

# Smoke inhalation

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**Smoke inhalation** is the primary cause of death for victims of indoor fires.

Smoke inhalation injury refers to injury due to inhalation or exposure to hot gaseous products of combustion. This can cause serious respiratory complications.<sup>[1]</sup>

It is estimated that 50–80% of fire deaths are the result of smoke inhalation injuries, including burns to the respiratory system.<sup>[2]</sup> The hot smoke injures or kills by a combination of thermal damage, poisoning and pulmonary irritation and swelling, caused by carbon monoxide, cyanide and other combustion products.

## Smoke inhalation

### Classification and external resources

<b>DiseasesDB</b>	12228 ( <a href="http://www.diseasesdatabase.com/ddb12228.htm">http://www.diseasesdatabase.com/ddb12228.htm</a> )
<b>eMedicine</b>	article/771194 ( <a href="http://emedicine.medscape.com/article/771194-overview">http://emedicine.medscape.com/article/771194-overview</a> )
<b>MeSH</b>	D015208 ( <a href="https://www.nlm.nih.gov/cgi/mesh/2017/MB_cgi?field=uid&amp;term=D015208">https://www.nlm.nih.gov/cgi/mesh/2017/MB_cgi?field=uid&amp;term=D015208</a> )

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## Signs and symptoms

Symptoms range from coughing and vomiting to nausea, sleepiness and confusion. Burns to the nose, mouth and face; singed nostril hairs; and difficulty breathing / carbonaceous sputum (burned saliva) are also signs of smoke inhalation injury. Approximately one third of patients admitted to burns units have pulmonary injury from hot smoke inhalation. The death rate of patients with both severe burns and smoke inhalation can be in excess of 50%.

Any person with apparent signs of smoke inhalation should be immediately evaluated by a medical professional such as a paramedic or physician. Advanced medical care may be necessary to save the life of the patient, including mechanical ventilation, even if the person is conscious and alert. Pending advanced intervention, the patient should be brought into fresh air and given medical oxygen if available.

## Treatment

Treatment consists of humidified oxygen, bronchodilators, suction, endotracheal tube and chest physiotherapy. There is no role for routine treatment of smoke inhalation with either antibiotics or steroids. Treatment depends on the severity of the smoke inhalation.

### Nebulized heparin and acetylcysteine

Inhalation therapy with nebulized heparin and acetylcysteine is usually started and continued for five to seven days during the hospital stay.<sup>[3][4]</sup>

### Oxygen therapy

Carbon monoxide (CO) is always presumed to be a complication in smoke inhalation. The initial approach to presumed CO poisoning involves administering supplemental oxygen at a fraction of inspired oxygen (FiO<sub>2</sub>) of 100 percent and then the use of hyperbaric oxygen (HBO) therapy is evaluated by physicians.<sup>[5]</sup>

## See also

- Acute inhalation injury

## References

- [1] (<http://www.edoctor.co.in/smokeinhalationinj/4522628104>) Archived (<https://web.archive.org/web/20071012055327/http://www.edoctor.co.in/smokeinhalationinj/4522628104>) October 12, 2007, at the Wayback Machine.
- <http://www.emedicinehealth.com/articles/6413-1.asp>
- Desai MH, Mlcak R, Richardson J, Nichols R, Herndon DN (1998). "Reduction in mortality in pediatric patients with inhalation injury with aerosolized heparin/N-acetylcysteine [correction of acetylcysteine] therapy." *J Burn Care Rehabil.* **19** (3): 210–2. doi:10.1097/00004630-199805000-00004. PMID 9622463.
- Cancio LC (2009). "Airway management and smoke inhalation injury in the burn patient." *Clin Plast Surg.* **36** (4): 555–67. doi:10.1016/j.cps.2009.05.013. PMID 19793551.
- Weaver LK, Howe S, Hopkins R, Chan KJ (2000). "Carboxyhemoglobin half-life in carbon monoxide-poisoned patients treated with 100% oxygen at atmospheric pressure." *Chest.* **117** (3): 801–8. doi:10.1378/chest.117.3.801. PMID 10713010.

## External links

- Smoke Inhalation at eDoctor.co.in (<http://www.edoctor.co.in/#/smokeinhalationinj/4522628104>)
- Emedicine Health (<http://www.emedicinehealth.com>)

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