

# Updated New Zealand cardiovascular disease risk-benefit prediction guide

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The benefits of drug treatment for patients with raised blood pressure or blood cholesterol are directly related to their pretreatment risk of a cardiovascular disease event.<sup>1,2</sup> This guide provides a simple quantitative method for assessing a person's risk of cardiovascular disease and the likely benefits of lowering blood pressure or blood cholesterol with drugs. These instructions and charts (figure) combine and update previous New Zealand cardiovascular disease risk assessment charts.<sup>3,4</sup> This is not a guideline for managing cardiovascular disease risk.

## Assessing risk of a cardiovascular event over next five years

A cardiovascular event is defined as a death related to coronary disease, non-fatal myocardial infarction, new angina, fatal or non-fatal stroke or transient ischaemic attack, or the development of congestive heart failure or peripheral vascular disease.

### Estimating risk of cardiovascular disease

In some people, a high risk (>20% in five years) can be assumed on the basis of history, symptoms, or signs alone, including symptomatic cardiovascular disease (as defined above), left ventricular hypertrophy on electrocardiography, previous angioplasty or coronary artery bypass grafts, genetic lipid disorders, or diabetic nephropathy (albuminuria >300 mg/day).

For most other people, the risk charts should be used to estimate risk. The charts are based on a Framingham heart study prognostic algorithm.<sup>5</sup>

### Using the charts

Choose the chart section relating to the person's sex, diabetic status, smoking status, and age (for example, use age category of 60 years for people 55-65 years).

Find the cell nearest to the person's blood pressure and ratio of total cholesterol to high density lipoprotein cholesterol (when systolic and diastolic blood pressures fall in different categories, the higher category applies).

Compare the colour of the cell with the risk level colour key and estimate the five year risk of cardiovascular disease.

### Definitions and measurement issues

A person who has diabetes is defined as someone taking insulin or oral hypoglycaemics or with a fasting blood glucose concentration >8.0 mmol/l (near-patient or laboratory measurement).

Blood pressure taken as the mean of two readings on each of two occasions is sufficient for assessing risk but not for establishing a pretreatment baseline.

The ratio of total cholesterol to high density lipoprotein cholesterol taken as mean of two non-fasting Reflotron measurements or one non-fasting laboratory measurement is sufficient for assessing risk but not for establishing a pretreatment baseline.

Smoking is defined as regular daily cigarette smoking or having stopped in the previous 12 months.

### Special cases

If the total cholesterol concentration is >8.0-9.0 mmol/l or the ratio of total cholesterol to high density lipoprotein cholesterol is >8.0-9.0 or blood pressure is >170-180/100-105 mm Hg the risk charts may underestimate true risk.

For age over 75 years the absolute risk of cardiovascular disease in the next five years is >15% in most people.

### Other risk factors

Risk factors not included in the charts are family history of cardiovascular disease, physical inactivity, obesity, and left ventricular hypertrophy diagnosed by echocardiography. There are no standard definitions for these risk factors, and the magnitude of their independent predictive value is unclear; their presence should influence treatment decisions for patients at borderline treatment levels.

## Assessing likely treatment benefit over next five years

Drug treatment has been shown to reduce the relative risk of cardiovascular events in groups of patients with blood pressure >150 mm Hg systolic or 90 mmHg diastolic, and those patients with blood cholesterol >5.0 mmol/l.<sup>6,7</sup>

Drug treatment reduces combined cardiovascular disease mortality and morbidity by about one third, whatever the pretreatment absolute risk, assuming a reduction in blood pressure of about 10-15/5-8 mm Hg or cholesterol reduction of about 20%.<sup>6,7</sup>

Read off the estimated benefit from the colour key to the charts. Benefit is expressed as number of events prevented per 100 patients treated for five years and as number of patients needing treatment for five years to prevent one event.

Charts are reproduced with permission from the National Heart Foundation of New Zealand.

- 1 MacMahon S, Rogers A. The effects of antihypertensive treatment on vascular disease: re-appraisal of the evidence in 1993. *J Vasc Med Biol* 1993;4:265-71.
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- 3 National Health Committee. *Guidelines for the management of mildly raised blood pressure in New Zealand*. Wellington: Ministry of Health, 1995.
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- 5 Anderson KV, Odell PM, Wilson PWF, Kannel WB. Cardiovascular disease risk profiles. *Am Heart J* 1991;121:293-8.
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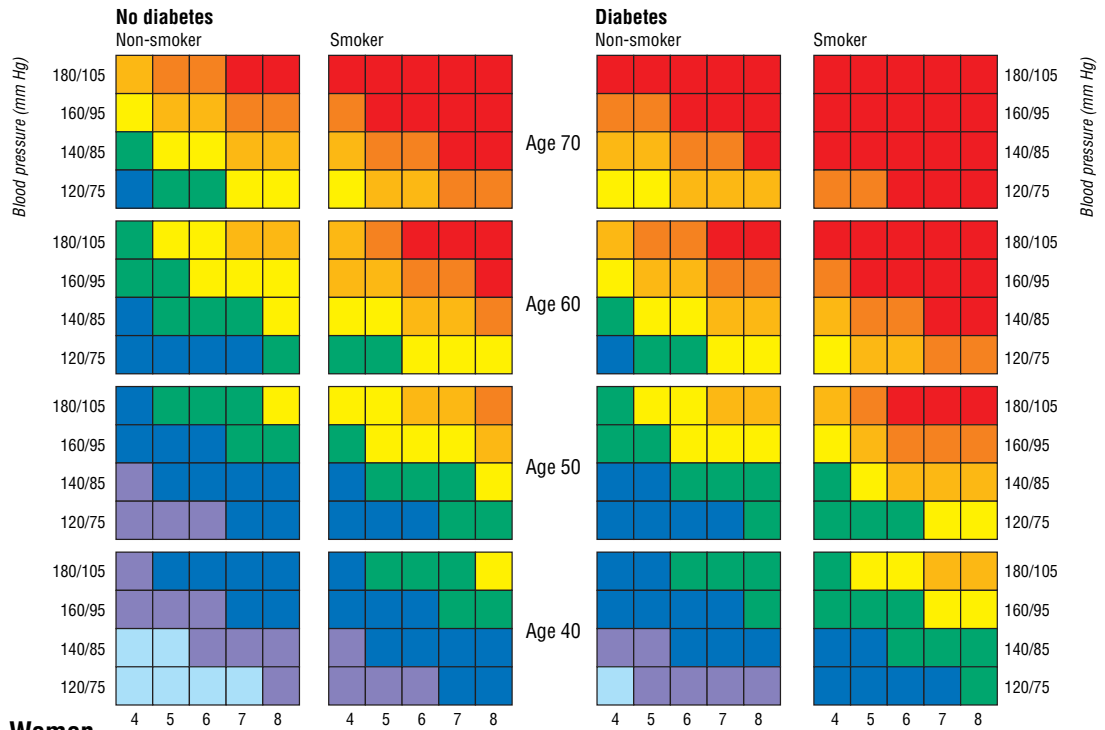
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## New Zealand cardiovascular risk prediction charts

	Risk level 5 year cardiovascular risk (non-fatal and fatal)	Benefit (1) Cardiovascular events prevented per 100 treated for 5 years*	Benefit (2) Number needed to treat for 5 years to prevent 1 event*
Very high	>30%	>10	<10
	25-30%	9	11
	20-25%	7.5	13
High	15-20%	6	16
	10-15%	4	25
Moderate	5-10%	2.5	40
	2.5-5%	1.25	80
	<2.5%	<0.8	>20

\* Based on a 20% reduction in total cholesterol or a reduction in blood pressure of 10-15 mm Hg systolic or 5-8 mm Hg diastolic, which reduces risk of cardiovascular disease by about one third over five years

### Men



### Women

