

State of the Science on Molds and Human Health

Excerpt of a Report to the US House of Representatives

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Fungi are a kingdom of organisms that include mushrooms, mildews, molds, and yeasts. It is estimated that there are between 50,000 and 250,000 species of fungi, and fewer than 200 have been described as human pathogens that can cause infections. Molds are ubiquitous in nature and can grow almost anywhere indoors and outdoors. More than 1,000 different kinds of indoor molds have been found in U.S. homes. Molds spread and reproduce by making spores, which are very small and lightweight, able to travel through air, capable of resisting dry, adverse environmental conditions, and hence capable of surviving a long time. Molds need moisture and food to grow, and their growth is stimulated by warm, damp and humid conditions.

Molds can cause illnesses in situations other than humid indoor environments. We have documented that molds can cause infections in susceptible people, particularly in hospital settings where 9% of hospital-acquired infections are caused by fungi. Respiratory infections due to inhalation of the fungus *Aspergillus* have been documented mostly in immunocompromised individuals. Molds have also been associated with some cancers. Two mold-produced toxins (aflatoxins and ochratoxin A) have been classified by the National Toxicology Program as human carcinogens. Chronic ingestion of these toxins from eating contaminated foods has been associated with liver and kidney tumors in animals and people.

We also know that molds can cause illness when people are exposed to extensive mold growth indoors. In its 1993 report "Indoor Allergens", the Institute of Medicine (IOM) concluded that airborne fungal allergens were most often associated with allergic diseases, such as allergic rhinitis/conjunctivitis, allergic asthma, and hypersensitivity pneumonitis. In its 2000 report "Clearing the Air: Asthma and Indoor Air Exposures," IOM concluded that there is sufficient evidence of an association between exposure to mold and exacerbations of asthma. The IOM also stated that there was adequate evidence that molds caused people to become asthmatic.

Because molds can be harmful, CDC concurs with the general recommendations of agencies such as EPA and FEMA, which offer information on preventing and cleaning up mold growth in indoor environments. Linkages between indoor airborne exposures to molds and other health effects, such as bleeding from the lung or memory loss, have not yet been scientifically substantiated. CDC and other organizations are taking steps to fill the gaps in our knowledge about linkages between exposure to mold and human health.