International Agency for Research on Cancer

World Health Organization

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CROSS-CUTTING SCIENTIFIC THEMES

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Topic #1: Social inequalities and cancer

Lead, Salvatore Vaccarella (CSU)

The participating Sections/Groups are: CSU, SCR/EDP, ENV[1]

Background

Cancer incidence and mortality are not equally distributed across countries and individuals. Within each country, inequalities in income, education, and occupation produce a social gradient in the incidence, survival, and mortality of many cancers, that disproportionally affects the most disadvantaged individuals and social groups. Social condition can often predict and stratify patterns of cancer mortality in a population far more than any biological feature, risk factor or variable.

In the past decades, the IARC has contributed substantially to the major progresses in the understanding of the causes of cancer, including smoking, alcohol, diet, infections, occupational exposures, etc., which allowed to inform the implementation of effective preventive interventions. Meanwhile, there have been also major advancements in early detection, diagnosis and treatment of several cancers. Nevertheless, not all individuals, social groups and countries have equally benefited from these progresses.

Research and public health practice on social inequalities in health have been somehow neglected across the 20th century. The topic has started to draw increasingly more attention in the Global Agenda following the release in 2008 of the report of the WHO Commission on Social Determinants of Health. Thereafter, the World Health Assembly (WHA) in 2012 adopted a resolution that endorsed the importance of tackling inequalities in health, with the aim to assist the achievement of the United Nations Sustainable Development Goals, and in 2017 emphasized the importance of cancer prevention and control, with specific reference to the monitoring and reduction of social inequalities in cancer.

In line with these global initiatives, in 2018 the IARC has convened a workshop involving a number of multidisciplinary scientists to examine the evidence and identify research priorities for reducing social inequalities in cancer, which led to the production of the IARC Scientific Publication No. 168 “Reducing Social Inequalities in Cancer: Evidence and Priority for Research” in November 2019. A special focus of the publication was given to how the phenomenon of inequalities in cancer evolves and is reshaped over time, driven by a complex interplay of economic, social, political, legislative, and technological forces, affects everyone but hit particularly hard on the most disadvantaged individuals, and is, in large part, avoidable.

Aim of this session

At the 56th session of the IARC Scientific Council, a number of activities on social inequalities and cancer that are ongoing at the Agency will be presented. Besides the scientific publication, the Section of Cancer Surveillance (CSU) at IARC has undertaken a series of research projects with the objective of describing and monitoring social inequalities in cancer between and within countries,

[1] See organizational chart at the end of the document

focusing also on the gradient of the association and on temporal and geographical variations. Another major objective of these projects is to identify modifiable factors underlying the association between social inequalities and cancer, particularly to quantify and distinguish between the role of individual and collective/contextual factors, the latter including also an assessment of different features of the health system. Central to these activities is the characterization of the "specificity" of the cancer problem, recognizing that inequalities across all stages of the cancer continuum, and different profile of the association, in terms of direction and magnitude, of social factors with the different types of cancers. The collaboration with the Erasmus University in Rotterdam, the Imperial College of London and the Karolinska Institute in Stockholm allows IARC to lead the project, coordinate expertise and gathering important datasets. A strong emphasis of the IARC research is given to prevention, an area that has a great potential to reduce the burden of cancer as well as social inequalities in cancer but that is disproportionally underfunded relative to other areas, hardly reaching 5% of the total grant budget of cancer research. As the rise in cancer is expected to fall harder on low- and middle-income countries and on the most disadvantaged individuals it will not be possible for these countries to "treat their way out of the cancer problem" (Presenter: Salvatore Vaccarella).

SCR/EDP is currently leading a scientific activity in collaboration with CHAIN (Centre for Global Health Inequalities Research) aiming to understand the influence of interventions to reduce social inequalities in the participation in cancer screening in the Community of Caribbean and Latin American States (CELAC). To do this, a systematic review will be conducted to examine the effect of individual-, community-, provider- and health system-related interventions on the participation rate in breast, cervical and colorectal cancer, paying special attention to disadvantaged population. In addition, through networking with CELAC and PAHO, data on screening and inequalities in access will be collected in these countries. This mapping will enable the identification of the most suitable interventions to be implemented in each country in order to reduce social inequalities in cancer screening (Presenter: Isabel Mosquera).

ENV is active in studying social determinants of inequalities in breast cancer survival in sub-Saharan Africa, as well as survival after childhood cancer in the European context. The first of these concerns the relatively low survival rates for breast cancer in many sub-Saharan African countries, which, at a macro-level, mask large differentials within countries. To date, there are few studies with rich clinico-epidemiologic data needed to examine such differentials. In a large five-country breast cancer cohort ABC-DO (Africa Breast Cancer- Disparities in Outcomes study), social inequalities in multiple aspects of the cancer journey are being investigated. Inequalities are studied via a variety of metrics – income, education, literacy – and pathways – health access, geospatial dimensions, breast cancer awareness and out-of-pocket costs – and along the entire cancer journey, from symptom recognition, health system navigation to diagnosis, during treatment, to survival outcomes and the impact of cancer and cancer deaths in families (Presenter: Valerie McCormack).

A greater understanding of the burden of cancer among Indigenous populations is of major importance to public health given that poorer outcomes contribute to the lower life expectancies experienced by many Indigenous peoples. CSU has taken an active role in the World Indigenous Cancer Consortium (WICC), together with Indigenous groups, researchers and governments in developing collaborative projects that raise awareness of the need to detect disparities within

Indigenous populations. Such a population within populations approach to cancer surveillance and descriptive epidemiology, enables a better understanding of the impact of cancer, and a means to overcome the challenges to obtaining valid and timely cancer data on Indigenous populations worldwide (Presenter: Freddie Bray).

CSU is also leading research activities aiming to investigate and monitor the consequences of the increasing overutilization of medical care. Overmedicalization in affluent individuals and populations may lead to substantial harms, e.g. overdiagnosis and overtreatment, and waste of human and economic resources that could be devoted to prevent, diagnose and treat disease in disadvantaged people. This phenomenon is growing at a very fast speed, even in socioeconomically transitioning where health systems activities are not well regulated. The most striking example is thyroid cancer, where overdiagnosis and overtreatment are massive, but similar issues are likely to be found for prostate, breast cancer, kidney and melanoma. The work done so far at IARC in this area, which involved also a health economics component, had an impact on policy and clinical practice of thyroid cancer (Presenter: Joannie Lortet-Tieulent).

We will highlight the fact that IARC is a natural environment where to catalyse and coordinate international collaborative networks and partnerships to study phenomena that need to be understood at both local and global level. Social inequalities in cancer is a broad field that touches the scientific interests of different sections/groups and that could eventually be expanded and emphasized in some of its components, as well as made more structured and systematic.

Presenters

- 1: Isabel Mosquera (SCR) – Canscreen5: reducing inequalities in screening activities
- 2: Freddie Bray (or a junior scientist, CSU) – Cancer in Indigenous populations
- 3: Joannie Tieulent/Meng Meng Li (CSU) – Social inequalities in cancer: current activities and the role of IARC
- 4 : Valerie McCormack (or a junior scientist, ENV) – Cancer inequalities in Africa

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Questions or areas of advice to be addressed by the SC members

1. Given the relatively wider context and the expanding global agenda on Social inequalities in health, should IARC expand and have more structured and systematic research activities in the field?

2. Specifically, what kind of research in this field should be actively undertaken/strengthened at the Agency?

Topic #2: Health economics in cancer research

Lead, Filip Meheus (CSU)

The participating Sections/Groups are: CSU, GEP and a participant from WHO/HQ (formerly CSU).

Background

Cancer is the second leading cause of mortality, with an estimated 18.1 million new cancer cases and 9.6 million cancer deaths in 2018. The burden of cancer is also rapidly growing worldwide, with the highest increases in low -and middle-income countries, exerting considerable strain on health systems. Countries at all income levels face considerable challenges in implementing an efficient response to the growing burden of cancer, leading to avoidable and premature deaths, but also threatening health budgets and economies, and causing financial catastrophe and impoverishment for individuals and families.

Over the past years, research related to the economics of cancer has been gradually introduced and expanded at the Agency, such as estimating the value of productivity lost due to cancer–related premature mortality in Europe and BRICS countries, and the description of the burden of cancer across social and economic dimensions using the human development index (HDI). Since 2016, IARC has formally incorporated health economics into its research portfolio through the recruitment of a health economist, initially based in the Prevention and Implementation Group (PRI) and now in the Section of Cancer Surveillance (CSU).

Since then, activities have been structured and developed in six different domains seeking to provide a meaningful contribution to the field of cancer economics, inform policy and resource allocation at the national and international level, and contribute to various global cancer initiatives such as the cervical cancer elimination initiative (the "other" domain), with a focus on low –and middle-income countries.

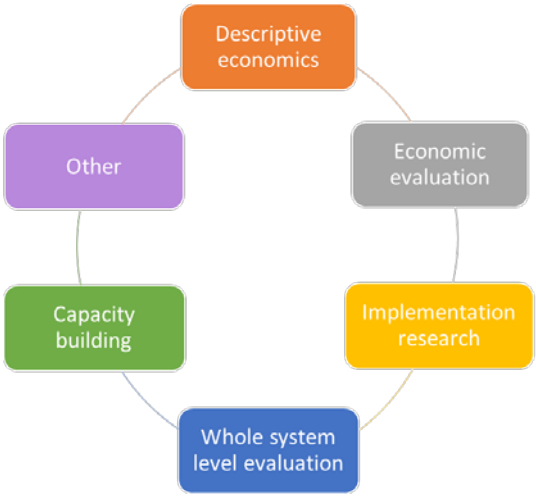


Figure: Activity domains in cancer economics at IARC

Aim of this session

During the thematic discussion on health economics at the 56th session of the Scientific council we will (1) provide a basic understanding of the role and importance of health economics in cancer prevention and control, (2) relate this to the current global context of importance to cancer (Sustainable Development Goals (SDGs), universal health coverage and the World Health Assembly Resolution 70.12), (3) provide an overview of different research areas that were developed over the past years with key interventions from a number of presenters on selected projects and outputs (see below), and (4) discuss with the Scientific Council future areas of work and the further development of health economics at IARC.

Selected content on past and current research activities that will be presented

Through research on descriptive economics, we seek to improve our understanding of the economic burden of cancer to the economy, the health system as well as for individuals and households. Additional studies on productivity losses were initiated, building on previous work developed by Dr Isabelle Soerjomataram (CSU). Using the most recent GLOBOCAN data, we estimated productivity losses for all countries globally, and by WHO region and HDI level. More in-depth, country-level studies, are also ongoing. With Dr Bochen Cao (CSU) we estimated the economic dividend that may be anticipated from attaining the United Nations SDGs health target to reduce premature mortality from noncommunicable diseases. In collaboration with different partners, we are also conducting a systematic review to estimate the level of catastrophic out-of-pocket expenditure incurred by individuals and their families. In many countries, patients bear the cost for diagnosis and treatment of cancer and for those that can't bear the cost they forgo treatment. Large out-of-pocket spending puts a heavy burden on families, especially the poor with a risk of impoverishment due to catastrophic health spending. These studies not only provide a better understanding on the burden of cancer, but are important for prioritization of cancer prevention and control interventions and advocacy. Furthermore they provide us with baseline information to monitor progress over time, such as the level of financial risk protection in the context of universal health coverage.

We will also highlight an application of economic evaluation conducted with the Genetic Epidemiology Group (GEP); a preliminary cost-effectiveness analysis was conducted to demonstrate the possible implications of incorporating biomarkers into eligibility criteria for lung cancer screening. In the other thematic session on social inequalities, an ongoing study will be presented that estimates the cost of thyroid cancer overdiagnosis in France.

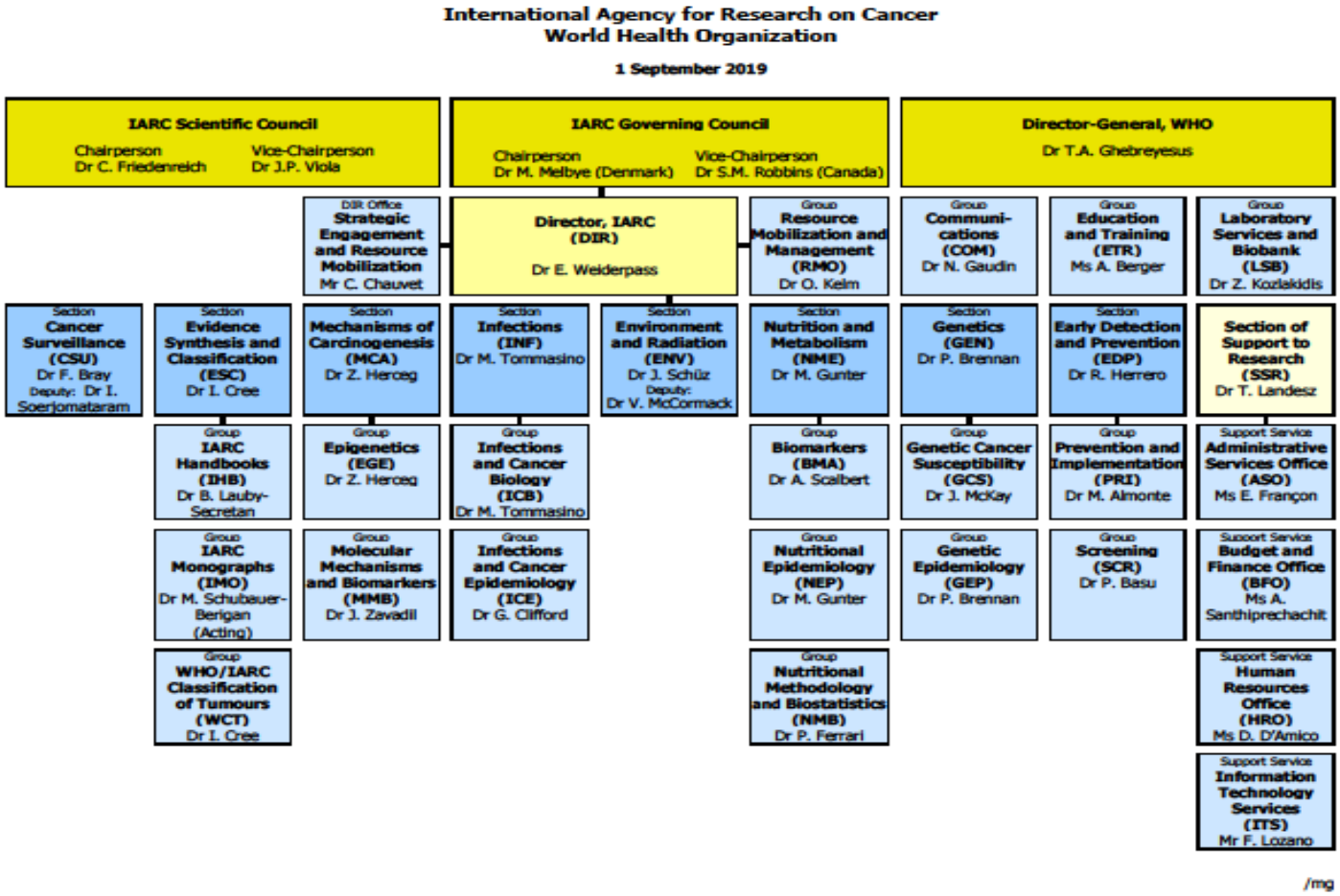
Finally, over the past two years, an extensive collaboration was developed with the World Health Organization Headquarters, guided by the WHA Cancer Resolution 70.12 on cancer prevention and control that specifies the need to prioritize cost-effective interventions and to promote universal access to comprehensive cancer care. While countries have produced national cancer control plans, these plans are often not costed or financed, not based on priority setting and not effectively implemented or monitored. In response, IARC and WHO are developing a tool to assist national policy makers obtain the best value for money in health spending by identifying priority interventions in national cancer planning and to provide a business plan evaluating the impact, cost and feasibility of this package of interventions according to country capacity. Such guidance is critical to achieve the accepted global targets articulated in the WHO Global Action Plan for the Prevention and Control of noncommunicable diseases (NCDs) as well as the 2030 Agenda for Sustainable Development.

Presenters:

- Dr Filip Meheus (CSU).
- Dr Isabelle Soerjomataram (CSU) will present the studies on estimating the value of productivity losses.
- Dr Bochen Cao (WHO/HQ). Dr Cao recently moved to WHO in Geneva, but was a post-doctoral fellow at CSU and will present the long-term economic impact of the SDG health target for reducing premature mortality from noncommunicable diseases.
- Dr Hillary Robbins (GEP) will present the results from the preliminary cost-effectiveness analysis on incorporating biomarkers into eligibility criteria for lung cancer screening.

Questions or areas of advice to be addressed by the SC members

1. With universal health coverage high on the political agenda, many countries require support and guidance on what cancer control interventions should be implemented and how. What should be the relationship of IARC with countries that request assistance? Should we actively engage in providing country support? (e.g. in the development and implementation of national cancer control plans)?

2. Action to improve access to cancer control services and financial risk protection against the costs of cancer care is not only limited to prevention and early detection, but spans across the entire cancer continuum. Should IARC, as the WHO specialized cancer agency, also provide guidance on these latter areas without being involved in research in these areas (e.g. through IARC Scientific Publication Series)?

IARC Organizational Chart (see below and here)