

INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants**

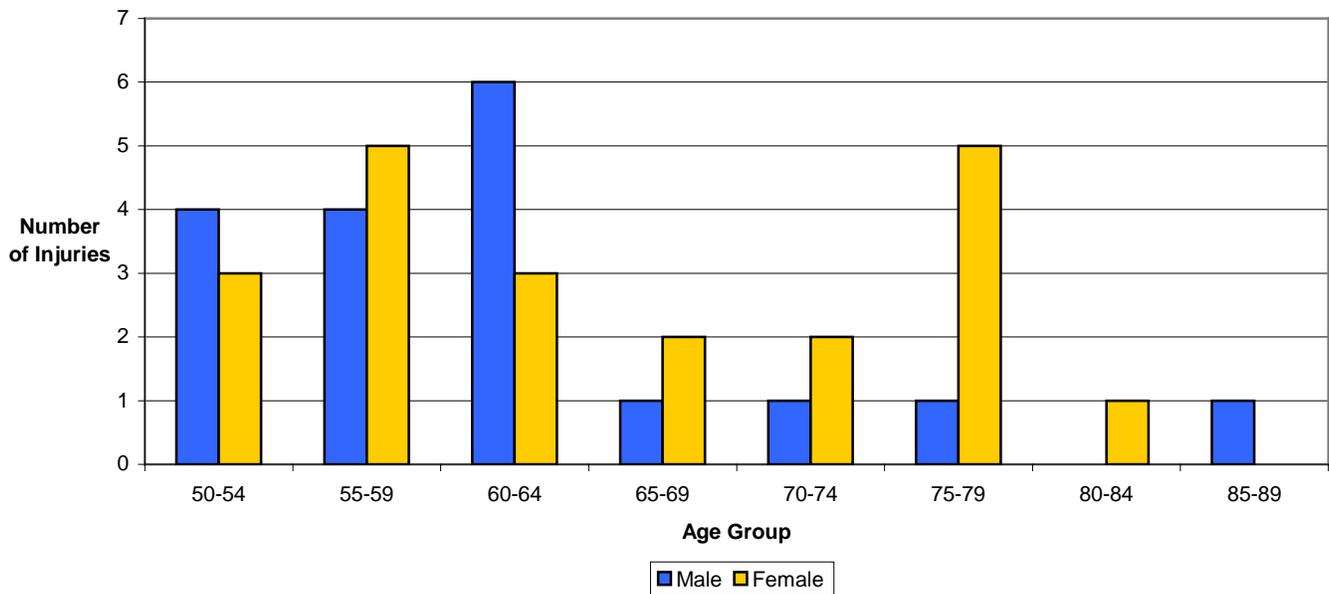
September 28, 2007

Burn Injuries Due To Smoking While Using Oxygen Therapy, Oklahoma, 2001-2005

Fire and burn-related injuries are the sixth leading cause of unintentional injury death in Oklahoma and the United States. In November 1986, the Oklahoma State Department of Health made burn/smoke inhalation injuries that resulted in hospitalization or death a reportable condition. The Injury Prevention Service began active, ongoing collection of this information in September 1987. During the 5-year time period 2001-2005, 2,156 Oklahomans were hospitalized in a burn center or died as a result of an unintentional burn or smoke inhalation injury. Of these, 39 (including 15 deaths) were due to injuries incurred from smoking while on oxygen therapy. This report describes the occurrence and characteristics of burn injuries due to smoking while on oxygen therapy.

The ages of injured persons ranged from 50 to 86 years, with an average age of 64 years. Persons 55-59 and 60-64 had the highest number of injuries at 9 each (Figure 1). In fact, persons between the ages 50 and 64 accounted for nearly two-thirds of all injuries. The average annual injury rates for males and females were similar (2.1 vs. 2.4 per million population). A total of five to seven injuries occurred each year between 2001 and 2004; however, in 2005, the number of injuries increased dramatically to 14 (Figure 2). One-fourth of all injuries occurred between the hours of 12:00 a.m. and 5:00 a.m.

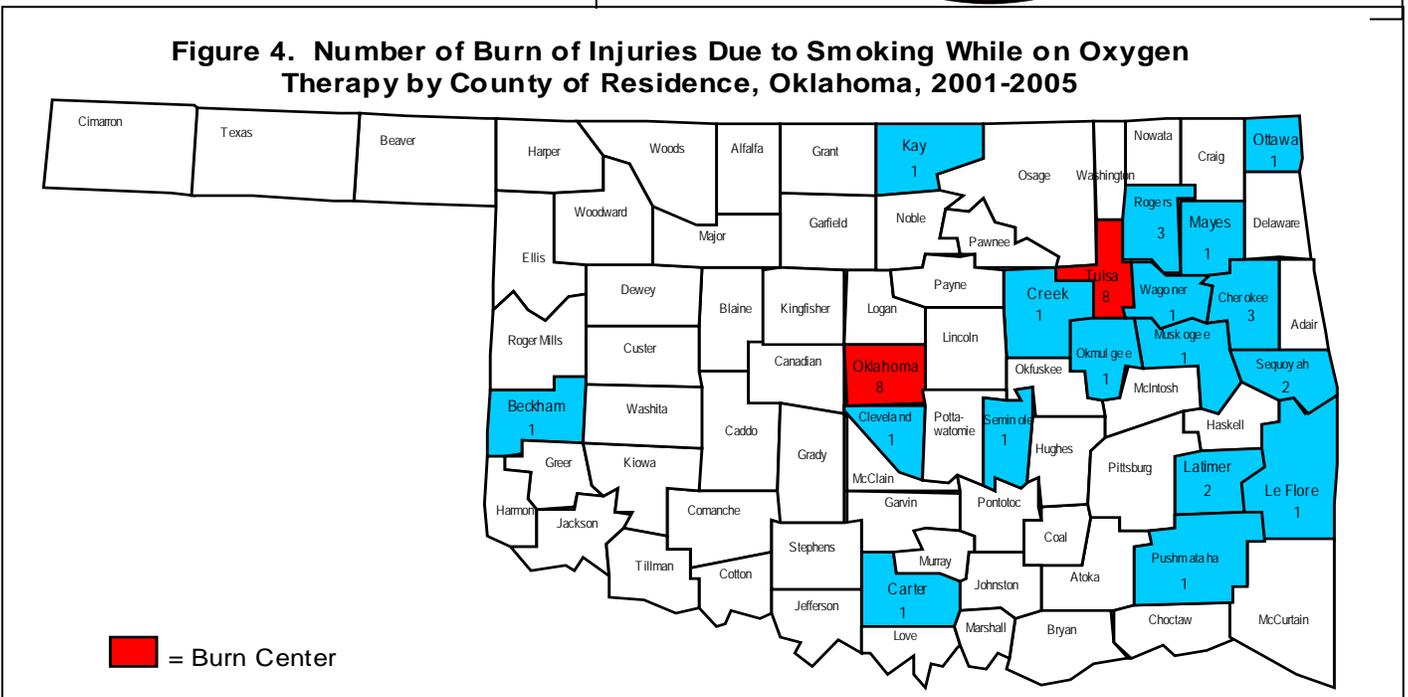
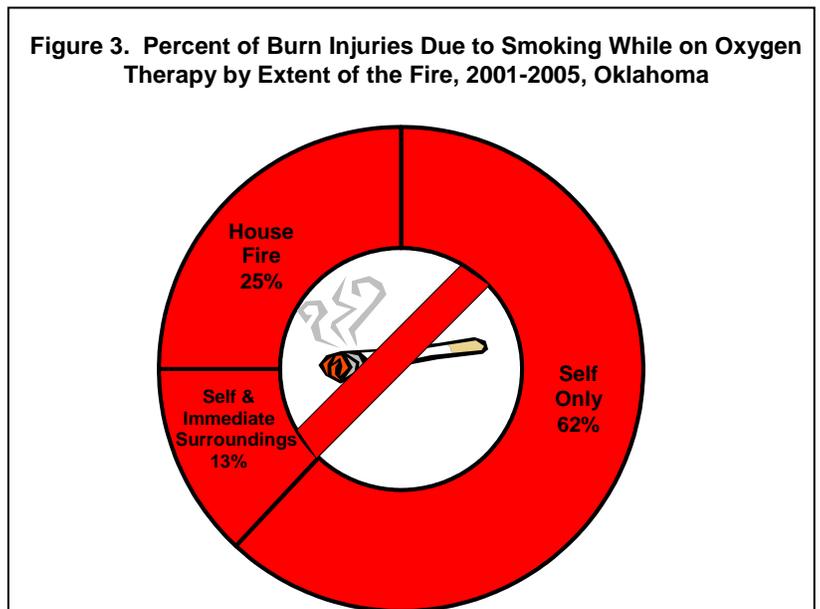
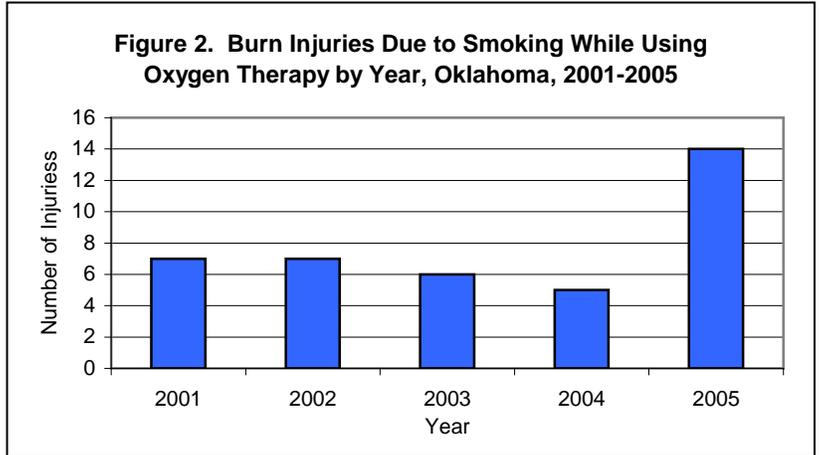
Figure 1. Burn Injuries Due to Smoking While Using Oxygen Therapy by Age Group and Sex, Oklahoma, 2001-2005



*The INJURY UPDATE is a report produced by the Injury Prevention Service, Oklahoma State Department of Health. Other issues of the INJURY UPDATE may be obtained from the Injury Prevention Service, Oklahoma State Department of Health, 1000 N.E. 10th Street, Oklahoma City, Oklahoma 73117-1299, 405/271-3430 or 1-800-522-0204 (in Oklahoma). INJURY UPDATES and other IPS information are also available at <http://ips.health.ok.gov>.

Although the majority of incidents resulted in the fire being contained to the person only (62%), one-fourth of all incidents resulted in a full-blown house fire (Figure 3). A bed was the ignition source for at least 70% of the incidents resulting in a house fire. Every incident that resulted in a house fire was fatal to the smoker. The fire department could only confirm in 50% of the house fires that a working smoke alarm was present.

The smoker's county of residence for the majority of incidents clustered in the northeast quadrant of Oklahoma (Figure 4). Eighty percent of injured persons were treated in a burn center; the other 20% died at the scene. A total of 304 days were spent in a burn center for these injuries. The length of hospital stays ranged from 1 day to 42 days, with an average stay of 10 days. The percentage of burns to the body ranged from 1% to 83%, with an average of 12%. Of patients admitted to a burn center, 23% died while hospitalized. Of the 30 cases with insurance information, 53% had Medicare, 23% Medicaid, 13% private insurance, and 10% government/military.



CASE BRIEFS

- A 53-year-old female on home oxygen therapy attempted to light a cigarette. She spent 10 days in a burn center after inhaling flames into her nasal passages and trachea.
- A 59-year-old female with chronic obstructive pulmonary disease requiring home oxygen therapy died after setting herself and her apartment on fire while smoking.
- A 63-year-old male on home oxygen therapy died in a house fire after unintentionally setting his pillow on fire while smoking in bed.
- A 70-year-old male died after catching his clothes and the chair he was sitting in on fire while smoking on oxygen therapy. It was reported that he had been warned several times about the dangers of smoking while on oxygen therapy by his family and primary care provider.
- A 77-year-old male on home oxygen therapy spent 6 days in a burn center for treatment of burns to the hands and face as a result of smoking.

PREVENTION

Home oxygen therapy increases the amount of oxygen in the environment. Oxygen increases the speed at which things burn once a fire starts. Oxygen can saturate clothing, fabric, hair, beards, and anything in the area. Even flame-retardant clothing can burn when the oxygen content increases. It is important to keep all flames and heat sources away from oxygen containers and oxygen systems. Never smoke or light a match while using oxygen or allow others in the same room to do so.

Before sending a patient home on oxygen, health care providers must be sure the patient and family members understand the dangers of smoking in an oxygen enriched environment. Patients should also be advised not to smoke in bed. Smoking in bed is a major cause of unintentional fire deaths in the home.

Every home should have at least one working smoke detector on every level and near all bedrooms. As many persons on home oxygen therapy have limited mobility, home sprinkler systems can add an extra layer of protection. Sprinkler systems, especially when used in conjunction with a smoke alarm, have been proven effective in preventing injury and the spread of fire; studies have shown that many people who would not be saved by smoke alarms (i.e., quadriplegics) could have been saved by residential sprinklers in conjunction with a smoke alarm. It is estimated that sprinklers alone could reduce residential fire deaths by 69% and the combination of smoke alarms and sprinklers could reduce residential fire deaths by 82%.

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