



The yearlong celebration of science continues...

Celebrate Science and Health: The YoS2009 December Theme



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➤ Science and Health

Health science builds upon an integration of biology, chemistry, and physics and has resulted in major advancements in medicine, surgical treatment, and the increased longevity of humans.

➤ Connecting Science and Health to Society

What do environmental and ecological health and human health have in common? We live on a dynamic planet that is increasingly affected by the demands of population growth and development. Scientists work continuously to provide scientific knowledge and information that improve our understanding of the environmental contributions to disease and human health.

Potential Contaminants and Pathogens in Air, Dusts, and Soils

A variety of human health problems have been linked to exposures to dusts, other atmospheric aerosols, and soils. For example, inhalation exposures to asbestos, silica, and some metal-rich dusts in industrial or occupational settings have been recognized for decades as triggers for disease. Health concerns also arise from exposures to other anthropogenic atmospheric particulates, such as automobile exhaust, urban air pollution, smelting and coal combustion byproducts, and debris from disasters such as the World Trade Center collapse.

Soils are recognized for their potential to affect human health, both as sources for deleterious dusts and pathogens, and, where contaminated by human activities, as sources for toxicity via ingestion exposures. Visit the U.S. Geological Survey's Web site to learn more: <http://health.usgs.gov/inhalation/>.

Chemical and Pathogenic Contaminant Exposure by Water

Safe drinking-water supplies are critical for protecting public health. Drinking water treatment and monitoring technologies are used by public water utilities to assure

compliance with existing federal and state drinking water standards. However industrial, agricultural, medical, and other societal needs continuously require a balance of new chemical development and termination of older chemicals. Some of these new and legacy chemicals, and water-borne pathogens, are understudied and can inadvertently enter our environment and threaten the quality of our water supplies. Therefore, the U.S. Environmental Protection Agency evaluates the efficacy of existing drinking water standards in light of emerging occurrence, toxicity, and other data while looking forward to the need for new standards and the possibility of raising or lowering existing standards. To learn more, visit: http://health.usgs.gov/dw_contaminants/.

Vector-borne and Zoonotic (animals to humans) Diseases

The potential of emerging diseases such as Avian Influenza (bird flu) to spread rapidly world-wide is accelerating research on zoonoses, diseases that are transmitted between animals and humans. Plans to investigate and either prevent or control such disease outbreaks involve coordination of standardized animal and human health data; increased collaboration among veterinarians, doctors, and wildlife biologists; and the development of early warning systems. http://health.usgs.gov/vector_zoonotic/.

Animal Sentinels of Human Health

Animals often are the first to come in contact with the microbes, contaminants, and pollutants that can make people sick. Animal symptoms and responses to conditions around them can serve as an early warning system for potential threats to human health. Earthworms, swallows, bats, other wildlife, and even our pets are all animal sentinels alerting us to disease, allergens, and contaminants in our environment. Learn more at: <http://health.usgs.gov/sentinels/index.html>.