

Joint British recommendations on prevention of coronary heart disease in clinical practice: summary

British Cardiac Society, British Hyperlipidaemia Association, British Hypertension Society, British Diabetic Association

Priorities for CHD prevention in clinical practice

- (1) (a) Patients with established coronary heart disease
- (b) Patients with other major atherosclerotic disease
- (2) Patients with hypertension, dyslipidaemia, diabetes mellitus, family history of premature CHD, or a combination of these risk factors, which puts them at high risk of developing CHD or other atherosclerotic disease. Patients with diabetes mellitus are at particularly high risk of CHD

Patients with CHD or other major atherosclerotic disease

For all patients with coronary heart disease (angina, myocardial infarction) or other major atherosclerotic disease, every effort should be made to achieve the lifestyle, risk factor, and therapeutic targets given in the table. The care of coronary patients should embrace all aspects of cardiac prevention and rehabilitation.

Editorial by Jackson

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Lifestyle, risk factor, and therapeutic targets for prevention of coronary heart disease (CHD) in patients with established CHD or other atherosclerotic disease and in healthy people at high risk of developing this disease

Patients with CHD or other atherosclerotic disease

People without overt CHD or atherosclerotic disease at high risk (absolute CHD risk \geq 15% over 10 years)

Lifestyle targets for all patients

Stop smoking, make healthier food choices, increase aerobic exercise, and moderate alcohol consumption
Body mass index <25 kg/m² is desirable, with no central obesity

Targets for other risk factors

Blood pressure <140 mm Hg systolic and <85 mm Hg diastolic

- All patients to have blood pressure reduced to consistently $<140/85$ mm Hg
 - Systolic blood pressure ≥ 160 mm Hg or diastolic blood pressure ≥ 100 mm Hg: lifestyle advice and drug treatment if blood pressure is sustained at these levels on repeat measurements regardless of absolute CHD risk
 - Systolic blood pressure 140-159 mm Hg or diastolic blood pressure 90-99 mm Hg:

CHD risk $\geq 15\%$ or target organ damage: Lifestyle advice and drug treatment if blood pressure is sustained at these levels on repeat measurements	If CHD risk $<15\%$ and no target organ damage: Lifestyle advice and reassess annually
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 - Systolic blood pressure <140 mm Hg and diastolic blood pressure <90 mm Hg: Lifestyle advice and reassess in 5 years

Total cholesterol <5.0 mmol/l (LDL cholesterol <3.0 mmol/l)

- All patients to have total cholesterol reduced to consistently below 5.0 mmol/l (LDL cholesterol <3.0 mmol/l)
 - Familial hypercholesterolaemia or other inherited dyslipidaemia: Lifestyle advice and drug treatment
 - Total cholesterol >5.0 mmol/l:

CHD risk $\geq 15\%$: Lifestyle advice and drug treatment* if cholesterol sustained on repeat measurements	If CHD risk $<15\%$: Lifestyle advice; reassess annually if risk is close to 15%
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Patients with diabetes mellitus

Total cholesterol <5.0 mmol/l (LDL cholesterol <3.0 mmol/l)

Blood pressure <130 mm Hg systolic and <80 mm Hg diastolic (<125 mm Hg systolic and <75 mm Hg diastolic when there is proteinuria)

Optimal glycaemic control: HbA_{1c} $<7\%$

Cardioprotective drug treatment

- Aspirin for all patients
 - Aspirin (75 mg daily) in individuals aged >50 years whose hypertension, if present, is controlled
- β blockers at doses prescribed in clinical trials after myocardial infarction, particularly in high risk coronary patients and for at least 3 years
- Cholesterol lowering agents (statins) at doses prescribed in clinical trials
- ACE inhibitors at doses prescribed in clinical trials for patients with symptoms or signs of heart failure at time of myocardial infarction, or in those with persistent left ventricular systolic dysfunction (ejection fraction $<40\%$)
- Anticoagulants for patients at risk of systemic embolisation with large anterior infarctions, severe heart failure, left ventricular aneurysm, or paroxysmal tachyarrhythmias

Screening of first degree blood relatives

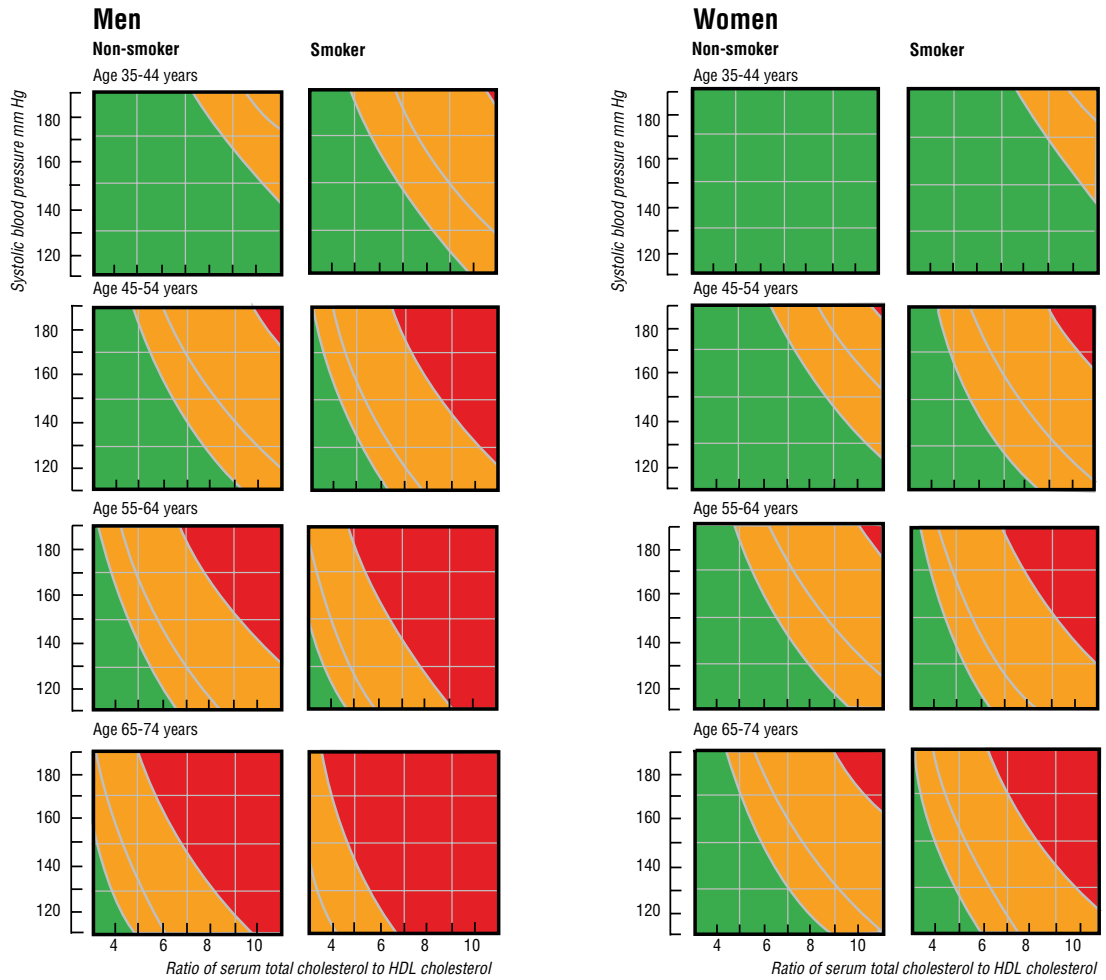
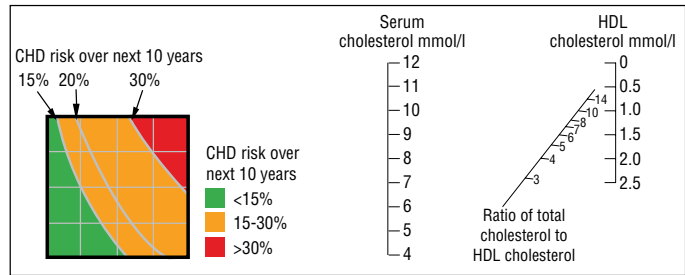
- Screening of first degree blood relatives (principally siblings and offspring aged 18 years or older) of patients with premature CHD (men <55 years and women <65 years) or other atherosclerotic disease is encouraged and in the context of familial dyslipidaemias is essential
 - Screen close relatives if familial hypercholesterolaemia or other inherited dyslipidaemia is suspected

LDL=low density lipoprotein; HbA_{1c}=glycated haemoglobin; ACE=angiotensin converting enzyme.

*If resources do not permit drug treatment at 15% then 30% is the minimum acceptable standard of care.

Joint British societies coronary risk prediction charts

No diabetes



Using the coronary risk prediction chart for primary prevention

These charts are for estimating the risk of coronary heart disease (non-fatal myocardial infarction and death from coronary heart disease) for individuals who have not developed symptoms of coronary heart disease or other major atherosclerotic disease. These charts are not appropriate for patients who have existing disease which already puts them at high risk. Such diseases are:

- Coronary heart disease or other major atherosclerotic disease
- Familial hypercholesterolaemia or other inherited dyslipidaemia
- Established hypertension (systolic BP > 160 mm Hg or diastolic > 100 mm Hg) or associated target organ damage
- Diabetes mellitus with associated target organ damage
- Renal dysfunction.

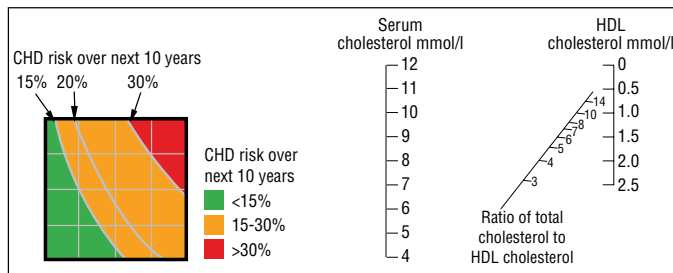
Drug treatment is required for all these patients to reduce risk of coronary heart disease.

Estimating risk

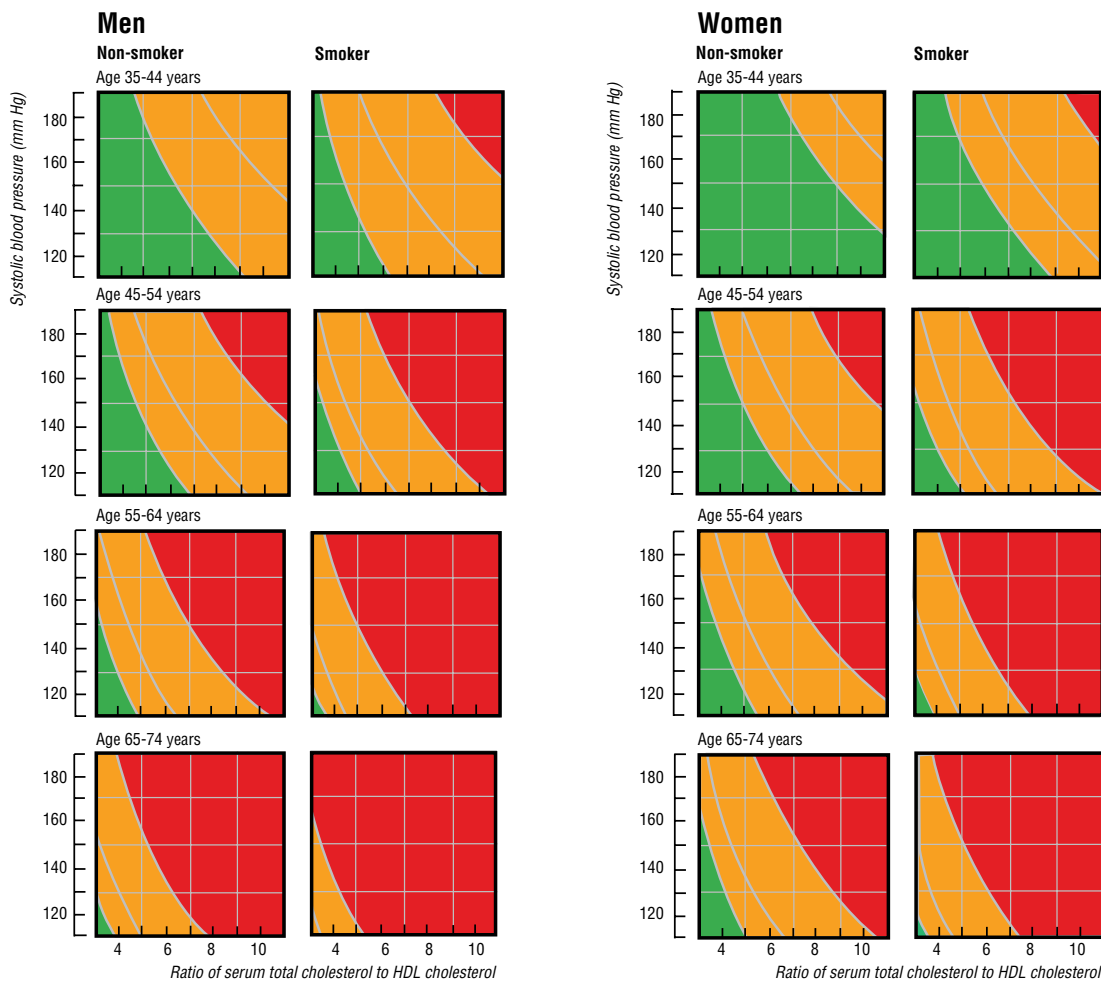
To estimate an individual's absolute 10 year risk of developing coronary heart disease, find the table for their sex, diabetes (yes/no), smoking status (smoker/non-smoker), and age. Within this square define the level of risk according to systolic blood pressure and the ratio of total cholesterol to high density lipoprotein (HDL) cholesterol. If there is no HDL cholesterol result, assume this is 1.0 mmol/l; then the lipid scale can be used for total cholesterol alone.

High risk individuals are defined as those whose 10 year risk of coronary heart disease exceeds 15% (equivalent to a cardiovascular risk of 20% over the same period). As a minimum, those at highest risk ($\geq 30\%$; red) should be targeted and treated now, and as resources allow others with a risk of $> 15\%$ (orange) should be progressively targeted.

**Joint British societies
coronary risk prediction chart**



Diabetes



Smoking status should reflect lifetime exposure to tobacco and not simply tobacco use at the time of risk assessment.

The initial blood pressure and the first random (non-fasting) total cholesterol and HDL cholesterol measurement can be used to estimate an individual's risk. However, the decision on using drug treatment should be based on repeat measurements of risk factors over a period of time. The chart should not be used to estimate risk if treatment of hyperlipidaemia or blood pressure has already been started.

Risk of coronary heart disease is higher than indicated in the charts for:

- Patients with a family history of premature coronary heart disease (<55 years in men and <65 years in women), which increases the risk by a factor of approximately 1.5
- Those with raised triglyceride concentrations

- Those who are not diabetic but have impaired glucose tolerance
- Women with premature menopause
- Ages approaching the next age category: as risk increases exponentially with age, the risk will be closer to the higher decennium for the last four years of each decade.

In ethnic minorities the risk chart should be used with caution as it has not been validated in these populations.

The estimates of risk from the chart are based on groups of people, and in managing an individual patient the doctor also has to use clinical judgment in deciding how intensively to intervene on lifestyle and whether or not to use drug treatment.

A patient can be shown on the chart the direction in which the risk of coronary heart disease can be reduced by changing smoking status, blood pressure, or cholesterol.

People at high risk without clinically overt CHD or other major atherosclerotic disease

Patients with hypertension, dyslipidaemia, diabetes mellitus, family history of premature coronary heart disease, or a combination of these risk factors, are at high risk of developing coronary heart disease or other atherosclerotic disease. Patients with diabetes mellitus are at particularly high risk. Individuals at high multifactorial risk of developing coronary heart disease, or other atherosclerotic disease, can be identified from the coronary risk prediction chart (figure).

As absolute risk of coronary heart disease (non-fatal myocardial infarction or death from coronary heart disease) increases, so lifestyle intervention should be intensified. Introducing drug treatment for raised blood pressure or lipid concentrations should be strongly determined by the absolute level of risk of developing disease (see table). An absolute risk of coronary heart disease $\geq 15\%$ (equivalent to a cardiovascular risk of 20%) over 10 years is sufficiently high to justify drug treatment.

Exceptions to treatment based on absolute risk are:

- Hypertension (systolic blood pressure > 160 mm Hg or diastolic blood pressure > 100 mm Hg) or hypertension with associated target organ damage
- Familial hypercholesterolaemia or other inherited dyslipidaemia
- Diabetes mellitus with associated target organ damage.
- Drug treatment is required for all these patients to reduce the risk of coronary heart disease (and cardiovascular risk).

A staged approach to managing patients at high risk is advised. As a minimum, those with an absolute

Other resources available from the British Heart Foundation

- BHF Factfiles 8/99 and 9/99
- Colour wall poster of the coronary risk prediction chart
- Cardiac risk assessor program to estimate absolute risk of coronary heart disease (or cardiovascular risk) on a personal computer
- Contact the British Heart Foundation (tel: 020 7935 0185; fax: 020 7486 1273)

coronary heart disease risk $\geq 30\%$ should be targeted and treated now and, as resources allow, individuals with a risk $\geq 15\%$ should be progressively targeted. For all high risk patients, every effort should be made to achieve the lifestyle, risk factor, and therapeutic targets given in the table.

The coronary risk prediction chart is reproduced (and modified) with permission from *Heart* 1998;80:S1-29. © The University of Manchester.

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Key references

Wood DA, Durrington P, McInnes G, Poulter N, Rees A, Wray R. Joint British recommendations on prevention of coronary heart disease in clinical practice. *Heart* 1998;80(suppl):S1-29.

British Hypertension Society. Guidelines for hypertension management 1999:summary. *BMJ* 1999;319:630-5.

A very peculiar dream

Fifteen years ago I unexpectedly took over a rural singlehanded practice in the north east of Scotland after finishing my trainee year. Although I liked the idea of country practice, socially and culturally it was a big change from my previous life as a city dweller. I was born, educated, and trained as a doctor in Dublin. Looking back I am glad that I had the privilege to develop the practice and witness the changes and growth of a village community. Indeed, although my wife (who is now the part time partner in the practice) and I have happily settled, the first few years were definitely the most difficult ones.

As an incoming young GP it was expected that I would attend the annual Christmas pensioners' party along with my wife, the minister, and various other village dignitaries. Not being a natural extrovert I reluctantly performed my duties. The first couple of years was particularly difficult as I did not know many of the patients—being the GP in a small village meant that everyone was a patient. What made it worse was that my predecessor seemed to have been such a success at these occasions.

Anyhow, after several years I was not sent the ritual invitation—at least I don't remember getting one. To this day I have a nagging doubt that I may have forgotten about it and thereafter never been invited back. A blessing in disguise?

Then came my dream, which must now be nearly 10 years old.

I dreamt that I was back at the pensioners' party, but I was at ease and happy. I was circulating among the pensioners after the meal as was customary. I was chatting and joking with them and knew them all well. We were talking about old times and I could

remember every detail about their medical histories. They told me that they were getting on well and indeed seemed to be in good health.

Of course, I knew that they had all died some months or years previously, but nothing seemed strange or eerie about this scenario. I was pleased to meet them again and nobody seemed to have any grudges about my care of them in their terminal illnesses, which was a relief. It was nice to get that positive feedback. We shook hands and exchanged pleasantries about our families. As the evening came to an end they eventually left and I was sorry to see them go, knowing that this was our last meeting. It was indeed the only pensioners' party that I truly enjoyed.

When I woke up I was bewildered and amused at such a powerful dream, knowing that there must be Freudian connotations.

Robin Gatenby *general practitioner, Aberchirder, Aberdeenshire*

We welcome articles of up to 600 words on topics such as *A memorable patient*, *A paper that changed my practice*, *My most unfortunate mistake*, or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.