FINAL REPORT

Recommendations for the Sustainability and Monitoring of the European Code Against Cancer (ECAC)

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This document is based on the contribution agreement between the International Agency for Research on Cancer (IARC) and the Cancer Society of Finland (CSF), reference DCA/ENV/2018/01, and linked to the Innovative Partnership for Action Against Cancer (iPAAC) Joint Action (Grant Agreement number: 801520 — iPAAC — HP-JA-2017) project and its deliverable the “Roadmap on Implementation and Sustainability of the Cancer Control Action in the field of cancer prevention”. IARC, with the support of Work Package 5 (WP5) members and invited experts, has prepared this document outlining options for the continuation of the European Code Against Cancer, including how to sustain scientific accuracy, format, and presentation, tailoring to different audiences, and the role of the European Code Against Cancer given the broader approach of noncommunicable diseases. This document will be an element of the roadmap. IARC has also attended all meetings where discussions and outcomes feed into this deliverable.

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1. Executive Summary

The “Roadmap on Implementation and Sustainability of the Cancer Control Action in the field of cancer prevention” is the main deliverable of Work Package 5 (WP5) of the third European Commission Joint Action on Cancer, the Innovative Partnership for Action Against Cancer (iPAAC). This plan focuses specifically on the scope of a future 5th edition of the European Code Against Cancer (ECAC), including updating and maintaining the scientific evidence, and on the strategies to further expanding the scope, implementation, and dissemination of the ECAC across Europe. The International Agency for Research on Cancer (IARC/WHO), as the coordinator of the update for the 4th edition of the ECAC, has agreed to provide the guidance and involvement of scientific experts and to introduce a plan for the monitoring and sustainable follow-up of the ECAC for the iPAAC Joint Action WP5.

The methodology followed for developing this plan included a co-creational consultation process, including a virtual workshop, coordinated by IARC, the Association of European Cancer Leagues (ECL), and the Cancer Society of Finland (CSF). IARC is responsible for bringing in the expert groups and providing the sustainability plan for iPAAC, ECL is responsible for organizing three conferences for iPAAC WP5, and CSF is leading WP5 of iPAAC. Input on cancer prevention from more than 100 participants was collected and discussed, to assess the needs and pave the way for the future of the ECAC.

Overwhelming support of the need for the ECAC and its continuous updating, optimization, and wider dissemination was expressed by all the stakeholders involved in the consultation process, including scientists and experts in cancer prevention and/or public health, advisors on dissemination and communication, and representatives of European authorities.

The Recommendations for the Sustainability and Monitoring of the European Code Against Cancer (ECAC) are listed below:

List of Recommendations:

Recommendation #1: The 5th edition of the ECAC should include cost-effective evidence-based cancer prevention measures at the individual and population levels (including advice regarding strategies proven to be ineffective, not implementable, and potentially to be de-implemented), alongside an updating of the evidence on the causes of cancer.

Recommendation #2: Establish the appropriate framework for the 5th edition of the ECAC, including: (i) a mapping and prioritization plan, (ii) a formal process to assess the evidence, to translate it into action, and to evaluate the impact, (iii) a governance structure, including an implementation and dissemination plan, and (iv) intersectoral collaborations and partnerships**.**

Recommendation #3: The 5th edition of the ECAC should follow a multidisciplinary approach to develop evidence-based cancer-specific recommendations in synergy with NCDs preventive messages, where applicable, allowing flexible use within unified NCDs- or cancer-targeted

dissemination strategies, aligned with the social determinants of health, and with special attention to social inequalities.

Recommendation #4: Enhance the visibility of the ECAC as the unifying tool in cancer prevention (i.e. cancer prevention toolbox for the EU), in alignment with the EU Europe's Beating Cancer Plan and the Cancer Mission, while allowing adaption to the national context at the implementation and dissemination level.

Recommendation #5: The 5th edition of the ECAC should be developed to address messages to different target groups (especially health professionals and policy-makers), by including several levels of information based on the same evidence base, while maintaining the general public as the primary target group and fully acknowledging that it is a heterogeneous group influenced by social, economic, and environmental determinants of health.

Recommendation #6: The ECAC should be updated periodically, maintaining its high-quality process with a centralized governance of a permanent inter-institutional infrastructure.

Recommendation #7: Develop a Dissemination Action Plan including: (i) a description of the recommended strategies to tailor messages to the different target audiences, including risk communication strategies, and (ii) the implementation of novel, attractive, and modern distribution formats, channels and methods to reach the general public, making the ECAC adaptable to the local context and social differences, with a special focus on increasing health literacy and trust.

Recommendation #8: Engage in intersectoral partnerships to promote the ECAC.

Finally, this report identifies four research needs related to the sustainability and optimization of the ECAC in the context of implementing evidence-based cancer prevention, disseminating the ECAC to various target audiences and assessing the impact, and continuing etiological research:

Research Need #1: Research to successfully implement evidence-based primary and secondary prevention measures across Europe, and to evaluate novel preventive interventions and their implementation to optimize their impact on the health of individuals or different risk groups within populations.

Research Need #2: Future editions of the ECAC should be accompanied by a systematic evaluation of the ECAC as a cohesive set of guidelines, in the framework of dissemination research, to ensure that the ECAC reaches the target population(s) and to measure the impact of its use. This evaluation should be performed at three levels: the (i) structural, (ii) functional, and (iii) scaling-up levels.

Research Need #3: The creation and maintenance of a landmark European Evidence-based Cancer Prevention Centre, including an Evidence-based Prevention Portal and an e-Learning platform to: (i) promote rapid dissemination of best practices in cancer prevention, (ii) contribute to implementation research to optimize the implementation of known preventive strategies, (iii) identify unanswered questions that require research investment, and (iv) build capacity in cancer prevention for a variety of audiences.

Research Need #4: Strengthening research into the causes of cancer with targeted European research programmes.

In addition, this document gives foundation to further development of the iPAAC work in early 2021, in the form of another open and co-creational meeting to identify possibilities of cancer prevention and research, and health promotion in Europe.

2. Introduction: Purpose of the European Code Against Cancer (ECAC) Recommendations

Work Package 5 (WP5) of the third European Commission Joint Action on Cancer, the Innovative Partnership for Action Against Cancer (iPAAC), focuses on cancer prevention. Among the goals of WP5, Task 5.3 on "Cancer prevention and health promotion" aims to update, increase awareness of, and strengthen the implementation of the European Code Against Cancer (ECAC) in European Union (EU) Member States, as well as planning a sustainable monitoring system with a follow-up structure for the ECAC. The final outcomes of Task 5.3 will include the reinforcement of cancer prevention through assessment of the implementation of the ECAC across Europe.

The International Agency for Research on Cancer (IARC/WHO) was the coordinator of the update for the 4th edition of the ECAC, released in 2014, and since then has, in agreement with the Directorate-General for Health and Food Safety (DG SANTÉ) of the European Commission, taken responsibility for being the focal point for the ECAC. As a subcontractor of WP5, IARC has provided the guidance and involvement of scientific experts, and has introduced a plan for sustainable monitoring and follow-up of the ECAC. This document, one of the main deliverables of WP5, presents recommendations for a future plan of the ECAC, focusing in particular on the scope of a future 5th edition of the ECAC, including updating and maintaining the scientific evidence, and on strategies to further expand the dissemination of the ECAC across Europe.

The ECAC is a relevant and valuable instrument for cancer prevention education, based on the established scientific evidence that about 40% of cancer cases can be prevented and cancer mortality can be reduced through practices and actions targeted at the individual and population levels.[1,2] The ECAC informs people about how to avoid or reduce exposures to established causes of cancers, to adopt behaviours to reduce cancer risk, and to participate in vaccination and screening programmes under the appropriate national guidelines.[3] In addition, it has been used as a guide by stakeholders such as cancer leagues and as a framework to influence the formulation of programmes and policies, including European National Cancer Plans.[4] The ECAC was first launched in 1987 on an initiative of the European Commission and has been updated on three separate occasions. As an update of the 3rd edition from 2003,[5] the 4th edition was released in 2014. It consists of 12 recommendations on how to reduce your cancer risk (Appendix 1), an online repository of questions and answers (Q&As) related to each recommendation to put them in context and aid in their interpretation, and the scientific justification for each individual recommendation published in peer-reviewed articles in a special issue of the scientific journal *Cancer Epidemiology* (all this material is provided as open access content at https://cancer-code-europe.iarc.fr/index.php/en/ecac-12-ways). The ECAC, including the Q&As, have

[1] Vineis P, Wild C (2014). Global cancer patterns: causes and prevention. Lancet. 383:549–57.
[2] Schüz J, et al. (2019). Primary prevention: a need for concerted action. Mol Oncol. 13:567–78.
[3] Schüz J, et al. (2015). European Code against Cancer 4th edition: 12 ways to reduce your cancer risk. Cancer Epidemiol. 39:S1–10.
[4] Espina C, et al. (2018). Cancer prevention policy in the EU: best practices are now well recognised; no reason for countries to lag behind. J Cancer Policy. 18:40–51.
[5] Boyle P, et al. (2003). European code against cancer and scientific justification: third version (2003). Ann Oncol. 14(7):973–1005.

been translated into all 23 official EU languages. The rationale behind the 4th edition of the ECAC and detailed explanations of its rigorous scientific methodology, developed by IARC and partners, have been provided elsewhere.[6] Working Groups of independent experts from different fields of cancer research and prevention were appointed to assess the scientific evidence and develop the recommendations, supported by a literature review group to provide scientific and technical support in the assessment of the literature through systematic reviews.[7] Finally, the recommendations were discussed and approved by a Scientific Committee consisting of leading cancer prevention and public health experts from Europe.

For a better understanding of the context framing the present report, we provide a brief reminder of the four principles that guided the development of the recommendations of the 4th edition of the ECAC. First, to qualify to be considered as a recommendation, there needed to be *sufficient* scientific evidence that following the recommendation to avoid or reduce exposure to a harmful agent, to adopt a healthy behaviour, or to participate in screening or vaccination programmes would reduce the individual's risk of developing cancer or dying from cancer. Second, the recommendation had to be suitable for a broad target population (related to a significant cancer burden throughout Europe, rather than small, high-risk groups). Third, the target of the recommendation was the individual, i.e. the recommendation is something individuals can do to reduce their cancer risk. This was deliberately decided, with an awareness that successful prevention is a combination of both individual actions and policies and community actions; the principle of the recommendations of the 4th edition was to provide a tool for people in response to the question "What can I do to reduce my cancer risk?" Fourth, all recommendations were phrased in such a way that they could be clearly and succinctly communicated to the general population.

[6] International Agency for Research on Cancer (2014). European Code Against Cancer. Available at: http://cancer-code-europe.iarc.fr/index.php/en/.
[7] Minozzi S, et al. (2015). European Code against Cancer 4th Edition: process of reviewing the scientific evidence and revising the recommendations. Cancer Epidemiol. 39(Suppl 1):S11–9.

3. Methodology: Co-creational consultation process

The methodology for the preparation of the present report included a co-creational consultation process, of which the major element was a dedicated virtual workshop coordinated by IARC, the Association of European Cancer Leagues (ECL), and the Cancer Society of Finland (CSF). An overview of the consultation events and the list of contributors are provided in Appendix 2, which shows that the process was broad and inclusive, to collect as much input as possible.

Active consultation enables the opening of formal and informal communication channels between organizations and stakeholders in order to better understand the needs, wants, and expectations of stakeholders, so that value can be created and a successful action plan can be implemented. For the purpose of this report, we define "stakeholders" as the people, groups, or organizations (i.e. parties) who are involved or invested in a programme or activity, are impartially interested in its results and success, and/or have a stake in what will be done with the results of it.

Through a series of formal and informal meetings and online exchanges, IARC established communication with different stakeholders from the iPAAC Joint Action, DG SANTÉ, and the Cancer Prevention Europe (CPE) consortium.[8,9] CPE is a consortium of organizations across Europe that aims to reduce morbidity and mortality from cancer in European populations through prevention and earlier diagnosis of the disease. CPE is in the best position to encourage the sustainability of the ECAC and give scientific guidance to IARC during this interim period between editions, replacing in this function the Scientific Committee of the 4th edition, because many of its members have retired or changed their workplace.

By way of this consultation, experts were invited to share their views and advice on the scope of a future 5th edition of the ECAC, including updating and maintaining the scientific evidence, and comment on strategic and operational plans for better disseminating the ECAC across the EU. In addition, on 28 and 29 April 2020, IARC, CSF, and ECL hosted a dedicated co-creational online workshop to discuss cancer prevention and to assess the needs and pave the way for the future of the ECAC. More than 100 participants, divided into eight working groups, discussed a suggested broader scope of the ECAC in the context of other noncommunicable diseases (NCDs) and the methods needed to develop the 5th edition of the ECAC, as well as to modernize and ensure a sustainable dissemination of the ECAC with a particular focus on target audiences. Participants included experts in cancer prevention, public health, and dissemination involved in the iPAAC Joint Action, scientists involved in the development of the 4th edition of the ECAC, and representatives of DG SANTÉ and European institutions. In preparation for

[8] Wild C, et al. (2019). Cancer Prevention Europe. Mol Oncol. 13(3):528–34.

[9] The organizational structure of CPE currently comprises the following types of members: Core Members (Cancer Research UK, Danish Cancer Society, European Institute of Oncology, French National Cancer Institute, German Cancer Research Center, Imperial College London, Karolinska Institutet, Maastricht University, UK Therapeutic Cancer Prevention Network Group, World Cancer Research Fund International, and IARC as the coordinator), Full Members (Cancéropôle Lyon-Auvergne-Rhône Alpes), and Affiliate Members (Europa Donna, Association of European Cancer Leagues, Institute Curie, Irish Cancer Prevention Network, and European Commission Joint Research Centre). Available at: https://cancerpreventioneurope.iarc.fr/.

the discussions, IARC, CSF, and ECL put together a series of brainstorming questions to guide the deliberations.

a) On the scope of the ECAC:
    1) “The target group of the 4th edition of the European Code Against Cancer (ECAC) is the general public. Should the ECAC target a different group in future editions (e.g. policy-makers, health professionals, a combination of groups, the general population but through mediators, etc.) instead of the general public?”
    2) “Should the ECAC go beyond the identification of the causes of cancer and specify evidence-based prevention measures at the population level? If yes, how should this be implemented?”
    3) “Should the ECAC take a more horizontal, NCD-oriented approach (given that many cancer risk factors are common to other diseases) and consider social inequalities to synergize with other professional bodies to better implement unified messages?”
    4) “Should the ECAC focus on its implementation (including policy-making) and how cancer prevention is translated to society? If yes, what type of professionals should be involved in a potential update of the ECAC that would include policy recommendations?”
    5) “How could the updating and maintenance of the scientific evidence be ensured?”

b) On the dissemination of the ECAC:
    1) “How could dissemination of the ECAC across the EU be improved?”
    2) “In order to tackle and reduce social inequalities in cancer prevention and health promotion efforts, how could effective dissemination among vulnerable groups be ensured?”
    3) “Which new strategies should be put in place if the scope of the ECAC changes to include more implementation and policies?”
    4) “In light of an update of the ECAC, how could translation of all materials into all EU official languages be ensured?”
    5) “Which partnerships are needed to ensure sustained and coordinated dissemination?”

The input gathered has informed the recommendations of the present report to guide the development of future editions of the ECAC and the sustainability of its success. To widely inform people about this process and to endorse the necessity of updating and ensuring the sustainability of the ECAC, an Open Letter to all the EU-27 Health Ministers and Health Attachés, as well as a Call for Action in support of the ECAC, were launched at the European Week Against Cancer in May 2020 (Appendix 3).

4. Recommendations for the European Code Against Cancer (ECAC)

4.1. Scope

The iPAAC Joint Action offered the opportunity to revise the purpose and content of the ECAC in order to assess going beyond the identification of risk factors to also providing specific evidence-based measures of cancer prevention. The inclusion of evidence-based preventive measures on other comorbidities (i.e. diabetes, obesity), which would enable synergizing and unifying prevention messages, and a more specific focus on social inequalities, was also considered. How to improve the dissemination strategies and whether to add new potential target groups were also discussed.

4.1.1. Broadening of the ECAC recommendations with guidance from evidence-based individual- and population-level interventions and their implementation

To date, all ECAC editions have focused mainly on messages identifying the most relevant causes of cancer in Europe and the associated health promotion measures (e.g. “Do not smoke” or “Be physically active in everyday life”) or evidence-based medical interventions (e.g. vaccination for primary prevention and screening for secondary prevention), without giving detailed guidance on how to attain the outcome of changing unhealthy behaviours or achieving uptake of vaccination or screening. Therefore, it seemed pertinent to ask the question of whether a 5th edition of the ECAC should go beyond the identification of the causes of cancer and addressing individual preventive actions, to also specifying evidence-based policy prevention measures at the population level, and if so, how this should be implemented.

There was a strong consensus among all the stakeholders on the need to include cost-effective evidence-based prevention measures at both the individual and population levels. However, a continuous update of the evidence on the causes of cancer is crucial to design adequate evidence-based prevention measures, taking into account the possible changes in certain risk factors over time with regard to their contribution to the cancer burden (i.e. the current global obesity epidemic). Some policy-oriented measures have to be implemented at the population level through regulations to provide healthy environments, such as to protect people from air pollution, or to enable individuals to make healthy choices (e.g. eating in non-smoking restaurants, legal initiatives on tobacco control to support individual actions). Attention should be given to those population-level measures where the individual lifestyle measure has not, or not yet, succeeded in reducing the cancer burden (i.e. healthy diets). In addition, a combination of individual- and population-level approaches is most effective in certain situations, such as recommending that workers protect themselves in the workplace, along with regulations to protect them against exposure to carcinogens in their respective industries. However, universal recommendations may be challenging to implement, considering the wide range of cultural, political, or health systems-related factors that are crucial for implementing preventive actions (e.g. screening policies vary by country and region). Europe-wide implementation may require action beyond the “one size fits all” approach; therefore, a careful assessment of the local situation is also needed.

Furthermore, by adding the population-level dimension to the recommendations, the ECAC will not only help policy-makers to identify and implement the pertinent measures to support citizens, but also assist health professionals in their argumentation for advocating for health in all policies.[10] As a novel recommendation, adding to the ECAC lessons learned from strategies that have proven to be ineffective would assist in highlighting what should not be implemented or should potentially be de-implemented if it has already been implemented.

To add this new level of complexity to the ECAC, some considerations should be taken into account. A broader scope of the ECAC would imply a much larger project (i.e. a full review, analysis, and development of evidence-based behavioural and policy interventions would take considerable time and resources). Therefore, the following elements would be needed:

(i) an appropriate **framework** created by the European Commission and EU Member States in response to the aim of updating the ECAC by adding more guidance on how to implement the recommendations at both the individual and population levels;
(ii) a **mapping and prioritization plan** to identify relevant cancer prevention-related policies and best practices;
(iii) a **formal process** to assess the evidence, including the appropriate sources of evidence and the breadth of expertise needed (i.e. advice from behavioural and implementation scientists, as well as experts in other NCDs and policy analysts, would be key), and the best way to translate the evidence into action and to evaluate its impact in the long-term;
(iv) the corresponding **communication strategies** to be developed;
(v) and the **partnerships** to be established (i.e. creating synergies with existing policy initiatives, such as the NCD action plans or the WHO Framework Convention on Tobacco Control).

As regards the related implementation, including the dissemination, it was noted that many of the corresponding policies for the implementation of cancer prevention programmes are already in place at the EU and national levels. Regional and national conditions, cultural aspects of population groups, and health systems-related factors differ from setting to setting; also, inequalities exist between and within countries with respect to policy implementation and allocation of health-care resources. A successful implementation of a future 5th edition of the ECAC with a broader policy dimension would need a clear implementation and dissemination plan to help policy-makers to set goals and monitor progress. Intersectoral collaboration and commitment across different actors in society, namely health professionals in a variety of disciplines, social workers, community leaders, educators, policy-makers, advocates, social innovators, economists, the media, industry, and civil society, will be imperative. Bringing in these different actors and getting early feedback on whether the ECAC reaches, is accepted by, and is adopted by the target audience(s) would be extremely valuable. Also, sharing and promoting best practices between countries should be enhanced. At the policy-making level, a clear governance

[10] Leppo K, et al., editors (2013). Health in All Policies - Seizing opportunities, implementing policies. Available at: https://julkaisut.valtioneuvosto.fi/handle/10024/69920.

structure for implementation and inclusion of implementation research in the policy agenda would be needed.

Recommendation #1: The 5th edition of the ECAC should include cost-effective evidence-based cancer prevention measures at the individual and population levels (including advice regarding strategies proven to be ineffective, not implementable, and potentially to be de-implemented), alongside an updating of the evidence on the causes of cancer.

Recommendation #2: Establish the appropriate framework for the 5th edition of the ECAC, including: (i) a mapping and prioritization plan, (ii) a formal process to assess the evidence, to translate it into action, and to evaluate the impact, (iii) a governance structure, including an implementation and dissemination plan, and (iv) intersectoral collaborations and partnerships.

4.1.2. Using synergies between cancer-targeted recommendations and those for NCDs in general; addressing social inequalities

Given that several cancer risk factors and preventive policy measures are common to other NCDs (e.g. high taxes on tobacco and alcohol, or food labelling regulations) and in alignment with the global strategy for the prevention and control of NCDs adopted by the World Health Assembly in 2000,[11] synergizing efforts with other professional bodies outside of the cancer field was proposed, in order to unify messages on NCD prevention for a better implementation of the cancer recommendations.

There was a strong consensus that the scientific evidence assessment should be tackled separately by disease, because cancer is already a complex group of diseases that deserves its own recommendations. Several benefits and considerations were highlighted for maintaining a focus on cancer, such as the attention needed to cancer-specific risk factors (e.g. ultraviolet radiation, human papillomavirus infection) and preventive interventions (e.g. screening). Also, the stigma and fear associated with cancer but not with other NCDs calls for strengthening the drive and attractiveness gained with the ECAC to reduce the cancer risk, to avoid diluting efforts by taking a more horizontal approach.

However, synergies with other NCDs are evident, and therefore disease-prevention implementation and dissemination strategies should combine messages common to all NCDs in such a way as not to confuse the general public, showing the joint impact and co-benefits of healthy behaviours and preventive measures to all NCDs. This would have an influence on the type of final output required for a 5th edition of the ECAC. To avoid the potential disadvantages of an NCD-oriented approach (e.g. less direct messages, less impact on cancer prevention, lower efficiency to prevent cancer), the following solutions were proposed:

[11] Fifty-Third World Health Assembly (2000). Resolution WHA 53.14. Global strategy for the prevention and control of noncommunicable diseases. Available at: https://www.who.int/nmh/publications/wha_resolution53_14/en/.

(i) a **synergistic approach** in the final output after a separate assessment of the evidence, unifying preventive messages to other comorbidities, where applicable, without losing the focus on cancer (e.g. "The ECAC [cancer-specific section] brings the following benefits for other NCDs [NCD common section]");
(ii) a **horizontal, integrated, and multidisciplinary approach** hand-in-hand with other NCD scientific groups;
(iii) exploring **innovative ways of engagement** with other agencies and non-cancer-specific stakeholders (e.g. WHO, the NCD Alliance, the Heart Foundation) to broaden the messages in alignment with the social determinants of health and to relate to key outputs (e.g. keeping the ECAC messages concise but providing links to wider policy resources and best practices);
(iv) using more **general health platforms for disseminating** joint messages, giving special attention to populations with low health literacy;
(v) integrating cancer prevention into the framework of **Health in All Policies**;[10]
(vi) using the future **EU Europe's Beating Cancer Plan** to emphasize the importance of prevention;
(vii) and using the **ECAC as the unifying tool** but allowing adjustment at the implementation and dissemination phases to reflect different national contexts and target groups.

Reducing social inequalities in cancer prevention was addressed as a separate key issue, which needs to be given more emphasis and priority to be addressed horizontally, but separately from the NCDs approach.

Recommendation #3: The 5th edition of the ECAC should follow a multidisciplinary approach to develop evidence-based cancer-specific recommendations in synergy with NCDs preventive messages, where applicable, allowing flexible use within unified NCDs- or cancer-targeted dissemination strategies, aligned with the social determinants of health, and with special attention to social inequalities.

Recommendation #4: Enhance the visibility of the ECAC as the unifying tool in cancer prevention (i.e. cancer prevention toolbox for the EU), in alignment with the EU Europe's Beating Cancer Plan and the Cancer Mission, while allowing adaption to the national context at the implementation and dissemination level.

4.2. Tailoring of content to different target groups and audiences

Historically, previous editions of the ECAC have been addressed to stakeholders in EU Member States to translate and communicate the messages to the general population as the ultimate target audience. The 4th edition selected the individual as the direct target group of the messages of the ECAC and dedicated substantial efforts to communicating in a lay manner. However, as reported by Ritchie et al.,

the awareness of cancer prevention and the ECAC at the population level differs greatly across Europe, with the best awareness where well-reputed local players have taken on the role of raising awareness.[12]

During the consultation process, stakeholders were asked whether future editions of the ECAC should target different groups or a combination of them (e.g. policy-makers, health professionals, educators, other stakeholders) instead of the general public directly. All stakeholders consulted highlighted that, in order to encourage the general public to adopt and sustain healthy lifestyles and make healthy choices, targeting individuals remains highly relevant. However, addressing the ECAC to other stakeholders, especially policy-makers and politicians, is very much needed, because the implementation of cost-effective interventions to encourage individuals to make healthy choices is beyond the direct responsibility of the individual.

Here, we propose to make the distinction between the "target group" as the group of individuals who are the objective of the ECAC recommendations and the "target audience" as recipients of different disseminations strategies. The definition "target group" would encompass different levels of information within the ECAC, with specific recommendations not necessarily targeted to all groups (e.g. potential policy recommendations on air pollution would be targeted to policy-makers, or specific clinical guidelines would be targeted to health professionals, but not addressed directly to the general public). The definition "target audience" refers to the recipients or mediators of multiple dissemination strategies that would enable the ECAC recommendations to be further tailored to different needs (e.g. to educators to translate the messages for the general population to young people). Thus, there was consistent support across the consulted stakeholders that future editions of the ECAC should address messages to different "target groups as the objective of the ECAC" (e.g. the general public, health professionals, and policy-makers), containing several levels of information based on the same evidence base, while keeping simplicity, consistency, and an adequate total number of messages. The advantages of targeting these stakeholders beyond the individual may assist in:

(i) **prioritizing healthy environments** in the policy agenda as a prerequisite to allow people to make heathy choices as proposed in the ECAC (i.e. multisectoral approach, Health in All Policies);
(ii) identifying optimal and effective **cancer prevention strategies tailored to national contexts**, implementing them based on the needs of the target groups, and disseminating them through different professional societies and nongovernmental organizations (NGOs);
(iii) and **strengthening the implementation of the ECAC** (including related policies) with the final aim of translating cancer prevention to society.

New target group(s) should be carefully identified and aligned with the ultimate purpose and aim of future editions of the ECAC; some of the main points stressed were:

- **Early involvement of policy-makers** in a co-creational process was recommended, however, this target group should be defined locally.

[12] Ritchie, et al. Evaluation of the impact of the European Code against Cancer on awareness and attitudes towards cancer prevention at the population and health promoters' levels. Submitted to Cancer Epidemiology.

- **Health professionals is a key target group** that should be addressed, supporting the integration of the ECAC into the professional structures of health (e.g. using the "teachable moment" of general practitioners, oncologists, and screening professionals in their practice to help disseminate and champion behavioural messages).
- **Existing community stakeholder groups should be involved** at some stage in the development and later implementation of the ECAC (e.g. to ensure harmonizing screening practices in different countries).
- **Other important groups** that should be targeted as specific audiences or mediators at the dissemination stage would include educators, cancer societies, patient groups, employers, implementation specialists, etc. (see Section 4.4: Dissemination).

In addition, novel approaches to target the general public were suggested:

- The general public should be targeted, not only as individuals but also as **civil society as a whole**, engaging with communities and citizens' advocates to achieve an empowering approach (e.g. citizens driving the agenda of politicians, as in the climate change arena).
- **Social inequalities should be addressed**, because the general public is not a homogeneous group (e.g. implementation and dissemination strategies should be adapted to different needs, depending on subgroups of the general public, such as groups with low health literacy, vulnerable groups, or groups highly influenced by peers).
- **Policy-makers** should be also seen as **part of the general public**.

Some points about the dissemination strategies were raised, such as the need to tailor the content of messages to the different target groups, for example by providing policy-makers with concrete figures and guidelines on how to turn recommendations into action; by building capacity for health professionals on the ECAC and how to include it in their practice; and by addressing the general public in such a way that the ECAC would help people to make healthy decisions. More detailed dissemination strategies are presented in the corresponding section below.

Recommendation #5: The 5th edition of the ECAC should be developed to address messages to different target groups (especially health professionals and policy-makers), by including several levels of information based on the same evidence base, while maintaining the general public as the primary target group and fully acknowledging that it is a heterogeneous group influenced by social, economic, and environmental determinants of health.

4.3. Updating and maintaining the ECAC

Consensus was also reached about the need to periodically update the ECAC (e.g. every three to five years), similar to other EU guidelines. Maintenance also requires monitoring and follow-up mechanisms. To facilitate the process, it was strongly suggested to create a "live" system that would allow frequent updating of rapidly evolving topics (i.e. through incremental updates between more

comprehensive reviews of the evidence), while keeping other topics more static. The respective infrastructure responsible for the updates, such as a permanent scientific expert group, should continuously monitor, screen, and review the literature in a coordinated manner. In addition, supporting policy-making in EU Member States requires paying attention to how evidence informs policies, i.e. the science-to-policy interface.[13] This will allow the flagging of "breaking" topics, which would also help in re-attracting the attention of the target audience(s) to the ECAC. Some essentials were proposed:

(i) a **centralized governance** with scientific coordination in alliance with leading cancer prevention institutions and entities in reviewing the scientific literature to gather the evidence, including on the cancer burden, risk factors, cost-effective interventions, and good practices and policies; the suitability and experience of IARC for the scientific secretariat role was unambiguously endorsed;
(ii) a **high-quality process** aligned with other international guidelines;
(iii) a **new format for the evidence assessment process** and the translation of the evidence into recommendations, combining: (1) a classical centralized approach with multidisciplinary working groups of experts who systematically assess the level of evidence, including a consultation phase with cancer control and public health advisors with political influence and governmental health authorities; along with (2) innovative approaches to stimulate citizens' engagement, allowing the expression of their needs at the same time that it raises awareness of cancer prevention and increases trust in science and evidence-based preventive measures (e.g. through co-creational approaches, school activities);
(iv) a set of **indicators for monitoring and evaluating the implementation** of the recommendations;
(v) the **allocation of the resources** needed;
(vi) **investment in research** (including implementation research) to allow the evidence to be continuously updated.

Recommendation #6: The ECAC should be updated periodically, maintaining its high-quality process with a centralized governance of a permanent inter-institutional infrastructure.

4.4. Dissemination of the ECAC

As reported by Ritchie et al. and also raised during the group discussions, awareness of cancer prevention and specifically of the ECAC differs greatly across Europe at the level of the general public, and the ECAC appears to be less promoted in European countries with large populations.[12]

[13] Šucha V, Sienkiewicz M, editors (2020). Science for Policy Handbook. Brussels, Belgium: European Commission, Joint Research Centre. Available at: https://euraxess.ec.europa.eu/worldwide/asean/open-access-science-policy-handbook-published-ecs-joint-research-centre-jrc.

The second block of topics to be addressed in the recommendations for a future sustainability of the ECAC are related to the dissemination, including translations into the different EU languages, improving its sustainability, and establishing the partnerships needed. Although the ECAC is often communicated as a whole package of recommendations and an easy and practical language should be kept, some flexibility is required to adjust messages locally in order to promote the right messages, at the right moment, to the right audiences. As regards the translation of the content, especially for large outputs such as a website, it was required to have a harmonized strategy across the EU, with professional translators followed by validation from public health experts, making use of existing networks (e.g. ECL Youth Ambassadors, cancer leagues, and community organizations). Some stakeholders proposed more flexibility in the translation to adapt the language to specific target audiences (e.g. young people or cancer survivors). The main points on how to improve the dissemination of the ECAC across the EU were:

- **Enhancing the visibility of the ECAC brand name** by using the ECAC as a "toolbox", i.e. a set of guidelines on cancer prevention, including the corresponding instruments to guide the use of the ECAC recommendations in policy-making and to monitor progress of implementation;
- Developing a **Dissemination Action Plan** that would cover the different target audiences described above and the corresponding strategies to tailor messages (e.g. to educators, families and children, primary health care settings, students of medicine and health sciences);
- Involving experts in **communication strategies** (including ECAC advocates such as the ECL Youth Ambassadors, key local players, and other "ECAC champions" identified, for example, at conferences);
- **Engaging** with wider communities beyond the traditional cancer agencies, and **building synergies** between organizations such as the European Commission, WHO, the World Cancer Research Fund (WCRF), and IARC, to avoid duplication and confusion, and joint dissemination efforts to reach more people;
- **Learning from experiences** in countries were dissemination has been successful (e.g. countries that have embedded the ECAC in their national activities);
- **Improving the dissemination of the ECAC to the general public** by:
  - (i) using **novel, attractive, and modern distribution formats, channels and methods** in accordance with the defined target audiences (e.g. investing in digital platforms and communication channels with a wide reach, such as social media, web-based visualization tools, user-friendly interactive apps, gamification, and also social and commercial marketing);
  - (ii) making it **adaptable to the local context and social differences**; and
  - (iii) using **risk communication strategies** to promote a more collaborative, positive, and less authoritarian language;
- Enhancing the dissemination of the ECAC to other stakeholders by setting up an a**dvocacy approach** and related activities (e.g. organizing debates) to communicate the

recommendations to policy-makers, ministries of education, medical and health sciences faculties, youth associations, non-health-related sectors, the private sector, civil society, etc.

- A novel proposal was to **identify priority topics** to group them in a kind of United Nations (UN) Treaty, such as the UN Framework Convention on Climate Change, that stakeholders will commit to implementing (e.g. to establish organized screening programmes).

4.4.1. Specific strategies

Special emphasis was placed on how to ensure effective dissemination among vulnerable groups in order to tackle and reduce social inequalities in cancer prevention and health promotion. The most repeated strategy was making the ECAC accessible to everyone, with the goal of increasing health literacy and trust, in addition to targeting misinformation, to consequently empower individuals and reduce social inequities. Some of the ideas proposed were:

- **Adapting** promotion messages and actions **to the level of health literacy** of the target audiences, rather than to their socioeconomic status;
- **Framing the ECAC as part of educational programmes** with a wider scope than cancer prevention;
- Making **wider use of specific mediators** such as health-care professionals, community stakeholders, “health ambassadors”, and champions who are able to reach vulnerable and high-risk population groups;
- Using **participatory action approaches** to identify key stakeholders and community leaders, as well as to co-design and co-produce educational materials about cancer prevention and interventions with stakeholders;
- Identify and monitor which **vulnerable groups are reached** (i.e. migrants, young people).

Recommendation #7: Develop a Dissemination Action Plan including: (i) a description of the recommended strategies to tailor messages to the different target audiences, including risk communication strategies, and (ii) the implementation of novel, attractive, and modern distribution channels and methods to reach the general public, making the ECAC adaptable to the local context and social differences, with a special focus on increasing health literacy and trust.

4.4.2. Partnerships

To broaden the scope of the ECAC to include policy-related recommendations, differentiation between the political and communication partnerships needed was highlighted. For example, liaising with different stakeholders working in the same arena, such as the European Commission, WHO, or WCRF, is required as early as possible in the process, to create alliances (notably, all were involved in the development of the 4th edition of the ECAC, but there was no joint dissemination strategy). In addition,

broader intersectoral partnerships with a Health in All Policies[10] approach are needed; the dissemination of the ECAC should not be the responsibility of the health-care sector only, but a broader governmental involvement should be promoted. In addition, communication partnerships with industry (e.g. the successful example of the Danish Whole Grain Partnership or with technological companies), education providers and the higher education establishment, civil society and community organizations, philanthropic organizations, or social media influencers (e.g. from the fitness and nutrition fields) should be promoted under specific ethical guidelines.

New strategies were discussed:

- Making use of **National Cancer Control Programmes as drivers for change**;
- Communicating with policy-makers in terms of **economic benefits** linked to cancer prevention and **public acceptance** (e.g. selecting particular policy recommendations strongly appreciated by the general public to convince policy-makers);
- Including **continuous capacity-building for health professionals**, especially at the primary care level, with clear guidelines on how to promote the ECAC;
- Taking a **NCDs-oriented approach** when communicating the ECAC messages and policies, liaising with existing NCD partnerships, and integrating cancer prevention efforts within NCD plans, where applicable;
- Aligning the ECAC and cancer prevention efforts with **Sustainable Development Goal 3.4** from the UN 2030 Agenda for Sustainable Development to boost support from young people, the education and environmental sectors, the public sector, and industry;
- Making greater use and understanding of all forms of **media and marketing expertise, highlighting success stories and best practices**;
- **Investing in policy research** to prove the value and effectiveness of governmental policies (e.g. fat tax, sugary drinks tax);
- Emphasizing that everyone has a share in **health and social responsibility** (e.g. employers with their employees);
- Promoting certain recommendations for particular **partners or networks** (e.g. smoking for the Tobacco-Free Kids Partnership).

Recommendation #8: Engage in intersectoral partnerships to promote the ECAC.

5. Research needs

As stated in the introduction to this report, the ECAC is based on the established scientific evidence that about 40% of cancer cases can be prevented and cancer mortality can be reduced through the respective preventive practices. This document recommends broadening the current scope of the ECAC to include cost-effective evidence-based cancer prevention measures at the individual and population levels in future editions, addressed to the most suitable target groups, as well as to develop cancer-specific recommendations in synergy with NCD preventive messages. Also, in order to improve the dissemination of the ECAC to the respective target audiences, socio-political and structural contexts, technological innovations, and modern ways of communication should be taken into account. Finally, a monitoring and evaluation framework to measure the impact of the ECAC in the corresponding target groups is needed. All this will pave the way to set up the accompanying research agenda proposed below:

5.1. Implementation and dissemination research

The 4th edition of the ECAC "focuses on actions that individual citizens can take to help prevent cancer" but calls for "these individual actions to be supported by governmental policies and actions", emphasizing that successful cancer prevention can be achieved only if individual- and population-level measures complement each other. However, a broader scope of the ECAC to address cost-effective evidence-based cancer prevention measures, as stated in Recommendation #1, will stimulate public policy and health system changes towards cancer prevention, as already included in some European National Cancer Plans,[4] and target current health disparities among European countries. In addition, it will align with the present EU Cancer Mission's aim: "to have impact on society at large, the Cancer Mission aims at uniting countries to substantially reduce the massive EU cancer burden and improve the quality of life of patients by *promoting cost-effective evidence-based best practices in cancer prevention*, treatment, and care".[14]

Despite abundant evidence of the efficacy of many cancer prevention interventions, there is less understanding of how to deliver them effectively in diverse settings and within the wide range of existing health systems. As emphasized by Berns A et al.,[15] some preventive measures are known to be successful; however, political and societal barriers may delay or even hamper their implementation within health-care systems and in the community (i.e. smoking is the most striking example, because it still causes half of all preventable cancer cases in Europe). As defined by WHO, ***implementation research*** "describes the scientific study of the processes used in the implementation of evidence-based interventions as well as the contextual factors that affect these processes" or, simply, "to understand not only what is and isn't working, but how and why implementation is going right or wrong, and testing

[14] Mission Board for Cancer (2020). Conquering cancer: mission possible. Report of the Mission Board for Cancer. Available at: https://ec.europa.eu/info/sites/info/files/research_and_innovation/funding/documents/ec_rtd_mission-board-report-cancer.pdf.
[15] Berns A, et al. (2020). Towards a Cancer Mission in Horizon Europe. Mol Oncol. 14:1589–1615.

approaches to improve it".[16] To date, most research has focused on developing new interventions rather than on optimizing the delivery of existing successful ones by investigating major barriers (e.g. social, behavioural, economic, management) that impede effective implementation, and determining the relationship between the intervention and its impact. In line with this, the EU Cancer Mission Board calls for effective policy underpinned by excellent research ("Recommendation 3 of the Mission Board: Support the development and implementation of effective cancer prevention strategies and policies within Member States and the EU"), and for the establishment of an EU-wide research programme to identify obstacles, optimize existing screening programmes, and develop new approaches for screening and early detection of cancers ("Recommendation 4 of the Mission Board: Optimize existing screening programmes and develop novel approaches for screening and early detection").[14] In support of the Mission Board recommendations and in order to be able to execute them, a network of prominent European scientific cancer organizations and cancer centres, in which CPE (and IARC in the role of coordinator)[9] takes part, have developed unified insights into a mission-oriented approach to cancer prevention. This includes recommendations addressing implementation research in primary prevention: to enhance the effectiveness of prevention programmes that address well-known risk factors, to elucidate individual and societal cognitive processes behind successful behavioural preventive interventions, to address the socioeconomic determinants of health, or to promote behavioural/nudging, community-based intervention research; and in secondary prevention: to encourage implementation research of early detection programmes, assess participation and analyse factors that affect compliance, to evaluate currently applied early detection methods and their target populations, to optimize effectiveness and cost-effectiveness by novel strategies of risk-adapted screening (i.e. personalized prevention), or to model the effectiveness and cost-effectiveness of the expected impact of various screening modalities at the population level. The final aspect is to study the effects of cancer prevention strategies on mortality in the population.[2,17]

Research Need #1: Research to successfully implement evidence-based primary and secondary prevention measures across Europe, and to evaluate novel preventive interventions and their implementation to optimize their impact on the health of individuals or different risk groups within populations.

Dissemination research is defined as "the scientific study of targeted distribution of information and intervention materials to a specific public health or clinical practice audience".[18] Therefore, it aims to understand the best ways to spread knowledge and the associated evidence-based interventions to

[16] Peters DH, et al. (2013). Implementation research in health: a practical guide. Alliance for Health Policy and Systems Research, World Health Organization. Available at: https://www.who.int/alliance-hpsr/resources/implementationresearchguide/en/.
[17] Cancer Prevention Europe (2019). CPE Statement on the EU Cancer Mission. Available at: https://cancerpreventioneurope.iarc.fr/cpe-statement-on-the-eu-cancer-mission/.
[18] NIH (2020). Dissemination & Implementation (D&I) Research. United States National Institutes of Health. Available at: https://prevention.nih.gov/research-priorities/dissemination-implementation.

communities and practice settings. Behaviour change resulting from use of this knowledge or interventions is a more distal outcome of that dissemination research. Health education and behaviour change-promoting tools, such as the ECAC, would need a wide reach or dissemination in order to have an impact on public health. The proximal outcomes for assessing the effectiveness of a dissemination effort might include increased awareness and understanding of the information or intervention being disseminated, increased willingness to engage, and increased behavioural capability to apply the knowledge in the specific setting. The use of proper dissemination strategies will help to overcome the barrier of lack of health literacy not only at the individual level but also at the structural level. Furthermore, the evaluation of the dissemination strategies will track the knowledge transfer, exchange, and use, with the ultimate goal of enhancing the awareness, motivation, capability, and opportunity of the target group(s) to adopt and adhere to recommendations to promote behavioural change.[19]

As mentioned above, regardless of its longevity and endorsement by cancer experts and civil society, previous editions of the ECAC have received no systematic evaluation of its impact. Moreover, most of the research focused on the impact of individual recommendations but did not evaluate the impact of the ECAC as a single, coherent product.[12] In 2018 a multidisciplinary advisory group convened by IARC and ECL recommended that an evaluation of the impact of the ECAC should operate across different levels: (i) understanding the availability of the ECAC in countries; (ii) considering the process of how it is used and disseminated within countries; (iii) taking account of the general public's knowledge of the ECAC (e.g. by using the Eurobarometer to investigate public awareness and perception); and (iv) determining the extent to which attitudes and/or behaviours are changing in accordance with the recommendations of the ECAC. In addition, this evaluation should have a specific objective of improving the dissemination of the next edition of the ECAC by thoroughly considering the barriers in use and dissemination within countries (i.e. the perceptions of the disseminators of the ECAC, such as the cancer leagues, and of the main actors, the national ministries of health). An assessment of the country situation would also be helpful to understand more about national recommendations and how they may contrast with the ECAC. Finally, the essential role of health professionals must also be kept in mind. To address the gap in knowledge on the impact of the 4th edition of the ECAC, Ritchie et al.[12] investigated the extent of awareness and attitudes towards cancer prevention in general and towards the ECAC in particular, in the general population. The findings showed that, although familiarity with the ECAC among the general public is low, professionals frequently use it as a basis for informing population-level actions. In addition, the internal and external factors affecting the promotion and dissemination of the ECAC at the national level were also studied. Regional variation in the methods used in promotion and dissemination, and in the target audiences, was reported.

To inform the optimization of the impact of the ECAC, which will ultimately influence behavioural-related outcomes, dissemination research should be conducted at different levels to directly measure rates of acceptability, adoption, appropriateness, implementation costs, feasibility, fidelity, penetration, and

[19] Michie S, et al. (2011) The behaviour change wheel: a new method for characterising and designing behaviour change interventions. Implement Sci. 6:42.

sustainability (i.e. implementation outcomes):[20] ***(i) at the structural or decision-maker level***, by identifying the barriers to supporting the ECAC at the advocacy and policy-making level in different countries; ***(ii) at the functional level***, by defining, implementing, and analysing standardized awareness metrics in all the EU countries; and ***(iii) at a scaling-up level***, by studying novel approaches to further spread the messages of the ECAC in order to reach individuals, increase their knowledge and self-efficacy (e.g. through e-health and complementary dissemination strategies), as well as interest groups or mediators, such as health providers or educators (thorough specific training, including e-learning).

Research Need #2: Future editions of the ECAC should be accompanied by a systematic evaluation of the ECAC as a cohesive set of guidelines, in the framework of dissemination research, to ensure that the ECAC reaches the target population(s) and to measure the impact of its use. This evaluation should be performed at three levels: the (i) structural, (ii) functional, and (iii) scaling-up levels.

Finally, the Mission Board proposes "to establish a research programme to identify effective cancer prevention strategies and methods to provide up-to-date knowledge to EU institutions and countries" and "a Policy Support Facility to support the implementation of effective prevention strategies within Member States".[14] As a starting point, to make evidence on cancer prevention easily accessible for evidence-based decision-making, CPE is proposing the development of a landmark ***European Evidence-based Cancer Prevention Centre***, including: (i) a repository or ***Evidence-based Prevention Portal*** to identify, assess, synthesize, and disseminate established best experiences in cancer prevention by means of rigorous systematic reviews including "big data" explorations and create an inventory of successful (and not successful) interventions, expansion of evidence evaluation activities, and definition of unanswered questions that require research investment. The documentation of interventions will include activities identified as not successful. (ii) Capacity-building in cancer prevention for a variety of audiences will also be encompassed through an ***e-Learning platform***. The ***Evidence-based Cancer Prevention Centre*** will offer a platform for researchers, policy-makers, programme implementers, health professionals, international organizations, and NGOs (cancer prevention advocates) to build upon the available evidence and research-tested materials, and foster interdisciplinary dialogue. Importantly, it will contribute to the consistency of cancer prevention messages and foster dissemination by providing evidence-based cancer prevention information to other national and international cancer information services and portals.

Research Need #3: The creation and maintenance of a landmark European Evidence-based Cancer Prevention Centre, including an Evidence-based Prevention Portal and an e-Learning

[20] Proctor E, et al. (2011). Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Adm Policy Ment Health. 38:65–76.

platform to: (i) promote rapid dissemination of best practices in cancer prevention, (ii) contribute to implementation research to optimize the implementation of known preventive strategies, (iii) identify unanswered questions that require research investment, and (iv) build capacity in cancer prevention for a variety of audiences.

5.2. Etiological research

The Cancer Mission Board also states that "understanding the complexity of cancer and the role of factors and determinants (e.g. lifestyle, environment, workplace exposure, and also sex/gender and age) is important for developing effective preventive measures". Beating cancer requires a comprehensive approach to understand the link between the environment and health in general.[14] The ECAC recommendations on primary prevention are consistently based on the present scientific knowledge on which agents are carcinogenic and which behaviours are related to an increased risk of cancer. As this scientific knowledge accumulates over time, the recommendations are revised from one edition of the ECAC to another. Distinct cancer patterns over time and across geographical regions suggest that among the approximately half of all cancer cases for which no cause has yet been identified, a large portion will turn out to be due to environmental and thereby modifiable risk factors, and hence also be preventable.[2] It is less likely that major portions of the cancer burden have a single cause that has been overlooked until now (e.g. tobacco), but rather cancers may be due to combinations of exposures, be stronger in particular susceptible groups, or be related to low exposures to carcinogenic agents that nevertheless accumulate over a lifetime and that are difficult to detect in observational studies. Moreover, changing human behaviour has proven to be a challenge. Key pillars of future etiological research are: (i) continuous surveillance of the cancer burden; (ii) identification of new causes of cancer through large-scale multinational cohorts with biospecimen collection (i.e. epidemiological research coupled with mechanistic studies); (iii) investigations of under-researched exposures, individuals at high risk (i.e. exposure and genetic predisposition), and unusual clustering of cancers; (iv) improvement in assessing interactions of human exposures and exposures at different life stages; and (v) behavioural science research.

Research Need #4: Strengthening research into the causes of cancer with targeted European research programmes.

Appendix 1: The 12 Recommendations of the 4th edition of the ECAC

EUROPEAN CODE AGAINST CANCER

12 ways to reduce your cancer risk

1. Do not smoke. Do not use any form of tobacco.
2. Make your home smoke free. Support smoke-free policies in your workplace.
3. Take action to be a healthy body weight.
4. Be physically active in everyday life. Limit the time you spend sitting.
5. Have a healthy diet:
   - Eat plenty of whole grains, pulses, vegetables and fruits.
   - Limit high-calorie foods (foods high in sugar or fat) and avoid sugary drinks.
   - Avoid processed meat; limit red meat and foods high in salt.
6. If you drink alcohol of any type, limit your intake. Not drinking alcohol is better for cancer prevention.
7. Avoid too much sun, especially for children. Use sun protection. Do not use sunbeds.
8. In the workplace, protect yourself against cancer-causing substances by following health and safety instructions.
9. Find out if you are exposed to radiation from naturally high radon levels in your home. Take action to reduce high radon levels.
10. For women:
    - Breastfeeding reduces the mother's cancer risk. If you can, breastfeed your baby.
    - Hormone replacement therapy (HRT) increases the risk of certain cancers. Limit use of HRT.
11. Ensure your children take part in vaccination programmes for:
    - Hepatitis B (for newborns)
    - Human papillomavirus (HPV) (for girls).
12. Take part in organized cancer screening programmes for:
    - Bowel cancer (men and women)
    - Breast cancer (women)
    - Cervical cancer (women).

The European Code Against Cancer focuses on actions that individual citizens can take to help prevent cancer. Successful cancer prevention requires these individual actions to be supported by governmental policies and actions.

Find out more about the European Code Against Cancer at: http://cancer-code-europe.iarc.fr

International Agency for Research on Cancer

World Health Organization

These recommendations are the result of a project coordinated by the International Agency for Research on Cancer and co-financed by the European Commission

Appendix 2: List of consultation events and their contributors

1) **Cancer Prevention Europe (CPE) Update European Code discussion subgroup 1st meeting (26 February 2020). List of participants:**

Surname, Name	Affiliation/Organization	Country
Dillner, Joakim	Karolinska Institutet	Sweden
Espina, Carolina	International Agency for Research on Cancer (IARC/WHO)	France
Kampman, Ellen	Wageningen University	The Netherlands
Nilbert, Mef	Danish Cancer Society	Denmark
Riboli, Elio	Imperial College London	United Kingdom
Schüz, Joachim	International Agency for Research on Cancer (IARC/WHO)	France
Weijenberg, Matty	Maastricht University	The Netherlands

2) **CPE Update European Code discussion subgroup 2nd meeting (28 April 2020). List of participants:**

Surname, Name	Affiliation/Organization	Country
Bauld, Linda	Cancer Research UK	United Kingdom
Bergö, Martin	Karolinska Institutet	Sweden
Bonanni, Bernardo	European Institute of Oncology	Italy
Brown, Karen	UK Therapeutic Cancer Prevention Network Group	United Kingdom
Cox, Alison	Cancer Research UK	United Kingdom
Cross, Amanda	Imperial College London	United Kingdom
Dillner, Joakim	Karolinska Institutet	Sweden
Espina, Carolina	International Agency for Research on Cancer (IARC/WHO)	France

Foucaud, Jérôme	**Institut National du Cancer (InCa)**	**France**
Gaillot, Julie	**Institut National du Cancer (InCa)**	**France**
Mitrou, Giota	**WCRF**	**United Kingdom**
Nilbert, Mef	**Danish Cancer Society**	**Denmark**
Riboli, Elio	**Imperial College London**	**United Kingdom**
Schüz, Joachim	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Steindorf, Karen	**German Cancer Research Center (DKFZ)**	**Germany**
Storm, Hans H.	**Danish Cancer Society**	**Denmark**
Vineis, Paolo	**Imperial College London**	**United Kingdom**
Weijenberg, Matty	**Maastricht University**	**The Netherlands**

3) iPAAC's WP5 online meetings on Cancer Prevention & the European Code Against Cancer: 28 April 2020 Co-creation working groups and 29 April 2020 Plenary meeting. List of participants:

Surname, Name	Affiliation/Organization	Country
Alm, Carina	**Norwegian Cancer Society**	**Norway**
Almonte, Maribel	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Anderson, Annie	**University of Dundee**	**United Kingdom**
Annendijck, Kurt	**Kom op tegen Kanker (Stand Up to Cancer Flanders)**	**Belgium**
Armaroli, Paola	**CPO Piedmont - AOU Città della Salute e della Scienza**	**Italy**
Attema-van den Broek, Sigrid	**Dutch Cancer Society/KWF Kankerbestrijding**	**The Netherlands**
Auvinen, Anssi	**Tampere University**	**Finland**

Bakker, Laure	**Sciensano**	**Belgium**
Barlassina, Adele	**Association of European Cancer Leagues (ECL)**	**Belgium**
Biscontin, Guido	**Swiss Cancer League**	**Switzerland**
Borg Buontempo, Mariella	**Ministry of Health**	**Malta**
Boucquiau, Anne	**Belgian Foundation against Cancer**	**Belgium**
Caini, Saverio	**Institute for Cancer Research, Prevention and Oncological Network (ISPRO)**	**Italy**
Cardone, Antonella	**European Cancer Patient Coalition (ECPC)**	**Belgium**
Cecchini, Michele	**Organisation for Economic Co-operation and Development (OECD)**	**France**
Ciuba, Agata	**Maria Skłodowska-Curie National Research Institute of Oncology/ECL Youth Ambassador**	**Poland**
Cox, Alison	**Cancer Research UK**	**United Kingdom**
Cross, Amanda	**Imperial College London**	**United Kingdom**
del Busto, Sebastian	**Spanish Association Against Cancer (AECC)**	**Spain**
Einarsdóttir, Sigrún Elva	**Icelandic Cancer Society**	**Iceland**
Erdmann, Friederike	**Institute of Medical Biostatistics, Epidemiology and Informatics (IMBEI)**	**Germany**
Espina, Carolina	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Espinàs, Josep A.	**Catalonia Institute of Oncology**	**Spain**
Feliu, Ariadna	**Catalan Institute of Oncology/ECL Youth Ambassador**	**Spain**
Ferbert, Zsuzsanna	**National Institute of Oncology (Országos Onkológiai Intézet)**	**Hungary**
Fonseca, Cristiana	**Portuguese League Against Cancer – Northern Branch**	**France**
Franceschi, Silvia	**Centro di Riferimento Oncologico (CRO) di Aviano, IRCCS, Italy**	**Italy**

Garofil, Alina	**European Commission**	**Luxembourg**
Gils, Ann	**Kom op tegen Kanker (Stand Up to Cancer Flanders)**	**Belgium**
Godfrey, Fiona	**Member of the EU Cancer Mission Board**	**Luxembourg**
Goossens, Mathijs	**Stichting tegen Kanker**	**Belgium**
Gözderesi, Yakup	**ECL Youth Ambassador/medical student**	**Turkey**
Greinert, Ruediger	**European Society of Skin Cancer Prevention, EUROSKIN**	**Germany**
Hara, Mervi	**Action on Smoking and Health (ASH)**	**Finland**
Heffernan, Mark	**Cancer Research UK**	**United Kingdom**
Helbig, Ulrike	**German Cancer Aid**	**Germany**
Hernández García, Marta	**Fomento de la Investigación Sanitaria y Biomédica (FISABIO)**	**Spain**
Isa, Mashkur Abdulhamid	**ECL Youth Ambassador/paediatric surgeon**	**Ukraine**
Ivanus, Urska	**Institute of Oncology Ljubljana & Association of Slovenian Cancer Societies**	**Slovenia**
Jarm, Katja	**Institute of Oncology Ljubljana**	**Slovenia**
Jousilahti, Pekka	**National Institute for Health and Welfare**	**Finland**
Kaczmarek, Aleksandra	**European Alcohol Policy Alliance**	**Belgium**
Kafourou-Cosma, Marina	**Cyprus Association of Cancer Patients and Friends (PASYKAF)**	**Cyprus**
Karavasiloglou, Nena	**University of Zurich/ECL Youth Ambassador**	**Switzerland**
Kejeradze, Enver	**University of Debrecen/ECL Youth Ambassador**	**Hungary/ Georgia**
Key, Tim	**Oxford University**	**United Kingdom**
Koczkodaj, Pawel	**Maria Skłodowska-Curie National Research Institute of Oncology/ECL Youth Ambassador**	**Poland**

Kogevinas, Manolis	**ISGlobal - Barcelona Institute for Global Health**	**Spain**
Korda, Karmen	**Croatian Institute of Public Health/ECL Youth Ambassador**	**Croatia**
Kosir, Urska	**University of Oxford**	**United Kingdom**
Kralikova, Eva	**Charles University in Prague, Institute of Hygiene and Epidemiology**	**Czech Republic**
Kruijt, Kim	**Dutch Cancer Society**	**The Netherlands**
Lansdorp-Vogelaar, Iris	**Erasmus MC, Department of Public Health**	**The Netherlands**
Lauby-Secretan, Beatrice	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Leitzmann, Michael	**University of Regensburg**	**Germany**
Leenen, Ivonne	**Health and Environment Alliance (HEAL)**	**Belgium**
Leja, Marcis	**The Institute of Clinical and Preventive Medicine of the University of Latvia**	**Latvia**
Lipponen, Satu	**Cancer Society of Finland**	**Finland**
Mamo, Julian	**Department of Public Health, University of Malta**	**Malta**
Margaryan, Yeva	**Solid Tumor MDT Coordinator/ECL Youth Ambassador**	**Armenia**
Marosi, Edit	**National Institute of Oncology**	**Hungary**
Martinez, Cristina	**Catalan Institute of Oncology**	**Spain**
McNeill, Ann	**King's College London**	**United Kingdom**
Minozzi, Silvia	**Cochrane Drugs and Alcohol**	**Italy**
Molina- Barceló, Ana	**Fomento de la Investigacion Sanitaria y Biomedica (FISABIO)**	**Spain**
Monteagudo, Olga	**Murcia Regional Health Council**	**Spain**
Nicula, Florian Alexandru	**"Ion Chiricuta" Institute of Oncology, Cluj-Napoca**	**Romania**

Nilbert, Mef	**Danish Cancer Society**	**Denmark**
Nygård, Mari	**Cancer Registry of Norway**	**Norway**
O'Hagan, Kevin	**Irish Cancer Society**	**Ireland**
Papi, Ginevra	**Association of European Cancer Leagues (ECL)**	**Belgium**
Pattyn, Jade	**University of Antwerp/ECL**	**Belgium**
Pekka, Jousilahti	**National Institute for Health and Welfare**	**Finland**
Petrica, Ana-Maria	**ECL Youth Ambassador/1st year medical resident**	**Romania**
Pinto, Patricia	**Liga Portuguesa Contra o Cancro**	**Portugal**
Portillo, Isabel	**Osakidetza/Basque Health System**	**Spain**
Ritchie, David	**Association of European Cancer Leagues (ECL)**	**Belgium**
Romieu, Isabelle	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Sancho, Andrea	**Vinces consulting**	**Spain**
Schubauer-Berigan, Mary	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Schuppe, Matthias	**European Commission**	**Luxembourg**
Schüz, Joachim	**International Agency for Research on Cancer (IARC/WHO)**	**France**
Segnan, Nereo	**CPO Piedmont - AOU Città della Salute e della Scienza**	**Italy**
Seriese, Iris	**National Institute for Public Health and the Environment**	**The Netherlands**
Sienkiewicz, Dorota	**EuroHealthNet**	**Belgium**
Skar, Mariann	**European Alcohol Policy Alliance**	**Belgium**
Strandzheva, Mirela	**National Center of Public Health and Analyses**	**Bulgaria**

Steindorf, Karen	**German Cancer Research Center (DKFZ)**	**Germany**
Tamminiemi, Kaarina	**Cancer Society of Finland**	**Finland**
Thorisdottir, Birna	**Icelandic Cancer Society**	**Iceland**
Tigova, Olena	**Catalan Institute of Oncology**	**Spain**
Toma Friedlaender, Anca	**Smoke Free Partnership**	**Belgium**
Torfadottir, Johanna	**Icelandic Cancer Society**	**Iceland**
Tsagkaris, Christos	**ECL Youth Ambassador/medical student**	**Greece**
Vance, Joanne	**Irish Cancer Society**	**Ireland**
Varntoumian, Eleonora	**European Oncology Nursing Society (EONS)**	**Belgium**
Weg-Remers, Susanne	**German Cancer Research Center (DKFZ)**	**Germany**
Woodford, Emma	**European Oncology Nursing Society (EONS)**	**Belgium**
Yared, Wendy	**Association of European Cancer Leagues (ECL)**	**Belgium**

Appendix 3: ECAC Call for Action and Letter of support to policy-makers

Insert name, organisation, contact and your logo

Insert name and address of the public authority

XX May 2020, *City*

RE: **Letter of support for the European Code against Cancer**

Dear *(name of decision-maker)*,

On the occasion of European Week Against Cancer, taking place between 25 and 31 May each year, recognising that finding common solutions to addressing the cancer threat is at the top of the European political agenda in the 2019-2024 mandate, *(insert name of your organisation)* would like to call for the continuous update, maintenance and sustainability of the European Code against Cancer (ECAC) to boost cancer prevention across Europe. Please refer to the call for action below.

Cancer is the second leading cause of death, ill health and disability in many European countries. The number of new cancer cases in Europe (UN definition) is projected to increase from 4.2 million in 2018 to 5.2 million per year by 2040 - this corresponds to 100 million new cancer patients over the next 20-25 years. The economic burden of cancer exceeds €100 billion per year in the European Union.

Given the massive threat posed by cancer and the changing demographics of an aging population, only sustained investment in cancer prevention may counter these rising projections. It is estimated that around 40% of cancers could be avoided through implementation of primary prevention measures known to be effective, and further mortality can be reduced through screening and early detection of cancer. Most of this has been known for many years, if not decades, but has not resulted in effective cancer prevention.

We urge the European Commission and national governments to use the momentum around Europe's Beating Cancer Plan and uphold their commitment to improve the impact of primary and secondary prevention of cancer on the health of the European populations by:

- Supporting the continuous update and revision of the 4th edition of the European Code against Cancer - which lists the most successful evidence-based prevention measures - including its scientific evidence and dissemination strategies.
- Ensuring that national cancer plans and strategies include the prevention advice from the European Code against Cancer.
- Adopting and integrating evidence based cancer prevention and health promotion practices, interventions, and policies into public health and routine health care settings, as demonstrated by implementation research.

Please do not hesitate to contact *(insert name of your organisation)* for further information. We would be pleased to meet with you to discuss this further.

Yours sincerely,

(signature)

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(Name, title, Organisation)

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Open call to support the continuous update, maintenance and sustainability of the European Code against Cancer to boost cancer prevention across Europe.

The Call for Action for the continuous updating, promoting and maintaining the European Code against Cancer has been developed as part of Work Package 5 on Cancer Prevention within the EU Joint Action Innovative Partnership for Action Against Cancer (iPAAC), which under the Third Health Programme 2014–2020, aims to build upon the outcomes of previous EPAAC and CANCON Joint Actions.

The Call for Action is based on the iPAAC Work Package 5 symposium on "Cancer Prevention and the Future of the European Code against Cancer" held virtually on 28 and 29 April 2020, which was co-organised and led by the Cancer Society of Finland (CSF), the Association of European Cancer Leagues (ECL), and the International Agency for Research on Cancer (IARC/WHO).

We call on European governments, the European Commission, the research community and members of civic society to give priority to supporting the continuous updating and dissemination of the European Code against Cancer.