

Cardiac Risk Assessment

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May 2013

Outline

- Ministry of Health Targets
 - What and why
- Who needs a risk assessment?
- How to risk assess
 - NHF Heart Forecast Tool
- The difference treating risk can make for patients
- Cases

MOH targets

- What is the target?
 - 90 percent of the eligible population will have had their cardiovascular risk assessed in the last five years
 - to be achieved in stages by 1 July 2014
 - Stage 1: to achieve 60 percent by July 2012
 - Stage 2: to achieve 75 percent by July 2013

Why Targets?

- Long term conditions comprises the major health burden for New Zealand now and into the foreseeable future
- These conditions are the leading cause of morbidity in New Zealand, and disproportionately affect Māori, Pacific and South Asian peoples. As the population ages, and lifestyles change, these conditions are likely to increase significantly.
- Cardiovascular disease (CVD) includes heart attacks and strokes – which are both substantially preventable with lifestyle advice and treatment for those at moderate or higher risk. The indicator monitors the proportion of the eligible population who have had the blood tests for CVD risk assessment (including the blood tests to screen for diabetes) in the preceding five year period.
- Diabetes is important as a major and increasing cause of disability and premature death, and it is also a good indicator of the responsiveness of a health service for people in most need. Diabetes tests are included as part of the overall CVD risk assessment. These tests are different from a diabetes annual review, which takes place when a patient, who has been previously diagnosed with diabetes, is seen by their health professional to review the management of their disease.

Practical considerations

- Those at the highest level of risk gain most from risk factor management
- Most deaths in a community occur in those at lower levels of risk (there are more of them)
- Strategies for those at highest risk must be combined with public health measures to reduce cardiovascular risk and encourage a healthy lifestyle

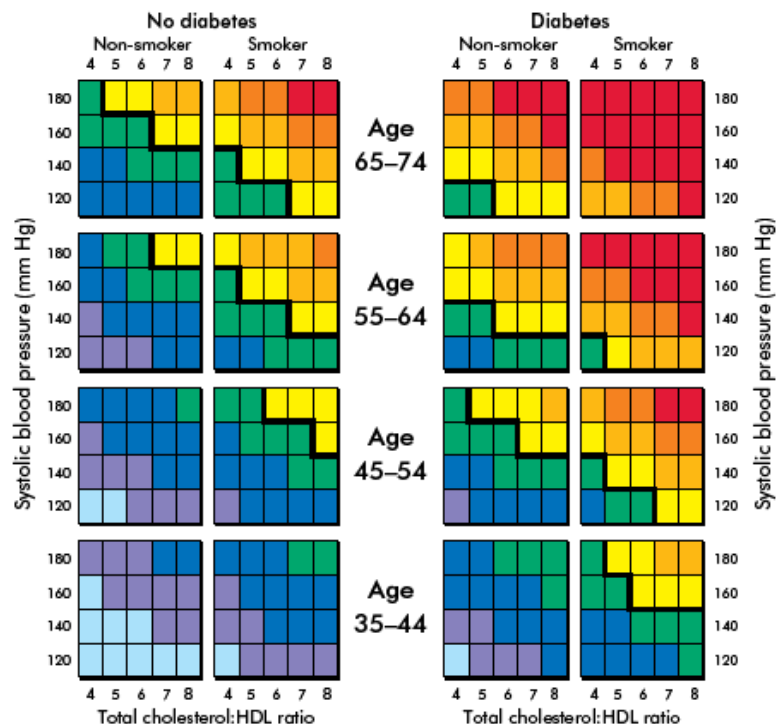
CVD in primary care

- For every 10,000 primary care patients, each year there are about
 - 10 deaths from coronary heart disease (CHD) and stroke
 - 1 death from diabetes
 - 1 death from breast cancer
 - 1 death from prostate cancer
 - 1 death from suicide
 - 1 death from road traffic accidents
 - (1 death from cervical cancer every 5 years)

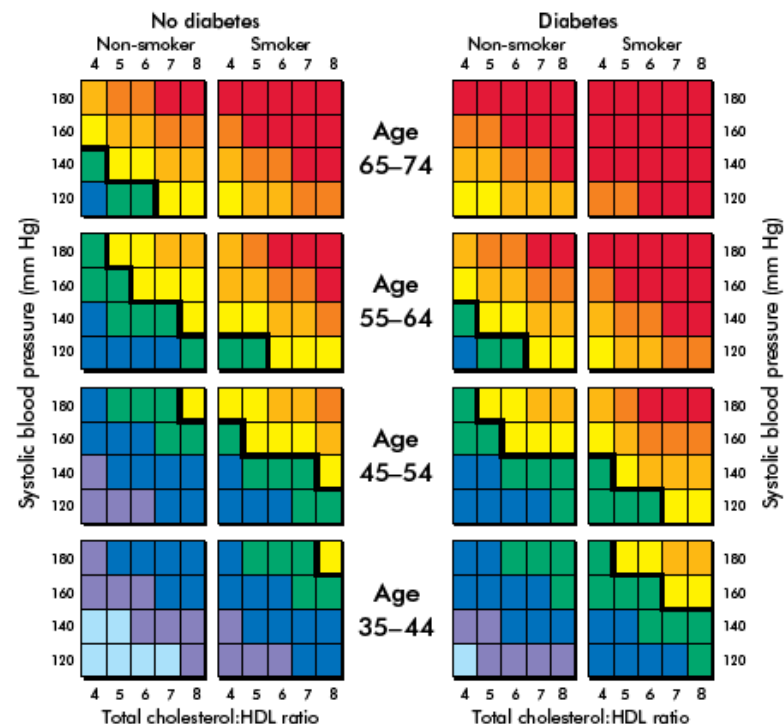
Who and when to assess

Group	Men	Women
Asymptomatic people without known risk factors	Age 45	Age 55
Maori, Pacific, Indian ethnicity	Age 35	Age 45
People with other high risk features <ul style="list-style-type: none"> •Diabetes in a first degree relative •Premature CHD or ischaemic stroke in first degree relative (father or brother <55, mother or sister <65) •Smokers (or quit <12 months ago) •Gestational diabetes, polycystic ovary syndrome •Previous BP\geq160/95 or TC:HDL ratio\geq7 •Known impaired glucose tolerance or impaired fasting glucose •BMI\geq30 or truncal obesity (waist circumference \geq100cm M/\geq90cm W) •eGFR <60ml/min/1.73m² 	Age 35	Age 45
People with diabetes	Annually from diagnosis	

Risk level women

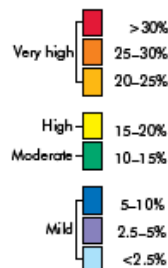


Risk level men



Key

5-year cardiovascular disease (CVD) risk (fatal and non-fatal)



Using the Charts

- Identify the chart relating to the person's sex, diabetic status, smoking history and age.
- Within the chart choose the cell nearest to the person's age, systolic blood pressure (SBP) and total cholesterol (TC):HDL ratio. People who fall exactly on a threshold between cells are placed in the cell indicating higher risk.

Note: The risk charts now include values for SBP alone, as this is the most informative of conventionally measured blood pressure parameters for cardiovascular risk. Diastolic pressures may add some predictive power, especially at younger ages (eg, a diastolic pressure consistently >100 mm Hg in a patient with SBP values between 140 and 170 mm Hg).

Certain groups may have CVD risk underestimated using these charts. See Cardiovascular Guidelines Handbook (2009 Edition) for details.

Risk level: 5-year CVD risk (fatal and non-fatal)	Benefits: NNT for 5 years to prevent one event (CVD events prevented per 100 people treated for 5 years)		
	1 intervention (25% risk reduction)	2 interventions (45% risk reduction)	3 interventions (55% risk reduction)
30%	13 (7.5 per 100)	7 (14 per 100)	6 (16 per 100)
20%	20 (5 per 100)	11 (9 per 100)	9 (11 per 100)
15%	27 (4 per 100)	15 (7 per 100)	12 (8 per 100)
10%	40 (2.5 per 100)	22 (4.5 per 100)	18 (5.5 per 100)
5%	80 (1.25 per 100)	44 (2.25 per 100)	36 (3 per 100)

NNT = Number needed to treat

Based on the conservative estimate that each intervention: aspirin, BP treatment (lowering SBP by 10 mm Hg) or lipid modification (lowering LDL-C by 20%) reduces cardiovascular risk by about 25% over 5 years.

Note: Cardiovascular events are defined as myocardial infarction, new angina, ischaemic stroke, transient ischaemic attack (TIA), peripheral vascular disease, congestive heart failure and cardiovascular-related death.

Healthy Living

Know the Facts

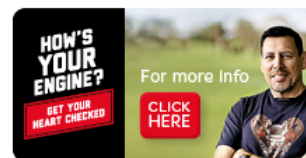
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Your Heart Forecast Online Tool



Your
HEART FORECAST



THE UNIVERSITY
OF AUCKLAND
FACULTY OF MEDICAL
AND HEALTH SCIENCES

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Introduction

Step 1

Your
HEART FORECAST

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Showing your risk of a heart attack, stroke or other major
problems with your arteries as you get older...

Start ▶

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Your Risk Factors

Step 2

Your Heart Forecast

Step 3

Gender: ☒ male ☐ female

Age: years

Do you belong to any of these ethnic groups? ☒ yes ☐ no

The following ethnic groups may be at higher risk: New Zealand Maori, Samoan, Cook Island Maori, Tongan, Niuean, Tokelauan, Fijian, Other Pacific Islands, Indian, Sri Lankan, Pakistani, Bangladeshi, Afghani, Nepalese & Tibetan.

Average BP: / mmHg

TC/HDL Ratio: mmol

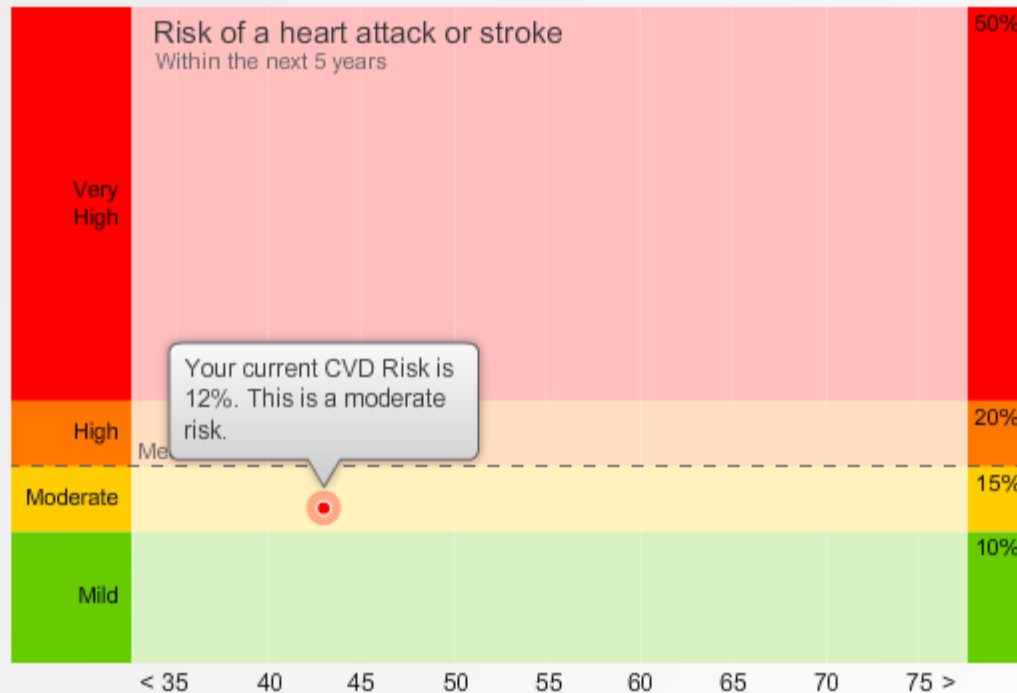
Are you a current smoker or have you recently quit? ☐ yes ☒ no

Recently quit is any time within the last 12 months.

Do you have diabetes?: ☒ yes ☐ no

Either Type 1, Type 2 or Type unknown diabetes. Not Gestational diabetes.

Next ►



Your current CVD Risk is 12%. This is a moderate risk.

Next ►

● Your current risk right now

— — Point where heart pills are recommended (15% risk)

CV risk factor management

CV risk	Lifestyle advice	Drug therapy
>20% (clinical)	Intensive	Post MI: aspirin, β -blocker, ACE inhibitor, statin Post-stroke: aspirin, statin, new BP-lowering agent Smoking cessation therapy
>20% (calculated)	Intensive	Drug treatment of all modifiable risk factors Smoking cessation therapy
15–20%	Specific individualised 3–6 months before drug therapy Given by PHC team	Drug treatment of all modifiable risk factors Smoking cessation therapy [Drug therapy at same time as lifestyle advice when isolated high risk factor levels]
10–15%	Specific individualised Given by PHC team	Nonpharmacological intervention for risk factors Smoking cessation therapy
<10%	General	Nonpharmacological intervention for risk factors Smoking cessation therapy

Metabolic syndrome

- Presence of the metabolic syndrome increases the risk of diabetes and CVD
- If one factor is present, look for the rest
- Physical activity and weight control can reduce the risk of developing diabetes in those with the metabolic syndrome
- Definition
 - Central obesity (WC>102cm/88cm)
 - High TG (>1.7)
 - Low HDL (<1.03/1.29)
 - High BP (>130/85)
 - Impaired fasting glucose (>6.1) or previously diagnosed T2DM

Smoking Cessation

- Clear evidence that smoking is harmful
- Many reports of the benefits of quitting
- Stopping smoking after an MI possibly the most effective of all preventative measures
- Smokers now risk-assessed 10 years earlier (aged 35+)
- ABC approach should be adopted:
 - ◆ Ask all people if they smoke
 - ◆ Brief advice about stopping
 - ◆ Cessation support to all wishing to stop
- NRT approximately doubles chances of quitting
- Oral NRT recommended if serious CV event in past 2 weeks



Diet

- All patients with CVD and those at high risk should be given professional dietary advice
 - Wide variety of foods
 - Energy intake adjusted to avoid overweight
 - Encourage fruit, veges, wholegrains, fish, lean meat, low fat dairy
 - Replace saturated fats with mono/poly unsaturated, fat <30% of energy
 - Reduce salt



Body weight and exercise

- Body weight and distribution of fat important
 - Waist circumference $>102\text{cm}$ (m) or 88cm (w) advise weight reduction
- Almost any increase in physical activity will have benefits
 - 30 mins/day of moderately vigorous exercise



Targets for pharmacotherapy

- Lipids
- Blood pressure
- Diabetes
- ?Aspirin
 - of definite and substantial benefit for people with clinically manifest cardiovascular disease
 - not clearly justified, for prevention of disease, especially if patients are already receiving statin therapy (Lancet 2009; 373: 1849-60)

Lipid management

- Statin therapy
 - Known CVD or 5-year CV risk $>20\%$
 - Simvastatin or Atorvastatin 40 mg/day
 - 5-year CV risk 15–20%
 - Simvastatin or atorvastatin 20 mg/day after 3 months lifestyle modification
 - Titrate upwards if needed
 - Primary prevention TC < 5 , LDL < 3
 - Secondary prevention LDL < 1.8
 - Very high risk LDL < 2.5

Hypertension

Table 13 Definitions and classification of blood pressure levels^a

Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Optimal	<120	and	<80
Normal	120–129	and/or	80–84
High normal	130–139	and/or	85–89
Grade 1 hypertension	140–159	and/or	90–99
Grade 2 hypertension	160–179	and/or	100–109
Grade 3 hypertension	≥180	and/or	≥110
Isolated systolic hypertension	≥140	and	<90

BP = blood pressure.

^aBP levels in untreated individuals.

- Treat with medication
 - All grade 3 patients
 - Grade 1 and 2 patients at high CVD risk
- Initial lifestyle intervention in
 - Grade 1 and 2 at moderate risk (weeks)
 - Grade 1 without other risk factors (months)
- A delay in BP control in high risk patients leads to worse outcomes
- Treat before end organ damage occurs

Prevention of CVD works

- Various studies in the 1980's and 1990's demonstrated that primary prevention and treatment of cardiovascular events influenced CVD mortality
- Beneficial reductions in major risk factors (especially smoking, BP and lipids) accounts for >50% of the decrease in CHD deaths
- Declines in CHD mortality can occur rapidly after individual or population wide changes in diet or smoking

46 year old man

- Usually well, no symptoms (and does exercise)
- Concerned about cardiac risk
- Known hyperlipidaemia for last several years
 - TC 6.4, LDL 4.0, ratio 5.7
- Family history of concern (Father MI at 55)
- Non smoker, BP 110/70

Gender: ☒ male ☐ female

Age: years

Do you belong to any of these ethnic groups? ☐ yes ☒ no

The following ethnic groups may be at higher risk: New Zealand Maori, Samoan, Cook Island Maori, Tongan, Niuean, Tokelauan, Fijian, Other Pacific Islands, Indian, Sri Lankan, Pakistani, Bangladeshi, Afghani, Nepalese & Tibetan.

Average BP: / mmHg

TC/HDL Ratio: mmol

Are you a current smoker or have you recently quit? ☐ yes ☒ no

Recently quit is any time within the last 12 months.

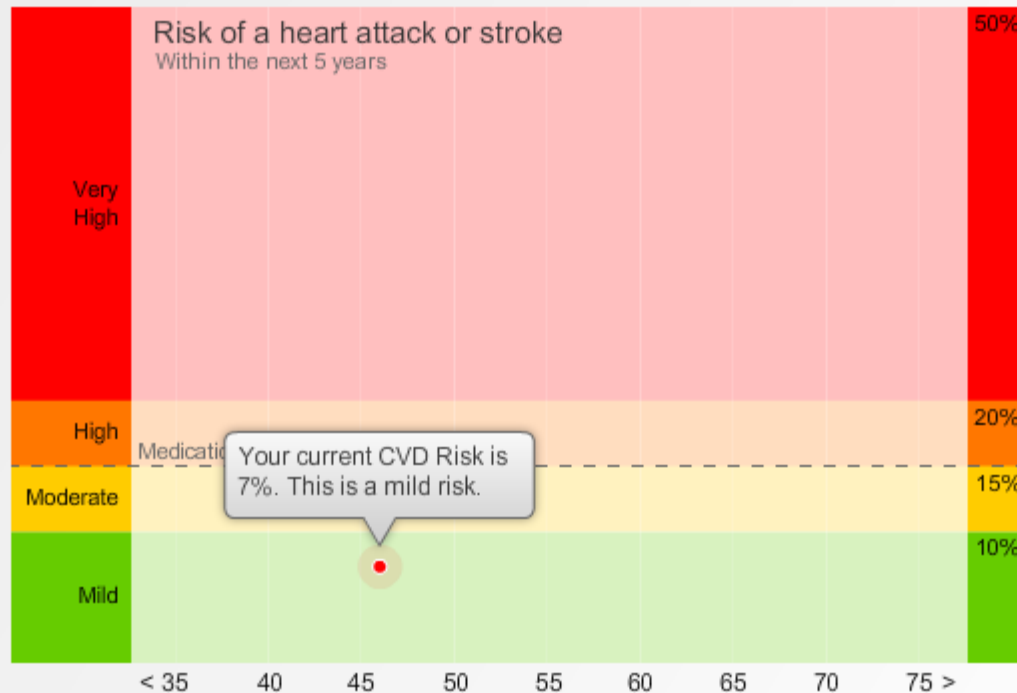
Do you have diabetes?: ☐ yes ☒ no

Either Type 1, Type 2 or Type unknown diabetes. Not Gestational diabetes.

Family history of early heart attack or stroke?: ☒ yes ☐ no

A brother or father below 55 years old or a sister or mother below 65 years old. .

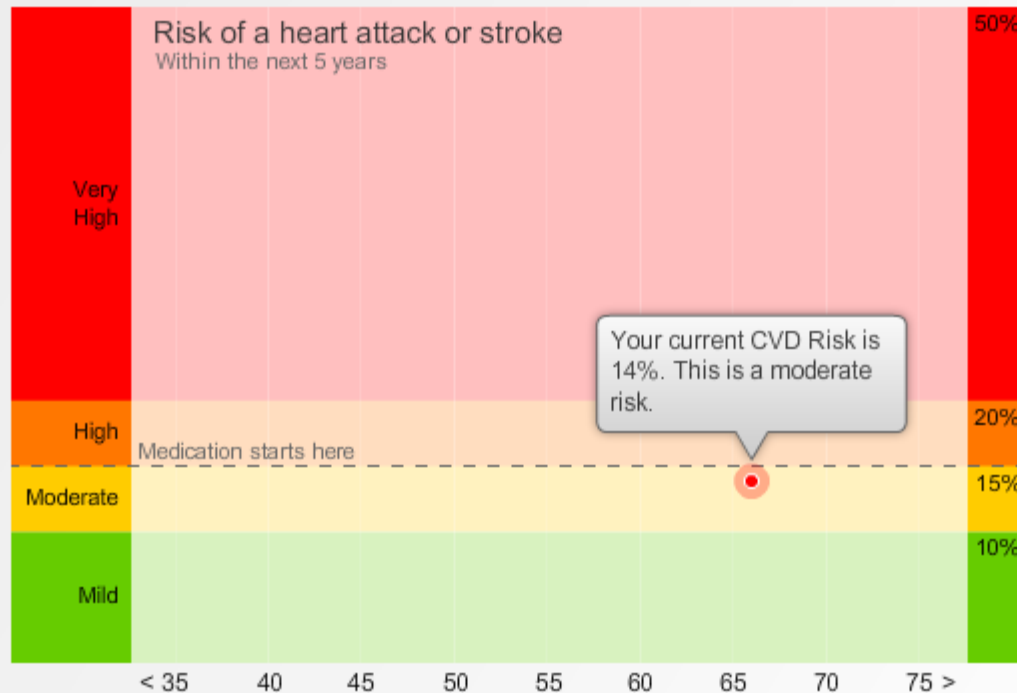
Next ►



Next ►

● Your current risk right now

— — Point where heart pills are recommended (15% risk)

[Next ▶](#)

● Your current risk right now

— — Point where heart pills are recommended (15% risk)

43 year old man

- Usually well but relatively sedentary
- Cook Islander
- Obese (134kg)
- Type 2 diabetes
- Hyperlipidaemia (TC 7.1, HDL 0.9, ratio 7.8, TG too high to calculate LDL)

Gender: ☒ male ☐ female

Age: years

Do you belong to any of these ethnic groups? ☒ yes ☐ no

The following ethnic groups may be at higher risk: New Zealand Maori, Samoan, Cook Island Maori, Tongan, Niuean, Tokelauan, Fijian, Other Pacific Islands, Indian, Sri Lankan, Pakistani, Bangladeshi, Afghani, Nepalese & Tibetan.

Average BP: / mmHg

TC/HDL Ratio: mmol

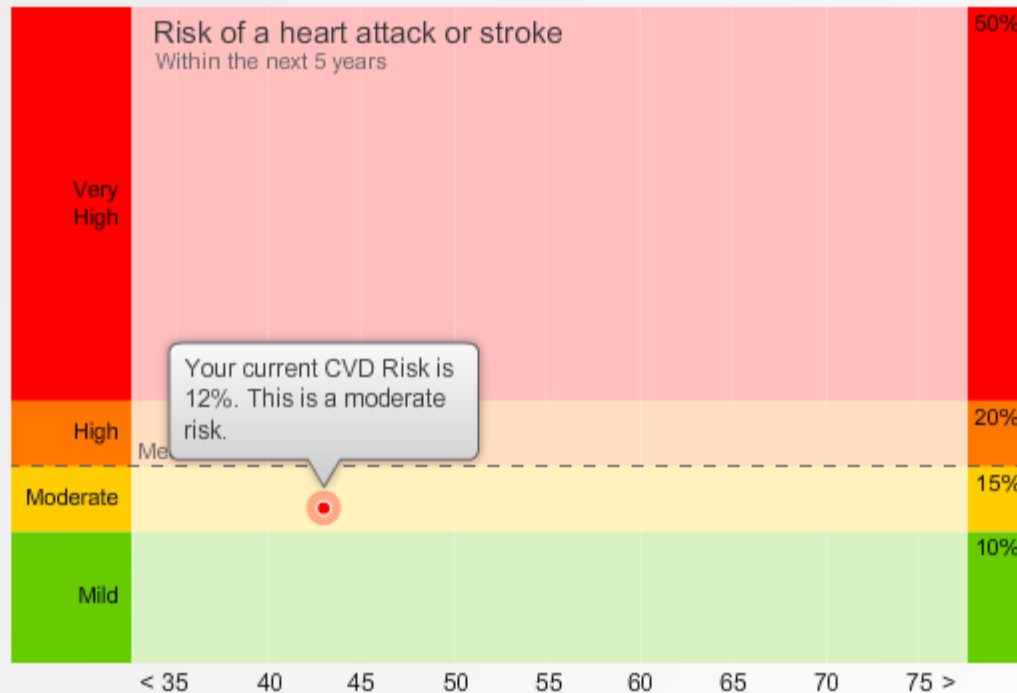
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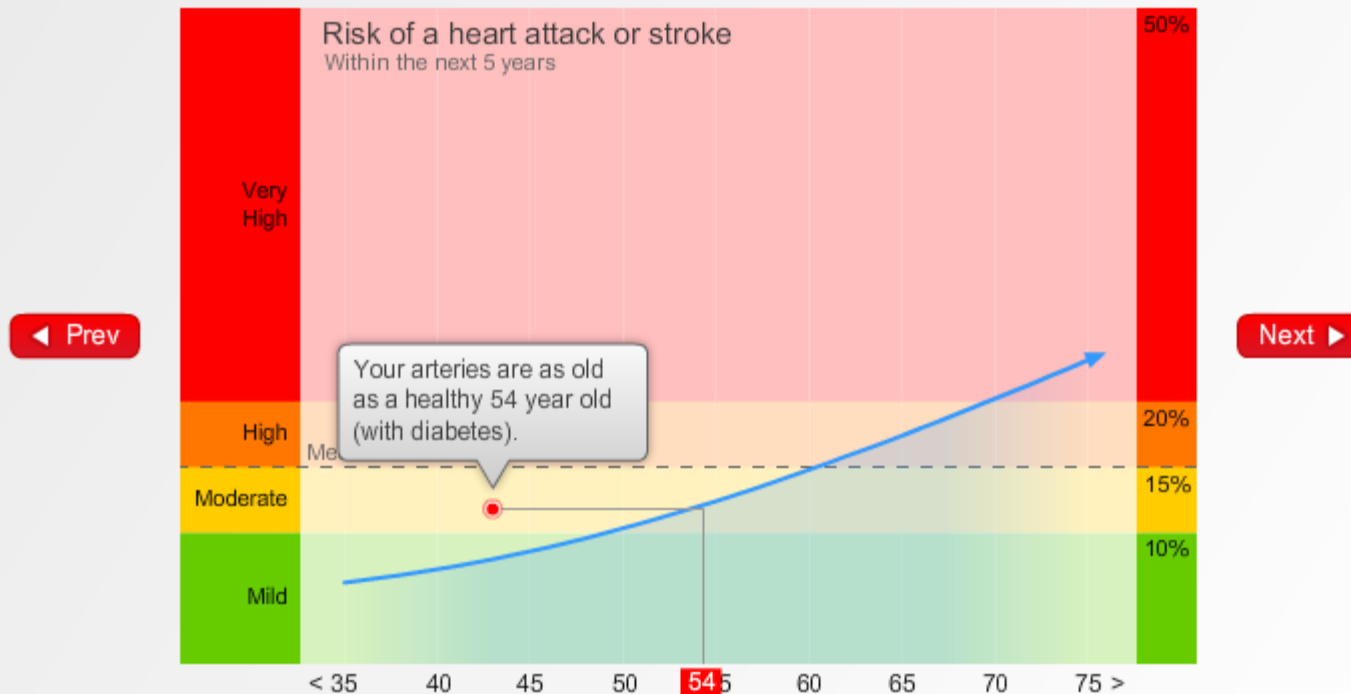


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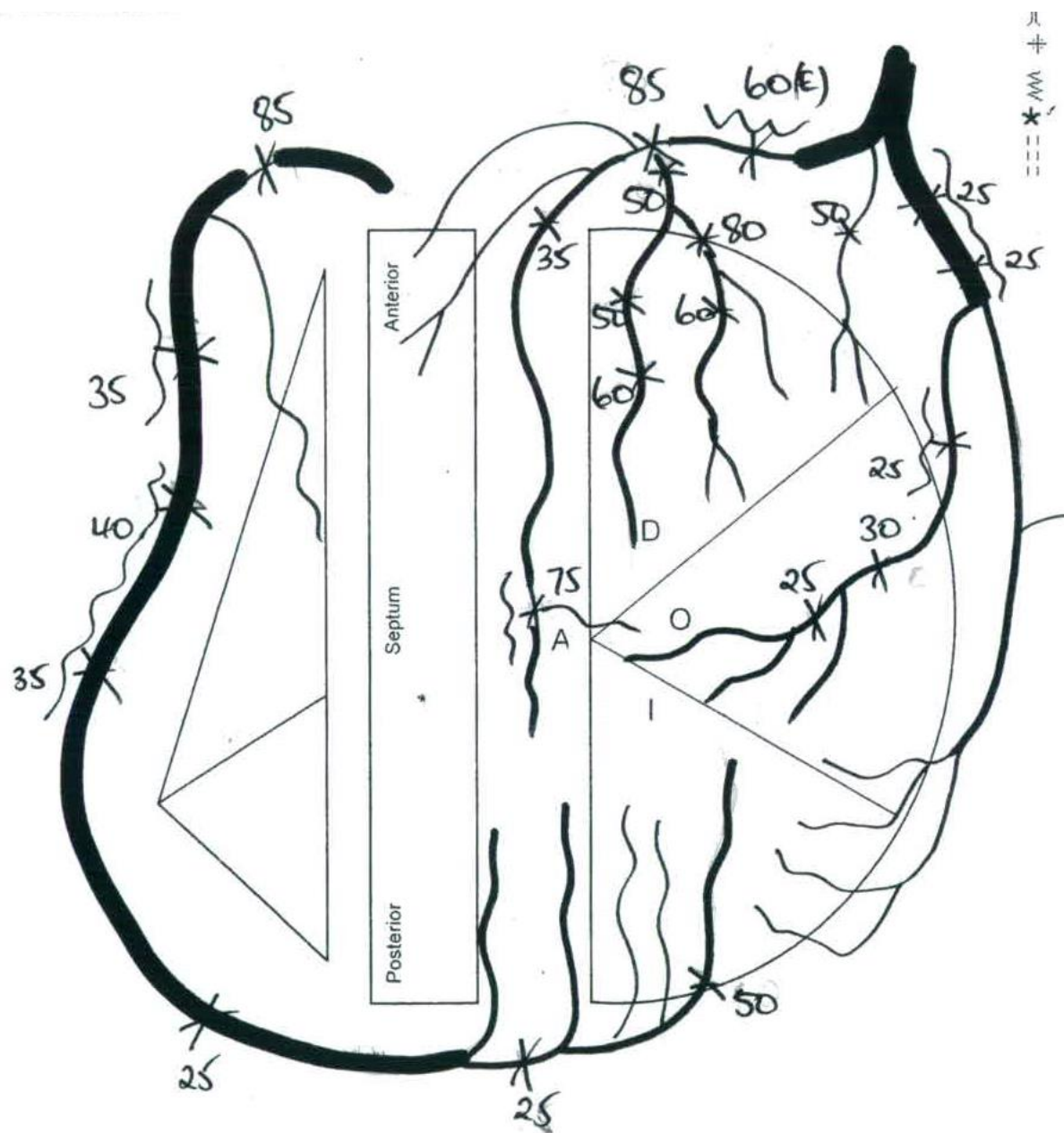


● Your current risk right now

— Point where heart pills are recommended (15% risk)

— Your projected risk if no changes are made

— Your ideal risk zone
(Based on Non-Smoker, TC/HDL ratio:4, BP: 120/80)





At the Heart Foundation we are unwavering in our determination to defeat heart disease – the disease that kills more New Zealanders than any other. But we can't do it alone. All the research we fund, materials we produce and activities we undertake, with the support of people like yourself, enable New Zealanders to learn about heart disease and make lifestyle changes, so that they can live heart healthy lives.

We wait you to fulfil a lifetime and look forward to precious moments with those you love.

With your help we can continue to produce high quality resources for New Zealanders affected by heart disease. To make a donation go to www.heartfoundation.org.nz/donate or contact us at:

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