



Preventing cancer through environmental policy change

"The most valuable approaches to reducing cancer morbidity and mortality lie in avoiding the introduction of carcinogenic agents into the environment and eliminating exposure to carcinogenic agents that are already there" New England Journal of Medicine, March 2011¹

New cases of cancer in the European Union are set to rise to 2.6 million per year by 2020 - an increase of 14% since 2009. Reducing human exposure to environmental carcinogens and other cancer-related chemicals and physical agents is increasingly recognised as a key approach to cancer prevention today. A recent scientific review by the World Health Organization (WHO) defines the burden of chemicals on health as "considerable" and recommends further public health interventions.²

The Health and Environment Alliance (HEAL) welcomed and participated in the recent WHO initiative for an International Conference on the Environmental and Occupational Determinants of Cancer: Interventions for Primary Prevention, in Asturias Spain in March 2011. The resulting *Asturias Declaration: a Call to Action* clearly recognises the importance of primary prevention to deal with environmental and occupational risk factors for cancer.³ These measures, as the Asturias Declaration notes, can save lives and billions of dollars in financial costs. The recent official US report entitled "Reducing the Environmental Causes of Cancer" by the President's Panel on Cancer also recommends much greater focus in this area.⁴

HEAL recommends that more attention be given to policy measures to tackle the environmental and occupational determinants of cancer, especially the removal from the market of chemicals that are carcinogens, mutagens, toxic to reproduction and disruptive to the endocrine system (EDCs). The EU is a recognised global leader in addressing chemical safety, and we call on the EU and national governments to further environmental cancer prevention by setting specific targets and deadlines that will verifiably reduce peoples exposure.

These recommendations, which contrast with a historical emphasis by governments, health professionals and cancer organisations on measures to change individuals' lifestyle factors (smoking, exercise, diet and sun exposure) reflect the latest scientific understanding of these under-recognised cancer risks.⁵

What is primary prevention?

Primary prevention is about stopping cancer before it starts. It involves strategies intended to avoid the appearance of the disease by addressing the risk factors, whereas secondary prevention attempts to diagnose and treat an existing disease in its early stages before it results in significant morbidity, and tertiary prevention involves treatments that aim to reduce the negative impact of established disease by reducing incapacity, complications and recurrence (see box below).

Primary *environmental and occupational* prevention could be defined as eliminating or reducing involuntary exposure to **harmful chemicals** by removing carcinogens and other chemicals linked to cancer, such as endocrine disruptors; to **particulate matter in air (air pollution)**, as well as to **physical agents**, from the environment (indoor and outdoor) and the workplace. It is separate from early detection, such as breast cancer screening, which is often included in the term "prevention".

¹ Christiani DC, Combating Environmental Causes of Cancer, New Engl J Med 2011; 364:791-793 March 3, 2011

² Pruss-Ustun A, Bertollini R et al, Knowns and unknowns on burden of disease from chemicals; a systematic review, Environmental Health, *Environmental Health* 2011, 10:9doi:10.1186/1476-069X-10-9 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3037292/>

³ Declaration of Asturias: Call to Action, from the WHO meeting "Environmental and occupational determinations of cancer, Interventions for primary prevention", March 2010 http://www.who.int/phe/news/events/international_conference/en/index.html

⁴ US President's Cancer Panel: Environmentally caused cancers are 'grossly underestimated' and 'needlessly devastate American lives.'
<http://www.environmentalhealthnews.org/ehs/news/presidents-cancer-panel>

⁵ See for example: "Although personal choices, such as tobacco use, dietary and physical activity patterns, play a major role in the development of cancer, environmental and occupational factors are involved in the causation of a large number of human cancers." Tomatis, L., *Cancer, causes occurrence and control*. IARC Scientific Publications. Vol. 100. 1990, Lyon: IARC.

Definitions of primary, secondary and tertiary prevention

Primary Prevention: to reduce incidence of cancer by controlling (avoiding) exposure to risk factors or by increasing an individual's resistance to these risk factors. It can focus on the whole population as well as on people at high risk.

Secondary Prevention: aims at detecting cancer at an early stage when treatment is more effective, leading to a higher rate of cure, and a reduced frequency of the more serious consequences of the disease. It is generally accepted that 'early detection' is a kind of prevention.

Tertiary Prevention: usually defined as the prevention of loco-regional relapse and / or metastatic disease after primary treatment by surgery or radiotherapy.

From Types of Prevention: Basic concepts, J. Weyler, in ESMO Handbook of cancer prevention, edited by D. Schrijvers, HJ Senn, K Mellstedt, and B Zakotnik, 2008, European Society for Medical Oncology.

Because primary environmental and occupational prevention involves eliminating people's exposure to harmful industrially-manufactured chemicals, air pollution and physical agents, it is predominantly a matter of government policy and business responsibility. One of the key recommendations of the Asturias Declaration is that all countries [should] adopt and enforce legislation for protection of populations, especially the most vulnerable populations, against environmental and occupational cancers⁶.

"Many environmental and occupational factors, including certain chemicals, radiation and airborne particles, can cause cancer," said Dr Maria Neira, Director for Public Health and Environment at WHO. "These cancers could be prevented and reduced by changes in national and international policy to limit people's involuntary exposure to these substances."⁷

Nevertheless, it is also very important to educate individuals, communities and organisations about harmful environmental and occupational exposures. It can help people make better informed choices about purchase and use of daily consumer products that can contribute to cancer risks and improve practices (e.g. the importance of opening windows to regularly air indoor environments) and related to work exposures. Building citizens' awareness also contributes to generating support for changes in government policy and business practices.

Environmental and occupational risk factors for cancer

Environmental and occupational risks go beyond what are currently 'the usual suspects': excessive UV exposure, radon, passive smoking (or environmental tobacco smoke), asbestos, PCBs, DDT and a few other well-recognised carcinogenic chemicals, the naturally occurring aflatoxins, and arsenic in drinking water.

They include particulate matter in air, synthetic chemicals which are carcinogenic, mutagenic, toxic to reproduction, or endocrine disrupting and occur in the air, water, soil, food, ordinary consumer products, construction products (and hence in many indoor environments) and occupational settings. Physical agents, such as the enormous proliferation of electromagnetic fields and extremely low frequency radiation also deserve attention, but this position paper focuses on chemicals⁸. These environmental exposures that contribute to cancer risks can be daily, chronic, extremely low level, diffuse, multiple and concurrent. Environmental and occupational risk factors are generally involuntary and often unwitting.

The contribution of these environmental and occupational risks to cancer incidence rates has historically been greatly underestimated⁹. The evidence of the relationship between cancer and exposure to chemicals is likely to yield underestimates for several reasons. First, research is usually limited to single substance effects when low dose, long term exposure of many different chemicals may present a larger problem. Second, the relationship is difficult to study because of the long time lag between exposure and development of the disease. Thirdly, relevant exposure may have occurred in the womb, and this area of research is sparse. These underestimates have meant that environmental and occupational

⁶ See http://www.who.int/phe/news/events/international_conference/en/index.html

⁷ WHO Press Release 18 March 2011: <http://www.un.org/apps/news/story.asp?NewsID=37812&Cr=cancer&Cr1>

⁸ For further information on the connection of EMF and cancer see: <http://www.international-emf-alliance.org/>

⁹ Clapp, R., Howe, G., and Jacobs, M., Environmental and Occupational Causes of Cancer: A Review of Recent Scientific Literature, September 2005, Lowell Center for Sustainable Production, University of Massachusetts, Lowell; Clapp, R. et al., Environmental and Occupational Causes of Cancer, Biomedicine and Pharmacotherapy, Vol. 61(10), Dec 2007, pp 631-639; US President's Cancer Panel Report on Cancer and the Environment, http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp08-09rpt/PCP_Report_08-09_508.pdf

risks, and the possible interventions against them, are insufficiently reflected in cancer prevention and control policies. Consequently, policy and research priorities need to be revised in light of our current understanding about cancer.

A. Cancer continues to rise

Cancer rates in Europe are continuing to rise - at huge cost to our individual and family lives, our productivity and our health services, and society overall. Over the past 50 years, the incidence of cancer has increased, despite some reductions in mortality rates due to improved treatments. Today in Europe, one man in 2 and one woman in 3 is or will be affected by cancer. One in four will die from cancer.¹⁰

Breast cancer rates have reached epidemic proportions in Europe. In France, the number of cases of breast cancer increased by an astronomical 97% between 1980 and 2000, according to a French national agency report.¹¹ New figures in the UK show that one in eight British women can expect a breast cancer diagnosis during her lifetime.¹²

Testicular cancer is the most common cancer in young men. Its incidence has doubled in many western countries every 25 years over the past 60 years.¹³

Cancer rates in children are also rising. The average childhood cancer incidence has increased by 1% per year over the past 30 years in Europe.¹⁴

The ageing of European populations can usually not explain the increase in cancer incidence, because the rates of increase are generally higher than that which results from the ageing of the population. Aside from known risk factors, the rest of cancer incidence - around 52% for men and 55% for women according to a French estimate - must be attributed to environmental causes, including the natural environment, work and indoor environments or food.¹⁵

Over the years, WHO has made significant progress on public health interventions related to tobacco and alcohol. So much so in Europe that smoking and alcohol consumption is stagnating or declining in many countries, and can therefore not be blamed for the rising rates of a variety of cancers taking place today.¹⁶

Childhood cancers, such as leukaemia and brain tumours, may indicate that prenatal exposure to cancer-related chemicals in the environment is playing a role. Around 280 industrial chemicals have been detected in umbilical-cord blood.¹⁷

B. Environmental pollution as a cause - the science

Concurrently with our rising cancer incidence over the past five decades, our societies have witnessed a rapid increase in the use of pesticides and fertilisers in agriculture, pesticides in non agricultural applications (biocides), and synthetic chemicals in consumer and industrial goods. The number of synthetic chemicals currently present on the European and American markets is estimated at around 80,000 to 100,000. Many monitoring studies in Europe and North America have found a large number of synthetic chemicals both in the environment, and in human bodies: in hair, urine, blood, bodyfat, and breastmilk. (It is important to note that the presence of chemicals in breastmilk does not mean breastfeeding should be avoided¹⁸).

The World Health Organization's specialist research agency on cancer, the International Agency for Research on Cancer (IARC), has acknowledged the importance of probable and possible carcinogens in the everyday environment. The 2008 IARC World Cancer Report noted (emphases added):

"Also important is the potential cancer burden from exposure to hundreds of probable and possible human carcinogens that have been identified and from thousands of new chemicals that have not been tested for their cancer potential. Little is

¹⁰ Major and chronic diseases, EU website http://ec.europa.eu/health/major_chronic_diseases/diseases/cancer/index_en.htm

¹¹ "Evolution de l'incidence et de la mortalité de 1978 2000, 2004, Institut de veille sanitaire (InVS), France.

¹² Cancer Research UK, 4 February 2011 <http://www.bbc.co.uk/news/health-12356489>

¹³ [Men under threat: A referenced briefing on the decline in male reproductive health and the potential role of exposure to chemicals during in-utero development](#) Written by CHEM Trust, <http://www.chemicalshealthmonitor.org/spip.php?rubrique11>

¹⁴ IARC study shows increasing cancer rates in children in Europe, Press release 155, 10 December 2004.

¹⁵ Cancer and the environment website, Generations Futures and HEAL, March 2011 English version forthcoming. http://www.mdrgf.org/cancer_envi/

¹⁶ Cancer and the environment website, Generations Futures and HEAL, March 2011 English version forthcoming. http://www.mdrgf.org/cancer_envi/

¹⁷ Body Burden. The Pollution in Newborns. Environmental Working Group, 2005. <http://www.ewg.org/reports/bodyburden2/execsumm.php>

¹⁸ Breastfeeding or being breastfed seems to show reduction in the risks for several cancers for women and children. Breast cancer and breastfeeding: Lancet. 2002 Jul 20;360 (9328):187-95; Lactation and the risk of epithelial ovarian cancer. The WHO Collaborative Study of Neoplasia and Steroid Contraceptives, Rosenblatt KA, Thomas DB Int J Epidemiol. 1993 Apr;22(2):192-7 ; The risks of not breastfeeding for mothers and infants [Stuebe A](#), Rev Obstet Gynecol. 2009 Fall;2(4):222-31; Breastfeeding and the risk of childhood leukemia: a meta-analysis Kwan ML, Buffler PA, [Abrams B](#), Kiley VA. Public Health Rep. 2004 Nov-Dec;119(6):521-35.

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known about risks from **combinations of exposures** at levels found in the environment or from exposures during **critical time windows of development** or in **susceptible populations**.

Cancers may have **multiple causes**, so that environmental factors may contribute to cancers that are attributed to occupational or lifestyle factors. The known interactions between radon and smoking or between asbestos and smoking support the idea that individual cancers may have multiple causes. Finally, it is important to remember that environmental pollution is not only a cancer problem. Much environmental pollution can be prevented, and reducing environmental pollution can contribute to reductions in diseases other than cancer and to increases in aesthetics and in the overall quality of life."¹⁹

An important development in our understanding is that cancers are highly complex multifactorial, multistage diseases, and exposures to different risk factors can interact with each other, such that diet, lifestyle, viruses, genetics and environmental and occupational exposures all play a role.

At the same time, chemicals other than carcinogens are also implicated. Carcinogens can initiate the first stage of carcinogenesis by gene mutations (genotoxic substances), but there is growing recognition that hormone disrupting chemicals may play a role in our rising incidence rates. Chemicals which are not defined as carcinogens can nevertheless induce or promote cancer development. These include Bisphenol A (BPA), phthalates, and formaldehyde, which are likely to promote mutations or disrupt hormones²⁰.

A comprehensive review of epidemiological studies on the effects of pesticides on health was undertaken by an association of doctors in 2004. The Ontario Family Physicians selected the best of all studies published between 1992 and 2003 and found that almost 88% of the selected studies showed a link between exposure to pesticides and an increased risk of developing 10 different cancers.²¹

More recently, CHEMTrust has published a review entitled 'A review of the role pesticides play in some cancers'²². Cohort or case controlled studies show a link between pesticides and leukaemia, neuroblastomas, Wilms tumour (kidney cancer), soft tissue sarcomas, Ewing's sarcoma, non Hodgkin's lymphoma and brain cancers, colon, rectal and testicular cancer. Children are more sensitive to risk than adults because they are both proportionally more exposed and physiologically more susceptible to carcinogens and endocrine disrupting chemicals and pesticides.²³

In 2005, Richard Clapp and colleagues published the 'Environmental and Occupational Causes of Cancer: A Review of Recent Scientific Literature.' A number of environmental and occupational links with certain types of cancer were identified.²⁴

- **Metals** such as arsenic and cancers of the bladder, lung, and skin.
- **Chlorination byproducts** such as trihalomethanes and bladder cancer.
- **Natural fibers** such as asbestos and cancers of the larynx, lung, mesothelioma, and stomach.
- **Petrochemicals and combustion products**, including motor vehicle exhaust and polycyclic aromatic hydrocarbons, and cancers of the bladder, lung, and skin.
- **Pesticide** exposures and cancers of the brain, Wilms tumor, leukemia, and non-Hodgkin's lymphoma.
- **Reactive chemicals** such as vinyl chloride and liver cancer and soft tissue sarcoma.
- **Metalworking fluids and mineral oils** with cancers of the bladder, larynx, nasal passages, rectum, skin, and stomach.
- **Ionizing radiation** and cancers of the bladder, bone, brain, breast, liver, lung, ovary, skin, and thyroid, as well as leukemia, multiple myeloma, and sarcomas.
- **Solvents** such as benzene and leukemia and non-Hodgkin's lymphoma; tetrachloroethylene and bladder cancer; and trichloroethylene and Hodgkin's disease, leukemia, and kidney and liver cancers.

Exposure to **endocrine disruptors** could explain the increased incidence of hormonally-dependent cancers such as breast, prostate and testicular cancer.

¹⁹ IARC World Cancer Report 2008 www.iarc.fr/en/Publications/PDFs-online/World-Cancer-Report

²⁰ See for example the Statement of the Endocrine Society: http://www.endo-society.org/journals/ScientificStatements/upload/EDC_Scientific_Statement.pdf

²¹ Sanborn, M. et al, Systematic Review of Pesticide Human Health Effects, Ontario College of Family Physicians, Toronto. Available at: www.ocfp.on.ca

²² A review of the role pesticides play in some cancers, Gwynne Lyons and Andrew Watterson, CHEMTrust, 2010. <http://www.chemtrust.org.uk/documents/CHEM%20Trust%20Report%20-%20Pesticides%20&%20Cancer%20July%202010.pdf>

²³ For an overview of studies on pesticides and cancer see the resource section of HEAL's Sick of Pesticides campaign website: www.pesticidescancer.eu/spip.php?rubrique20

²⁴ Clapp, R. et al, Environmental and Occupational Causes of Cancer: A Review of Recent Scientific Literature published by Lowell Center for Sustainable Production, 2005. <http://www.sustainableproduction.org/downloads/Causes%20of%20Cancer.pdf>

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Following his review of "Breast cancer and exposure to hormonally active chemicals" in 2008, Professor Andreas Kortenkamp, a leading scientist on several EU research projects on endocrine disrupting chemicals and a signatory of the Prague Declaration on endocrine disrupting chemicals, concluded:

"Good laboratory and epidemiological evidence exists suggesting that man-made chemicals which mimic oestrogen contribute to breast cancer." In his view, the risk of breast cancer will not be reduced until preventable causes, particularly exposure to chemicals, is addressed²⁵.

A scientific review the following year showed exposure to environmental chemicals may be linked to testicular cancer and other male reproductive health problems which are risk factors for male cancers. The chemical cocktail in the everyday environment may be blocking testosterone and leading to Testicular Dysgenesis Syndrome, a cluster of conditions including rising rates of undescended testicles in babies, malformation of the penis, lower sperm counts in young men and testicular cancer.²⁶

C. What needs to happen?

The Health and Environment Alliance (HEAL) welcomes WHO's "Call to Action" on primary prevention of environmental and occupational determinants of cancer.

We call for a shift away from the current dominant focus on individual behaviour change to a broader spectrum of actions which include first and foremost government opportunities and corresponding business obligations to prevent cancer via primary environmental and occupational protection measures. Informative examples can be drawn from the findings of the US President's Cancer Panel, listed in the Appendix.²⁷ Overall, HEAL would like to see cancer prevention more explicitly integrated into environmental, product, and worker safety policy making and implementation.

Set targets and act on existing legislation

The European Union is a recognised global leader in addressing chemical safety. Chemicals such as DDT and Atrazine have been banned for many years. Recent policy responses to scientific evidence on chemical contamination in the environment and cancer include EU chemicals legislation known as REACH in 2006²⁸ and a revised set pesticides laws two years later.²⁹ A workers' carcinogens directive that mandates companies to substitute away from carcinogens also exists.

These are important steps in the right direction but implementation is either poor or very slow and many carcinogens and endocrine disrupting chemicals remain in everyday use. Because some of the chemicals involved are persistent in the environment (do not break down quickly), it is all the more important to have swift government action both in developing new legislation and in enforcing existing ones.

To realise the full potential of these laws to reduce and prevent cancer incidence, HEAL would like to see specific targets and deadlines set by the EU and by national authorities, and international agreements so that peoples' exposures to confirmed or suspected cancer-related chemicals are reduced. Specific targets and deadlines would ensure that companies dedicate more effort and resources to finding safer substitutes than is currently the case and that governments make verifiable progress in a continuous fashion over clear time periods.

Integrate environmental aspects into cancer plans

Cancer action plans should be improved to take into account the various environmental risk factors, including the known or suspected causes or promoters of cancer, and also include and reinforce reduction deadlines and targets for cancer-related chemicals and other environmental risk factors, so that they can be quickly eliminated.

HEAL has brought together 21 groups, including the European Respiratory Society and the International Society of Doctors for the Environment, who have called for the EU's "Action against Cancer: European Partnership" to adequately address this

²⁵ Scientists deliver wake-up call: "Reduce chemical exposure to reduce breast cancer", HEAL and CHEMTrust press release, 2 April 2008. http://www.env-health.org/IMG/pdf/Press_release_final_.pdf See "What will new EU chemicals legislation deliver for public health?" Briefing from HEAL's Chemicals Health Monitor project, available in seven languages at <http://www.chemicalshealthmonitor.org/spip.php?article148>. See also State of the Evidence 2010: The Connection Between Breast Cancer and the Environment: <http://www.breastcancerfund.org/media/publications/state-of-the-evidence/>

²⁶ [Men under threat: A referenced briefing on the decline in male reproductive health and the potential role of exposure to chemicals during in-utero development](#) Written by CHEM Trust, <http://www.chemicalshealthmonitor.org/spip.php?rubrique11>

²⁷ US President's Cancer Panel: Environmentally caused cancers are 'grossly underestimated' and 'needlessly devastate American lives.'
<http://www.environmentalhealthnews.org/ehs/news/presidents-cancer-panel>

²⁸ See "What will new EU chemicals legislation deliver for public health?" Briefing from HEAL's Chemicals Health Monitor project, available in seven languages at <http://www.chemicalshealthmonitor.org/spip.php?article148>

²⁹ A review of the role pesticides play in some cancers, Gwynne Lyons and Andrew Watterson, CHEMTrust, 2010. <http://www.chemtrust.org.uk/documents/CHEM%20Trust%20Report%20-%20Pesticides%20&%20Cancer%20July%202010.pdf>

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dimension of primary environmental and occupational prevention of cancer.³⁰ We strongly regret that the Members of the European Partnership Action have not taken this up in their three-year programme, and hope that this will change in subsequent years, given the enormous potential across the various workgroups.

Improve research on environmental determinants

In addition, some significant increases in and strengthening of research on environmental causes must be undertaken:

- More work and development of the scientific tools to understand the impact of interactions between different risk factors, exposure levels, timing, duration, pathways.
- Supporting independent publically funded research
- Develop more cancer registries (one per sub-national region), twin registries, pet registries (cat & dog one per large region), and exposure registries.
- More investigation of the impact of pre-natal exposure, and of sensitive populations, such as those with hampered immune systems. It will be consequently necessary to modify the experimental protocols for toxicology studies.
- Large scale biomonitoring programs.
- Study of intra and interregional inequalities, analysis of disparities using GIS systems

Create a governmental code

The existing European Code Against Cancer³¹ provides guidance on life-style changes to individuals. However, it also includes the following: "Apply strictly regulations aimed at preventing any exposure to known cancer causing substances."

A second European Code Against Cancer aimed at governments and businesses should be created into which the statement about reducing exposure to cancer causing chemicals could be included, along with calls for prompt enforcement of legislation, and instigation of more protective legislation. Other items in this second Code would relate to the value of involving the non-governmental sector in the promotion of primary environmental prevention, addressing the need for advice to individuals on environmental exposures and cancer and the need to improve cancer registries. Registries can help increase accuracy in identifying trends, discrepancies in rates between genders and age groups, and geographical "clusters" of cancer by location, living or working conditions of those affected.

Share good examples and case studies

If governments are to be convinced that change needs to be made and bring the necessary resources to bear to eliminate use of cancer-causing chemicals, key interest groups and the public must be aware of the need for action and advocate for change.

Examples of "what works" in terms of building community support should be shared widely. They include the creation of "pesticide-free" public spaces taking place in European and North American cities³²; publishing the chemical analysis of a typical diet, such as demonstrated in the 'Toxic Menu' initiative³³ recently published in France; the launch of a network for farmers and bystanders affected by pesticide use, also in France³⁴; the "Occupational Cancer/Zero Cancer" initiative by European trade unions³⁵; training programmes for medical professionals³⁶, and many educational initiatives such as the film and community development programme "Living Downstream" developed by scientist and cancer survivor Sandra Steingraber.³⁷

Conclusion

With our emerging understanding of the complexity of cancer, the approaches to prevention must also become more sophisticated. As noted in the Cancer Consensus Statement by the Collaborative on Health and the Environment, "Successful

³⁰ Letter to the European Parliament's Environment committee, on Commission Communication on Action against Cancer: European Partnership, 7 April 2010, see <http://www.env-health.org/a/3554>

³¹ European Cancer Prevention Code <http://www.cancercode.org/code.htm>

³² Six steps to pesticide reduction: a community guide, HEAL 2011. <http://www.pesticidescancer.eu/spip.php?article80>

³³ "Toxic Menu" launches cancer and environment programme in France, article on HEAL website 2010. http://www.env-health.org/a/3607?var_mode=calcul

³⁴ Pesticide victims fight for justice, Sick of Pesticides Bulletin, HEAL, http://www.env-health.org/IMG/pdf/Pesticides_and_health_enews_-_February_2010.pdf

³⁵ Occupational cancer/zero cancer brochure at <http://www.imfmetal.org/files/07031915130979/ZeroCancer-Update.pdf>

³⁶ Example of training programme: Intensive Course in Environmental Medicine, 14-16 April 2011, Paris, France, www.artac.info, and fact sheet, "Cancer and the Environment, What health care providers should know" <http://www.psr.org/assets/pdfs/cancer-and-the-environment.pdf>

³⁷ Living downstream (film and book) and Walking upstream (community guide) see http://www.livingdownstream.com/use_guides

cancer prevention will depend on addressing other co-occurring and interactive risk factors along with the broader set of social conditions that influence these exposures".³⁸

With cancer affecting ever greater numbers of people and killing one in every four Europeans, and costs of health care systems becoming perilously unaffordable for many countries, we can no longer afford to downplay environmental risk factors, particularly chemical contaminants, and neglect to prevent the cancers that their reduction and elimination can bring.

What you can do to minimise exposure to harmful chemicals

1. Eat low on the food chain. Many harmful chemicals are concentrated in animal fats and tissues of animals and fish high in their respective food chains.
2. Buy organic food whenever possible.
3. Avoid unnecessary exposure to chemicals, particularly garden and indoor pesticides, homecare products, such as paints and detergents, and personal care products including cosmetics.
4. When possible, instead of using sunscreen to avoid sunburn, keep in the shade or cover up with loose fitting but tightly woven clothes and a hat.

Useful documents:

WMA Statement on Environmental Degradation and Sound Management of Chemicals
<http://www.wma.net>

Standing Committee of European Doctors (CPME) Statement on Environment and Health, 2005
http://cpme.dyndns.org:591/adopted/CPME_AD_Brd_030905_100_EN.pdf

Collaborative on Health and the Environment consensus statement
<http://www.healthandenvironment.org/about/consensus>

Living with chemicals, Danish Ministry of the Environment
http://www.mst.dk/English/Focus_areas/LivingWithChemicals/default.htm

For more information about HEAL's cancer and the environment work, please contact Lisette van Vliet, Ph.D. lisette@env-health.org

This paper was initially developed as part of HEAL preparations for the WHO conference on environmental and occupational determinants of cancer - interventions for primary prevention, Asturias, March 2011. It draws on the outcome of HEAL's meeting on Cancer and the Environment in December 2008 and on the European Parliament's report on cancer last year. It was prepared by HEAL secretariat with input from HEAL members working specifically on cancer prevention and from Cancer working group members in the Collaborative on Health and Environment, USA.

³⁸ Collaborative on Health and the Environment. Consensus Statement on Cancer and the Environment. <http://www.healthandenvironment.org/cancersignon>

APPENDIX:

Recommendations from the US President's Cancer Panel Report

1. A **precautionary, prevention-oriented approach** should replace current reactionary approaches to environmental contaminants in which human harm must be proven before action is taken to reduce or eliminate exposure. This approach should be the cornerstone of a new national cancer prevention strategy that emphasizes primary prevention, redirects both research and policy agendas, and sets tangible goals for reducing or eliminating toxic environmental exposures implicated in cancer causation.
2. A **thorough new assessment of workplace and other exposures** is needed to quantify current health risks
3. More **integrated, transparent, coordinated system for promulgating and enforcing environmental contaminant policy and regulations** must be developed to protect public health.
4. **Epidemiologic and hazard assessment research** must be continued and strengthened in areas where the evidence is unclear, especially research on workplace exposures, the impact of in utero and childhood exposures and exposures that appear to have multigenerational impacts.
5. **Measurement tool development and exposure assessment research** including the development of new research models and endpoints should be accelerated to enable better quantification of exposures at individual, occupational and population level.
6. The cancer risk attributable to **residential radon exposure** has been clearly demonstrated and must be better addressed.
7. Actions must be taken to minimize **radiation exposure from medical sources**.
8. The **unequal burden of exposure** to known and suspected carcinogens must be addressed.
9. Physicians and other medical personnel should routinely query patients about their **previous and current workplace and home environments** as part of the **standard medical history**. This information will increase the likelihood that environmental factors in cancer and other illnesses are considered and will strengthen the body of information on environmental exposures and disease. Data on workplace and home environmental history should be incorporated into existing and forthcoming medical records systems.
10. **Green Chemistry initiatives and research** should be pursued and supported more aggressively but new products should be well studied before and following their introduction into the environment and stringently regulated to ensure their short and their long term safety.
11. **Public health messages** should be developed and disseminated to raise awareness of environmental cancer risks and encourage people to reduce or eliminate exposures whenever possible.