Methods for assessing global cardiovascular risk (CVR): use of risk models

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Aims
(i) Report on the current state of CVR prevention in France in 2004 (primary prevention)
(ii) Define the limits of global CVR assessment methods
(iii) Discuss the anticipated benefits of using risk models in everyday practice.

Results
(i) Estimating global CVR. Global risk is estimated
   - either by summing CVR factors, each factor being considered as either present or absent and having an identical weighting;
   - or by using a risk model (statistical modelling) which uses the true value of each CVR factor.
(ii) Sum of risk factors. Global CVR estimate lacks precision as it does not incorporate all the information and includes inter- and intra-observer variability. Few studies have assessed its performance in classifying patients and distinguishing those who will experience a cardiovascular event from those who will not.
(iii) Risk models. Two risk models (Framingham and SCORE) have been validated. They classify patients by risk level and predict risk of a cardiovascular event in 5 or 10 years’ time. Their performance has not been assessed in a French population representative of the general population. The Framingham models, derived from North American cohorts, overestimate global CVR and adjustment (or recalibration) is required. The SCORE models, derived from European cohorts, estimate only the risk of death from coronary or non-coronary cardiovascular disease, and propose two statistical models, one for low, the other for high prevalence of cardiovascular disease.
(iv) Limitations of risk models. The following need to be assessed:
   - the treatment intervention threshold in relation to anticipated benefit for the patient;
   - the long-term impact of using risk models as an aid to treatment decision-making.

Methods
Several databases were searched for the period 1990-2004 (Medline, Embase, Pascal, Healthstar, PsycInfo, Cochrane library, National Guideline Clearinghouse, HTA Database, French Public Health data). Studies identified were selected depending on their level of evidence and design quality. The critical review was validated by a working group (n = 16) and by 35 peer reviewers.

Conclusions and looking ahead
(i) The literature review and discussion among experts suggested that risk models could be used as a communication tool to bring about changes in medical practice and patient behaviour.
(ii) On updating, guidelines on CVR factors (hypertension, dyslipidaemia and diabetes) need to be standardised in terms of method used to estimate global CVR (recalibrated Framingham and/or SCORE) and management strategy for individuals with several CVR factors.