

Guidelines for selecting and using indicators

A summary of

NHS Institute for Innovation and Improvement. (2008). The good indicators guide: Understanding how to use and choose indicators. Coventry, UK: NHS Institute for Innovation and Improvement. Retrieved from: <http://www.apho.org.uk/resource/item.aspx?RID=44584>



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Categories:

Tool, Evaluate, KT evaluation

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Tool

Relevance For Public Health

This toolkit would be useful for program evaluation coordinators, epidemiologists, program managers, health and policy analysts and health promotion officers involved in measuring the effectiveness of public health initiatives, such as a diabetes self-management program.

Description

This guideline is a resource for anyone using indicators to monitor and improve performance, systems or outcomes. Health indicators are single summary measures that represent a key dimension of health status, the health care system or related factors. Indicators can be used for understanding, performance and accountability.

In Canada, the Health Indicator Framework is comprised of indicators across five dimensions:

1. health status
2. non-medical determinants of health
3. health system performance
4. community and health system characteristics
5. equity

These and other resources are valuable for [locating indicators](#) to monitor performance. It is important to recognize that using indicators can affect the behaviour of the system it is measuring. Some unintended consequences that may be detrimental to the system include:

- *Gaming*: unwanted behaviour change to report more favourable results;
- *Will Rogers Phenomenon*: a paradox observed when moving an item from one set to another moves the average values of both sets in the same direction; and
- *Regression to the Mean*: a measurement yielding an extreme value on one occasion tends to yield a value closer to the average on the next occasion without anything else changing.

Implementing the Tool

Who is Involved?

Health and policy analysts, epidemiologists, program evaluation coordinators, project specialists, health promotion officers and program managers could use this tool for selecting indicators for program monitoring and evaluation.

Steps for Using Tool

The resource is divided into the following sections:

A) Background information on indicators

Indicators, and measurement in general, can be used for three reasons:

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1. for understanding how a system works and how it might be improved
2. for performance monitoring to determine if a system is performing to an agreed standard
3. for accountability

Indicators only indicate. An indicator will never completely capture the richness and complexity of a system. Thus, an indicator must be understood in context. Indicators encourage explicitness and clarity about program and system goals. They often rely on quantitative measures and methods, which require a basic understanding of statistics. Indicators are not used to blame or find fault within systems, but are one mechanism for learning.

A key step in selecting appropriate indicators for a program or system is to first clearly articulate objectives through consensus. The developers propose using the Model for Improvement through Plan-Do-Study-Act (PDSA) cycles (p. 7) to help with selecting and using indicators:

1. Have conversations leading to agreed, measurable objectives.
2. Select well-designed indicators that measure the right data, in the right parts of the system, at the right time.
3. Use indicators to understand what part of the system will change and how.

B) Components of an indicator

An indicator consists of two parts: the metadata and the data. The metadata is the title, the definition and rationale of the indicator; the data is the information input into the metadata. Assessing the metadata of an indicator will reveal if the indicator is relevant for use and can be populated with reliable data. A list of 10 questions is provided to assess different aspects of metadata (p. 10). It is essential to consider if good quality data are available to populate the indicator.

C) Understanding variation

Measurement of any system or process will reveal some variation. It is important to assess whether this variation is significant enough to warrant further action. One way to analyze variation is through Statistical Process Control (SPC). SPC can analyze the variation within a single system over time, or between different systems or institutions. SPC involves distinguishing between:

- Common Cause Variation - the normal, everyday, inevitable variation that is intrinsic and natural to any system; and
- Special Cause Variation - indicates that the variation is due to special or extenuating circumstances that warrant further study and action.

SPC can help decision-makers determine the status of a system or process as being:

- an ideal working system, where the average level of performance is acceptable and there are no outliers;
- a working system whose average level of performance is acceptable but with outliers; action warrants addressing the outliers; or
- a system whose average level of performance is not acceptable, regardless of variation; action warrants addressing the whole system rather than focusing on particular components or individuals in the system.

SPC can be displayed graphically as control charts or funnel plots, which combine statistical rigour with a persuasive way of showing information.

D) Presenting and communicating findings

Indicators and measurement are an initial step in the change process. Good communication connects measurement and understanding of systems to change processes within organizations. This process is context specific, such that using the right indicator at the right time and in the right context can bring about significant change.

Fundamental principles to communicate findings and use measurement as part of a larger change process include:

- Consider your audience and their potential to understand your findings and act on them.
- Use the presentation of your findings to capture your audience's attention and convey your message.
- Test your approach, especially if the techniques used are unfamiliar to your audience.
- Consider how people will feel and think about the change process, and convey your message in the form of a story to speak to the data.

E) Frequently asked questions about indicators

This section includes information on qualitative evidence, a balanced scorecard of indicators, synthetic estimates, quality of commercially available indicators and costs of measurement.

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F) Criteria for good indicators and good indicator sets

This section uses five key questions to provide a systematic approach to:

- develop, appraise and select indicators;
- make decisions on indicators and indicator sets with which people may not be familiar; and
- think of next steps in measurement and monitoring of systems.

These five questions are:

1. *Do the indicators address the important issues?* Clarify the most important aspects and purpose of a system. Measure what is most relevant by selecting indicators that focus on key aspects of the program or system. If using a set of indicators, use indicators in a balanced way to ensure all important areas are considered and measured. Use indicators and indicator sets to clarify consensus on the objectives of a system, program or organization.
2. *Are the indicators scientifically valid?* Ensure that the indicator has been tested and validated to measure what it is intended to measure.
3. *Is it possible to populate the indicator with meaningful data?* Determine if there is sufficiently reliable data available. Assess the costs and benefits of obtaining additional data if it is not readily available.
4. *What is the meaning? What is the indicator telling you and how much precision is there?* Assess if the indicator provides information on important issues and not on irrelevant issues. Determine if the indicator can be understood or deconstructed to assess the underlying issues that may be contributing to a particular value. Determine how the findings can be communicated to and interpreted by your audience so they will lead to change.
5. *What are the implications of an indicator and the next steps?* Determine if there is sufficient understanding of the system so that any issues identified can be studied further and addressed. Assess if there are any unintended or negative consequences of your data. Determine if the indicator can be used to monitor the issue regularly to support a responsive system.

G) Common myths about indicators

H) Glossary

I) Recommended readings

Evaluation and Measurement Characteristics

Evaluation

Has not been evaluated

Validity

Not applicable

Reliability

Not applicable

Methodological Rating



Not applicable

Tool Development

Developers

NHS Institute for Innovation and Improvement
Website: www.institute.nhs.uk

Association of Public Health Observatories
Website: www.apho.org.uk

Method of Development

Release Date

2008

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Resources

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| Title of Primary Resource | The good indicators guide: Understanding how to use and choose indicators. |
| File Attachment | None |
| Web-link | http://www.apho.org.uk/resource/item.aspx?RID=44584 |
| Reference | NHS Institute for Innovation and Improvement. (2008). <i>The good indicators guide: Understanding how to use and choose indicators</i> . Coventry, UK: NHS Institute for Innovation and Improvement. Retrieved from: http://www.apho.org.uk/resource/item.aspx?RID=44584 |
| Type of Material | Report |
| Format | On-line Access |
| Cost to Access | None. |
| Language | English |
| Conditions for Use | Copyright © 2008 NHS Institute of Innovation and Improvement |

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| Title of Supplementary Resource | The health indicators project: Report from the third consensus conference on health indicators 2009. |
| File Attachment | None |
| Web-link | https://secure.cihi.ca/estore/productFamily.htm?locale=en&pf=PFC1392&lang=FR&mediatype=0 |
| Reference | Canadian Institute for Health Information. (2009). <i>The health indicators project: Report from the third health indicators consensus conference 2009</i> . Ottawa, ON: CIHI. Retrieved from https://secure.cihi.ca/estore/productFamily.htm?pf=PFC1392&locale=en&lang=EN&mediatype=0 |
| Type of Material | Report |
| Format | On-line Access |
| Cost to Access | None. |
| Language | Non Specified |
| Conditions for Use | Copyright © 2009 Canadian Institute for Health Information |

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| Title of Supplementary Resource | Mini-symposiumpublic health observatories: Public health indicators. |
| File Attachment | None |
| Web-link | http://www.sciencedirect.com/science/article/pii/S0033350605000053 |
| Reference | Flowers, J., Hall, P. & Pencheon, D. (2005). Mini-symposium—public health observatories: Public health indicators. <i>Public Health</i> , 119(4), 239-245. |
| Type of Material | Journal article |
| Format | Periodical |
| Cost to Access | Journal article purchase |
| Language | English |
| Conditions for Use | Copyright © 2005 The Royal Institute of Public Health |

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| Title of Supplementary Resource | Measuring population health: A review of indicators |
| File Attachment | None |
| Web-link | http://www.ncbi.nlm.nih.gov/pubmed/16533108 |
| Reference | Etches, V., Frank, J., Di Ruggiero, E., & Manuel, D. (2006). Measuring population health: A review of indicators. <i>Annual Review of Public Health, 27</i> , 29-55. |
| Type of Material | Journal article |
| Format | Periodical |
| Cost to Access | Journal article purchase |
| Language | English |
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