



WORLD HEALTH ORGANIZATION
INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
LYON, FRANCE

Cancer Can Be Prevented Too: Research for Prevention

On February 4, The International Union Against Cancer (UICC) and the World Health Organization (WHO) will mark World Cancer Day 2010. "*Cancer can be prevented too*" is the theme of World Cancer Day this year, emphasising the fact that up to 40% of cancers are considered preventable by application of currently available knowledge. In other words, a significant proportion of the 12.4 million annual cancer diagnoses and 7.6 million cancer deaths—numbers that are expected to rise in the coming decades—are avoidable via application of evidence-based cancer prevention strategies.

Cancer research is the foundation on which these cancer prevention strategies are built. Since its creation in 1965, the WHO's International Agency for Research on Cancer (IARC), supported and encouraged by its now twenty-one Participating States, has conducted innovative research to identify the causes of human cancer and evaluate the impact of interventions aimed at reducing the burden of this disease across the world. This scientific evidence base is vital to developing national and international guidelines and policies for cancer prevention.

Addressing inequities in global cancer distribution: a two-pronged approach

Prevention is ever more a priority for the Agency, as its assessments of global cancer occurrence reveal striking projected increases in cancer burden in the very areas of the world where health services are least equipped to provide effective treatment and care. "The example of Africa is striking, with a projected threefold increase in the number of new cancers per year by 2030," said Dr Christopher P. Wild, Director of IARC. "The increasing burden of cancer in low-resource countries with limited access to treatment and care facilities leaves IARC, with its expertise and focus on cancer prevention, uniquely positioned to respond to this mounting public health crisis." Research into cancer prevention involves identification of the causes of cancer as well as assessment of the effectiveness of approaches to avoid harmful exposures and detect cancer early enough to improve prognosis. The Agency has active programmes in each of these areas.

Identification of carcinogenic risks. The *IARC Monographs* identify environmental factors—including chemicals, complex mixtures, occupational exposures, physical and biological agents, and lifestyle factors—that can increase the risk of human cancer. National health agencies use this information as scientific support for their actions to prevent exposure to potential carcinogens. Since 1971, more than 900 agents have been evaluated, of which approximately 400 have been identified as carcinogenic or potentially carcinogenic to humans. The year 2009 has seen the completion of Volume 100 of these Monographs, a review of agents classified as carcinogenic to humans in previous IARC evaluations, covering pharmaceuticals, biological agents, metals, arsenic, dusts and fibres, radiation, lifestyle factors and chemical agents and related occupations.

Population-based prevention research. IARC also bolsters worldwide cancer prevention via a broad-based research programme assessing the effectiveness of approaches to avoid harmful exposures and detect cancer. In conjunction with World Cancer Day, UICC is releasing a scientific report aimed at raising awareness of the role of infections in cancer, an area in which IARC has contributed greatly to both the state of background knowledge and the development of prevention strategies. IARC conducts various surveys (HPV prevalence surveys, inter alia) as well as immunization trials and efficacy assessments of different screening modalities in low- and medium-resource countries. While these studies are invaluable to the lower-resource countries that are facing the heaviest burden of infection-related cancers (infection-related cancers account for 26% of cancers in developing countries, versus 8% in developed countries), they also provide valuable evidence to consider in establishing guidelines for population-level screening in higher-resource nations as well.

For example, the hepatitis B virus (HBV) is a major public health threat with currently 350 million chronically infected people worldwide. This is a primary cause of liver disease and liver cancer. The Agency, in partnership with the Gambian government and the Medical Research Council, UK, initiated a trial of HBV vaccination in liver cancer prevention in the mid-1980s. "The long-term commitment of the Agency to this project will provide unique information on the impact of the HBV vaccine in preventing one of the deadliest forms of cancer in the poorest regions of the world," said Dr Wild.



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“Policies for the prevention of HBV infection should be part of every comprehensive cancer control policy,” said Dr Steven Wiersma, focal point for hepatitis prevention, Department of Immunization, Vaccines and Biologicals, WHO. “Clear goals for the control of these diseases are needed now to prevent hepatitis and liver cancer.”

Reducing the gap for prevention: integration of lab science and epidemiology

Cancer prevention strategies develop in a two-way conversation between the branches of cancer research—using advances from molecular sciences to benefit public health, and providing basic scientists with working hypotheses derived at the population level. To ensure that this scientific exchange continues, the Agency trains scientists in both disciplines on a regular basis. “Though training has always been an integral part of our mission statement,” added Dr Wild, “this next generation of researchers—adept in both the disciplines of laboratory science and epidemiology—will increasingly be an indispensable element of our cancer prevention activity.”

IARC Membership: <http://www.iarc.fr/en/about/membership.php>

IARC Establishing Statute: <http://governance.iarc.fr/ENG/Docs/StatuteEnglish.pdf>

IARC Cancer figures online: <http://www-dep.iarc.fr/>

IARC Monographs website: <http://monographs.iarc.fr/index.php>

IARC Carcinogen Classification: <http://monographs.iarc.fr/ENG/Classification/index.php>