Using Home Oxygen Safely: What Everyone Needs to Know

When a Private Health Problem Becomes a Public Safety Threat

Name of Presenter and contact information.

Objectives

- Increase awareness of this public safety issue
- Target patients and families
- Convey our message of concern
- A consistent message throughout the state
- Teach safe or less dangerous practices

How Do We Address the Problem?

- Multi-disciplinary approach
- No <u>one</u> agency owns the problem
- Fire, physicians, tobacco control, housing authority, medical gas supplier and elder service workers are all involved in these high risk situations
- Patients and Families

Launched Educational Campaign in 2010

Targeted to:

- Patients
- Families
- Doctors
- Caregivers
- Therapists
- Hospital discharge social workers
- Firefighters/EMTs

Home Oxygen
A Growing Phenomenon

- Booming elder population
- Shorter hospital stays
- Outpatient procedures and home health services
- Leads to long term oxygen treatment (LTOT)

Public Safety Threat

If you have a home, family, and/ or friends, you should be aware of home oxygen use and best practices!

- Smoking on home O2 moves the behavior from being a private health issue to a public safety issue.
- Now involves the community.

The Massachusetts Fire Problem

- Since 1997, O2 has been involved in:
  - 31 fire deaths
  - 57 serious injuries
  - 7 firefighter injuries
  - 82 identifiable incidents
- In 2010 alone, there were 7 severe incidents involving O2 (all involved smoking)

** based on fire and burn reports received by the Fire Data and Public Education Unit*

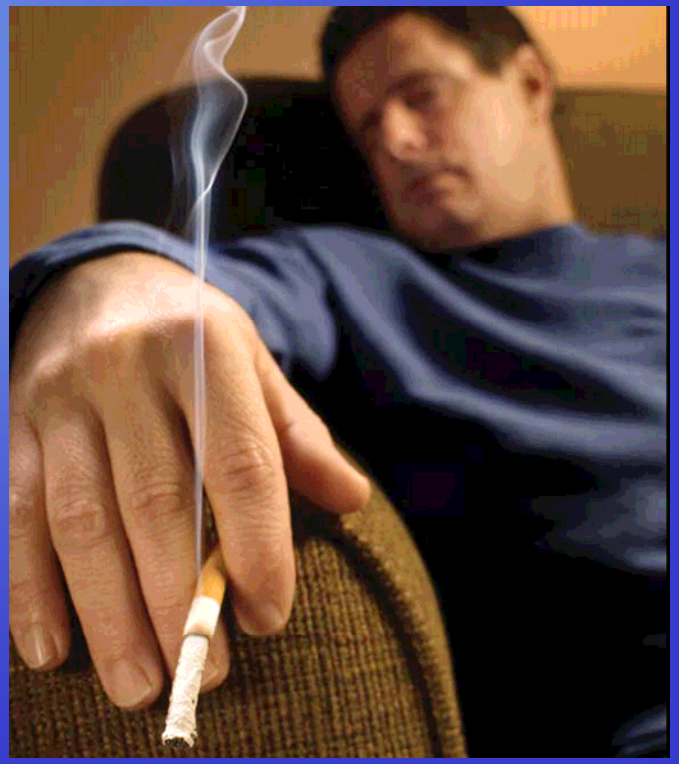
Older Adults at Greatest Risk for Fire Death

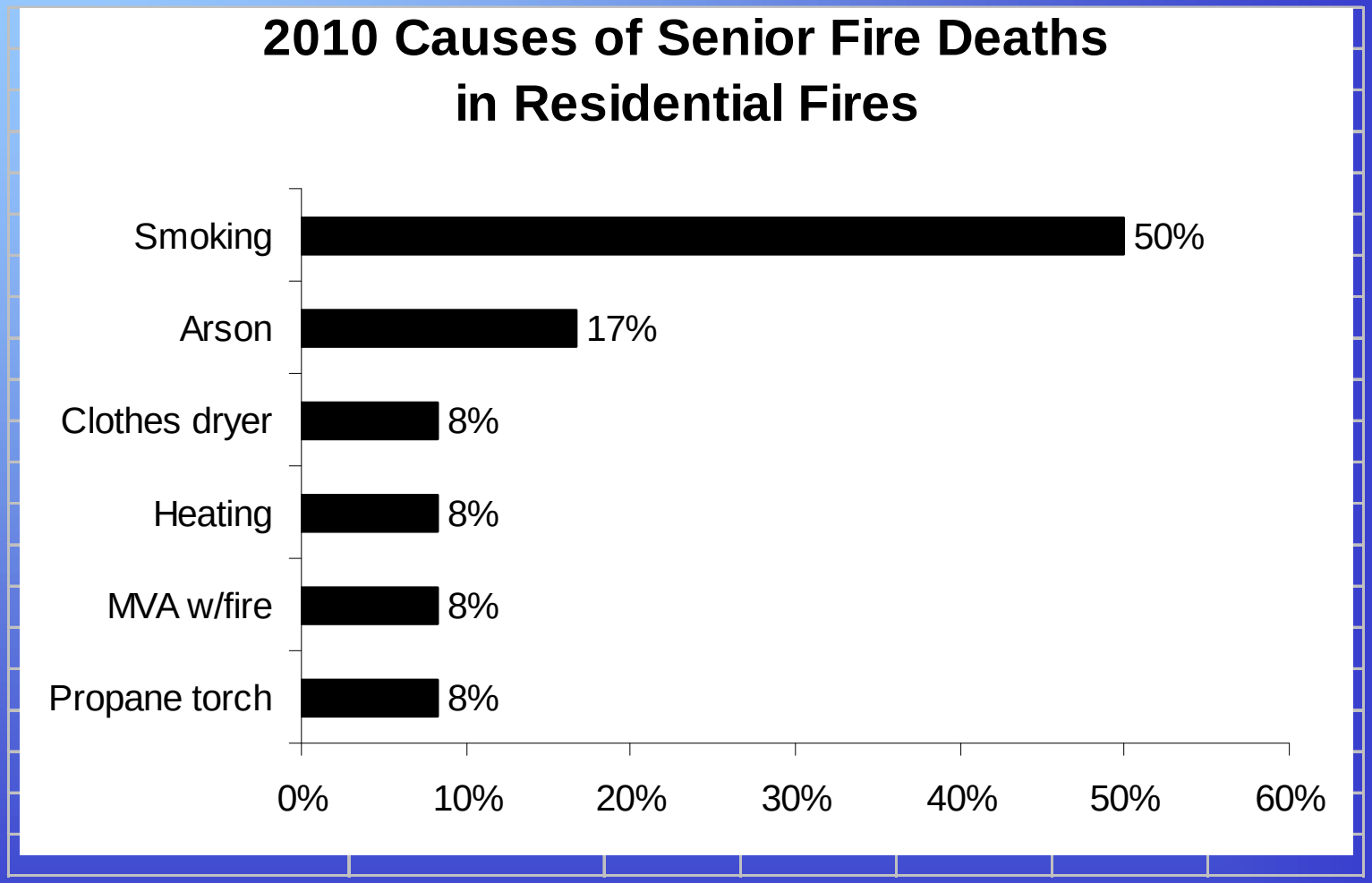
- Nationally, older adults and children under 5 at greatest risk for fire deaths.
- In MA, older adults (people 65+) were over 1/3 (34%) of 2010 fire deaths.

Smoking Leading Cause of Fire Deaths

Smoking remains the leading cause of fire deaths:

- Nationally
- In MA for older adults (60%)




2010 Causes of Senior Fire Deaths
in Residential Fires
Smoking
Arson
Clothes dryer
Heating
MVA w/fire
Propane torch
50%
17%
8%
8%
8%
8%
0%
10%
20%
30%
40%
50%
60%

Live Long Enough to Quit!

- We want:
  - smokers to live long enough to quit;
  - to protect other people living in the building from fire;
  - to protect firefighters;
  - to preserve housing;
  - to save pets;
  - save a lifetime of possessions.

Winthrop Housing Authority

- Friday, October 13, 2000, 5:45 a.m.
- 57-year old woman (nurse!) on home O2 – lit cigarette
- Did not alert other tenants after fire started - found on a bench smoking
- 3 people injured

Winthrop: 3 Alarm Fire

Danger to firefighters:

- Empty O2 canisters not removed.

Fortunately:

- Fire doors were closed - prevented spread of fire to attached building.

In the end:

- 16 units of elder housing lost in 1 building.
- 90 seniors evacuated.
- Over $551k in fire, smoke & water damage.
- 1 year to rebuild; rebuilt with sprinklers.

“A day I will never forget.”

“My phone rang and a firefighter informed me that one of the Winthrop Housing Authority buildings was on fire.”

Comments from Alice Hayes, Director of Winthrop Housing Authority

A resident, on oxygen, decided she wanted a cigarette. She lit her cigarette, slid the mask over and BOOM, the mask area ignited, traveled through the hose to the machine---and exploded.”

Plymouth Senior Housing

- August 4, 2006, 11:45p.m.
- Victim on home O2 & smoking
- 1 FF injury (broken wrist); several treated for smoke inhalation
- $500k in damages
- 15 people displaced
- No sprinklers

Non-fatal – but look @ the destruction!

Plymouth Senior Housing

Room of Origin

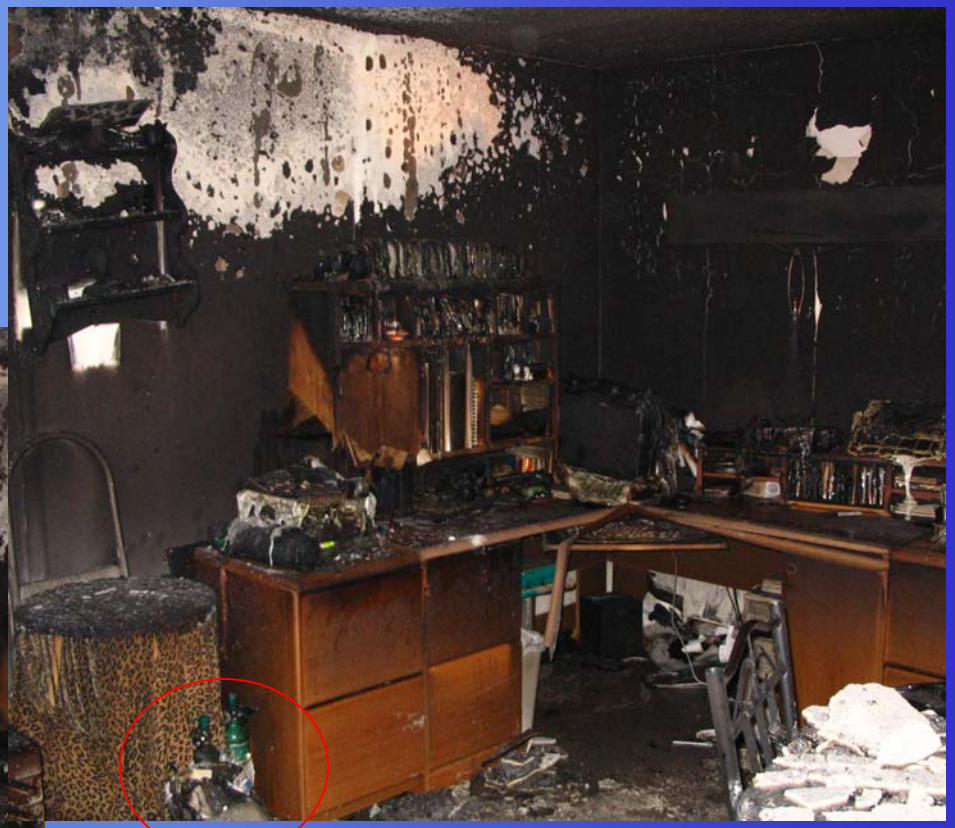
Plymouth Senior Housing

Room of Origin

Plymouth Senior Housing

Room of Origin

Room of Origin



O2 Cylinders

Room of Origin – O2 Tubing

Plymouth Senior Housing

Cigarettes

Plymouth Senior Housing

What Home Oxygen Should Look Like…

What Home Oxygen Should NOT Look Like…

Fatal Fires

- Lunenburg Housing Auth. – May 2008
- Hadley Inn – Nov. 2008
- Fitchburg – Aug, 2009
- Quincy – Dec. 2009
- Lynn – Feb. 2010
- Worcester – Feb. 2010
- Springfield – Oct. 2010

Victim Not Always the Smoker

- Brockton, Jan. 22, 1997, 3-decker.
- 83-yr old man on 2nd floor, on home O2 started the fire by smoking.
- 32-yr old woman who lived on floor above was trapped by the fire.

Tragic Fire

- October 28, 2002 - South Boston
- 56-yr old smoker on home O2
- Dropped cigarette started fire, which ruptured O2 tank – fueling the fire
- 8-yr old daughter trapped by fire on floor above died

Oxygen & Fire Safety

- Lowers the energy required to ignite materials.
- More air (O2), makes the fire spread faster.

Facts about Oxygen

- Exists as a gas at room temperature
- Stored in a liquid state at very low temp (-300 F.)
- Non-flammable – does not burn or catch fire
- Oxidizer
  - Supports combustion
  - Lowers the energy required to ignite materials
  - Flame retardant materials can burn in an enriched oxygen atmosphere

Oxygen Saturates

- O2 soaks into furniture, clothes, bedding, rugs, drapes.
- O2 soaks into hair, beards.
- O2 leaks into home's "atmosphere".
- Creates oxygen-enriched environment
  - (25% O2 or more.)
- Lowers temperature these things can first ignite.
- Spreads a fire more quickly.

Home O2 Rules To Live By

- Avoid oil-based products.
- Oils, grease & petroleum products can catch fire when exposed to high O2 concentrations.
- Avoid oil-based lotions, lip balms, petroleum jelly, or aerosol sprays.

Home O2 Rules To Live By (cont.)

Keep 10 Feet from possible ignition sources:

- **Smoking materials** – cigarettes, matches, lighters
- **Small appliances** – electric razors, hair dryers
- **Pilot lights –** in appliances, stoves, water heaters
- **Heating sources** – furnaces, space heaters, woodstoves, electric blankets
- **Cooking**
- **Candles**
- **DO NOT** allow occupants to smoke in homes where medical O2 is being used. Encourage occupants to quit or to smoke outside.

Fire Safety in the Home

- For everyone but crucial for those with home O2 systems
- Working smoke alarms every level and outside bedrooms
- Consider extra smoke alarms inside bedrooms
- Escape Plan
  - 2 Ways Out & Meeting Place
- Keep phone by bed or chair
- Keep exit pathways clear

No Smoking in the Home

By:

- LTOT patient
- Family members
- Visitors
- Caregivers
- ANYONE

~ Signs should be posted

~ Encourage patient to get help quitting

~ <u>Don't</u> enable

Until the Smoker Quits

- Shut off the O2
- Wait 10 minutes
- Go outside to smoke
- Allows O2 to dissipate from hair and clothes
- Not safe, but safer
- No guarantees

Think About Quitting

- Patients should ask Dr. about help
  - Many new medicines make quitting easier
- Doctors should make cessation referral before prescribing home O2
- Free telephone counseling & referral
  - MA Smokers' Helpline 1-800-Try-To-Stop
  - www.trytostop.org
- American Cancer Society www.cancer.org 1-800-227-2345
- American Lung Association www.lungusa.org

Talk to Your Doctor

- Dr.’s have many new tools to help smokers quit
- More help than when you lit your 1st cigarette
- Older adults have successfully quit
- Older adults have improved quality of life when they quit
- You can do it! Ask for help!

Firefighter Safety Issue

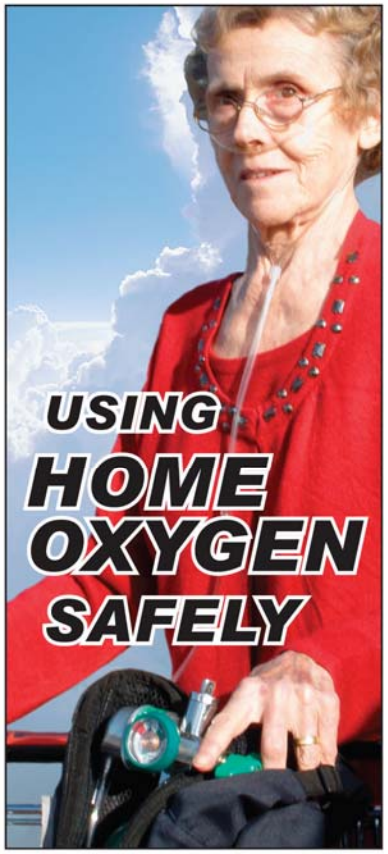
- Firefighters often unaware of O2 presence.
- Fire less predictable when fueled by O2.
- Flashover can occur sooner.
- Cylinders can explode - danger of shrapnel.
- Protective gear at greater risk.

Firefighter Safety Issue (cont.)

- Fire retardant materials can burn in oxygen enriched environments.
- Nomex, a common fire retardant material used in firefighter’s protective gear, burns vigorously in a 31% oxygen atmosphere!

Campaign Components

- Printed pamphlet
- Website – www.mass.gov/dfs then “Fire Safety Topics”, then “Home Oxygen Safety”



A RESOURCE GUIDE FOR

PATIENTS | FAMILIES
DOCTORS | NURSES
THERAPISTS
FIRST RESPONDERS

DEPARTMENT OF FIRE SERVICES
COMMONWEALTH OF MASSACHUSETTS

What you and your family should know:

Using home oxygen increases the risk of fires and burns.

When oxygen is used in the home, the amount of oxygen in the air, furniture, clothing and hair goes up, making it easier for a fire to start and spread.

When more oxygen is in the air, fires will burn hotter and faster.

When using home oxygen, learn how to handle it safely– especially if you smoke.

It is important to keep home oxygen and tubing 10 feet away from heat sources.

Common heat sources are:

- » **Matches**
- » **Lighters**
- » **Cigarettes**
- » **Candles**
- » **Gas stoves**
- » **Appliances**
- » **Electric razors**
- » **Hair dryers**
- » **Heaters**

Don't use flammable products such as:

- » **Oils**
- » **Grease**
- » **Petroleum products**
- » **Oil based lip balms or lotions**

For doctors, nurses and therapists:

Smoking while using home oxygen is not just a personal health hazard but a public safety danger. It puts everyone in the building at risk.

Encourage and help patients to quit smoking.

Help patients to understand the fire dangers of home oxygen use.

More information for health care providers on smoking cessation is available at www.trytostop.org.

Smoking Issues

No one should smoke in your home. The fire danger is too great.

You should not smoke.

Your family and friends should not smoke around you.

Quitting is the best thing you can do for your health and safety.

If you must smoke:

- Disconnect the oxygen.
- Wait 10 minutes.
- Go outside to smoke.

This gives the oxygen time to come off your hair and clothes into the open air.

This is not a safe way to smoke but is less risky than smoking indoors.

Home Fire Safety

Your family should help make sure your home has working smoke alarms.

You and your family should make and practice a home escape plan.

Printing courtesy of the Mass. Property Insurance Underwriting Association.

Medical Equipment Suppliers

- See this first-hand every day.
- By law, can’t just stop delivering O2 when see evidence of smoking!
- Can’t force residents to post no smoking O2 signs.
- HIPPA also restricts whom they can contact.
- Thousands of installations – many short-term.

Elders At Risk
Elder Abuse

- A man’s home is his castle.
- Goal is to keep elders in own homes as long as possible.
- When is an elder no longer able to care for themselves at home and an elder at risk?
- What if someone else is doing the smoking? Or smoking on O2?

Landlords

Issues:

- Nobody wants to force sick, elderly people out onto the street.
- Leases usually do have clauses about posing a threat to other tenants.
- Effective leverage in getting patients to get help quitting smoking or face eviction.
- Eviction means little to terminally ill.

What Landlords Can Do

- Housing authorities develop policies that this is grounds for eviction.
- Progressive action – warnings, proof of cessation, etc. can stop action.
- Has proven most effective.
- Install sprinklers!
- Use federal FIRE Act grant funds.
- Join New Smoke-Free Building Registry.

What the Fire Department Can Do

- Express concern 1st and foremost.
- Promote greater general awareness using educational tools.
- As part of multi-disciplinary approach, the FD can educate patient and family using *Education Guidelines* developed by DFS.
- Develop protocol on when to ask to educate and when to refer to another agency. (FD = mandated reporter)

Resources

- U.S. Fire Administration
  - www.usfa.dhs.gov/
  - *Special Report on Fires Involving Medical Oxygen Equipment*, March 1999 *www.usfa.dhs.gov/downloads/pdf/publications/tr-107.pdf*
  - *Smoking and Home Fires campaign* *http://www.usfa.dhs.gov/campaigns/smoking/materials/index.shtm*
  - *Fire Safety for People 50 Plus campaign* www.usfa.fema.gov/50Plus

More Resources

- National Fire Protection Association
  - www.nfpa.org
  - *Fires & Burns Involving Home Medical Oxygen,* M. Ahrens, August 2008.
  - *Remembering When: A Fall & Fire Prevention Program for Older Adults*

Studies

- MMWR – April 23, 2008
  Fatalities from Fires Resulting From Smoking during Oxygen Therapy – Maine, Massachusetts, New Hampshire and Oklahoma, 2000-2007, A. Pelletier, Maine Department of Public Health

In Summary

Home Oxygen “Rule of 10”:

- Keep 10 feet away from all ignition sources

  ex: electric appliances, candles, stoves, heaters

- Occupants of O2 enriched environments MUST wait 10 minutes & go outside before smoking

  Allows saturated clothing and hair to return to “normal” O2 levels

For More Information

Contact:

Department of Fire Services
Fire Data and Public Education Unit
P.O. Box 1025
State Road
Stow, MA 01775
978-567-3380

www.mass.gov/dfs click on “Fire Safety Topics” and “Home Oxygen Safety”