Key determinants of the future incidence of cancer across Europe: impact of prevention

**Keywords**
Cancer incidence, prevention, risk factors, smoking, alcohol, overweight, fruit and vegetables, physical activity

**Summary**
Up to 40% of Europeans will suffer from cancer at some time in their life and, in middle age, 40% of all deaths are due to this disease. Since up to 40% of cancers may also be preventable, primary prevention remains essential, as the European Cancer Code also emphasises. Entry-points for preventive interventions were identified based on known risk factors for cancer, partly overlapping with other chronic diseases. Yet, with the exception of hygienic and occupational measures and discouraging smoking, primary prevention was not very successful, especially in lower socio-economic status (SES) groups; avoidable exposure to risk factors demands more attention.

This project aims to underpin national and European policies to prevent cancer by providing estimates of the potential impact of interventions on determinants of cancer incidence on the future burden of cancer in Europe. Specifically, we aim to:

- estimate the prevalence and quantitative impact of major lifestyle (smoking, excessive alcohol use, fruit and vegetable consumption, overweight and physical activity) and socio-economic determinants on cancer incidence, concerning cancers of the oral cavity, larynx, lung, oesophagus, stomach, pancreas, colo-rectum, bladder, kidney, breast, endometrium and prostate, comprising 60% of the incidence
- assess the potential to reduce exposure to these determinants by reviewing evidence of effectiveness of interventions and policies as well as barriers to implementation
- estimate the future burden of cancer across Europe based on autonomous trends and various scenarios of implementation of effective interventions.

This coordination action will generate intensive interaction with national and international researchers, and policy-makers who will provide input to scenario development and reflect on its outcome so that ambitious policies can be rolled out. Regional workshops will serve to implement scenario development for prevention, based on the Prevent model developed at Erasmus MC in Rotterdam. A special web portal will be designed allowing for interactive communication among participants, archiving of relevant data and development of scenarios, and enabling Member States to adapt to their needs (“do-it-yourself”) and circumstances, possibly also beyond the project.

**Problem**
Extensive research in the field of cancer aetiology and prevention has been performed in the last decades and is still going on. However, a systematic overview and integration of (in)effective strategies, their prerequisites, efficacy and possible impact is lacking. This project aims to integrate and synthesise the current knowledge of and experience with effective preventive activities, and project their expected effects on the future burden of cancer in Europe.

**Aim**
The aim is to underpin and promote implementation of European and national policies to prevent cancer by providing estimates of the potential impact that interventions directed at key determinants of the incidence of this disease may have on the future burden of cancer in the various parts of Europe up to 2040.

**Expected impact**
The impact of this project will be that a perspective for cancer prevention is shown, which makes maximal use of existing knowledge in such a way that policy-makers are persuaded to invest more in effective long-term prevention efforts. Furthermore, the project will help in formulating realistic targets at realistic terms (often over decades) to be reached by preventive measures designed to reduce the exposure to risk factors and/or the incidence of cancer; but also make recommendations for the further studies needed to improve primary prevention efforts to reduce the burden of cancer.

**Potential applications**
Benefiting from preventive actions directed at chronic diseases such as cancer, diabetes and cardio-vascular disease, this coordination action for cancer prevention prepares a solid basis for further active evidence-based preventive policies that can affect many generations of Europeans born since the 1940s, but especially since the 1980s and 90s, by combining evidence with incentives to change unhealthy habits or not start them, which is more relevant for the younger generations. European variation can provide an irresistibly strong example of the potential effects that changes in lifestyle can have. In this respect, the systematic attention for the role of socio-economic status (SES) is important. The approach to estimate the long-term impact of prevention by means of scenario development opens the way for involving a broad array of stakeholders who are robbed of
Preventing

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The scenarios will be made available at a special web portal, allowing the Member States and regions to adapt the input to their specific needs and circumstances, and creating an opportunity for interaction with policy-makers at European, national and international levels.

**Project web-site:** www.eurocadet.org

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