

**environmental health:** The study of environmental factors that influence human health and quality of life and health of ecological systems essential to environmental quality and long-term human well-being.

**physical hazards:** Physical processes that occur naturally in our environment and pose human health hazards. These include discrete events such as earthquakes, volcanic eruptions, fires, floods, blizzards, landslides, hurricanes, and droughts, as well as ongoing natural phenomena such as ultraviolet radiation from sunlight.

**chemical hazards:** Chemicals that pose human health hazards. These include toxins produced naturally, as well as many of the disinfectants, pesticides and other synthetic chemicals that our society produces.

**biological hazards:** Human health hazard that result from ecological interactions among organisms. These include parasitism by viruses, bacteria, or other pathogens.

**infectious disease:** A disease in which a pathogen attacks a host.

**vector:** An organism that transfers a pathogen to its host. An example is a mosquito that transfers the malaria pathogen to humans.

**cultural hazards:** Human health hazards that result from the place we live, our socioeconomic status, our occupation, or our behavioral choices. These include choosing to smoke cigarettes, or living or working with people who do.

**noninfectious diseases:** A disease that develops as a result of the interaction of an individual organism's genes, lifestyle, and environmental exposures, rather than by pathogenic infection.

**toxicology:** The scientific field that examines the effects of poisonous chemical and other agents on humans and other organisms.

**toxicity:** The degree of harm a chemical substance can inflict.

**toxicant:** A substance that acts as a poison to humans or wildlife.

**environmental toxicology:** The study of toxicants that come from or are discharged into the environment, including the study of health effects on humans, other animals, and ecosystems.

**radon:** A highly toxic, radioactive, colorless gas that seeps up from the ground in areas with certain types of bedrock and that can build up inside basements and homes with poor air circulation.

**asbestos:** Any of several types of mineral that form long, thin microscopic fibers—a structure that allows asbestos to insulate buildings for heat, muffle sound, and resist fire. When inhaled and lodged in lung tissue, asbestos scars the tissue and may eventually lead to lung cancer.

**asbestosis:** A disorder resulting from lung tissue scarred by acid following prolonged inhalation of asbestos.

**lead poisoning:** Poisoning by ingestion or inhalation of the heavy metal lead, causing an array of maladies, including damage to the brain, liver kidney, and stomach; learning problems and behavioral abnormalities; anemia; hearing loss; and even death. It can result from drinking water that passes through old lead pipes or ingesting dust or chips from lead-based paint.

**lead:** A heavy metal that may be ingested through water or paint, or that may enter the atmosphere as a particulate pollutant through combustion of leaded gasoline or other processes. Atmospheric lead deposited on land and water can enter the food chain, accumulate within body tissues, and cause lead poisoning in animals and people. An EPA criteria pollutant.

**polybrominated diphenyl esters (PBDEs):** Synthetic compounds that provide fire-retardant properties and are used in a diverse array of consumer products, including computers, televisions, plastics, and furniture. Released during production, disposal, and use of products, these chemicals persist and accumulate in living tissue and appear to be endocrine disruptors.

**toxin:** A toxic chemical stored or manufactured in the tissues of a living organism. For example, a chemical that plants use to ward off herbivores or that insects use to deter predators.

**carcinogen:** A chemical or type of radiation that causes cancer.

**mutagens:** A toxicant that causes mutations in the DNA of organisms.

**teratogen:** A toxicant that causes harm to the unborn, resulting in birth defects.

**neurotoxin:** A toxicant that assaults the nervous system. They include heavy metals, pesticides, and some chemical weapons developed for use in war.

**allergen:** A toxicant that overactivates the immune system, causing an immune response when one is not necessary.

**pathway inhibitor:** A toxicant that interrupts vital biochemical processes in organisms by blocking one or more steps in important biochemical pathways. Compounds in the herbicide atrazine kill plants by blocking key steps in the process of photosynthesis.

**endocrine disruptor:** A toxicant that interferes with the endocrine (hormone) system.

**phthalates:**

**acute exposure:** Exposure to a toxicant occurring in high amounts for short periods of time.

**chronic exposure:** Exposure for long periods of time to a toxicant occurring in low amounts.

**breakdown products:** A compound that results from the degradation of a toxicant.

**bioaccumulation:** . The buildup of toxicants in the tissues of an animal.

**biomagnification:** The magnification of the concentration of toxicants in an organism caused by its consumption of other organisms in which toxicants have bioaccumulated.

**case history:** Medical approach involving the observation and analysis of individual patients.

**epidemiological studies:** A study that involves large-scale comparisons among groups of people, usually contrasting a group known to have been exposed to some toxicant and a group that has not.

**dose-response analysis:** A set of experiments that measure the response of test animals to different doses of a toxicant. (usually quantified by measuring the proportion of animals exhibiting negative effects.)

**dose:** The amount of toxicant a test animal receives in a dose-response test.

**dose response curve:** A curve that plots the response of test animals to different doses of a toxicant as a result of dose-response analysis.

**LD<sub>50</sub>:** The amount of a toxicant it takes to kill 50% of a population of test animals.

**ED<sub>50</sub>:** The amount of toxicant it takes to affect 50% of a population of test animals.

**threshold dose:** The amount of a toxicant at which it begins to affect a population of test animals.

**synergistic effects:** An interactive effect (as of toxicants) that is more than or different from the simple sum of their constituent effects.

**probability:** A quantitative description of the likelihood of a certain outcome.

**risk assessment:** The quantitative measurement of risk, together with the comparison of risks involved in different activities or substances.

**risk management:** The process of considering information from scientific risk assessment in light of economic, social, and political needs and values, to make decisions and design strategies to minimize risk.

**Toxic Substances Control Act of 1976 (TSCA):** A 1976 U.S. law that directs the Environmental Protection Agency to monitor thousands of industrial chemicals and given the EPA authority to regulate and ban substances found to pose excessive risk.

**Frank R. Lautenberg Chemical Safety for the 21<sup>st</sup> Century Act:** U.S. legislation enacted in 2016 that updates the Toxic Substance Control Act and directs the EPA to monitor and regulate industrial chemicals.

**REACH:** Program of the European Union that shifts the burden of proof for testing chemical safety from national governments to industry and requires that chemical substance produced and requires that chemical substances produced or imported in amounts of over 1 metric ton per year be registered with a new European Chemicals Agency. REACH, which stands for Registration, Evaluation, Authorization, and Restriction of Chemicals, went into effect in 2007.