

The Danger of Fires

According to the summary statistics of the Metropolitan Life Insurance Company between 1941 and 1975, fires accounted for 31.2% of all claims for losses relating to disasters. Fires account for nearly 30% of all disaster-related deaths. Nearly two thirds of all fires occur in homes. Fires cause approximately 1 million injuries a year. Because young people and children are the most common fire victims, fires are the single greatest cause of “years of life lost.” This statistic is used in public health to compare the impact on society of widely different diseases and causes of death, such as cancer and fire-related deaths.

Most injuries and death from fires are the result of smoke inhalation. Smoke contains carbon monoxide, hot air and dust, carbon dioxide, nitrous dioxide, and sulfur dioxide. This combination of chemicals and irritants can result in sudden death caused by intoxication and bronchospasm or result in injuries to the lung that may not appear until 24 to 36 hours after exposure. For those caught in a fire, some of the injury from smoke can be prevented by covering the mouth and nose with a moist cloth.

Carbon monoxide is extremely dangerous and readily produced in fires. A smoldering mattress can produce enough carbon monoxide within 30 seconds in an enclosed room to kill all people in the room. Carbon monoxide cannot be smelled or tasted. People exposed to carbon monoxide while asleep are at extremely high risk of dying from poisoning.

Burn injuries are often the most expensive type of injury to treat and require on average the greatest number of days of hospitalization. In humans burn injuries are commonly associated with multiple surgeries, permanent disfigurement, and considerable financial and psychologic stress. The prognosis for survival is guarded if 15% or more of the body surface is affected by third-degree (involving the dermis) burns. Treatment of burn wounds in animals is also very expensive. For example, it cost \$30,000 to treat a cat that was set on fire by abusive children in 1996; the cat died.

Reports of burn injuries in horses are most frequently of extensive skin wounds to the torso, legs, and face and of pulmonary edema developing 1 to 3 days after the fire. These injuries may indicate that horses are burned while standing in burning hay or other combustible materials.

Disease from fires can occur away from the fire. The number of cases of respiratory disease (i.e., asthma, chronic obstructive pulmonary disease, sinusitis, laryngitis) increases for humans who are in the vicinity of fires. Similar preexisting diseases are likely to arise in animals affected by smoke. To prevent exacerbation of these diseases, people and animals that may suffer from them should stay inside if that provides protection or be evacuated far enough away to be protected.