Reference:

Williams B, Poulter N, Brown M, Davis M, McInnes G, Potter J, Sever P, McG Thom S. Guidelines for management of hypertension: report of the fourth working party of the British Hypertension Society 2004-BHS IV. *J Human Hypertens* 2004;**18**:139-185.

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British Heart Foundation

Factfile 08/2004

UPDATED GUIDELINES ON CARDIOVASCULAR DISEASE RISK ASSESSMENT

Summary

- The British Hypertension Society and others have updated their recommendations on cardiovascular disease risk. These recommendations and charts are guidelines to help direct resources to those most likely to benefit from them - they are not directives.
- Coronary heart disease (CHD) risk assessment has been replaced by cardiovascular disease (CVD) risk assessment i.e. stroke plus CHD to reflect the objective of preventing both stroke and coronary events.
- Only three, rather than four, age strata are now considered. All patients below 50 years are assessed as if they were 49 years of age and those aged 60 years or greater are considered as if they are aged 69.
- The charts have been simplified since none are produced for patients with type 2 diabetes - such patients should be considered as if they have established CVD.

Introduction

Cardiovascular risk factors frequently co-exist and interact to determine an individual's absolute risk. Guidelines using charts or computerised systems to help decisions about intervention have replaced intuition. However, the previous Joint British Societies Risk Charts (1998) had several shortcomings which have been addressed in the 2004 recommendations.

This Factfile complements number 07/04 on *The drug treatment of hypertension*.

The changes

The most important change has been to merge stroke and coronary heart disease (CHD) in a combined cardiovascular disease (CVD) risk assessment. In addition, the age strata have been reduced from four to three, in order to reduce the difficulties associated with considering only short-term absolute risk. These include under-treatment of young (particularly female) patients, who are at high relative risk and the previous focus on the elderly (particularly men) in whom intervention provides only a limited extension of life.

The decision to regard patients with type 2 diabetes as requiring secondary prevention i.e. as if they had established CVD is likely to overestimate risk in younger diabetic patients and those who are newly diagnosed. However, the British Hypertension Society believes that this overall approach is valid since the vast majority of diabetic hypertensive patients are at or above the threshold of ≥20% risk of CVD over 10 years. Hence, for them, the previous diabetes chart is redundant.

These charts should **not** be used for estimating CVD risk in individuals who have already developed CHD or other major atherosclerotic disease. They are an aid to making clinical decisions about whether to use anti-hypertensive, lipid-lowering medication and aspirin and how intensively to intervene.

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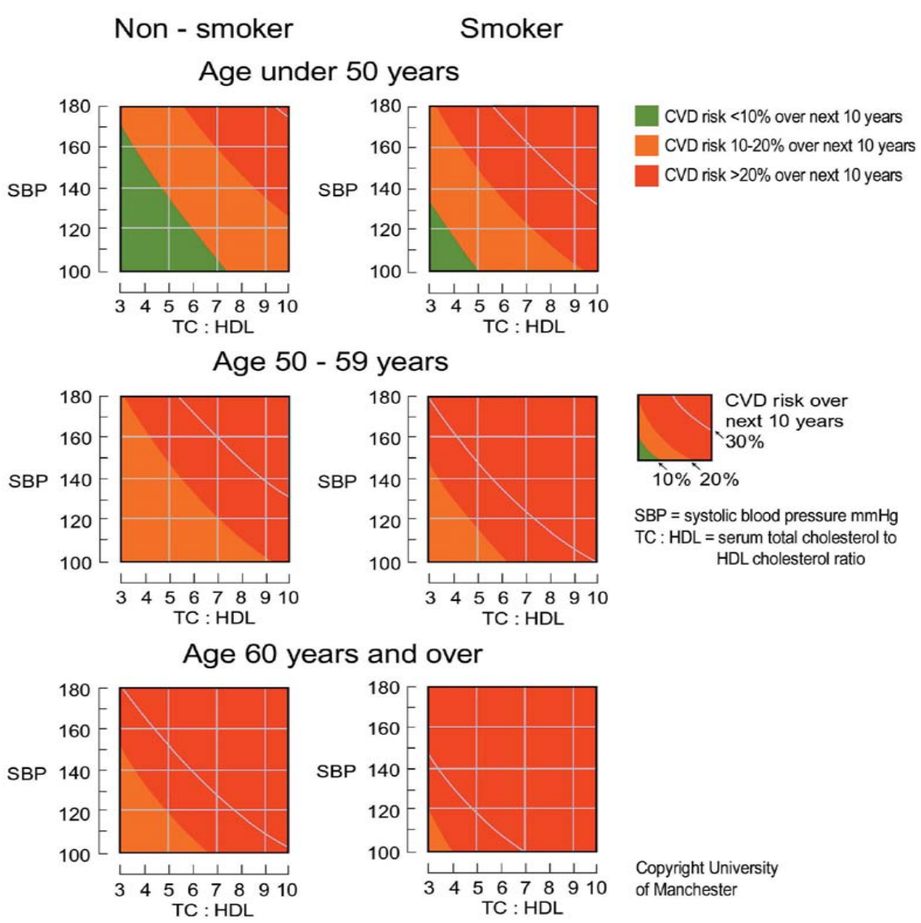
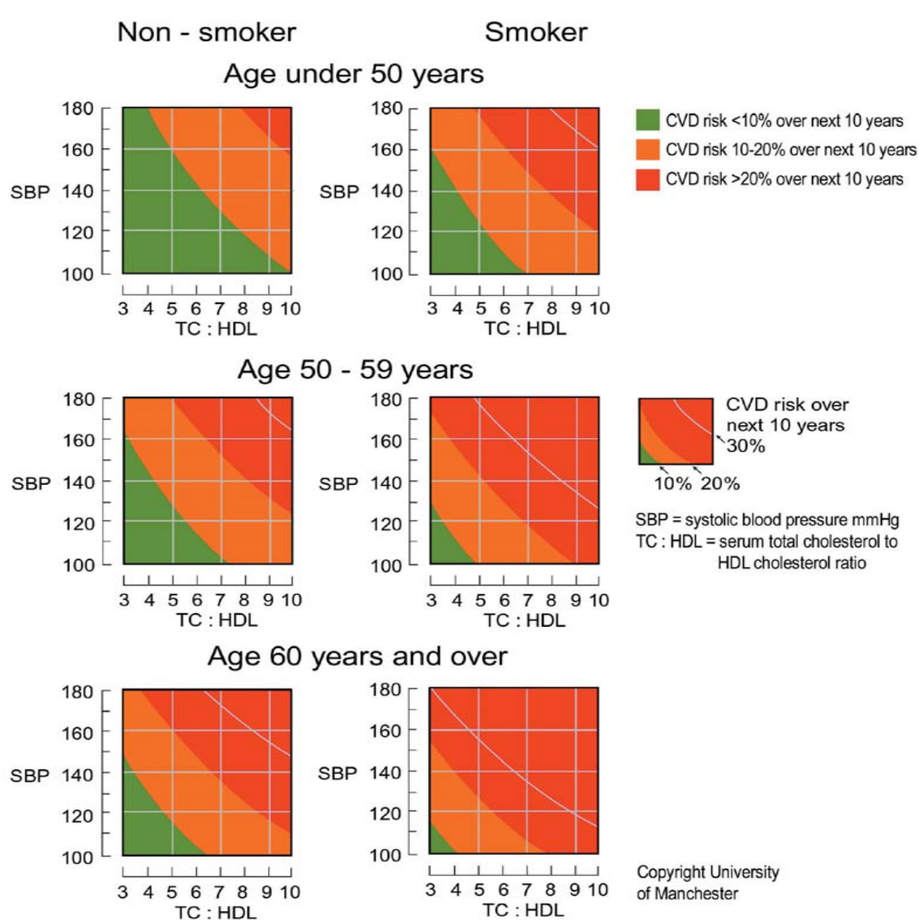
CARDIOVASCULAR RISK PREDICTION CHART

Updated Recommendations on Prevention of Cardiovascular Disease in Clinical Practice

Nondiabetic Men



Nondiabetic Women



How to use the Cardiovascular Risk Prediction Chart for Primary Prevention

- To estimate an individual's absolute 10-year risk of developing CVD, choose the panel for their gender, smoking status and age. Within this define the level of risk from the point where the co-ordinates for SBP and ratio of the total to HDL-cholesterol cross. If no HDL cholesterol result is available, assume it is 1.00mmol/l and use the lipid scale as total serum cholesterol.
- Highest risk individuals (red areas) are those whose 10-year CVD risk exceeds 20%, which is approximately equivalent to a 10-year CHD risk of >15% (indicated by the 1998 charts). As a minimum, those with CVD risk >30% (shown by the line within the red area) should be targeted and treated now. When resources allow, others with a CVD risk of >20% should progressively be targeted.
- The chart also assists in identification of individuals with a moderately high 10-year CVD risk - in the range 10-20% (orange area) and those in whom it is lower than 10% (green area).
- Smoking status should reflect life-time exposure to tobacco and not simply tobacco use at the time of assessment. Those who have stopped smoking within 5 years should be regarded as current smokers for the charts.
- These charts (and all other currently available methods of CVD risk prediction) are derived from *untreated* levels of BP and cholesterol. In patients already receiving antihypertensive therapy in whom the decision is to be made whether to introduce lipid-lowering medication (or vice-versa), the charts act as a guide.
- These charts can be used to illustrate the direction of impact of risk factor intervention on the estimated CVD risk. However, the size of such illustrations are crude and are not based on randomised trial evidence. Nevertheless, this approach may be helpful in motivating intervention. The charts' main role is to focus intervention on those who stand to benefit most.

Caveats

- Use of these charts is not appropriate for the following patient groups. Those with:
  - ➢ CHD or other major atherosclerotic disease;
  - ➢ Familial hypercholesterolaemia or other inherited dyslipidaemias;
  - ➢ Chronic renal dysfunction;
  - ➢ Diabetes mellitus
- The charts should not be used to decide whether to start antihypertensive medication if BP is persistently at or above 160/100 or when Target Organ Damage, e.g left ventricular hypertrophy is present. In either case, antihypertensive medication is recommended regardless of CVD risk. Similarly, the charts should not be used to decide whether to introduce lipid-lowering medication when the ratio of total to HDL cholesterol exceeds 7. Generally, medication is indicated, regardless of estimated CVD risk.
- The initial BP and the first (non-fasting) total and HDL cholesterol can be used to estimate an individual's risk. However, the decision on using drug therapy should generally be based on **repeat** risk factor measurements over a period of time.
- On average, men and women do not reach the level of risk predicted by the charts for each age band until they are aged 49, 59 and 69 years, respectively. Everyone aged over 69 should be considered at highest risk. The charts will overestimate the current risk most in the under 40s. Clinical judgement must be exercised in treatment decisions for younger patients. However, BP and cholesterol tend to rise most and HDL cholesterol to decline most in younger people already possessing adverse levels. Thus untreated, their risk at 49 years is likely to be higher than that predicted by <50 years chart.
- CVD risk is also higher than indicated in the charts for:
  - ➢ Those with a family history of premature CHD or stroke (male first-degree relatives aged <55 years and female first-degree relatives aged <65 years), which increases the risk by a factor of approximately 1.5;
  - ➢ Those with raised triglyceride levels;
  - ➢ Women with premature menopause;
  - ➢ Those who are not yet diabetic, but have impaired fasting glucose (6.1-6.9mmol/l).
- In people originating from the Indian subcontinent, it is safest to assume that CVD risk is higher (1.5 times) than that predicted by the charts.
- It should be recognised that these charts are limited in that they include only 6 variables (age, sex, smoking, TC, HDL-C, SBP). Other variables (eg pulse rate, serum, creatinine, albuminuria, hs CRP) further modify risk assessment. Consequently these charts should be used to guide rather than dictate practice.

This chart is available in a poster format.