

Measures that could be included in a Biomedical Risk Factor Survey:

A summary of physical measures used in other surveys

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Measures that could be included in a Biomedical Risk Factor Survey:

A summary of physical measures used in other surveys

The following is a compilation from a literature review of measures that have been used (or proposed) in physical measures surveys internationally. The list has been structured around Australian health priorities that are presented in four tables at the beginning of this paper. The first table outlines the Commonwealth's national health priority areas from 1996. This is followed by two tables from the more recent *Burden of Disease and Injury Study* (Mathers et al. 1999), outlining:

- 1) the major health problems in Australia; and,
- 2) major risk factors.

The final table shows a proposed framework from the Commonwealth Department of Health and Aged Care for chronic diseases. The list of physical measures is presented the categories used by the Department's framework. It should be noted that all the measures in the literature review table are the subject of some government priority except 'metabolic tests', 'visual' and 'genetics'.

National health priority areas

Cardiovascular health

Primary goal: Improve cardiovascular health by reducing coronary heart disease and its impact on the population

Cancer control

Primary goal: Reduce the incidence of, mortality from, and impact of cancer on the Australian population

Injury prevention and control

Primary goal: Reduce the incidence, and impact on health, of injury in the Australian population

Mental health

Primary goal: Reduce the loss of health, well-being and social functioning associated with mental health problems and mental disorders in the Australian population

Diabetes mellitus

Primary goal: A set of goals has been identified (see Chapter 2 National Health Priority Areas Diabetes Mellitus Report, 1998, AIHW cat. number PHE 10)

Asthma

Primary goal: Not yet determined

**Top 10 leading causes of burden of disease and injury, by sex,
Australia, 1996**

Males			% of total	Females			% of total
1	Ischaemic heart disease	heart	13.6	1	Ischaemic heart disease	heart	11.1
2	Stroke		4.8	2	Stroke		6.1
3	Lung cancer		4.5	3	Depression		4.8
4	COPD ^(a)		4.2	4	Dementia		4.7
5	Suicide and self inflicted injuries	self	3.3	5	Breast cancer		4.6
6	Road traffic accidents		3.0	6	COPD ^(a)		3.2
7	Diabetes mellitus ^(b)		3.0	7	Asthma		3.1
8	Depression		2.7	8	Diabetes mellitus ^(b)		3.0
9	Colorectal cancer		2.7	9	Osteoarthritis		2.9
10	Dementia		2.5	10	Colorectal cancer		2.7

^(a) Chronic obstructive pulmonary disease (chronic bronchitis and emphysema)

^(b) Includes type 1 and type 2 diabetes

The burden of disease attributable to 10 major risk factors, Australia, 1996.

	Per cent of total DALYs		
	Males	Females	Persons
Tobacco	12.1	6.8	9.7
Physical inactivity	6.0	7.5	6.7
High blood pressure	5.1	5.8	5.4
Alcohol harm	6.6	3.1	4.9
Alcohol benefit	-2.4	-3.2	-2.8
Obesity	4.3	4.3	4.3
Lack of fruit and vegetables	3.0	2.4	2.7
High blood cholesterol	3.2	1.9	2.6
Illicit drugs	2.2	1.3	1.8
Occupation	2.4	1.0	1.7
Unsafe sex	1.1	0.7	0.9

Proposed Scope of National Chronic Disease Framework

Shaded areas indicate data collected by the AUSDIAB study.

Core conditions	Linked conditions	Core (modifiable) protective/risk factors	Linked (modifiable) protective/risk factors
<ul style="list-style-type: none"> • Cardiovascular health (i.e. Heart Disease, Stroke & Hypertension) • Type 2 Diabetes • Renal Disease • Obesity • Chronic Obstructive Pulmonary Disease 	<ul style="list-style-type: none"> • Certain Cancers (eg colorectal, lung) • Mental Health (Depression) 	<ul style="list-style-type: none"> • Diet • Physical Activity • Smoking • Psychosocial factors eg social support, perceived control, resilience • Early childhood development 	<ul style="list-style-type: none"> • Physical environment • Alcohol use
<p>UNDERLYING DETERMINANTS For example:</p> <ul style="list-style-type: none"> ▪ Socio-economic status, education, living and working conditions. 			

Core conditions

(Shaded areas indicate data collected by the AUSDIAB study).

Focus	General description	Specific measure	Cited purpose
Cardiovascular	blood pressure	blood pressure	* prevalence
	serum lipid levels	total cholesterol serum cholesterol HDL serum triglycerides	* risk factors
	electrical activity	ECG	
	blood products	folate homocysteine apolipoproteins A1, B, Lp (A)	
	clotting products	fibrinogen inflammatory response proteins	
	urinary measures	urine creatine urine albumin dipstick test	
	cardiovascular fitness	O ₂ uptake on bike bike exercise test	
Diabetes	OGTT or..	fasting glucose 6 hrs	* prevalence:
		glycosylated haemoglobin	- diabetes - impaired glucose tolerance
		urine glucose fasting glucose	* health knowledge, attitudes, practices
	serum insulin c-peptide retinopathy	fundus photography	* risk factors
Body Measurements	growth/weight	height	* growth charts
	body distribution	fat weight waist to hip ratio	* malnutrition and obesity
		skin fold thickness mid arm circumference bioelectric impedance	
Respiratory	lung function	pulmonary tests methacholine challenge	* clues for causal associations
	allergies	skin prick tests	* health service utilisation and medication use

Linked conditions

Cognitive and CNS testing	mini mental status exam question on knowledge of time and place mental disorders examination (elderly)	* prevalence
Nutrition	see below	

Core (modifiable) protective/risk factors

Nutrition	normal physiological function	micronutrients vitamins trace elements	* prevalence * justify interventions
	micronutrients assoc with disease	folate (CV disease, neural tube defects) iron	i.e. food fortification * risk groups
Biochemical	antioxidants anaemia	C, E etc (cancer) haemoglobin full blood count	* prevalence
	liver function	SGOT SGPT alkaline phosphate bilirubin total protein	*matching to hepatitis serology
Fitness	passive exposure fitness	tobacco cotinine	
Early childhood development		steps sit-ups none specified	
Allostatic load/stress		B.P. waist to hip ratio serum HDL total cholesterol glycosylated haemoglobin DHEA-S	
	hormones	12 hr urine cortisol 12 hr urine NE, E glycosylated proteins immune system?	
	haemostasis products	fibrinogen factor VII	

Linked (modifiable) protective/risk factors

Environmental biomarkers	contamination of: air water soil food other vector borne diseases chemical hazards skin cancer	examples lead products of disinfection microorganisms pesticides cadmium organochlorines
Substance use	alcohol drugs	

Other factors considered important from the burden of disease study or in the international literature

Hearing	audiometry tympanometry		
Musculoskeletal	arthritis	examination of joints X-rays (hands, feet) serology bone densitometry performance tests	
	osteoporosis	Osteoporosis-related fractures bone densitometry	
Communicable diseases	diseases	hepatitis A, B, C, D HSV I, II HIV varicella hanta virus toxoplasma gondii cryptosporidia parvum measles rubella h. pylori c. pneumoniae cytomegalovirus	* assess levels of vaccination * plan vaccination campaigns * prevalence * water quality assessment * sexual behaviour * planning elimination methods * validate surveillance
Dental	dental health	missing teeth filled teeth periodontal health	
Injury and violence Indigenous	no markers specified infections	urinary tract intestinal trachoma	
Visual	visual acuity fundus photography		
Genetics Metabolic tests	no markers specified autoimmune thyroid disease menopause	LH, FSH	

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