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CARDIOPULSE

Global Spotlights

The 'ten commandments' for the 2021 ESC Guidelines on CVD prevention

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The 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice have now been published, updating the 2016 edition.[1] The publication of these guidelines coincides with a decrease in atherosclerotic cardiovascular disease (ASCVD) mortality rates in Europe. However, as stated in the introduction of these guidelines, CVD remains a major cause of morbidity and mortality. The guidelines are instrumental in reducing the burden of CVD by encouraging management strategies, both at the individual level and at the population level. The cornerstone of the guidelines is the promotion of a healthy lifestyle and aggressive control of atherosclerotic cardiovascular risk factors. Several objectives were set out by the task force for these 2021 Guidelines on CVD prevention, amongst which were the aim to make a single guideline for primary care as well as hospital care to support clinical practice, introduce personalized management strategies with more attention to CVD prevention in older persons, have more patient involvement during the conception of the guidelines, as well as promote shared decision-making, update risk prediction algorithms for apparently healthy individuals, and finally identify potential cost–benefit issues throughout the guidelines.[2,3] A novel inclusion is the introduction of a stepwise approach to the risk factor treatment intensification, proposed as a solution to the dilemma of achieving what some consider as challenging therapeutic goals.

Updating the risk prediction algorithms resulted in the inclusion of the recently published SCORE2 and SCORE2-OP risk scores. These novel risk scores are now calibrated for four geographic European regions, and in an effort to further personalize management strategies, there are now age-specific risk thresholds in the apparently healthy population. A further novelty in these guidelines is the estimation of lifetime CVD risk and treatment benefits, which are now proposed as an option to engage in communication with patients, with specific benefit tables now provided as means for discussion.

The general structure of these 2021 Guidelines suggest initially classifying individuals into groups based on clinical characteristics. These groups are the "apparently heathy people", patients with established ASCVD, and those with specific risk conditions such as diabetes mellitus, chronic kidney disease, or familial hypercholesterolemia. CVD risk estimation using the novel risk scores is then moderated by considering risk modifiers and comorbidities. Informed discussion about CVD lifetime risk and treatment benefits tailored to individual needs and preferences are then suggested before proposing personalized treatment decisions and setting individual level interventions and treatment goals. Classification of individuals into risk categories, followed by a stepwise treatment-intensification approach, is one of the novel strategies proposed. This approach to treatment intensification is to be used as a tool to help physicians and patients pursue these targets in a way that fits patient profiles and preferences and in effect reflects routine clinical practice, in which treatment strategies are initiated and then intensified in a shared decision-making process between healthcare professionals and patients.

The central diagram (*Figure 1*) illustrates these new guidelines and the management strategies that are promoted therein with specific management strategies. Although the ultimate therapeutic goals remain aligned with previously published ESC Guidelines specifically with targets for LDL-cholesterol, blood pressure, and glycaemic control remaining as recommended in recent ESC Guidelines, the stepwise approach is believed to allow a modulated discussion with patients and allow one to engage in rational shared decision-making and perhaps crucially allowing for a greater proportion of people to attain the scientifically proven beneficial treatment thresholds.

In the high-risk category of patients with established CVD, occasionally recurrent CVD risk is very high despite maximum tolerated conventional treatments. In such cases in step 2 of the flow chart 'novel but less well-established preventive treatments such as dual antithrombotic pathway inhibition, icosapent ethyl, or anti-inflammatory therapy with colchicine may now be considered'. This recommendation for the use of anti-inflammatory therapy acknowledges evidence coming from the CANTOS study providing proof of concept for anti-inflammatory therapy in high-risk patients, and more recently the COLCOT and LoDoCo2 trials, although the exact use of colchicine in everyday clinical practice remains to be established.

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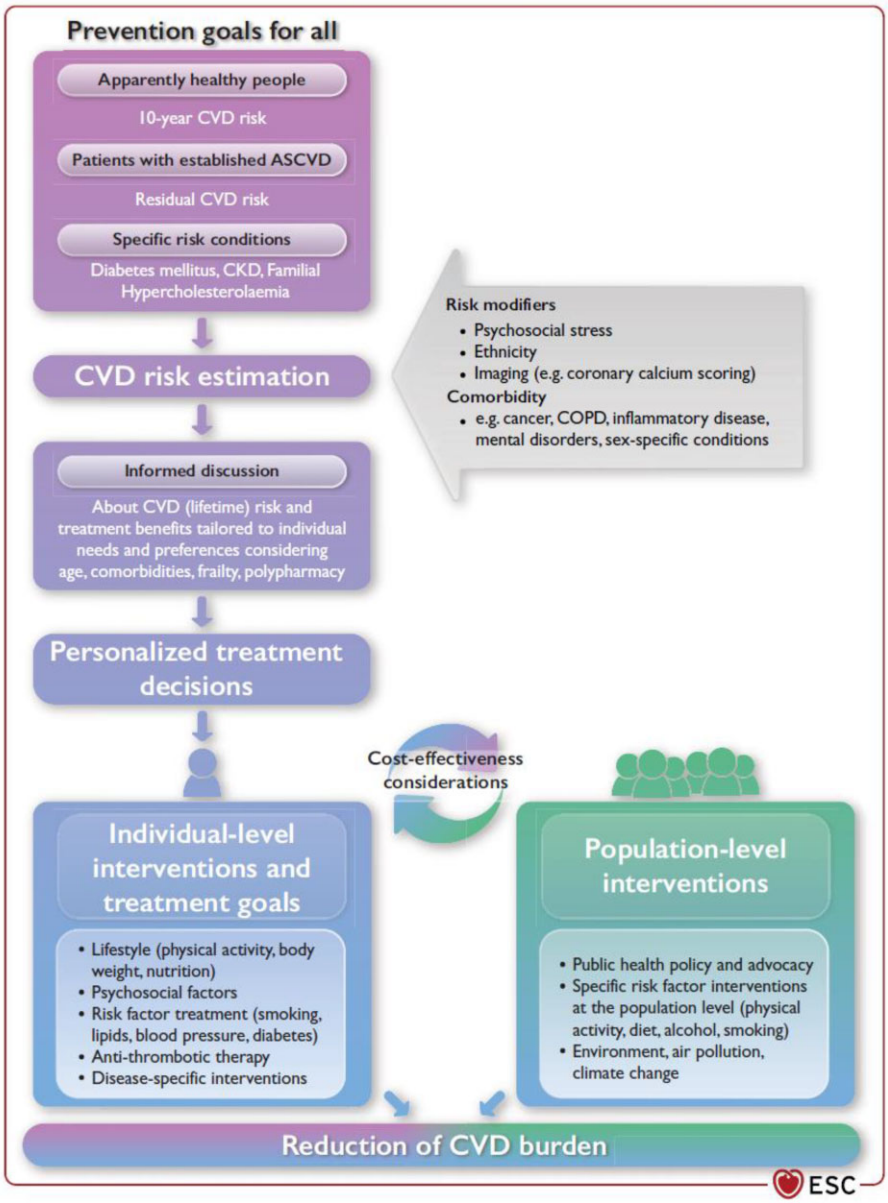

Figure 1 Central diagram illustrating management strategies.

At the population level these guidelines renew with the previous ones, with suggestions for policy interventions on physical activity, diet, smoking and tobacco use and alcohol. Population level approaches to CVD prevention centre around upstream measures requiring broad public health interventions intended to shift population attributable risk, and aim to alter the societal environment, modify certain social determinants of health, and provide incentives to encourage changes in individual behaviour and exposure to risk factors. These guidelines have also introduced new risk considerations, such as air pollution and climate change. Attention has now been drawn to environmental exposures with CVD risk-modifying potential, including air and soil pollution, above-threshold noise levels and the effects of climate change. Furthermore, air pollution has been recognized as contributing to mortality and morbidity, and specifically increasing the risk of CVD. Climate change is also recognized as becoming a major public health and environmental concern.

The 'ten commandments' for the 2021 ESC Guidelines on CVD prevention

- Constitute a single guideline for primary care as well as hospital care for CVD prevention to support clinical practice.
- The cornerstone of the guidelines is the promotion of a healthy lifestyle and the aggressive control of atherosclerotic cardiovascular risk factors.

- Classification of individuals into risk groups based on their clinical characteristics followed by a stepwise treatment-intensification approach.
- Integration of patient profiles and preferences to reflect routine clinical practice in a shared decision-making process between healthcare professionals and patients.
- Updated risk prediction algorithms for apparently healthy individuals, SCORE2 and SCORE2-OP risk scores, calibrated for four geographic European regions.
- Age-specific risk thresholds in apparently healthy people, personalized management strategies with more attention to CVD prevention in older persons
- Estimation of 10-year and lifetime CVD risk and estimation of lifetime treatment benefits to guide intensification of risk factor treatment.
- Targets and goals for LDL-cholesterol, blood pressure, and glycaemic control remaining as recommended in the previous guidelines.
- Attention drawn to environmental exposures with CVD risk-modifying potential, including air and soil pollution, above-threshold noise levels, and the effects of climate change; air pollution is now recognized as contributing to mortality and morbidity and increasing the risk of CVD. Climate change is also recognized as becoming a major public health and environmental concern.
- Potential cost–benefit issues highlighted throughout the guidelines.

Conflict of interest: none declared.

References

1. Visseren FLJ, Mach F, Smulders YM *et al* 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J* 2021.;**42**:3227–3337.
2. SCORE2 working group; ESC Cardiovascular risk collaboration. SCORE2 risk prediction algorithms: new models to estimate 10-year risk of cardiovascular disease in Europe. *Eur Heart J* 2021;**42**:2439–2454.
3. SCORE2-OP working group; ESC Cardiovascular risk collaboration. SCORE2-OP risk prediction algorithms: estimating incident cardiovascular event risk in older persons in four geographical risk regions. *Eur Heart J* 2021;**42**:2455–2467.