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Position Statement on Home Oxygen Burn Prevention

The American Burn Association (ABA), by joint recommendation of the Committees on Burn Prevention and Government Affairs, developed the following statement to educate the public on the importance of preventing burn injuries and deaths resulting from the use of home medical oxygen. The ABA Board of Directors approved the statement on March 8, 2022.

Due to concern about the prevalence of preventable injuries and their associated high morbidity and mortality rates, the ABA seeks to educate communities and stakeholders about home oxygen therapy related burns. The ABA therefore recognizes the following:

Home oxygen therapy (HOT) is a safe medical treatment when prescribed by a health care provider and used properly. Many patients requiring home oxygen therapy are or have been smokers, and the combination of home oxygen with smoking is particularly dangerous – any material that is already burning will burn much faster, hotter, and longer in an oxygen-enriched environment.

The risk of death or injury from a fire started by smoking increases in the presence of oxygen. A 14 percent per year increase in HOT-related burn injuries was seen in a decade-long national database review. Smoking was the primary ignition source in 83% of these injuries.¹ During 2012-2016, medical oxygen was involved in 160 reported home smoking material fires and an average of 80 deaths per year.² Between 2003-2006, 89 percent of patients with medical oxygen related thermal burns seen at hospital emergency departments suffered facial burns and 73 percent occurred in individuals who were smoking.³ Patients with HOT-related burns are five times more likely to end up on a ventilator compared to patients with burns not related to home oxygen.⁴ One study of late outcomes following burn center admission for HOT-related burns noted that just over one-third of patients never return home, and that mortality at 1 year was over 50%.⁵

¹ Assimacopoulos EM, Liao J, Heard JP, Kluesner KM, Wilson J, Wibbenmeyer LA. The National Incidence and Resource Utilization of Burn Injuries Sustained While Smoking on Home Oxygen Therapy. *J Burn Care Res.* 2016 Jan-Feb;37(1):25-31.

² Ahrens M. Home Fires Started by Smoking. National Fire Protection Association. 2019;7.

³ Ahrens M. Fires and Burns Involving Home Medical Oxygen. National Fire Protection Association. 2008;13.

⁴ Assimacopoulos EM, Liao J, Heard JP, Kluesner KM, Wilson J, Wibbenmeyer LA. The National Incidence and Resource Utilization of Burn Injuries Sustained While Smoking on Home Oxygen Therapy. *J Burn Care Res.* 2016 Jan-Feb;37(1):25-31.

⁵ Singer KE, Harvey JA, Heh V, Dale EL. Mortality from burns sustained on home oxygen therapy exceeds predicted mortality. *J Burn Care and Research* 2020;41:976-980.



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Nicotine dependence is a chronic relapsing condition that may take years to achieve long-term abstinence, even with medical intervention. While education is a central component in the effort to prevent injury from smoking while on oxygen, other interventions may be necessary.

One approach to injury mitigation has been pioneered by the Veterans Administration (VA). A Patient Safety Alert and mandate were issued by the VA in 2018 in direct response to 746 reports from VA facilities describing fires or burns to Veterans involving home oxygen delivery systems.⁶ The mandate requires suppliers to install thermal fuses in the home oxygen equipment delivered to Veterans. While thermal fuses do not make it safe to smoke while using oxygen, they may decrease the severity of burns, the potential for injury to others, and property damage.

The ABA supports efforts to promote, enact, and sustain legislation and policies that support a multi-faceted approach to burn injury and fire prevention for users of home oxygen, with emphasis on encouraging:

- Patient education (and education of their families and caregivers) by health care providers about the hazards of home oxygen therapy in combination with smoking, including use of e-cigarettes and other electronic delivery systems
- Smoking cessation therapies
- Enhanced equipment safety by medical suppliers, including home safety checks, written safety instructions, and bidirectional thermal fuses in the oxygen tubing
- Support for clinician risk assessment regarding prescribing or continuing to prescribe home medical oxygen in patients, especially for those who smoke or who live with others who smoke

⁶ US Department of Veterans Affairs, Veterans Health Administration. VHA Patient Safety Alert AL18-01: Use of Thermal Fuses May Reduce the Severity of Fires Involving Home Oxygen Delivery Systems. 2018 Mar.