect the data, tools for collecting data, how to analyze and interpret the findings

**Program Manager:**
- Available resources (staff and software) to collect and analyze data

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**Tier 1: Essential**  **Tier 2: Supportive**  **Tier 3: Limited Role**
Example: “Stroke Warning Signs Media Campaign”
Planning and Development Phase

- **Surveillance**: Stroke risk factor and mortality for various populations; hospitalizations for stroke from discharge data; signs/symptoms awareness data; population (census) data on race/geography/education

- **Communication**: Inform you (the project manager), your staff, and your partners on the need based on the data (see “Surveillance”)

| Tier 1: Essential | Tier 2: Supportive | Tier 3: Limited Role |
Example: “Stroke Warning Signs Media Campaign” Planning and Development Phase

• **Education**: Present data to partner organizations to set the stage; present evidence that other media campaigns have worked

• **Consultation**: Asking tough planning questions: How are we going to evaluate the success of the campaign? What’s the best source of data? Should a pre- and a post-intervention awareness survey be conducted?

• Provide guidance on what stroke signs awareness data to obtain; how to keep of track it; analyzing findings; how to most effectively report and disseminate findings

| Tier 1: Essential | Tier 2: Supportive | Tier 3: Limited Role |
Example: “Stroke Warning Signs Media Campaign”
Planning and Development Phase

• Evaluation: Help set up the evaluation plan asking the questions:
  – What are the measures of success?
  – What data will we need to provide?
  – How should we obtain these data?
  – What will be the plan for analyzing data that we obtain?

| Tier 1: Essential | Tier 2: Supportive | Tier 3: Limited Role |
Example: “Stroke Warning Signs Media Campaign”

Monitoring Phase

• Consultation: Setting up a surveillance/evaluation database to keep track of how the campaign is going and what the results are showing (process as well as outcomes)
Example: “Stroke Warning Signs Media Campaign”
Evaluation Phase

- **Consultation:** Provide guidance on how to analyze and interpret the stroke signs awareness data that have been obtained; and how to effectively report and disseminate findings to partners and targeted audiences

| Tier 1: Essential | Tier 2: Supportive | Tier 3: Limited Role |
Now It’s Your Turn...

Let’s Walk Through the Steps
When I’m Planning/Developing A Program…

• This is what I need to think about:

• This is what I would like the Epidemiologist to do for us:
When I’m Monitoring A Program...

• This is what I need to think about:

• This is what I would like the Epidemiologist to do for us:
When I am Evaluating A Program…

• This is what I need to think about:

• This is what I would like the Epidemiologist to do for us:
Questions?

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