

Selecting health indicators in population health:

Notes on choosing health indicators for
the National Biomedical Risk Factor Survey

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Selecting health indicators in population health:

Notes on choosing health indicators for the National Biomedical Risk Factor Survey

In recent years, there has been a great deal of interest in the development of a national indicator set to monitor and report on the state of the population's health. It is envisaged that this type of information will help to evaluate the effectiveness of various health services and public health programs and assist in planning new or targeted public health interventions. A biomedical risk factor survey, if repeated over time, could produce valuable indicators for inclusion in a national set. The purpose of this paper is to outline a broad framework for a population health indicator set in order to examine the place of a biomedical risk factors survey. A process for selecting indicators is also outlined.

Health Indicators

A health indicator is a measure of a chosen health event (for example, deaths from lung cancer, or blood levels of iron) derived from a data collection that records all cases of the event in a population (or records a representative sample) on an ongoing basis (either by continual monitoring, or time series survey).

There are essentially two types of health indicators: health status indicators and health performance indicators.

1. **Health status (or outcome) indicators** measure health outcomes (illness, disability, death, injury) and/or risk factors (personal, environmental, occupational). Examples of data collections that could yield health indicators in Australia include the cancer registries, the death statistics and the National Health and Nutrition Surveys.
2. **Performance indicators** measure aspects of the performance of health services or public health programs such as utilisation/accessibility, costs and quality of infrastructure. Examples of performance indicators in public health in Australia include those that monitor the functional aspects of breast screening and cervical cytology programs.

Health indicators are a surveillance tool and as such, they provide limited, but timely information about the state of a population's health and the functioning of the health care system. They do not replace other forms of research that investigate the causal links between health and various biological, social and economic factors. The Centers for Disease Control see health status indicator data as being important for:

1. Monitoring health status to identify problems.
2. Diagnosing and investigating health problems and health hazards.
3. Informing, educating and empowering people about health issues.

Indicators should focus on providing information about the disparities in health between population groups and should be sensitive to changes in the levels of health disparities. The overall purpose of indicators is to provide baseline information on the state of population health and public health programs, so that goals can be set and interventions planned and monitored for improvements in health outcomes. Health status indicators are the most important indicators in a national population health indicator set, as they provide baseline information (or denominators) about the state of a population's health. These baselines allow for the examination of the impact of all social changes on health performance.

POPULATION HEALTH STATUS

Measured by **health status indicators**

reflects a combination of

socioeconomic
factors

environmental
factors

occupational
factors

lifestyle
factors

access to health care

Modification of some of these factors is the subject of various public health programs



Functional aspects of programs measured by
performance indicators

The design of new indicators should be done in the context of a national population health indicator set

A national population health indicator set is currently being developed in Australia and the design of new national population health collections should consider this set to avoid duplication. The Canadian Roadmap Initiative (Statistics Canada 1999) outlines a detailed model for a population health indicator set that includes both health status indicators and health performance indicators. The framework is designed to answer two questions:

- a) how healthy are Canadians ? (Using health status indicators); and,
- b) how healthy is the health system ? (Using performance indicators).

The health status indicators' section of this model has been adopted by a meeting of the Australian National Health Performance Committee and the National Public Health Partnership as the basis of a national health performance framework and a public health indicator set. This modified Canadian model is shown below. Australian priorities within each of the areas in the model are currently being set. It is possible that information from a national biomedical risk factor survey could produce indicators in some priority areas.

Draft 1: National Health Performance Framework, NPHP Workshop March 2000

HEALTH OUTCOMES How healthy are we as a nation? (Emphasis on health status amenable to change)			
HEALTH CONDITIONS	HUMAN FUNCTION	WELL-BEING	DEATHS
Alterations of health status, which may be a disease, disorder, injury or trauma, or reflect other health-related states	Alterations to body/functions/structures (impairment), activities (activity limitation), and participation (restrictions in participation)	Broad measures of physical/mental/social well-being of individuals	Age or condition specific mortality rates and other derived indicators
DETERMINANTS OF HEALTH Are we trending towards or away from health?			
HEALTH BEHAVIOURS	LIVING AND WORKING CONDITIONS	PERSONAL RESOURCES	ENVIRONMENTAL FACTORS
Aspects of personal behaviour and risk factors that influence health status, including behaviours, meanings and knowledge	Socioeconomic characteristics and working conditions of population that are related to health	Measures of prevalence of factors, such as social support, and life stress, that are related to health	Environmental factors, family factors, attitudes and health behaviours that can influence health
HEALTH SYSTEM PERFORMANCE Are our interventions affective, efficient and appropriate?			
EFFECTIVENESS	EFFICIENCY	ACCESSIBILITY & EQUITY	APPROPRIATENESS
CAPABILITY	SAFETY	CONTINUITY	ACCEPTABILITY
HEALTH SYSTEM INFRASTRUCTURE Is our system infrastructure sustainable in to the future?			
COMMUNITY CHARACTERISTICS AND CAPACITY RELATED TO HEALTH Elements outside the health system which contribute to health			

Criteria for selecting health indicators

There are three important criteria for selecting population health indicators. They should be 1) theoretically sound and linked to public health objectives, 2) meshed with publicly understood concepts so they can be readily introduced to the public and policy makers, and 3) technically accurate.

To be theoretically sound, indicators must:

1. reflect important national health topics that are seen as having some social value;
2. be underpinned by government health objectives;
3. address problems that could be changed through public policy and operational initiatives.

To be commonly understood, indicators must:

1. be in a form the general public, opinion leaders, and the health and medical communities can easily interpret and understand;
2. have a dissemination plan.

To be technically useful, indicators must:

1. be reliable measures;
2. be available from established sources on a regular (at least biennial) basis;
3. be able to be disaggregated at multiple levels (national, state, local, and community) and for diverse select populations;
4. address primary, secondary, and tertiary prevention issues as well as the environmental and socioeconomic determinants of health;
5. must have involved a range of stakeholders in their development so they have credibility.

A process for selecting indicators

1) *The design of an indicator set should begin by defining priority health areas and government objectives.* The key to useful indicators is selection based on sound theory and government objectives. Among the most successful indicators in Australia are the unemployment figures, which are widely regarded as reliable, and are difficult for any government to ignore. They have been successful because they tapped into an issue that was important across society and they address a problem that could potentially be changed through government policies and operational initiatives. Health indicators should also reflect important issues of social concern and should be grounded in areas that are the subject of policy and operational initiatives.

In the USA, a health indicators set has been proposed which has the Healthy People 2010 policy as its basis. Three indicator sets have been proposed using this policy as a framework, and are shown below to demonstrate different ways that indicator sets can be envisaged. Each represents the most important factors

affecting health in three areas. An important function of every indicator should be the measurement of socioeconomic status and other factors that may highlight health disparities (such as membership of a special population groups, gender, etc), and poverty and education do not need to be listed separately.

Health determinants and outcomes	Life course determinants	Prevention
Poverty	Poverty	Poverty
Tobacco use	Tobacco use	Tobacco use
Disability	Disability	Disability
Physical activity	Physical activity	
Preventable deaths		Preventable deaths
	Health care access	Health care access
Physical environment		
High school graduation		
Weight		
Health insurance		
Cancer detection		
	Substance abuse	
	Cognitive development	
	Violence	
	Low birth weight	
		Immunisation
		Cancer screening
		Hypertension screening
		Diabetic eye exam

2) *Once priorities have been set, existing health status indicators can be selected.* The selection of indicators from existing data sources is desirable because of the difficulties in establishing new indicators. Indicators should be selected on the basis of their ability to measure the problem adequately, their ability to be understood clearly by users and policy makers, and their ability to describe disparities in population health. In relation to population disparities, indicators should have enough data categories to describe different populations in Australia and should provide information at various population levels (national, state, local, community). A number of inventories of data collections in Australia exist from which health status and performance indicators could be chosen.

If data deficiencies exist, new collections can be established using the same criteria as those for selecting existing sources.

References

A general description of the process of creating meaningful indicators can be found in:

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