Introduction to Indicators in Public Health Planning and Evaluation

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Webinar Features

- Adobe Connect technology
- Use landline for audio
- **Chat function** to ask questions or if you need help
- Lecture mode
Poll #1: your level of familiarity with indicators

How would you rate your level of familiarity with indicators?

1. I’ve heard of them but don’t really know what they are
2. I know what they are but I don’t use them in my work
3. I use them in my work all the time
Objectives of Today’s Webinar

• Identify the different components and different types of indicators.

• Review the criteria for assessing an indicator and the steps for developing an indicator.

• Describe how to use indicators in a public health context for planning and evaluation.

• Share resources to support indicator selection or development.
Definition: Indicators

A summary statistic used to give an indication of a construct that cannot be measured directly.¹

A summary measure that aims to describe, in a few numbers, as much detail as possible about a system, to help understand, compare, predict, improve and innovate.²
“Being a good tennis player” can’t be measured directly, so we look to indicators:

• Match wins
• Match record against this opponent
• Percent first serves
• Aces
• Wins in five-set matches
• Titles
• Ranking
• Etc....
Recall the definition of an indicator: A summary measure that aims to describe, in a few numbers, as much detail as possible about a system, *to help understand, compare, predict, improve and innovate*.  

- Monitor performance
- Assess progress
- Compare, and identify trends
- Accountability
- Alert you to possible problems
- Communicate
Common Health Indicators

The most common health indicators are those related to birth and death:

- Life expectancy
- Premature mortality (e.g., Potential Years of Life Lost (PYLL))
- Age-specific death rates (e.g., infants, teens)
- Cause-specific deaths (e.g., lung, cervical cancer)
- Low birth weight
- Social characteristics of parents (e.g., maternal education)

**Pros:** High completeness of reporting, widely available, and comparable across locations and groups.

**Cons:** Limited view of health.
More Common Health Indicators

Health Status
• Self-rated health status
• Obesity
  – Body Mass Index based on self-reported height and weight
• Chronic diseases

Health Behaviours
• Tobacco use
• Physical activity
• Diet and nutrition
• Alcohol consumption
Types of Indicators

- Quantitative and qualitative
Examples of Different Types of Indicators in Reproductive Health

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td><strong>Counts</strong>: number of women who initiated breastfeeding</td>
</tr>
<tr>
<td></td>
<td><strong>Rates</strong>: preterm birth rate</td>
</tr>
<tr>
<td></td>
<td><strong>Proportion</strong>: proportion of mothers aged 15-49 years who breastfeeding their last baby (born within last five years)</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong>: average age of mother at the infant’s birth</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Belief in benefits of breastfeeding</td>
</tr>
</tbody>
</table>
Types of Indicators in Public Health

- Population
  - Health status
  - Health determinants

- Program
  - Process
  - Outcome
<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Preterm birth rate (Population health status)</td>
</tr>
<tr>
<td></td>
<td>Proportion of new mothers that have:</td>
</tr>
<tr>
<td></td>
<td>• Any post-secondary education</td>
</tr>
<tr>
<td></td>
<td>• Graduated from secondary school</td>
</tr>
<tr>
<td></td>
<td>• Less than secondary school education</td>
</tr>
<tr>
<td></td>
<td>(Population health determinants)</td>
</tr>
<tr>
<td>Program</td>
<td># of posters disseminated on breastfeeding (Process)</td>
</tr>
<tr>
<td></td>
<td>Exclusive breastfeeding until six months of age (Outcome)</td>
</tr>
</tbody>
</table>
Basic Parts of an Indicator Description$^{3,4}$

- Title
- Definition
- Rationale
- Data source
- Method of calculation
- Applicable population
- Limitations
## Basic Parts of an Indicator Description³

<table>
<thead>
<tr>
<th>Basic part</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>Low birth weight</td>
</tr>
<tr>
<td><strong>Definition</strong></td>
<td>Weight in relation to gestational age, e.g., small for gestational age (SGA)</td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>Association between low birth weight with infant morbidity and mortality</td>
</tr>
<tr>
<td><strong>Data source</strong></td>
<td>Vital statistics/hospitalization/Better Outcomes Registry and Network</td>
</tr>
<tr>
<td><strong>Method of calculation</strong></td>
<td>total number of singleton live births, weights &lt;10\textsuperscript{th} percentile for their gestational age and sex [ \frac{\text{total number of singleton live births, weights &lt;10\textsuperscript{th} percentile for their gestational age and sex}}{\text{total number of singleton live births}} \times 100 ]</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>Infants born in Ontario to resident females</td>
</tr>
<tr>
<td><strong>Limitations</strong></td>
<td>Reference birth weights for gestational age percentile cut-offs may misclassify healthy infants of certain ethnicities</td>
</tr>
</tbody>
</table>
Criteria for Assessing Indicators

- Accessibility
- Reliability
- Validity
What are the barriers to obtaining data for your indicators?

• Common Barriers:
  • Limited resources
  • Human or financial
  • Sample size
  • Locating willing participants
  • Measuring a phenomenon that does not occur frequently
Will it perform consistently over time or if measured by different people?

- Examples:
  - Could the finding/response be affected by when data are collected?
  - Is there too much room for interpreting the question?
  - Would repeated measures of the same subject be consistent if:
    - One data collector uses the same measurement device?
    - One data collector uses different measurement devices?
    - Repeated by different data collectors?
How well does the indicator actually measure what it should?

• Examples:
  • Weight: Self-reported weight versus actual weight
  • Utility of a Workshop: participants that are satisfied with a workshop didn’t necessarily find it useful
Other Possible Criteria

• Acceptability$^5$
• Comparability$^5$
• Sensitivity$^5$
• Specificity$^6$
• Usefulness$^6$
Poll #2: Indicator Criteria

**Objective:** by the end of the workshop, 80% of participating parents will have positive attitudes towards breastfeeding

**Indicator:** % of participating parents who can identify 3 possible challenges of breastfeeding

Which of the following is a concern about **validity**?

1. The indicator doesn’t address the objective
2. Obtaining the data is too time consuming
3. The term ‘challenge’ is not clearly defined
Uses of indicators
Uses of Indicators in Planning and Evaluation

• Population level

“Standardized measures by which to compare health status and health system performance and characteristics among different jurisdictions”\(^7\)

• Program level

“Specific, observable and measurable characteristics or change that will represent achievement of the [process or] outcome”\(^8\)
Indicators in Planning

- Understanding the situation
  - Situational assessment

- Planning to measure objectives
  - What does success look like?
Indicators in Evaluation

Mapping Evaluation Questions and Indicators to a Logic Model

Formative/Process
- Inputs
- Activities
- Outputs

Evaluation Questions
- Are resources adequate to implement program?
- Is program implemented as planned?
- How many, how much was produced?
- Change in knowledge, policy, environment?
- Change in system, behavior?
- Change in health status?

Indicators
- What will be measured?

Outcome
- Short-term Outcomes
- Intermediate Outcomes
- Long-term Outcomes
- Impacts
- Change in population health status?
# Components of an Evaluation Plan

<table>
<thead>
<tr>
<th>Evaluation question</th>
<th>Objective</th>
<th>Indicator</th>
<th>Method of data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you want to know about the program?</td>
<td>What did the program set out to do?</td>
<td>What will demonstrate success?</td>
<td>What tools will you use to collect the information you need?</td>
</tr>
</tbody>
</table>
Poll #3: your main uses of indicators

What is your most common context for using indicators (or using them in future?)

1. Planning – situational assessments
2. Planning – setting program objectives
3. Evaluation – measuring program outcomes
4. Evaluation – measuring program processes
5. Other
Steps to Develop Indicators

Step 1: identify what you want to measure

Step 2: develop a list of possible indicators

Step 3: agree on criteria for indicators

Step 4: assess each possible indicator against criteria

Step 5: select best indicators

Step 6: refine indicators

Step 7: test indicators
Indicator worksheet

<table>
<thead>
<tr>
<th>Change you want to see</th>
<th>Possible indicator</th>
<th>Criteria for assessing indicator</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Accessibility</td>
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</tbody>
</table>

**Accessibility**

**Reliability**

**Validity**

**Other?**
Step 1: identify what is to be measured
• Physical activity

Step 2: Develop a list of possible indicators
• e.g., Physical activity in 0 – 19 year olds
  • Measured average number of daily steps taken (5 – 19 year olds)
  • Measured average daily minutes of moderate or vigorous physical activity (5 – 19 year olds)
  • Measured average daily minutes of physical activity (0 – 4 year olds)
Steps for developing or selecting indicators

**Step 3:** agree on criteria for indicators
- Accessibility
- Reliability
- Validity
- Acceptability
- Comparability

**Step 4:** assess each possible indicator against criteria

**Step 5:** select best indicators
Step 6: Refine indicators

Step 7: Test indicators

What would you do if:

- 10% of children and youth meet or exceed the recommended level of daily physical activity?
- 90% of children and youth meet or exceed the recommended level of daily physical activity?
When using indicators...

- Identify indicators that could potentially answer your evaluation questions
- Identify the strengths/limitations of the indicators
- If local data exist for your population of interest:
  - Establish baseline values prior to implementing your program
- If no local data exist for your population of interest:
  - Consider the feasibility of collecting local data
Challenges of using health indicators

- Indicators only answer the questions you ask but don’t tell you why
- Indicators can highlight associations but causation is often difficult to establish
- Indicator definitions may vary among organizations
  - Beware when making comparisons
- Temptation to base indicator choice on data availability
  - Available data may not measure what you want to know
Challenges of using health indicators

- What gets measured gets done
- It may be possible to "game" some indicators
Tips for using indicators responsibly

• Determine what you want to know
• Evaluate indicators for: accessibility/feasibility, reliability, validity, etc. – don’t use indicator “because it’s there”
• Limit the number of indicators, focusing resources on the strongest ones
• Make indicator selection, development and interpretation collaborative
• Choose indicators that cannot be easily ‘gamed’
Tips for using indicators responsibly

- When disseminating results, state known indicator limitations
- Treat indicators as one useful source of data – not gold standard against which other evidence is measured – integrate with qualitative methods as well
- An indicator is just an indicator
  - Draw on context to interpret what the indicator may mean
Online Health Program Planner
Interactive worksheets that help you make evidence-informed decisions.

Get started

Six Program Planning Steps
Make evidence-informed decisions about your program.

Tell me how

Online Business Case Creator
Make recommendations about your project risks and benefits.

Tell me how

Project Management Tools
Develop implementation plans to manage your project.

Tell me how
## Online Health Program Planner 2.0

<table>
<thead>
<tr>
<th>Component of program plan</th>
<th>Worksheet to complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals</td>
<td>Worksheet 3.1: set goals, audiences, outcome objectives</td>
</tr>
<tr>
<td>Audiences</td>
<td>Worksheet 3.1: set goals, audiences, outcome objectives</td>
</tr>
<tr>
<td>Outcome objectives</td>
<td>Worksheet 3.1: set goals, audiences, outcome objectives</td>
</tr>
<tr>
<td>Process objectives</td>
<td>Worksheet 4.4: develop process objectives</td>
</tr>
<tr>
<td>Outcome indicators</td>
<td>Worksheet 5.1: develop outcome indicators</td>
</tr>
<tr>
<td>Process indicators</td>
<td>Worksheet 5.2: develop process indicators</td>
</tr>
</tbody>
</table>
PHO Health Promotion Capacity Building Team

- For service request inquiries, including consultations, tailored webinars, customized face to face workshops, or to sign up for our mailing list, please go to:

  http://www.publichealthontario.ca/en/ServicesAndTools/HealthPromotionServices/Pages/service-request-form.aspx

- To find out more about scheduled events, please visit our calendar at:

  http://www.publichealthontario.ca/en/LearningAndDevelopment/Events/Pages/default.aspx
PHO Resources

• Online Health Program Planner

• At a glance: Ten steps to evaluating health promotion programs

Resources are available in both English and French
Other Recommended Resources

- NHS: The good indicators guide\(^2\)
- Health Council of Canada: A citizen’s guide to health indicators\(^4\)
- Bowen and Kreindler: Indicator madness\(^1\)
Health Status and Health Determinant Indicators and Data Sources

- PHO Snapshots
  http://www.publichealthontario.ca/en/DataAndAnalytics/Snaps hots/Pages/default.aspx#.U6CW5PldUz4

- Association of Public Health Epidemiologists of Ontario (APHEO) Core Indicators for Public Health in Ontario

- CIHI Interactive Tool

- Statistics Canada CANSIM tools

- Canadian Community Health Survey

- Rapid Risk Factor Surveillance System


