

# ***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.bmjournals.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<sup>13</sup>

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

\* these are potential sources, not necessarily currently available

Source: Canada Disease Surveillance

[http://www.phac-aspc.gc.ca/csc-ccs/pdf/hscchronic\\_disease\\_surveillance\\_background\\_paper\\_e.pdf](http://www.phac-aspc.gc.ca/csc-ccs/pdf/hscchronic_disease_surveillance_background_paper_e.pdf) (page 13)

# **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>)
- **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: Essential   Tier 2: Supportive   Tier 3: Limited Role**

# 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 1: Essential   Tier 2: Supportive   Tier 3: Limited Role**

# 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 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 1: Essential   Tier 2: Supportive   Tier 3: Limited Role**

# **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 1: Essential   Tier 2: Supportive   Tier 3: Limited Role**

# 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

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



***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

# ***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

**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?

## **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

***Now It's Your Turn...***

***Let's Walk Through the Steps***



# *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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