

The European Code Against Cancer – new evidence and recommendations

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Cancer is a major public health concern in the European Union (EU). There were 2.7 million new cancer cases and 1.3 million deaths in 2020 in the EU; of them, around 40% could have been prevented. Primary prevention is the most cost-effective long-term strategy for cancer control. The European Code Against Cancer (ECAC, 4th edition) is a health education tool aimed at raising awareness about evidence-based cancer prevention actions among EU citizens. The ECAC describes 12 ways individuals can reduce their cancer risk. Awareness of the ECAC (4th ed.) has been low (2–21%) and, therefore, efforts are needed to improve cancer prevention awareness throughout the region. Civil society and other stakeholders' engagement is key to improving cancer prevention in the region. Our aim is to propose recommendations to improve future ECAC editions to ensure an increase in cancer prevention literacy in the EU.

Key words: European Code Against Cancer, cancer prevention, health literacy

Introduction

Cancer is a major public health concern in the European Union (EU) since it is the second leading cause of mortality after cardiovascular diseases [1]. Europe accounts for approximately 10% of the global population but yet has 25% of the world's registered cancer cases [2]. In 2020, there were 2.7 million new cancer cases and 1.3 million deaths in the EU. Four cancer types were responsible for almost 50% of all cancer diagnoses. Breast cancer is the most commonly diagnosed cancer accounting for 13.3% of all cancer diagnoses (355,500 cases; females only), followed by colorectal (341,400; 12.7%), prostate (335,500; 12.5%) and lung (318,300; 11.9%) cancers.

In Poland, specifically, there were 204,575 new cancer cases and 119,319 deaths. Breast cancer is the most common cause of cancer death (11.8%), followed by lung cancer (11.4%) and colorectum cancer (10.4%) [3]. Poland has 8.7% lower age-adjusted incidence rate for all cancer types (excluding non-melanoma skin cancer) than the average in the EU. Highest

differences in age-adjusted incidence rates were observed for skin melanoma (5.1 vs. 13.4), liver (3.5 vs. 5.8) and non-Hodgkin lymphoma (6.1 vs. 9.4) (figure 1; illustrated for all cancer types with an age-adjusted incidence rate of 5 per 100,000 persons per year or larger in the EU27) [1]. Given the significant risk-modifying effect of modifiable factors [4], it has been estimated that around 40% of all cancer cases in Europe could be prevented and mortality reduced [5].

Primary prevention, or the avoidance of cancer, is the most cost-effective long-term strategy for cancer control [6]; yet further comprehensive efforts are needed to address cancer burden, including secondary prevention interventions, such as screening programs followed by effective and early diagnoses and treatment [7]. Successful cancer prevention requires evidence-based effective preventive measures at the individual-level, to avoid or reduce certain exposures or unhealthy behaviours, as well as governmental policies and programmes at the population-level, to create the healthy environments

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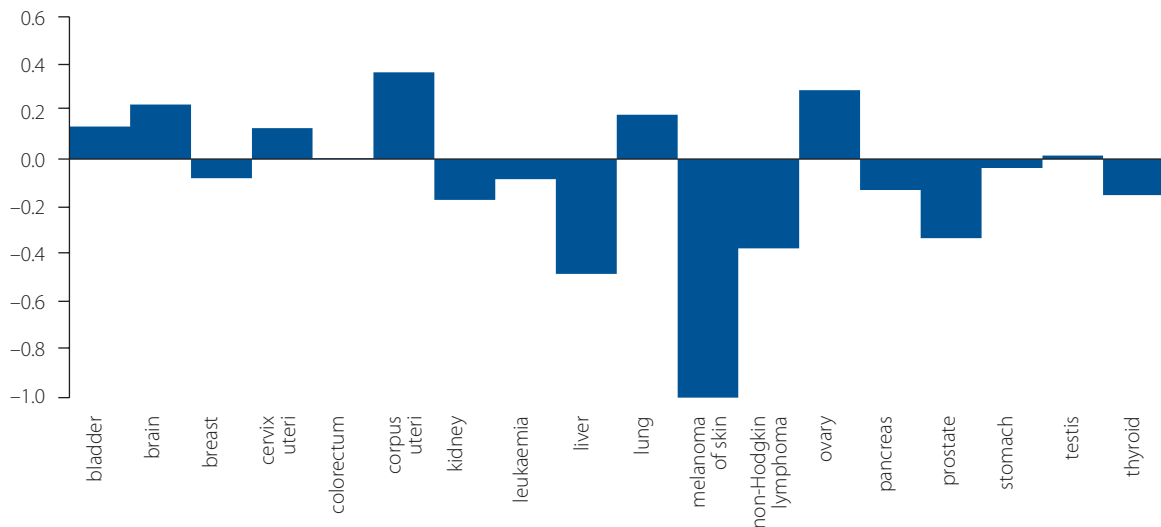


Figure 1. Difference in the age-adjusted incidence rates (expressed in %) between Poland and the EU27 in 2020; the figure shows the difference in cancer types with age-adjusted incidence rates of 5 per 100,000 persons per year or more [1]

and health care infrastructures needed to prevent cancer. However, significant investment is still required by EU Member states (MS) to raise awareness on major risk factors and available interventions, to implement and endorse policies that would support people in making healthier choices by default, and to encourage participation in cancer screening and immunization programmes. Without these actions in place, according to Europe's Beating Cancer Plan, cancer mortality within the EU is expected to increase by more than 24% by 2035 [5], making it the region's leading cause of death.

Improved cancer prevention in Europe requires both, addressing modifiable risk factors of cancer such as tobacco and alcohol consumption, lack of physical activity, being overweight, an unhealthy diet, exposure to ultraviolet radiation and air pollution, as well as strengthening cancer screening and vaccination programs. For individuals to engage in such preventive actions, they first need to be informed about those evidence-based actions and interventions that can reduce their risk of cancer. However, in today's media landscape, the amount of confusing, ambiguous, overwhelming, or even contradictory messages is escalating [8], making suitable advice based on the most up to date evidence and developed by authoritative organizations a key tool for cancer prevention. Offering information that is consistent with the best scientific evidence available at the time and providing access to high-quality health information that is relevant, trustworthy, and accessible [9, 10], is crucial for individuals to be able to make informed decisions on cancer prevention.

Yet knowledge alone will not suffice when it comes to promoting a change in unhealthy behaviours or engaging in healthy actions and interventions [11]. Indeed, behavioural change theories, such as the Integrated Theory of Health Behavior Change (ITHBC) [12] or the Behaviour Change Wheel

[13], argue that healthy behaviours can be enhanced by fostering knowledge and understanding, since individuals are more likely to engage in recommended healthy actions and interventions if they have information about them. For example, understanding the health risks associated with smoking is essential in making a decision about quitting [14]. Similarly, evidence shows that providing information about established risk factors of cancer to individuals can improve the accuracy of risk perception, enhance response efficacy and increase intention to take action [15].

The European Code Against Cancer (ECAC) is an educational tool from credible authoritative sources, aimed at providing high-quality evidence-based information to the public, about cancer prevention actions that can be followed without specialised skills or advice. The aim of this work is to present the ECAC, assess the level of cancer prevention awareness among the European population, describe the role of civil society and other stakeholders' engagement in improving cancer prevention in the region, and propose recommendations for future interventions designed to boost cancer prevention literacy across the region.

The European Code Against Cancer

The ECAC is a health education tool aimed at raising awareness about evidence-based cancer prevention actions among EU citizens. The ECAC consists of a set of cancer prevention recommendations for the individuals to avoid or reduce exposures to established causes of cancer, adopt healthy behaviours to reduce cancer risk, and to participate in vaccination and screening programs under the appropriate national guidelines [8]. The ECAC has succeeded to inform policymakers and other stakeholders to develop national health policies in cancer prevention [16, 17].

The ECAC, 4th edition, describes “12 ways to reduce your cancer risk”, including avoiding or reducing unhealthy behaviours, such as:

- tobacco smoking and use of other forms of tobacco,
- exposure to second-hand smoke,
- drinking alcohol,
- exposure to ultraviolet radiation, high levels of radon and occupational carcinogens,
- limiting the use of hormone replacement therapy.

And protecting measures, such as:

- maintaining a healthy body weight,
- being physically active,
- eating a healthy diet,
- breastfeeding,
- participating in human papilloma virus (HPV) and hepatitis B virus (HBV) vaccination programmes, and bowel, breast, and cervical cancer screening.

The 4th edition also included a website, with over 200 questions and answers aimed at the public, explaining and providing additional information on the recommendations as well as cancer prevention topics not covered in the ECAC [8].

The ECAC is originally an initiative of the European Commission (EC) that provides a comprehensive synthesis of the available current evidence on cancer prevention and translates this into recommendations in an understandable way to the public following a standardized methodology developed to guide scientific assessments [18]. The International Agency for Research on Cancer (IARC), specialized cancer agency of the WHO, was mandated by the EC to produce the current 4th edition of the ECAC, introducing the objective to formulate the recommendations in clear, straightforward, and actionable language that can be understood by the general public without requiring specialised skills, knowledge, or training [8]. With the publication of Europe’s Beating Cancer Plan [5], the IARC’s mandate to provide the scientific coordination to update the ECAC was renewed, with the target of producing the 5th edition of ECAC by 2025.

In addition, the Innovative Partnership for Action Against Cancer (iPAAC) Joint Action (JA), commissioned to develop recommendations to ensure sustainability and monitoring of the ECAC [19], concluded that ongoing monitoring and evaluation of the ECAC are needed to ensure that the ECAC reaches its target population(s), as well as measure the impact of its use and inform routine updates [20]. In 2017, Ritchie et al. [16] evaluated for the first time the impact of the ECAC (4th ed.) at the EU level and found that, although the awareness of the ECAC was low – 2% in the United Kingdom (UK) to 21% in Hungary and Poland – willingness to make behavioural changes towards cancer prevention after reading the recommendations reached over 60%. These results highlight that we are still far from achieving Europe’s Beating Cancer Plan’s goal to making at least 80% of the population aware of the ECAC by 2025 [5].

The ECAC, 4th edition, provided an inspiring model to IARC for scaling up this tool to other regions of the world under the umbrella of a World Code Against Cancer Framework [21] to promote cancer prevention globally [22]. Despite disparities between regions, the experience of developing the ECAC 4th ed. provided the strategy, methodology and tools to expand these guidelines to other regions of the world. The European model has been recently adapted to the Latin America and the Caribbean (LAC) region [23]. The LAC Code Against Cancer will be launch during the second half of 2023.

Cancer prevention awareness in Europe

Currently, there is no psychometric instrument available based on the last edition of the ECAC; however, other surveys have been developed in relation to cancer and its risk factors, uptake of cancer screening and cancer prevention in general among the general population. Some examples include the Cancer Awareness Measure (CAM) [24], Attitudes and Beliefs about Cancer (ABC) [25] and national Cancer Barometers (France, Spain, or Belgium) [26–28].

Previous studies in European countries based on population-based surveys have assessed the public’s knowledge of cancer risk factors and perceptions of symptoms, behaviours, and risks. Findings from Denmark, France, Ireland, Spain, Sweden and the UK reveal modest to low levels of public awareness of cancer risk factors [29–32]. Although most individuals perceived tobacco smoking as a main risk factor for cancer, they failed to identify other well-established modifiable risk factors, such as sexually transmitted viruses, alcohol, being overweight or environmental factors [29, 33]. Lifestyle determinants were commonly thought to be associated with cancer since the majority of French and Spanish respondents thought that physical inactivity, being overweight and having unhealthy diets played an important role; however, the protective association of breastfeeding with cancer was mostly unknown [33, 34]. Levels of awareness of modifiable risk factors of cancer demonstrated a sociodemographic gradient. Perceptions of the impact of these factors on the onset of cancer were lower among men, the elderly and those with a lower socio-economic status or education level [29, 31, 34]. Awareness was, therefore, lowest among those demographic groups at higher risk of developing cancer.

Health literacy (HL) is defined as “the ability to obtain, understand, process and apply health information to health decision-making” [35] and it is directly linked to engagement in cancer prevention behaviours. Previous studies have shown that limited levels of HL lead to lower adherence to risk-reducing behaviours and are related to smoking, a sedentary lifestyle and low fruit and vegetable consumption [36]. Low HL also contributes to a false perception of low risk from cancer and, therefore, lower adoption of cancer prevention actions and interventions, since perceived risk is a key component in behavioural change theoretical models [37]. Finally,

low HL has also been associated with cancer misconceptions and myths, less information-seeking and reduced perceived control over cancer risks [38]. All in all, despite the fact that individuals' knowledge and perceptions may not always match their actions [11], awareness of cancer risk factors is still essential for cancer prevention.

Efforts are needed to improve cancer prevention awareness throughout the EU. Policies and interventions within a universalism framework should be designed to reach all social segments of the population. In other words, due to the importance of sociodemographic factors on individuals' knowledge and perceptions, community-wide and tailored health education interventions on cancer prevention are needed to reduce socioeconomic disparities in cancer incidence and mortality [39], and to ensure that no country is left behind in the EU. The ECAC serves as a "toolbox" for policymakers, civil society and other stakeholders to prioritize the policies and strategies that will allow improving EU citizens' adherence to cancer prevention.

Civil society and cancer prevention

Civil society is a widely used term to denote the field of activity that is independent of both governmental and for-profit interests. Civil society organizations (CSOs) have, therefore, been defined as non-state, not-for-profit, voluntary organizations formed by people in a social sphere that is separate from both the state and the market [40]. Standing aside from the economic imperative to deliver a profit, and outside of the direct influence of governments, civil society is placed in a position of unique responsibility to act solely for social good.

CSOs have been instrumental in advancing cancer prevention, as recommended by the ECAC, through various means. As service providers, CSOs deliver programs and provide vital resources that are neglected or absent from governmental provision, particularly in resource-limited settings [41]. This work takes place at the grassroots level, whereby CSOs can enhance resilience in those communities by catalysing the implementation of, for instance, organized cancer screening programs [42], or by extending the scope of primary and secondary cancer prevention services to better address the needs of vulnerable or marginalized sections of society [43].

A further approach by which CSOs contribute towards cancer prevention is via the dissemination of evidence-based cancer prevention guidance to the general population as laid out by the ECAC. CSOs have been instrumental knowledge brokers for cancer prevention by developing understandable materials to heighten awareness of health determinants and cancer risk factors [16]. This capacity has proven to be an especially valuable asset when mitigating the effects of inaccurate information or the vested interests of stakeholders, which can be opposed to the objectives of cancer prevention [40]. For instance, in countries which have experienced a loss of confidence in the HPV vaccination programmes, CSOs have

demonstrated success in developing campaigns that promote honest and reliable scientific information to the concerned public, which has resulted in regained trust and improved uptake of the HPV vaccination program [44].

CSOs not only provide information to the public but play a vital role in conveying the concerns and interest of wide sections of society to policymakers. Becoming advocates and enablers of change for the public good, further demonstrates how CSOs contribute to cancer prevention [45]. In recognition of the contribution of CSOs, the 2017 World Health Assembly resolution on "cancer prevention and control in the context of an integrated approach" calls upon member states of the WHO to foster partnerships with CSOs to improve the provision of services for cancer prevention and control [46]. This underscores the essential role CSOs have in promoting and sustaining cancer prevention as part of a "Whole of Society" approach [47].

Case-study in Poland

Cancer prevention advocates in Poland have had a long and proud history of disseminating the ECAC from its very beginnings – since the 1980s. Even before Poland became an EU member state in 2004, the ECAC was actively and widely disseminated across the country, with a special emphasis on communicating to children, adolescents and young adults. For the 3rd edition of ECAC, published in 2003, the programme "Schools promoting the recommendations of the European Code Against Cancer" was an especially successful initiative, which in the Małopolska voivodship reached approximately 80% of schools, 20,000 teachers, 300,000 students and 20,000 members of the local community [48]. Activities to promote the ECAC continued following the publication of the 4th edition in 2014. Of note was the informational brochure developed by experts in conjunction with Polish League Against Cancer, which describes the information of the ECAC in simple, easy to understand language, and was distributed free of charge to thousands of people throughout Poland (www.12sposobownazdrowie.pl/12_sposobow.pdf). Consequently, of those countries whose populations were surveyed regarding the awareness of the ECAC, Poland ranked as the joint highest, with a relatively high proportion (30%) of 25–34-year-olds surveyed, stating they knew of the ECAC [16]. This suggests that the consistent efforts to promote ECAC focused on children and young people in Poland have helped to maintain awareness of the ECAC.

Steps forward and recommendations

Experts and other stakeholders from the iPAAC JA [20], introduced above, suggested that the future ECAC editions:

- should broaden the scope to evidence-based individual and population level interventions and their implementation,
- have a multidisciplinary approach with synergies between cancer-targeted and NCDs-related recommendations,

- be tailored to different target groups and audiences (e.g., healthcare professionals and policymakers).

Finally, they recommended using the ECAC as a unifying tool for cancer prevention in the EU (the “toolbox” mentioned above). Most of these recommendations will not only be addressed in the new edition of the ECAC (5th edition), currently under development and due to launch in 2025 but will also inform the global methodology of the World Code Against Cancer Framework. The conclusions of the iPAAC JA were published in June 2021 and, since then, other initiatives have been introduced to improve the new edition of the ECAC and its further implementation. One example is the joint call by IARC, Institut National du Cancer (INCA) in France, and the Association of European Cancer Leagues (ECL) for the EC to commit to establishing a thorough, robust and systematic evaluation of the ECAC, which would be best served by the re-introduction of the ECAC-dedicated Eurobarometer survey to be implemented in 2024, before the launch of the 5th edition of the ECAC. Its results would be used as a baseline for EU citizens’ level of awareness of cancer prevention and, ideally, through periodic surveys, monitoring and evaluating the impact of the ECAC across the EU will be possible.

Hence, monitoring and evaluating not only the impact of the Code on public awareness, but also its development process is key in ensuring ECAC’s sustainability and a path to optimizing and enhancing its methodology.

Conclusions

The ECAC, under the umbrella of the World Code Against Cancer Framework, is a health education tool aimed at improving health literacy in cancer prevention to the public and nurturing the development of evidence-based cancer control policies. This initiative is constantly evolving to include the latest scientific data, and to respond to the needs of the European population and stakeholders as regards cancer prevention.

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Conflict of interest

None declared

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