

OVERVIEW OF RISK FACTORS

Cancer can be caused by a variety of known risk factors, many of them preventable.

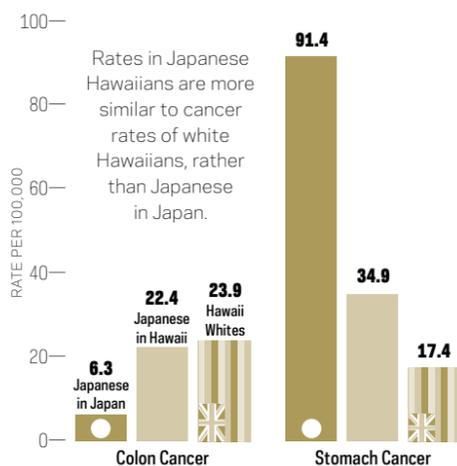
ENVIRONMENT

Cancer is mainly an environmental disease, as evidence in migrants suggests, with changes in risk that match those found in their new environment, sometimes even in first-generation immigrants. The *IARC World Cancer Report* addresses a number of risk factors for cancer.

①

Cancer is more often caused by the environment a person lives in, rather than his or her innate biology.

CANCER INCIDENCE AGE-STANDARDIZED RATES (WORLD) PER 100,000, CIRCA 1970



TOBACCO

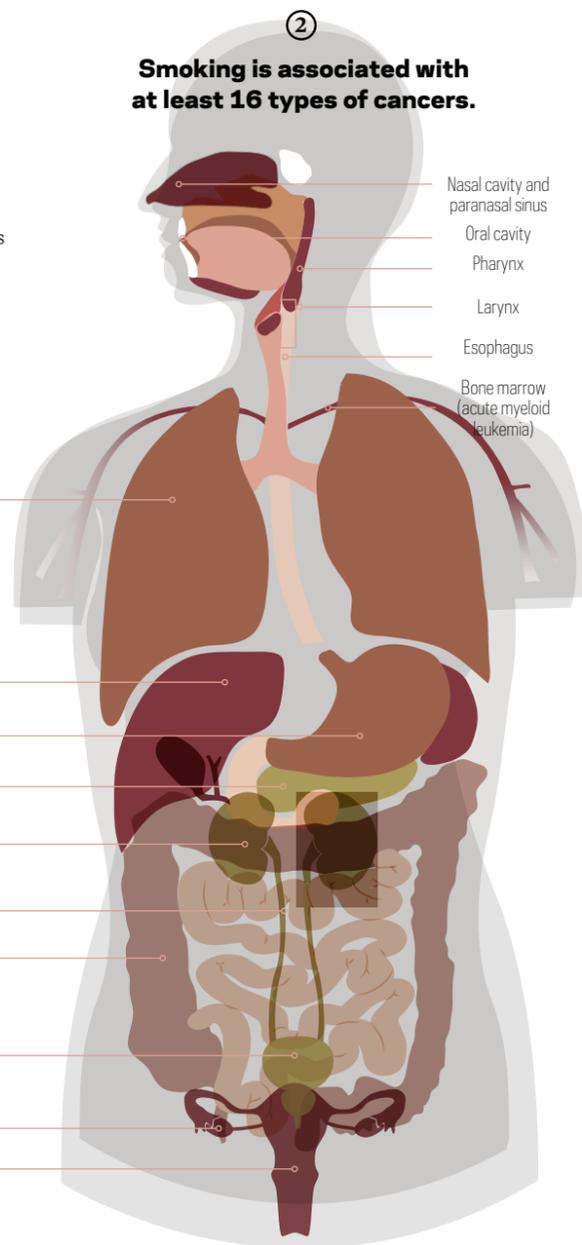
An estimated 1.3 billion people worldwide currently smoke tobacco, with the vast majority of these people smoking manufactured cigarettes. All forms of tobacco are carcinogenic; smoking causes over 16 types of cancer and accounts for about one-fifth of global cancer deaths. Nearly 40% of the reductions in male cancer death rates between 1991 and 2003 in the USA are thought to be attributed to smoking declines in the last half-century.

Smoking accounts for more than **20% of all cancer deaths worldwide.**

Lungs
Smokers are **15-30 times** more likely to get lung cancer than non-smokers.

- Liver
- Stomach
- Pancreas
- Kidneys
- Ureter
- Colorectum
- Urinary bladder
- Ovaries
- Cervix

Smoking is associated with at least 16 types of cancers.



OCCUPATIONAL CARCINOGENS

The importance of occupational origin for a number of cancers, including mesothelioma, sinonasal, lung, nasopharynx, breast, non-melanoma skin cancer, bladder, esophagus, soft tissue sarcoma and stomach, has been highlighted in high-income countries. The carcinogens involved are asbestos, mineral oils, silica, diesel engine exhaust, coal

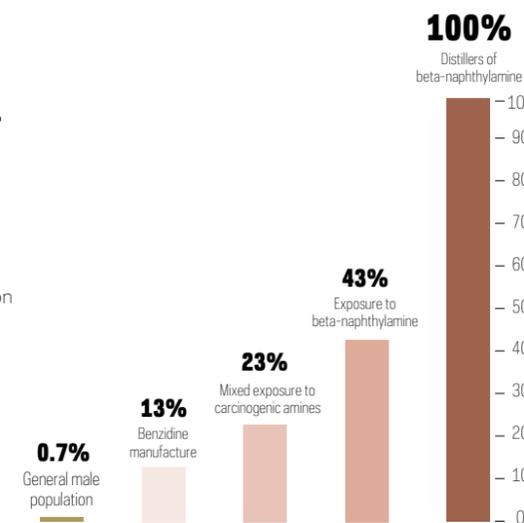
tars and pitches, dioxins, environmental tobacco smoke, radon, tetrachloroethylene, arsenic and strong inorganic mists, and occupational exposures, including shift work, painting or welding. An emerging problem that needs to be addressed is that high-risk professions are now commonly exported to low-income countries.

③

Increasing intensity of occupational exposure to carcinogens carries increasing risk of developing cancer.

PERCENT OF MALES WHO DEVELOPED BLADDER CANCER BY OCCUPATIONAL EXPOSURE DURING THE MID-1900s

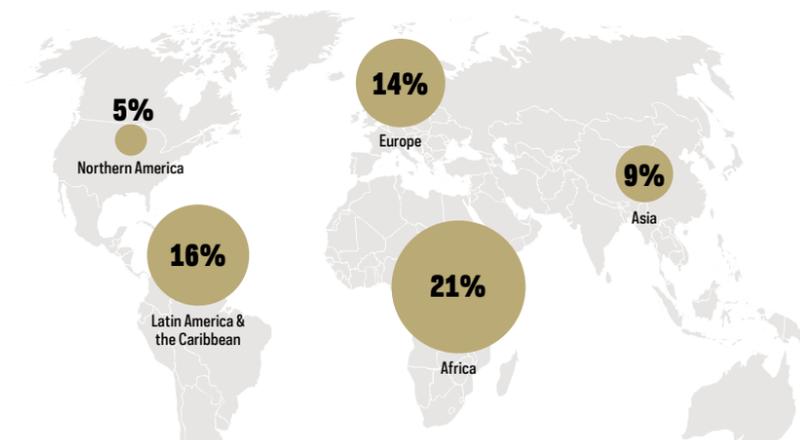
While a small proportion of the general male population will develop bladder cancer, the proportion of men who will develop bladder cancer increases with their increased intensity of exposure to occupational carcinogens. The observation by Case et al. that 100% of workers at distillers of beta-naphthylamine in the mid-1900s developed bladder cancer is a unique case in history.



④

Compared with Northern America, the estimated prevalence of human papillomavirus (HPV), the leading cause of cervical cancer, is about three times as high in Europe and Latin America, and four times as high in Africa.

ESTIMATED HPV PREVALENCE (%), ALL TYPES COMBINED, AMONG WOMEN BY REGION, 1995-2009



Human papillomavirus types 16 and 18 are the most prevalent types of HPV worldwide, accounting for over 70% of all cervical cancer cases.

OTHER RISK FACTORS

Other known risk factors include reproductive factors, environmental pollutants, and ultraviolet (UV) exposure. The extent of exposure to environmental carcinogenic pollutants is unknown, particularly in low-income countries, though the burden adds up to several hundred thousand newly diagnosed cancers per year just for arsenic, air pollution, aflatoxin, polychlorinated biphenyls, and asbestos. Another environmental factor that is not man-made but is an important and preventable risk factor for skin cancer is excessive exposure to UV radiation, primarily from the sun, but also as a result of indoor tanning.

INFECTIOUS AGENTS

According to a recent analysis, 16.1% of all cancers worldwide in 2008 were due to infectious agents. This fraction (the reduction in cancer if exposure to these infections was reduced to zero) was higher in less-developed countries (22.9%) than in more-developed countries (7.4%), and varied from 3.3% in Australia and New Zealand to 32.7% in Sub-Saharan Africa.

DIET

Obesity is a risk factor for breast (post-menopausal), colorectal, endometrial, kidney, esophageal and pancreatic cancers, though the burden of such diseases explained by diet, weight, and body fat is still uncertain. Alcohol use is clearly associated with liver, aero-digestive tract, breast and colorectal cancers. Dietary recommendations on dietary cancer prevention have been issued by the World Cancer Research Fund.

⑤

Dietary recommendations from the WCRF/AICR

The World Cancer Research Fund (WCRF/AICR) has released (and periodically updates) guidelines for cancer prevention:

1. Be as lean as possible without becoming underweight.
2. Be physically active for at least 30 minutes every day.
3. Avoid sugary drinks. Limit consumption of energy-dense foods (particularly processed foods high in added sugar, low in fiber, or high in fat).
4. Eat a variety of vegetables, fruits, whole grains, and pulses such as beans.
5. Limit consumption of red meats (such as beef, pork and lamb) and avoid processed meats.
6. Limit alcoholic drinks to 2 drinks per day for men and 1 drink per day for women.
7. Limit consumption of salty foods and foods processed with salt (sodium).
8. Don't use supplements to protect against cancer. Instead, choose a balanced diet with a variety of foods.