Cancer

This metadata page provides a brief summary of this dataset. More detailed data and metadata may be available from the Louisiana Tumor Registry and the LDH Tracking Program. Please refer to the contact information on the last page under 'Questions?'

Definition

Cancer is a general term for disease in which abnormal cells in the body divide uncontrollably and invade other tissues. Cancer can occur in any organ and in any cell type within the body. Cancer cells spread throughout the body through the blood and lymph systems. There are over 100 different kinds of cancer, many of which form solid tumors, or masses of tissue. Cancers of the blood, such as leukemias, generally do not form solid tumors.

Data Sources

- Louisiana Tumor Registry

The Louisiana Department of Health (LDH) Environmental Public Health Tracking ('LDH Tracking') Program receives cancer data updates in partnership with the Louisiana State University Health Sciences Center (LSUHSC) Louisiana Tumor Registry (LTR). Data are displayed on the LDH Health Data Explorer. To view these data with environmental, population health and exposure data, visit: Explore Data. Cancer data for the selected 23 + types can also be explored in more expansive ways via the LTR Louisiana Interactive Data Visualization.

The LDH Tracking Program and the US Centers for Disease Control and Prevention (CDC) are able to provide these data and visualizations to the public through Cooperative Agreement (#1NUE1EH0014900).

Vintage: The latest datasets available on the Health Data Explore as of February 2024 include:
- Cancer Counts and Rates, by Parish and State, 5-yr (2000-2004 through 2018-2022) and 10-yr (2000-2009 through 2013-2022)
- Age-adjusted cancer incidence rates by Census Tract, 10-yr
  - o 2022 Report: 2009-2018
  - o 2025 Report: 2012-2021

Data Measure(s)

The following cancer data are available for query in the LDH Tracking Health Data Explorer through an LTR Partnership. Please visit: https://sph.lsuhsc.edu/louisiana-tumor-registry/ for more information:

- Average Annual Age-adjusted Cancer Incidence Rates per 100,000 and Counts, by State, Parish, and Census tract, at 5- and 10-year aggregations.

LDH Tracking Program tracks the average annual incidence rates and the annual counts of new cases for the following 23+ types of cancer for all age groups and, if noted, childhood groups:

- Acute Lymphocytic Leukemia (includes childhood)
- Acute Myeloid Leukemia (includes childhood)
- All Types Combined
- Brain and Central Nervous System (includes childhood)
- Breast (Female and Male)
- Cervical
- Chronic Lymphocytic Leukemia
- Colon & Rectum
- Corpus Uterus
- Esophagus
- Kidney & Renal Pelvis
- Larynx
- Leukemia (includes childhood)
- Liver and Intrahepatic Bile Duct
- Lung
- Melanoma of the Skin
- Mesothelioma
- Myeloma
- Non-Hodgkin Lymphoma
- Oral Cavity and Pharynx
- Ovary
- Pancreatic
- Prostate
- Small Intestine
- Stomach
- Thyroid
- Urinary Bladder

Explore Data

The LDH Health Data Explorer (https://healthdata.ldh.la.gov/) is an online query tool which allows health, environmental hazard, exposure and population data to be explored and viewed side-by-side in tables, charts, and maps. Data can be viewed, printed and downloaded for further analysis.

To *Explore Data* on the query tool:
Step 1: Select Dataset
Category: **Health Outcomes**
Topic: **Cancer**

For all Louisianans combined, the most frequently diagnosed cancers were prostate (14.8% of all new cases), breast (13.9%), lung (13.1%), colorectal (9.0%), and kidney (4.8%) (Incidence, 2017-2021) LTR, Cancer in Louisiana, Volume 39

Cancer and your Health

According to the CDC Mortality report 2021, ***cancer is the second leading cause of death in Louisiana***. (Heart Disease is #1). Although there continue to be significant developments, the cause of many cancers is still not understood. More science is needed to understand and prevent cancer. About one in three people are diagnosed with cancer at some time in their life, and about one in five dies of cancer.

Latency. Most cancers develop slowly and can appear within the span of 5 to 40 years after exposure to a carcinogen. A carcinogen is a substance, agent, or organism that is capable of causing cancer. For example, ***the latency of cancer of 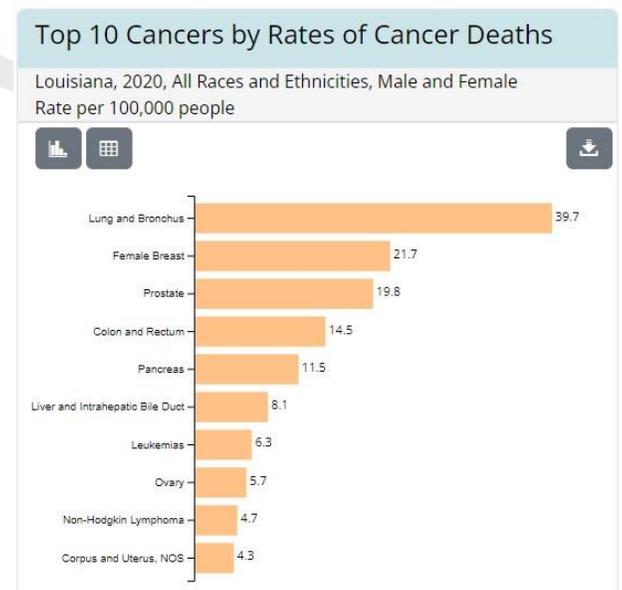the lung could be 30+ years after exposure***. Although cancer can develop in children and adults, it is most common among middle-aged and elderly persons. The number of cancer cases has risen dramatically over the past 40 years; however much of this increase is a reflection of both the increase in population, and better reporting. According to the American Cancer Society, cancer mortality (death) rates from all causes have been on the decline since 1992, as have incidence rates (the rate of new identified cases). The reason for this is understood to be in large part due to a. reductions in tobacco use and b. advances in early detection and treatment.

Figure 1. Cancer Mortality in Louisiana, [CDC NCHS 2020](#)

Advances in Genetic Sciences, or 'DNA'. Genetics and family history play an important role in the diagnosis of cancer. A lot is being learned at a rapid pace, which can assist to find out more about hereditary factors as genes and traits which are passed down from one generation to the next. ***About 5-10 percent of cancer diagnoses are attributed to mutations in specific genes***. According to the National Cancer Institute, researchers have identified over 50 hereditary cancer syndromes (disorders that may predispose individuals to developing certain cancers).

Certain personal habits, activities and lifestyle have been shown to be <u>protective</u> and <u>can reduce cancer risk</u>:

- Good nutrition
- Regular exercise
- Being informed of the risks, and limiting the use of certain medications or drugs
- Protection from too much sun or sources of medical radiation
- Not smoking or being around second-hand smoke

Cancer and the Environment

Repeated, typically long-term contact with carcinogens in the environment can lead to cancer. Cancer causing chemicals may be found in the outdoor or indoor air, drinking water or recreational water, food, in certain types of drugs (including medicinal), or in the workplace. Smoking tobacco, exposure to sunlight or medical x-rays, or infection with bacteria such as *Helicobacter pylori* or *Chlamydia trachomatis* (American Cancer Society 2023) are also known to cause specific cancers. ***Some of the leading associations between chemicals in the environment and cancer have been learned through occupational exposures.***

Pharmaceuticals/medicines, and other substances which we choose to ingest are believed to account for, or contribute to, specific cancers. Some studies suggest substance abuse and addiction could be associated with *up to 30%* of all cancer deaths. This combines tobacco, alcohol, and drugs.

A completed "exposure pathway" is crucial to understanding the associations between environmental pollutants/contaminants and what causes cancer. An exposure pathway consists of many process elements: the duration of time exposed, route of exposure (inhalation, dermal, ingestion, etc.), dose, toxicity of the chemical, and health factors (age, weight, underlying conditions) among others.

As mentioned above, the *latency* of cancers must be taken into consideration when studying potential environmental exposures that could develop into cancer.

Co-factors (a contributing cause of disease) and *confounding factors* must additionally be addressed, which make environmental health study more complex.

Figure 2. Examples of Environmental Exposures that Have Been Implicated in Causing Cancer (Directly or ^Strongly Suspected)

- **RADIATION**
---Radioactive **radium** (eg., in painted radial dials). Radium is mistaken for calcium in the human body and may be incorporated into bone causing **bone cancer, lung cancer**
---**Radiation** exposure and **thyroid cancer**
---**Ultraviolet Radiation (UV)** (from the sun) and **skin cancer (carcinoma and melanoma)**
---**Radon** and **Lung Cancer**
---**Nuclear radiation** (plant accidents, fallout from bombs) isotopes of iodine, cesium, strontium, and plutonium and many cancers (for example, affecting Japanese civilians, WWII)

- **CHEMICALS**
--- **Asbestos** and **Mesothelioma,** which is a rare but aggressive form of cancer, and *potentially ^uterine or ^ovarian cancers (still being studied)*
--- **Lead arsenate** (arsenic, pesticide and insecticide) and **lung, bladder, skin cancers**
--- **Vinyl chloride** exposure associated with cancers of the **liver, brain, lung, lymphoma, and leukemia**
--- Polycyclic aromatic hydrocarbons **(PAH)** present in **creosote or coal tar** and **testicular cancer** (e.g., chimney sweeps)
--- **hexavalent chromium**, or **chromium-6 (CrVI)** and **various cancers** (see: Erin Brockovich water well contamination, others)
--- **glyphosate** herbicide to **lymphoma, myeloma and leukemia**
--- dichlorodiphenyltrichloroethane **(DDT)** (used as an insecticide, see: Rachel Carson 'Silent Spring') and **various cancers**
--- **Trichloroethylene (TCE)** and **^leukemia** (eg., Woburn, MA featured in 'A Civil Action')
--- **Volatile Organic Compounds (VOCs)** and **male breast cancer, various other cancers** (eg., Camp Lejeune water well contamination)

A confounding factor is a variable which is related to one or more of the variables defined in a study-it can mask an actual association or falsely demonstrate an apparent association between the study variables where no real association between them exists.

In many cases, *baseline data* may not be available for an accurate study. If important data have never been collected, or are incomplete, changes can't be accurately assessed.
Underlying health factors (hypertension, diabetes, and obesity, etc.) must be considered.

Health Equity considerations (for example, access to health care), *environmental justice* considerations (such as proximity to industrial sites in high poverty areas), and *cumulative environmental impacts* must each be addressed in an appropriate study design. Some communities are located within the proximity of several overlapping potential exposures. *Social vulnerability* and *general population health* can't be excluded either when studying associations between the environment and cancer.

Data Methods

Data Privacy and Suppression. To comply with legislative restrictions pertaining to HIPAA rules for protecting cancer patient privacy and USCS standards for generating reliable cancer incidence rates, the Louisiana Tumor Registry (LTR) does not release rates or counts below certain thresholds. Cancer rates based on 16 or fewer cases may not be reliable, thus these rates are not released. Counts of under 6 cases are considered confidential data and are not released.

Suppressed values are not displayed. Suppression is a method of protecting health data confidentiality when small numbers are reported. Suppression rules, which vary by data source, generally restrict the extent to which health data can be shared publically. Primary and secondary suppression techniques are used to prevent someone's personal health information from being discoverable by the general public. On the LDH Health Data Explorer, numbers and rates that are suppressed are displayed as asterisks (*) and are cross-hatched in grey on graphs and maps. Blanks or Gray indicate "No Data."

Data 'Smoothing'. Only 'non-smoothed' data values are included in this dataset. Smoothed rates or measures are available by the CDC Tracking Program and currently include stratifications for age group and gender. They can be used to identify patterns or trends across a state or group of counties.

Rate Variability. 95% Confidence Intervals are included with parish-level cancer rates to provide an indication of data variability. For more information, please refer to the Louisiana Tumor Registry and the data methods section of this metadata.

Data Limitations and Important Considerations

PARISH AND STATE-LEVEL DATA

    a. Data are reported by tumor type or cancer site. Information is collected for each separate cancer when a person is diagnosed with more than one type of cancer.

    b. Cancer case definitions are based on Surveillance Epidemiology and End Results (SEER) Site Recode classifications: https://seer.cancer.gov/siterecode/.

    c. The data describe invasive cases only with the exception of in situ and invasive cases for bladder cancer.

d. Average Annual Incidence Rates are age-adjusted to the 2000 U.S. standard population. Rates for Louisiana are based on the entire state population combined, rather than an average of all the parish rates.

e. Cancer incidence rates are related to periods of time and are calculated based on the exact date of onset of a new case of cancer (i.e. the date of diagnosis).

f. Cancer rates based on 16 or fewer cases may not be reliable, thus these rates are not released. Counts of under 6 cases are considered confidential data and are not released.

g. U.S. Rates are based on data from the SEER 17 Regions beginning with data updates in 2022 (through dx year 2019). Data updates in 2021 and prior included US data based on the SEER 18 regions.

h. Records with unknown age, gender or parish of residence are not included in these data.

i. In 2005, Hurricanes Katrina and Rita impacted populations and record keeping within the Gulf Coast. Thus, the average annual incidence rates were calculated using the number of cases diagnosed in the first half of 2005 from January – June. Assumptions were made that there was an equal number of cancers during July – December 2005.

j. Parish of residence is based on the address at the time of diagnosis. No information is available on the location of prior residences or personal exposure history.

k. Rates normally vary from one parish to another, and the differences may sometimes be significantly higher or lower than the statewide average. It's important to remember, however, that a parish border is just a line that usually has no meaning in a biological sense. When one crosses that line, the environmental conditions don't change. Nor do residents' family histories or genes. On the other hand, differences by race or by sex are often important, as they reflect biological and genetic differences as well as possible differences in exposures to carcinogens or in access to healthcare. Public health professionals study those variations to target places where screening programs are needed—or where screening programs have led to a decline in incidence.

CENSUS TRACT-LEVEL DATA. For specific information and metadata, please reference the full reports provided by the Louisiana Tumor Registry. Reports are provided at the following website: https://sph.lsuhsc.edu/louisiana-tumor-registry/data-usestatistics/. Features include a section on "How to Identify Your Census Tract" within the report introduction

l. Census Tract: An eleven-digit number identifies the census tract. Digits 1 and 2 are the state code. For Louisiana, this is "22." Digits 3-5 are the parish code. For example, Acadia Parish is "001." Digits 6-11 are the census tract code. See report introduction for further clarification on census tract codes.

m. Background: In 2017, during the Louisiana Regular Session, legislators passed House Bill 483 (Act No. 373), authorizing the LTR to publish cancer incidence counts and rates for individual census tracts, unless such data would disclose the identity of any person to whom the data was related, thus violating the requirements of the Health Insurance Portability and Accountability Act (HIPAA), which governs the use and disclosure of protected health information (45 CFR 164.514). Public cancer incidence data below the parish level in Louisiana first became available through LTR reports in 2018.

n. These reports contain the cancer incidence data for diagnosis years by specific cancer types. Incidence rates and counts for certain cancers are not provided because even after combining ten years of data together, the case counts are too low and/or the population size is too small

to meet the publication criteria. The LTR only collects data on reportable cancers as defined by national standard setters.

o. Publication Criteria: To comply with legislative restrictions pertaining to HIPAA rules for protecting cancer patient privacy and USCS standards for generating reliable cancer incidence rates, the LTR combined cancer data from multiple years to increase the number of census tracts meeting the publication criteria (population >20,000 and case count ≥16) so that their cancer incidence could be presented in this report.

p. Cancer incidence rates in this report are presented as age-adjusted rates, which is a standard way to report cancer rates. The age adjustment allows for meaningful comparisons of cancer incidence rates across different census tracts by controlling for differences in age distributions of the populations. This control is important because cancer is diagnosed more frequently among the elderly. Age-adjusted rates are the weighted average of the age-specific rates, where the weights represent the age distribution of a standard population. The 2000 U.S. Standard Population was used in this report, which is consistent with current publications of cancer incidence rates in the U.S.

q. Please refer to individual reports for more information on cancer incidence calculations, the population data used and data summary/discussion.

Data Re-release

This is a public dataset which can be freely shared. Personally identifiable health information has been removed. Please refer to the Data Methods section of these metadata from more information.

Data Citations

Please cite the US CDC, LDH Environmental Public Health Tracking Program Cooperative Agreement NUE1EH001490, and any data source(s) listed on Page 1 when re-sharing or applying these data in analyses or publications.

Disclaimer

Data are intended to spur further research and should be used only as a starting point to understanding how the environment and other contributing factors may be connected to disease. Datasets presented on the LDH Health Data Explorer site are intended to answer some basic questions, but should ultimately lead to further inquiry and more detailed study.

Data limitations should be noted when conducting exploratory ecological studies with these data. Limitations may include data gaps, reporting discrepancies (for example, a disruption of reporting or instrument recording) and insufficient data are all potentially confounding factors. There are numerous additional factors which may contribute to disease onset. These include genetics, access to health care, existing health conditions, medicines, other chemical substances we come into contact with or ingest, nutrition, route and duration of exposure, level of activity, level of stress, and others.

Responsible use of this data requires exercising caution when drawing conclusions based solely on views of the limited available data. Any perceived relationship, trend, or pattern apparent in the data should not be interpreted to imply causation; may in fact be unrelated; and should be regarded as preliminary,

and potentially erroneous, until more in-depth study and if applicable, statistical evaluation, can be applied.

The LDH Bureau of Health Informatics and Environmental Public Health Tracking Program cannot guarantee the completeness of the information contained in these datasets and expressly disclaim liability for errors and omissions in their content.

Additional Information

Please visit the following links for more information:

- Louisiana Cancer Prevention & Control Programs
- Louisiana Interactive Data Visualizations
- Annual LTR monographs, Cancer in Louisiana
- LTR Cancer Facts & Figures online publication, which includes downloadable Adobe documents
- State Cancer Profiles | CDC and the National Cancer Institute
- North American Association of Central Cancer Registries (NAACCR) | Cancer in North America
- CDC Cancer Prevention and Control
- National Cancer Institute | What is Cancer?
- Agency for Toxic Substances and Disease Registry | Health Effects of Exposure to Substances and Carcinogens
- Agency for Toxic Substances and Disease Registry | Chemicals, Cancer, and You Fact Sheet
- American Cancer Society
- US Centers for Disease Control and Prevention (CDC) National Center for Health Statistics (NCHS) Key Health Indicators
- America's Health Rankings | Cancer in Louisiana
- National Institutes of Health (NIH) National Cancer Institute (NCI) NIH State Cancer Profile: Death Rate Report for Louisiana by County

Questions?

- Email: healthdata@la.gov
- Website: http://ldh.la.gov/tracking
- Toll free Phone: 1-888-293-7020