

Appendix 3: Types of indicators and how they are used

This section briefly summarises the types of indicators that are relevant to assessing health care safety and quality and also discusses issues of presentation and interpretation.

Definition

An indicator is a key statistical measure selected to help describe (indicate) a situation concisely, track progress and performance, and act as a guide to decision making (AIHW 2008a). The former National Health Performance Committee used that is similar to this but more specifically about performance: it defined performance indicators as statistics or other units of information which reflect, directly or indirectly, the extent to which an anticipated outcome is achieved or the quality of processes leading to that outcome (NHPC 2001).

Outcome, process and structure indicators

Indicators can be described as three types – outcome, process or structure - as first proposed by Avedis Donabedian (1966). The national safety and quality indicators of safety and quality in health care recommended in this report include indicators of all three types.

Outcome indicators relate to recovery, restoration of functionality and survival of patients. Examples are rates of perinatal mortality, surgical mortality and cancer survival. Outcomes normally have unquestioned validity as a dimension of safety and quality, and outcome indicators tend to be concrete and consequently amenable to precise measurement.

However, such indicators can have limitations. They are not always direct measures of the safety and quality of health care provision in the same way as process measures are. For example, a desired outcome of a person suffering a serious heart attack might be survival but the reason that the person survives may be unrelated to the safety and quality of the health care received. For this reason, outcome measures are sometimes reported with an associated process measure.

Process indicators, on the other hand, aim to measure the extent of the application of ‘good’ health care. They are usually defined by reference to best practice guidelines or standards for specific health interventions. Examples include to the management of care for people with diabetes or asthma. Process indicators are usually more sensitive to differences in quality than are outcome measures and they can be easier to interpret. They may be preferred to outcome indicators where the link between process and outcome is clearly established (Mant 2001).

Structural indicators encompass such issues as the amount and adequacy of facilities and equipment, the qualifications of medical staff and their organisations as well as the administrative structure and programs. An example of such an indicator is one that measures the proportion of medical staff undertaking a specified procedure who are accredited in accordance with a national standard. Structure indicators are often readily formulated and easily measured. However, it is not always a simple matter to establish a clear relationship to achieving desired health outcomes.

Rates and counts

Indicators typically are expressed as a rate or a count, mostly as a rate. An example of a national rate for an outcome indicator would be the number of unplanned hospital readmissions in Australia, over a certain period after discharge, per 1000 initial admissions. This 'per 1,000' kind of approach makes rates useful for comparing populations or providers of different size, such as larger or smaller countries or hospitals.

In trying to compare the performance of different care providers on a fair and equal basis, it is also often desirable to adjust for other factors that can affect their results or processes. The most common adjustment is for the age structure of their patients. However, other adjustments may be attempted, with varying accuracy, such as for the background health of the patients. This is often referred to as 'risk adjustment'.

Indicators can also be defined purely as a measure rather than as a rate, namely, the number of specific events occurring within a specified period. This can be appropriate when the 'target' value is zero regardless of the size of the denominator and regardless of other differences in 'risk'. An example is the incidence of *Staphylococcus aureus* (including MRSA) bacteraemia in acute care hospitals.

Comparisons over time, comparisons for population or provider subgroups, international comparisons, and comparisons against a target or standard

A key characteristic of indicators is the ability to 'track progress and performance, and act as a guide to decision making'. Presenting indicators is generally only useful if comparisons can be included. For national reporting, these comparisons would generally be comparisons over time, comparisons by population or provider subgroups, international comparisons, and comparisons against a target or standard.

Comparisons against a target or standard will generally be a part of the indicator definition, and will reflect accepted best practice in an area. For example, an indicator may measure the number of activities completed within a specified timeframe that is based on industry guidelines, such as time to reperfusion for acute myocardial infarction.

Comparisons over time help to assess whether safety and quality of health care in Australia is getting better or not. In addition, comparisons for population or provider subgroups can help to assess apparent variations in performance, which may reflect patient factors, differences in health care practice, or both. Hence, an indicator may be presented as a comparison between males and females, age groups, Indigenous and non-Indigenous status, states and territories, degree of remoteness and so forth.

To illustrate, it may be of interest to know if 5-year cancer survival rates are better for men than for women (and vice-versa) and whether they are more favourable for patients in metropolitan areas as opposed to rural/remote areas. This may help illustrate a range of contributing factors including differing risk rates between men and women, differing levels of access to relevant health care services in rural/remote areas, and issues relating to the safety and quality of health care services provided to these patients. This type of analysis is also an important tool for assessing equity in the safety and quality of health care as discussed in section 2.2.

Another area of analysis is international comparisons, especially for health outcomes. For example, cancer survival rates can be readily measured and compared internationally. International comparisons can, however, be of limited value for process indicators in health care, because the processes can vary widely from country to country and so can the

specifications and collection of data. The analysis of OECD indicators of patient safety undertaken by the AIHW (see Appendix 5) highlighted the complexity of obtaining meaningful international comparisons.