

Chronic disease epidemiology definitions

Multifactorial Etiology- Various factors that cause disease.

Latency Period- The time between exposure of a risk factor and the onset of symptoms.

Physical Stresses- Excessive heat/cold, radiation, housing, workplace injuries and climate change.

Risk Factor- Behaviors, environmental exposure, or inherent human characteristic that increases the likelihood of an adverse health outcome.

Risk factors and Environment

Environmental risk factors include: Allergens, asbestos, arsenic, noise, radiation, and smoke.

Physical, Chemical, and Biological environment risk factors include: Worksite exposures, environment exposures, poverty, low educational level, smoking, alcohol use, nutrition/diet, congenital anomalies, and developmental defects.

Inhalation- Breathing radioactive chemicals into the lungs.

Ingestion- Swallowing radioactive material.

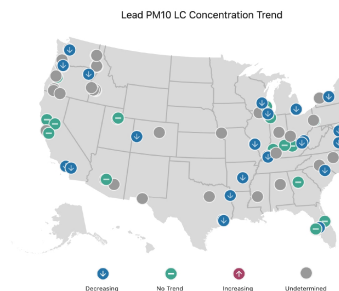
Direct- External exposure.

Radiation publication

<https://ncrponline.org/publications/reports/ncrp-report-160-2/>

"NCRP Report 160 | NCRP | Bethesda, MD." Ncrponline.org, ncrponline.org/publications/reports/ncrp-report-160-2/.

Chemicals in the air



The above image shows the lead concentration trend in the U.S.

Office, EPA. "Air Quality Trends Show Clean Air Progress." Epa.gov, 2020, gispub.epa.gov/air/trendsreport/2020/#air_toxics_trends. Accessed 22 Feb. 2025.

Lead and health

Although, the trend of lead exposure has decreased, the severity of lead remains severe. Lead can be ingested through food, soil, water, and dust.

Consequences from lead exposure include damage to organs, osteoporosis, seizures, mental retardation and more.

Lead exposure has been found in lead paint and leaded gasoline. Now are both banned in the U.S. and consequently, blood lead levels lowered.

Definitions

Definition

Biologic agent: a living organism, such as viruses, bacteria, toxins, or parasites, that can cause disease in humans, animals, or plants.

and Cancer relationship

Virus examples: human papillomaviruses (HPV), hepatitis B virus (HBV), hepatitis C virus (HCV), Epstein-Barr virus (EBV), Kaposi's sarcoma-associated herpesvirus (KSHV) (also called human herpesvirus 8), human T-cell lymphotropic virus (HTLV-1), and Merkel cell polyomavirus (MCPyV).

Cancer examples: Burkitt's lymphoma, liver cancer, Adult T-cell leukemia, Kaposi's sarcoma, and cancer of the cervix, anus, penis, vagina, vulva and oropharynx.

Virus and Cancer relationship article

<https://pmc.ncbi.nlm.nih.gov/articles/PMC8336782/>

Schiller, John T., and Douglas R. Lowy. "An Introduction to Virus Infections and Human Cancer." *Viruses and Human Cancer*, vol. 217, 18 Nov. 2020, pp. 1–11, https://doi.org/10.1007/978-3-030-57362-1_1.

Virus and Cancer relationship chart

Behavior and diet with chronic disease.

Behavior and lifestyle choices are responsible for coronary heart disease deaths, cancer deaths, lung cancer, mental disorders, work-related injuries, and diabetes

Lifestyle choices include: smoking, poor nutrition, exercise, sexual activity, and alcohol intake.

Malnutrition: condition caused by insufficient vitamins, minerals, or other nutrients.

Undernutrition: lack of vitamins, minerals and other nutrients.

Overnutrition: Excessive intake of nutrients.

Disability and chronic disease article

<https://www.cdc.gov/chronic-disease/about/index.html>

CDC. "About Chronic Diseases." Centers for Disease Control and Prevention, 4 Oct. 2024, www.cdc.gov/chronic-disease/about/index.html.

Chronic disease prevention

Quit smoking, eat healthy, regular exercise, limit alcohol, regular health screening, know your family history, and get enough sleep.

Chronic disease prevention

Toxicokinetic: The study of how a chemical substance and the process it undergoes when inside the body.

Biotransformation: The change of a chemical within the body.

U.S. Official website of the United States government: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8336782/>

New! Full text article is FREE
*Recent Health-Cancer Free Author manuscript available in PMC: 2023 Aug 4
Published in final form as: *Recent Results Cancer Res*. 2023;2173–21. doi: [10.1007/978-3-030-57262-1_10](https://doi.org/10.1007/978-3-030-57262-1_10)

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Table 2.
Prevalence of viruses in virus-associated cancers

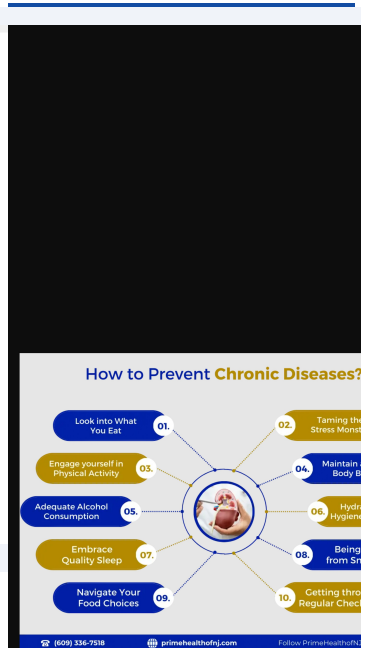
Virus	Cancer	Geographical area	Attributable fraction (%)
HPV	Cervix	World	100
HPV	Penile	World	52
HPV	Anal	World	88
HPV	Vulvar	World	48*
HPV	Vaginal	World	78
HPV	Oropharynx	North America	51
HPV	Oropharynx	India	52
HPV	Laryngeal	World	4.4
HBV	Liver	Developing	50*
HBV	Liver	Developed	23*
HCV	Liver	Developing	54*
HCV	Liver	Developed	20*
EBV	Hodgkin's lymphoma	Africa	74
EBV	Hodgkin's lymphoma	Asia	56
EBV	Hodgkin's lymphoma	Europe	36
EBV	Burkitt's lymphoma	Sub-Saharan Africa	100
EBV	Burkitt's lymphoma	Other regions	20–30
EBV	Nasopharyngeal carcinoma	High-incidence areas	100
EBV	Nasopharyngeal carcinoma	Low-incidence areas	80
KSHV	Kaposi's sarcoma	World	100
HTLV-1	Adult T-cell leukemia and lymphoma	World	100
MCPyV	Merkel cell carcinoma	North America	70–80*

Data from [Blasner et al. 2014] unless otherwise indicated
*Age 15–54 yrs
*Data from [de Martel et al. 2011]
*Estimate from [Ditteld and Nupuram 2013]

https://doi.org/10.1007/978-3-030-57262-1_10

The above image illustrates cancers that have a strong association with certain viruses.

“Table - PMC.” Nih.gov, 2021, pmc.ncbi.nlm.nih.gov/articles/PMC8336782/table/T2/. Accessed 23 Feb. 2025.



“Prime Health Care.” Prime Health of New Jersey, 28 Aug. 2023, primehealthofnj.com/10-ways-to-prevent-chronic-diseases/.



By **xriley**
cheatography.com/xriley/

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