

CHECKLIST FOR EFFECTIVE CARDIOVASCULAR RISK EVALUATION



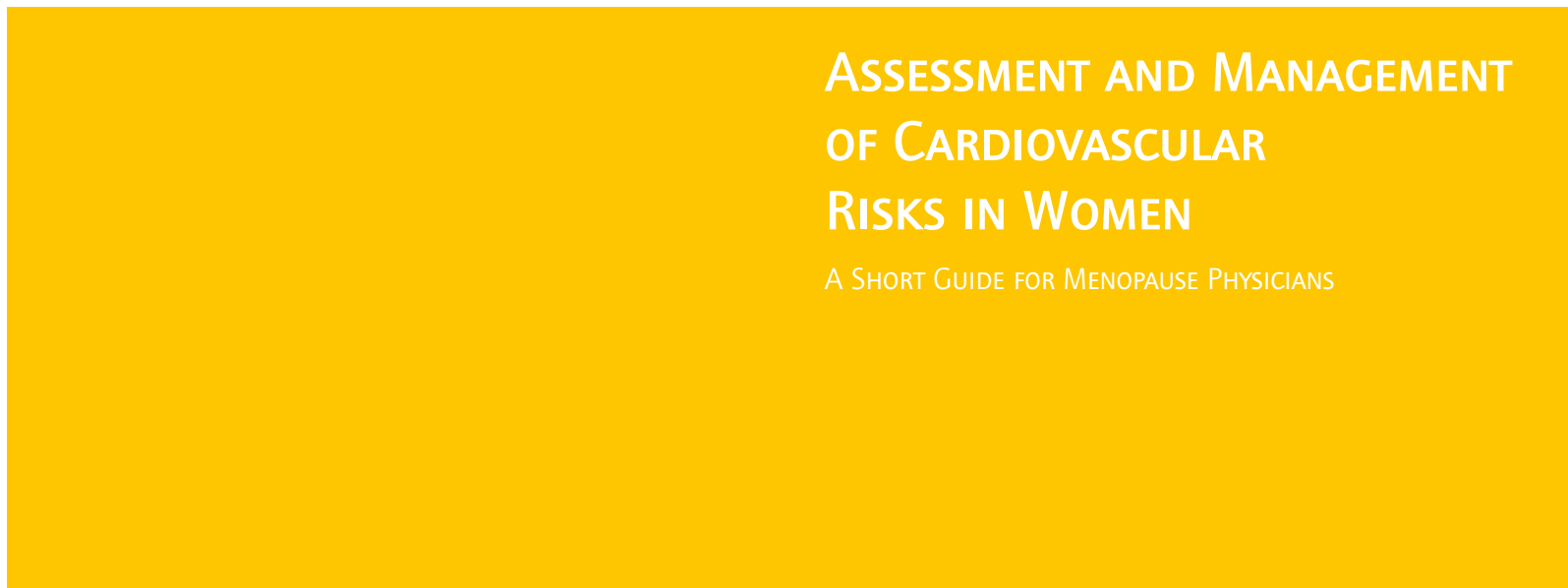
Initial consultation

- | | |
|--|--|
| <input type="checkbox"/> Family history | <input type="checkbox"/> Body mass index |
| <input type="checkbox"/> Cigarettes/day | <input type="checkbox"/> Waist circumference |
| <input type="checkbox"/> Alcohol consumption | <input type="checkbox"/> Physical activity |
| <input type="checkbox"/> Menopausal status | <input type="checkbox"/> Blood pressure |
| <input type="checkbox"/> Age | <input type="checkbox"/> SCORE rating |
| <input type="checkbox"/> Chronic kidney disease | <input type="checkbox"/> Diet |
| <input type="checkbox"/> Diabetes | <input type="checkbox"/> Lipid profile |
| <input type="checkbox"/> Existing cardiovascular disease | <input type="checkbox"/> Blood glucose |

Follow-up visits/monitoring

- | | |
|--|--|
| <input type="checkbox"/> Cigarettes/day | <input type="checkbox"/> Body mass index |
| <input type="checkbox"/> Alcohol consumption | <input type="checkbox"/> Waist circumference |
| <input type="checkbox"/> Menopausal status | <input type="checkbox"/> Blood pressure |
| <input type="checkbox"/> Age | <input type="checkbox"/> SCORE rating |
| <input type="checkbox"/> Physical fitness | <input type="checkbox"/> Lipid profile |
| <input type="checkbox"/> Diet | <input type="checkbox"/> Blood glucose |

*Please refer to pages 10–13 of the guide 'Assessment and management of cardiovascular risks in women' for a description of the SCORE system.



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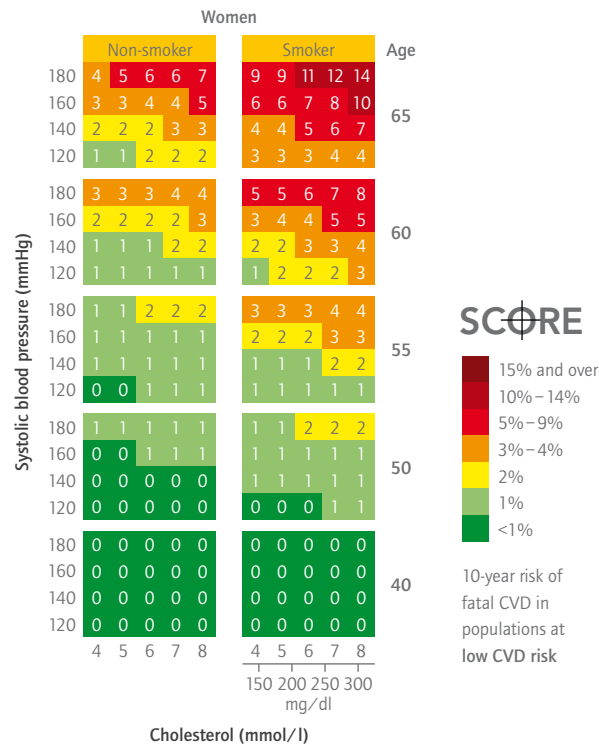
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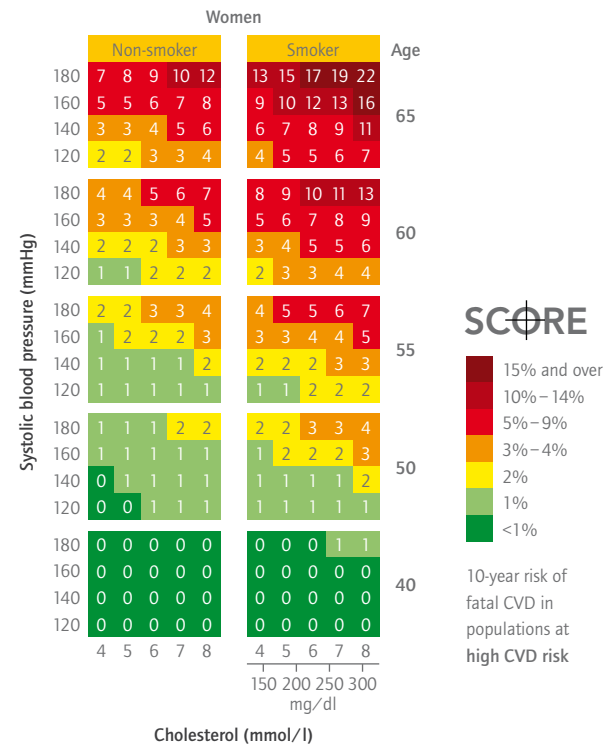
SCORE CHART SHOWING 10-YEAR RISK OF FATAL CVD IN WOMEN IN LOW-RISK POPULATIONS



Note: Low-risk countries are: Belgium, France, Greece, Italy, Luxembourg, Spain, Switzerland and Portugal.

Adapted from Conroy RM *et al.* Estimation of ten-year risk of fatal cardiovascular disease in Europe: the SCORE project. *Eur Heart J* 2003; 24: 987–1003, with permission from the European Society of Cardiology.

SCORE CHART SHOWING 10-YEAR RISK OF FATAL CVD IN WOMEN IN HIGH-RISK POPULATIONS



Note: High-risk countries are all Western European countries **except:** Belgium, France, Greece, Italy, Luxembourg, Spain, Switzerland and Portugal.

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Cardiovascular disease in women is the principal cause of morbidity and mortality, accounting for 56% of all female deaths in western European countries.

Many women in their forties and fifties are only treated by menopause physicians, and therefore, menopause physicians play a crucial role in the prevention of cardiovascular disease, including control of hypertension, diabetes and/or dyslipidaemia.

The optimal time to prevent cardiovascular disease through the assessment and management of cardiovascular risk factors is as early as possible in a woman's life. It is a priority by the time a woman is peri-menopausal.

This short guide, which arose from a joint workshop under the auspices of physicians from the European Society of Cardiology (ESC), the European Society of Hypertension (ESH) and the International Menopause Society (IMS), contains essential information to assist menopause physicians in performing a key role in the overall management of women's health.

The guide provides details of the key cardiovascular risk factors in women and describes how risk can be determined and monitored within the gynaecological setting, and in which populations. The guide contains practical guidance for menopause physicians to follow to help them to reduce cardiovascular risk in their patients.

The purpose of the guide is to provide a simple framework that can be adapted to the individual woman's medical, social, personal and economic circumstances.

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A checklist for effective global cardiovascular risk evaluation and reference SCORE charts can be detached from the back of this guide.

WHY A GUIDE TO CARDIOVASCULAR DISEASE PREVENTION FOR MENOPAUSE PHYSICIANS?

- Cardiovascular risk increases following the menopause, regardless of the age at which it occurs.
- A menopause physician is often the only physician a woman consults, and thus plays an important role in the identification of global cardiovascular risk factors, e.g. hypertension, diabetes or dyslipidaemia.
- Cardiovascular specialists and menopause physicians must work as a team to assess the global cardiovascular risk of the individual woman.
- Furthermore, the different medical disciplines should also work together to actively control modifiable risk factors.
- The menopause physician should address lifestyle changes, weight loss and blood pressure reduction.
- Women are less likely than men to be aware of, and therefore identify, risk factors, and to participate in screening programmes.
- Atherosclerosis is the underlying cause of cardiovascular disease. In the presence of one or more risk factors, symptom-free atherosclerosis develops over many years, until symptoms and events emerge.
- Prevention and reduction of global cardiovascular risk as early as possible must be a priority.

WHAT FACTORS DETERMINE A WOMAN'S GLOBAL CARDIOVASCULAR RISK?

- Risk factors are defined as either non-modifiable or modifiable.

Table 1. Global cardiovascular risk factors for women

Non-modifiable	Modifiable
<ul style="list-style-type: none"> Age* Menopause Family history Ethnicity 	<ul style="list-style-type: none"> Blood pressure* Plasma cholesterol* Plasma LDL cholesterol Plasma HDL cholesterol Body weight Glucose intolerance Cigarette smoking* Diabetes mellitus Oestrogen levels

Conroy RM *et al.* Estimation of ten-year risk of fatal cardiovascular disease in Europe: the SCORE project. *Eur Heart J* 2003; **24**: 987–1003.

*Components of the Systematic Coronary Risk Evaluation (SCORE) system. Refer to pages 10–13 for a description of the SCORE system.

Abbreviations: LDL: Low-density lipoprotein; HDL: High-density lipoprotein

- The presence of multiple risk factors, as in the metabolic syndrome, substantially increases global cardiovascular risk.

Table 2. Components of the metabolic syndrome in women as the main risk factor for cardiovascular disease**

Factor	Definition
Central obesity plus:	BMI >30 kg/m² or waist circumference ≥88 cm
Hypertension	SBP ≥130 mmHg or DBP ≥85 mmHg, or specific treatment of previously diagnosed hypertension
Reduced HDL cholesterol	<1.29 mmol/l (<50 mg/dl) or specific treatment for this lipid abnormality
Raised triglycerides	≥1.7 mmol/l (≥150 mg/dl) or specific treatment for this lipid abnormality
Raised fasting plasma glucose	≥6.1 mmol/l (≥110 mg/dl) or previously diagnosed type 2 diabetes mellitus

Abbreviations: BMI: Body mass index; SBP: Systolic blood pressure; DBP: Diastolic blood pressure; HDL: High-density lipoprotein

** Definition by the International Diabetes Federation.

WHICH GLOBAL RISK FACTORS SHOULD BE ASSESSED BY A MENOPAUSE PHYSICIAN?

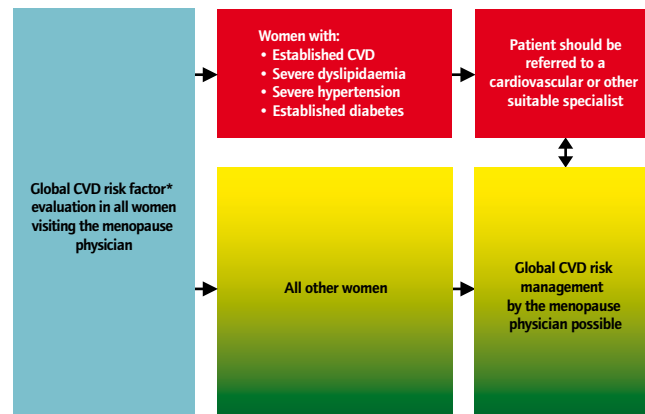
- Global cardiovascular risk should be assessed in all women consulting a menopause physician.
- Many women appear healthy with no symptoms of cardiovascular disease; nevertheless, they are potentially at increased risk.
- As a minimum requirement, the following risk factors included in the SCORE system* must be assessed:
 - Age
 - Blood pressure
 - Total plasma cholesterol
 - Cigarette smoking
- Other important information to establish:
 - Personal and family history of cardiovascular disease
 - Gynaecological and obstetric history, including age at menopause
 - Body weight
 - Waist circumference
 - Diet
 - Alcohol consumption
 - Physical fitness
 - Fasting plasma low-density lipoprotein (LDL) cholesterol
- Additional parameters to consider are:
 - Fasting plasma glucose
 - 75-g oral glucose tolerance test (advisable in high-risk patients or in those with abnormal fasting plasma glucose)
 - Fasting plasma high-density lipoprotein (HDL) cholesterol
 - Fasting plasma triglycerides

*Refer to pages 10–13 for a description of the SCORE system.

WHICH PATIENTS CAN BE MANAGED FOR GLOBAL CARDIOVASCULAR RISK BY A MENOPAUSE PHYSICIAN?

- A woman with a high-risk profile or overt cardiovascular disease (CVD) requires intensive management, including drug therapy.
- Collaboration with a cardiovascular specialist is essential if global cardiovascular risk is high, or if cardiovascular disease is present.

Figure 1. Diagrammatic guide to determining patients suitable for cardiovascular risk management



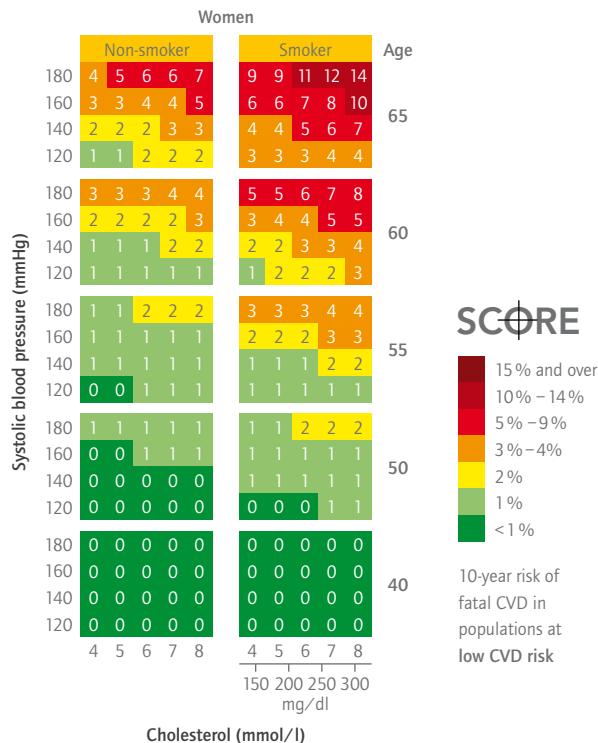
Abbreviations: CVD: Cardiovascular disease

*Refer to page 7 of the guide for a list of cardiovascular risk factors for women.

- The Systematic Coronary Risk Evaluation (SCORE) chart is a quick and effective tool for predicting fatal atherosclerotic cardiovascular events over a 10-year period in an asymptomatic woman.
- SCORE risk assessment, unlike Framingham, is based on data from prospective European studies and mortality statistics for individual countries.
- Risk estimation uses gender, age, smoking, systolic blood pressure (SBP) and total plasma cholesterol, and allows for whether the woman lives in a low- or high-risk country.

- Use the low-risk chart (Figure 2a) for patients in Belgium, France, Greece, Italy, Luxembourg, Spain, Switzerland and Portugal. The high-risk chart (Figure 2b) should be used for patients in all other European countries.
- To estimate a woman's total 10-year risk of cardiovascular death, find the table for their smoking status and age.
- Within that table, find the cell nearest to the patient's SBP (mmHg) and total plasma cholesterol (mmol/l or mg/dl).
- The effect of a life-time exposure to SCORE risk factors can be seen by following the table upward. This can be used when advising a younger patient.
- To define a woman's relative risk, compare her risk category with that of a non-smoking woman of the same age, with blood pressure <140/90 mmHg and total plasma cholesterol <5 mmol/l (<190 mg/dl).
- The chart can be used to give some indication of the effect of changes from one risk category to another, e.g. when the woman stops smoking or reduces other risk factors.

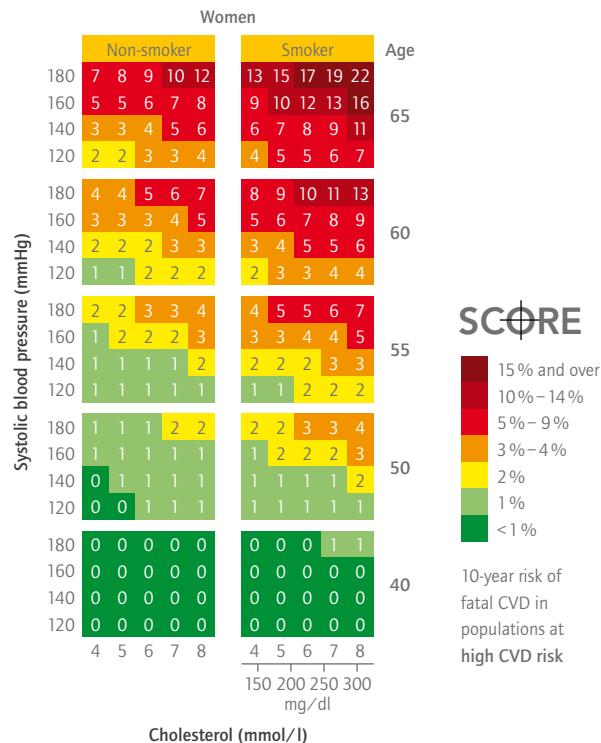
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SCORE CHART SHOWING 10-YEAR RISK OF FATAL CVD IN WOMEN IN HIGH-RISK POPULATIONS



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WHAT IS LEARNED FROM SCORE?

- SCORE establishes the total risk of fatal cardiovascular disease, rather than a single modestly elevated factor risk, and determines the intensity of patient management needed and whether or not pharmaceutical intervention is required.
- It is important to note that the global cardiovascular risk is higher in:
 - A woman approaching the next age category
 - An asymptomatic woman with preclinical evidence of atherosclerosis
 - A woman with a strong family history of cardiovascular disease
 - A woman with blood parameters relevant for global cardiovascular risk, but not considered in the SCORE chart, e.g. fasting plasma glucose, fasting plasma LDL cholesterol, fasting plasma HDL cholesterol and fasting plasma triglycerides
 - A woman who is obese and physically inactive.
- Lifestyle interventions, body weight control, blood pressure monitoring and lipids and glucose control are important to maintain a woman at low risk for as long as possible.
- Low-risk women should be offered advice on how to maintain their low-risk status.
- Women who are at $\geq 5\%$ risk, or who will reach this level in middle age, should be given maximum attention.
- For a woman eligible for drug therapy, collaboration between a menopause physician and cardiologist should be considered.

WHICH FACTORS COULD MENOPAUSE PHYSICIANS MANAGE?

Menopause physicians are well placed to identify women at increased risk of cardiovascular disease according to the following risk factors. However, there should be close collaboration with the GP, if different, and cardiologist in the management of high blood pressure, dyslipidaemia or abnormal glucose levels.

- Lifestyle factors:
 - Smoking cessation
 - Diet modification
 - Salt and alcohol intake modification
 - Increased physical fitness
- Other factors:
 - Blood pressure*
 - Plasma lipids*
 - Plasma glucose*

*Identify, counsel and initiate strategies to modify these factors, dependent on individual management expertise.

TARGET: Permanently stop smoking all forms of tobacco

- Explain to the woman the detrimental effects of smoking.
- Assess the woman's degree of addiction* to tobacco and readiness to cease smoking.
- Gain the commitment of the woman to quit the habit.
- Establish a smoking cessation strategy (behavioural counselling, nicotine replacement therapy and/or other pharmacological intervention).
- Arrange a schedule of follow-up visits to monitor progress in stopping smoking.

*A useful way of assessing addiction is by enquiring about when the woman has her first cigarette of the day. If the answer is "first thing in the morning", she is addicted.

TARGET: Adopt a healthy diet

- Explain the importance of a varied diet and the need to adjust energy intake to achieve and maintain ideal body weight.
- Encourage the consumption of the following items:
 - Fruits and vegetables (the five-a-day guideline)
 - Whole-grain cereals and bread
 - Low-fat dairy products
 - Fish, especially those rich in omega-3 fatty acids
 - Lean meat
- Advise that total fat intake should be no more than 30% of energy intake, with saturated fats comprising one-third of the total fat intake and total cholesterol <300 mg/day.
- Help the woman to identify foods that are high in saturated fats and cholesterol in order to reduce them in, or remove them from, her diet.
- Suggest replacement of saturated fat with complex carbohydrates, monounsaturated and polyunsaturated fats from vegetables and fish.
- Stress the importance of avoiding foods containing high levels of salt, and of reducing overall salt intake in the diet.

TARGET: Undertake regular physical exercise

- Stress that even a modest increase in physical activity can have health benefits by:
 - Helping to regain or maintain energy level
 - Lowering total cholesterol
 - Managing body weight
 - Controlling metabolic syndrome/diabetes
 - Relieving stress.
- Encourage the woman to increase physical activity in her daily life, e.g. by climbing stairs, walking or cycling.
- Encourage her to choose an enjoyable activity that fits into her daily routine.
- Exercise should be increased gradually to a level that reduces global cardiovascular risk as much as possible.
- The ideal is ≥ 30 minutes of physical activity on most days of the week.
- A healthy woman should exercise at 60–75% of the average maximum heart rate*.
- A woman with established cardiovascular disease should be referred for exercise testing.

*Average maximum heart rate = $220 - \text{age of patient}$.

HOW TO MANAGE THE OVERWEIGHT OR OBESE PATIENT

TARGET: Body mass index $\leq 25 \text{ kg/m}^2$ or waist circumference $\leq 88 \text{ cm}$

- Reducing weight is strongly recommended for any woman who is overweight (body mass index (BMI) $25\text{--}30 \text{ kg/m}^2$) or obese (BMI $>30 \text{ kg/m}^2$).
- Central obesity (waist circumference $> 88 \text{ cm}$) is an indication of abdominal fat accumulation and a more powerful predictor of cardiovascular risk than BMI.
- Advise women with evidence of the metabolic syndrome or insulin resistance to follow a low glycaemic index diet.
- Advise the woman to avoid fad diets (e.g. very low carbohydrate), which do not work in the long term.
- Reinforce the message that the only effective way to lose weight is to restrict total calorie intake.
- Explain that, by consuming 500–1000 calories/day less than required to maintain her current weight, she can lose about 500 g/week and ultimately achieve a weight loss of 5–15%.
- Stress that regular physical exercise assists in weight loss.
- Provide drug therapy in collaboration with a specialist.

HOW TO MANAGE HIGH BLOOD LIPID LEVELS

TARGET: Plasma total cholesterol <5 mmol/l or <190 mg/dl (non-diabetic patients); <4.5 mmol/l or <171 mg/dl (patients with diabetes or established cardiovascular disease)

- Elevated total plasma cholesterol levels are a significant cardiovascular risk factor, and must be of prime concern in the prevention of cardiovascular disease.
- Initiation of lifestyle interventions is essential in all patients with elevated lipid levels.
- Patients with mildly elevated total cholesterol may achieve the target total cholesterol concentration through lifestyle interventions (balanced diet, increased physical fitness, smoking cessation).
- Women at low cardiovascular risk (10-year risk <5%) should be monitored at 5-year intervals, and the importance of lifestyle interventions stressed at each consultation.
- If the 10-year cardiovascular risk is $\geq 5\%$, or will become $\geq 5\%$ if combined risk factors are projected to age 60 (i.e. high-risk patient), a full analysis of plasma lipoproteins should be performed.
- There are no specific treatment goals for high-density lipoprotein cholesterol or triglycerides, but fasting levels of these parameters serve as additional markers of cardiovascular risk.
- The low-density lipoprotein cholesterol target is <2.5 mmol/l (<95 mg/dl) in a high-risk patient.
- High-risk patients should be monitored at 1-year intervals
- Drug therapy or consulting a cardiovascular physician might be considered if plasma lipid levels are still uncontrolled after 3 months of lifestyle intervention.

See page 25 for a guide to lipid management in women asymptomatic for cardiovascular disease.

HOW TO MANAGE HIGH BLOOD PRESSURE

TARGET: Systolic blood pressure/diastolic blood pressure <140/<90 mmHg (non-diabetic patient), or <130/<80 mmHg (patient with diabetes or chronic kidney disease)

- After the age of 45 years, blood pressure rises steeply in women, and by the age of 60, average SBP levels in women are higher than in men.
- In hypertensive postmenopausal women, only about one-third have effectively controlled blood pressure levels.
- High blood pressure is one of the most powerful modifiable risk factors for cardiovascular morbidity and mortality.
- A decrease in SBP of only 2–3 mmHg lowers the likelihood of death from stroke by 10% and from ischaemic heart disease or other vascular causes by 7%.
- At each consultation, the blood pressure of women at higher risk of having raised blood pressure – especially peri-menopausal women – must be measured.
- Lifestyle changes help lower blood pressure if it is not seriously elevated (appropriate for women with SBP/diastolic blood pressure (DBP) 120–139/80–89 mmHg).
- A woman with no symptoms of cardiovascular disease requires antihypertensive therapy if blood pressure is high (>140/90 mmHg).
- More rigorous control of blood pressure, using antihypertensive agents, is essential in a woman with additional cardiovascular risk factors, e.g. subclinical organ damage or diabetes.
- Modification of renin-angiotensin-aldosterone system (RAAS) activity might be important in blood pressure control of a hypertensive peri- or postmenopausal woman.

See page 27 for a guide to blood pressure management in a woman asymptomatic for cardiovascular disease.

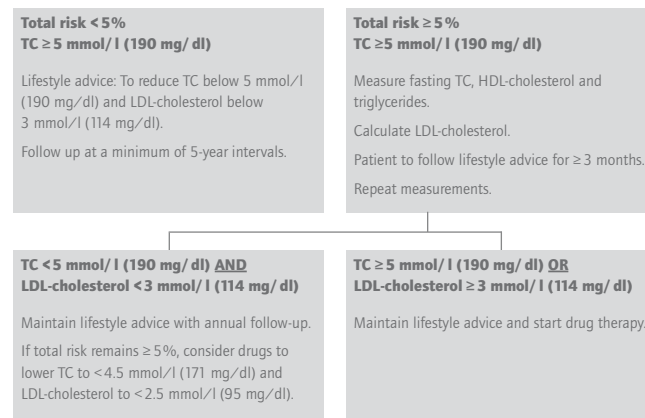
THE MENOPAUSE AND HORMONE REPLACEMENT THERAPY

- The initiation or continuation of hormone replacement therapy (HRT) should be decided according to the individual patient.
- Progesterone should be added to systemic oestrogen in all women with an intact uterus, to prevent endometrial hyperplasia and cancer.
- Some progestins have additional, specific, beneficial effects on blood pressure and plasma lipid and plasma glucose profiles, for example.
- In a woman aged <60 years, recently menopausal, with menopausal symptoms and without symptomatic cardiovascular disease, the initiation of HRT does not cause early harm, and possibly confers long-term cardiovascular benefit.
- If a woman is at increased global cardiovascular risk, HRT is safe to use in the younger woman with indications.
- HRT should not be initiated solely for the prevention of cardiovascular disease and should not be regarded as a substitute for antihypertensive treatment.
- A woman aged >60 years should be counselled on the potential benefits and risks of HRT in women in their age group.

APPENDIX

- BMI does not distinguish between fat and muscle.
- A highly muscular and athletic, healthy woman may be defined as overweight or obese using BMI.
- BMI is not accurate in a woman who is <150 cm tall.
- BMI is not accurate in a woman >65 years old.
- Waist measurement provides an accurate measurement of abdominal obesity.
 - Place a tape measure around the woman's bare abdomen just above the iliac crest
 - Ensure that the tape measure is snug, but does not compress the skin, and is parallel to the floor
 - The measurement is taken with the woman standing upright and relaxed while exhaling.

- Estimate global fatal cardiovascular disease risk using the SCORE chart.
- Use ratio of total cholesterol to HDL-cholesterol and total cholesterol to LDL-cholesterol to estimate risk.



Abbreviations: TC: Total cholesterol; LDL: Low-density lipoprotein; HDL: High-density lipoprotein

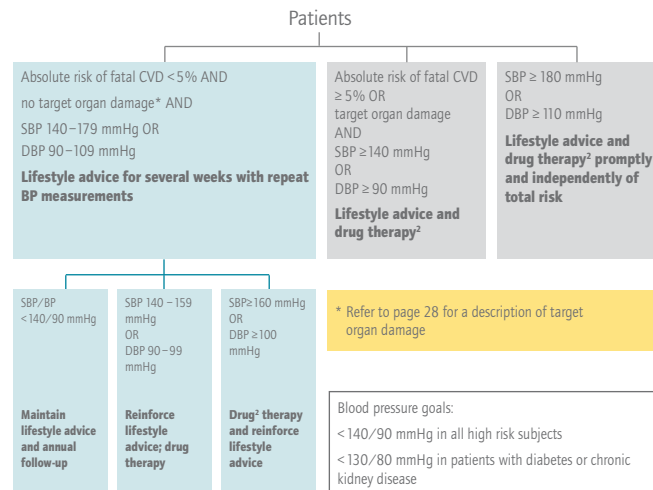
De Backer G *et al*: Third Joint Task Force of European and Other Societies on Cardiovascular Disease Prevention in Clinical Practice. European guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J* 2003; **24**: 1601–1610, with permission from the European Society of Cardiology.

N.B. mmol/l of total cholesterol and LDL- and HDL-cholesterol have been converted to mg/dl using a multiple of 38, for simplicity. The multiple used by the New England Journal of Medicine is 38.67.

ACCURATE BLOOD PRESSURE MEASUREMENT – HOW TO AVOID SOME TYPICAL PITFALLS

- Ensure that the woman has been comfortably seated for several minutes in a quiet room.
- Advise the woman to avoid caffeine, exercise and smoking for ≥ 30 minutes before measurement.
- Check that no tight clothing constricts the arm.
- Rest the woman's arm on a table, preferably with the brachial artery level with the heart.
- Use a standard cuff (12–13 x 35 cm); have larger and smaller cuffs available.
- The bladder should encircle at least 80 % of the arm (but not more than 100 %).
- Check that any remaining air in the cuff is evacuated before putting it on the woman's arm.
- Inflate the cuff to > 30 mmHg above the estimated SBP needed to occlude the pulse.
- Deflate slowly at a rate of 2–3 mmHg/second until regular tapping sounds are audible.
- Use Korotkoff sounds to identify SBP and DBP: first heard when the cuff pressure equals the SBP, and ceasing once the cuff has been deflated below the DBP.
- Take at least two measurements at an interval of 1–2 minutes; additional measurements are required if the first two vary markedly.
- At the first examination, blood pressure should be checked in both arms to detect possible differences due to peripheral vascular disease.
- If values vary in different arms, use the higher one.

GUIDE TO BLOOD PRESSURE MANAGEMENT IN WOMEN ASYMPTOMATIC FOR CARDIOVASCULAR DISEASE¹



Abbreviations: CVD: Cardiovascular disease; SBP: Systolic blood pressure; DBP: Diastolic blood pressure; BP: Blood pressure

Mancia G, De Backer G, Dominiczak A *et al.* 2007 Guidelines for the management of arterial hypertension: The task force for the management of arterial hypertension of the European Society of Hypertension (ESH) and the European Society of Cardiology (ESC). *J Hypertens* 2007; **25**: 1105–1187.

¹Estimation of total fatal CVD risk based on SCORE Chart.

High fatal cardiovascular risk $\geq 5\%$ over 10 years or will be 5% if projected to age 60 years. This corresponds to the formerly used 20% absolute risk of a composite of coronary heart disease events.

²Consider causes of secondary hypertension; if appropriate, refer to a specialist.

CAUTION: Patients with normal or high normal pressure (130–139/85–89 mmHg) may qualify for antihypertensive treatment if they have a history of stroke, coronary heart disease or diabetes.

