



NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

The US Home Fire Problem

Fire data sources

- National estimates derived from
 - USFA's National Fire Incident Reporting System (NFIRS)
 - NFPA's fire department survey
- Fire service is primary data source
- Results were pulled from NFPA's reports
 - *Home Structure Fires*
 - *Characteristics of Home Fire Victims*
 - *Intentional Fires*
 - *Playing with Fire*
 - *Smoke Alarms in US Home Fires*
 - *US Experience with Sprinklers*
 - *Fire Loss in the United States*



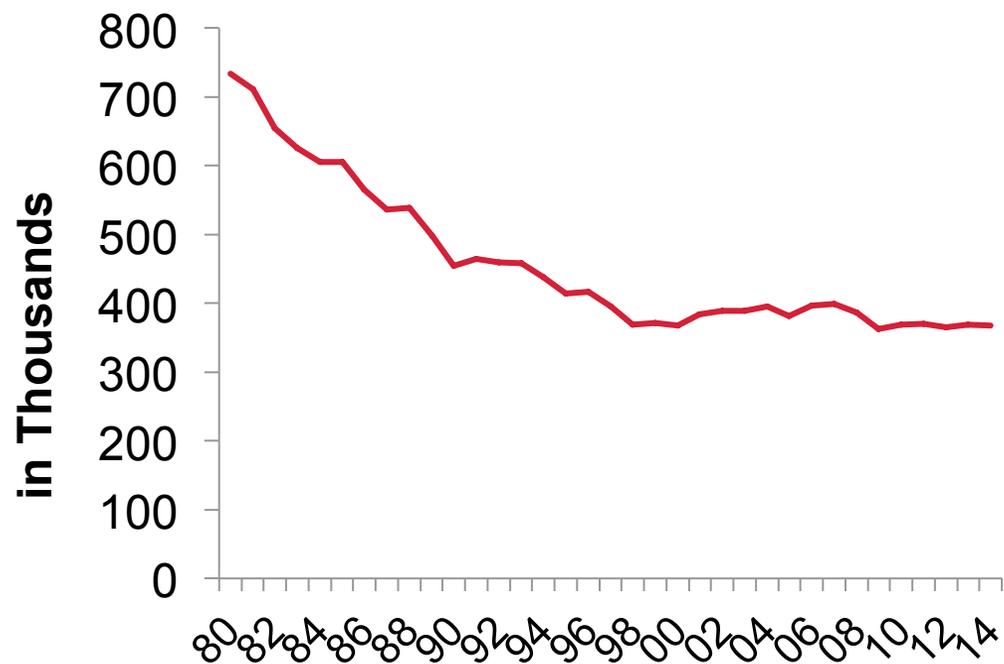
Home fires 2009-2013: the big picture

- In 2009-2013, US fire departments responded to an annual average of
 - 357,000 home structure fires, resulting in
 - 2,570 civilian deaths per year
 - 13,210 civilian injuries
- Fire spread was confined to the object of origin in 56% of fires
 - These caused 3% of deaths and 16% of injuries
- One-quarter of fires spread beyond room of origin
 - Such fires caused 81% of deaths and 46% of injuries

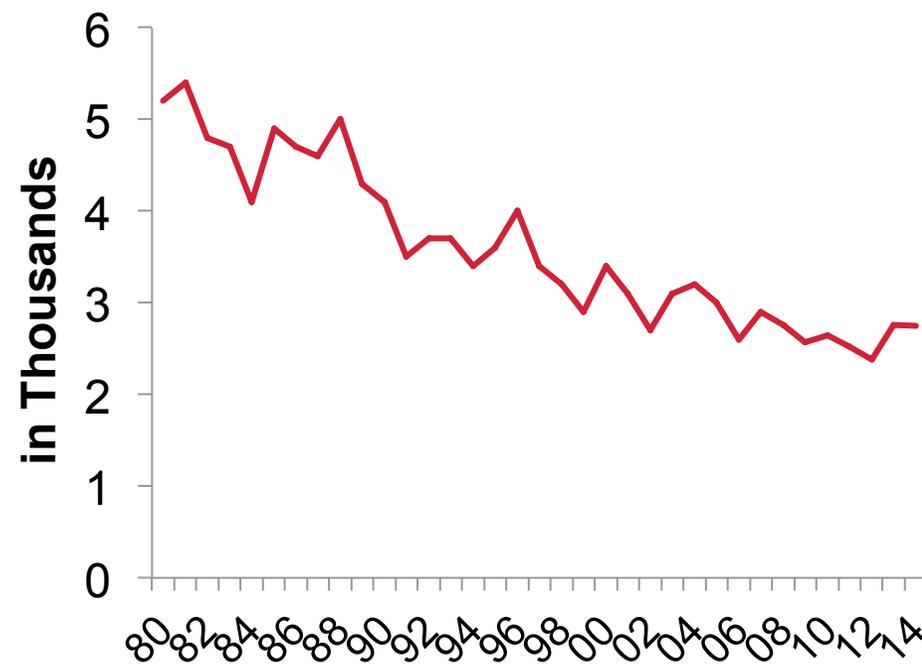
Trends in home fires and fire deaths

From 1980-2014, home fires fell 50% and deaths fell 47%

Reported home fires



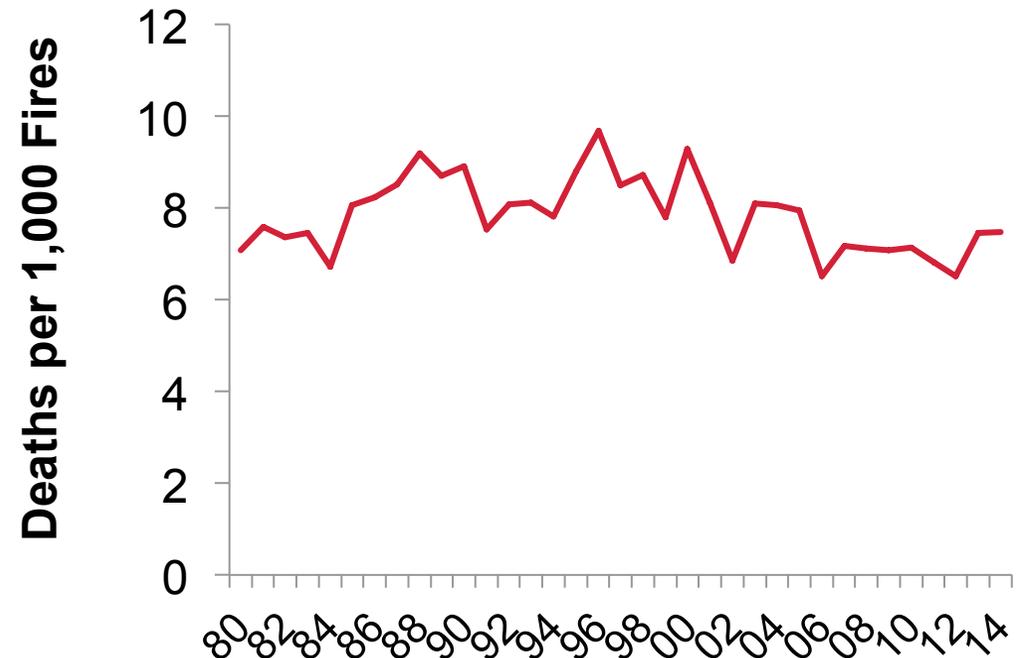
Home fire deaths



Death rates from 1980 to 2014

- Home fires per million population fell 64%
 - Fire deaths per million population fell 62%
- Deaths per 1,000 reported home fires were slightly higher in 2014 than in 1980

Deaths per 1,000 reported home fires



US home fire victims in 2009-2013

- 780, or 30%, of fatalities were 65 or older
- Older adults have highest fire death rates
 - People over 85 had the very highest
 - Deaths rates are higher for the 50-64 age group than the under five
- Percentage of fatal fire victims who were
 - Under 5 has been falling
 - 65 or older has been rising
- 1,780, or 14%, of civilian fire injuries were 65 or older

Alcohol

- Autopsy reports found that alcohol was a factor in more than one-third of US adult fire deaths



Fear of crime

- Security measures can block exits



Civilian firefighting

- 35% of US civilian injuries in reported home fires in 2007-2011 occurred when the victim was fighting the fire
- CPSC: 97% of home fires are handled without the fire department*
 - Fire extinguishers were used in 5% of home fires

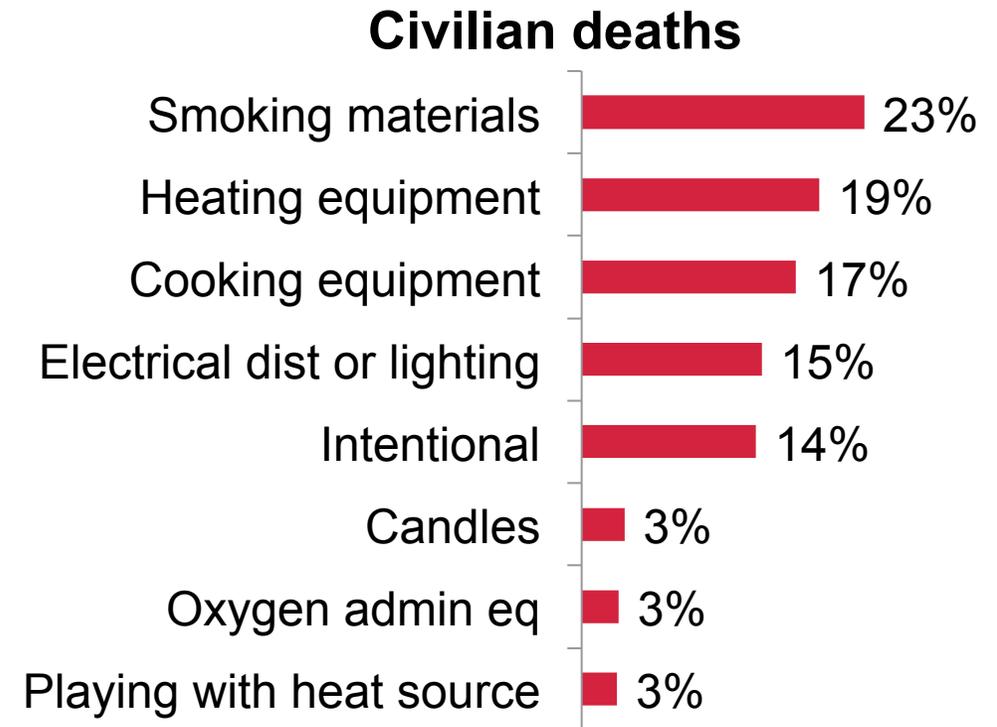
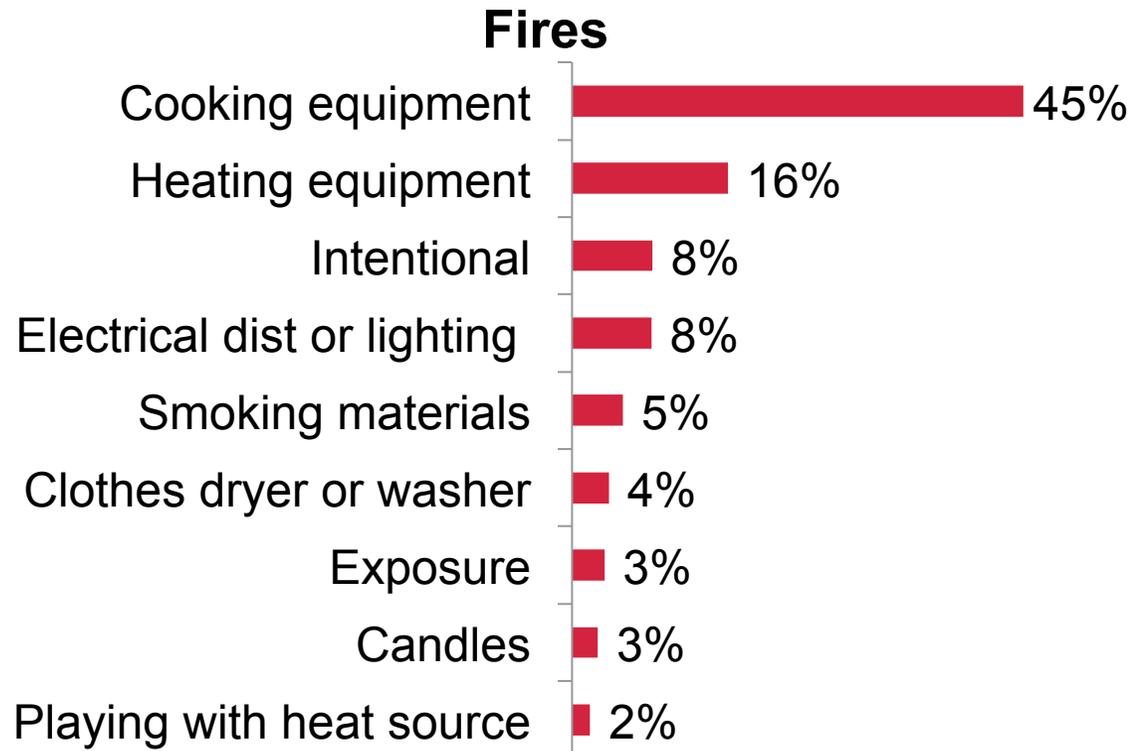
* CPSC's *2004-2005 National Sample Survey of Unreported Residential Fires* by Michael A. Greene and Craig Andres

Fire prevention and the poor

- Lack of resources, energy for fire prevention
- Tend to have older stuff
- Will take longer for benefits of safer products to reach them
- Very poor may have utilities shut off, makeshift housing

Causes of home fires

US home fires in 2009-2013: leading causes



US home cooking fires



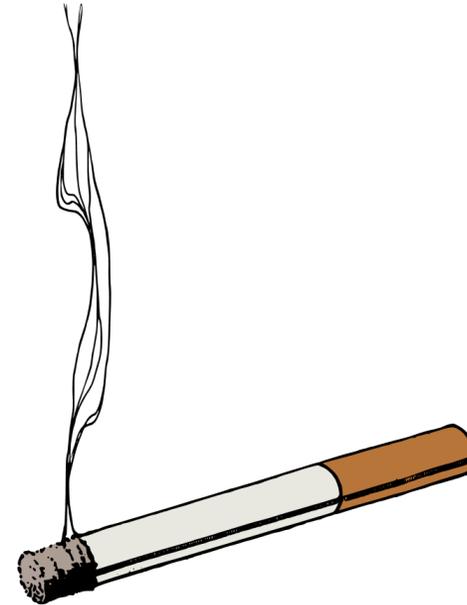
- Leading cause of home fires and home fire injuries
 - Third in home fire deaths
- Cause of 69% of apartment fires compared to 35% of fires in one- or two-family homes
- Three-quarters of cooking fires had incident types indicating a cooking fire confined to the vessel of origin

More on cooking

- Unattended cooking is leading factor in cooking fires
 - Frying is leading type of cooking associated with fire
- Most cooking-related burns resulted from contact with hot equipment, food or liquids
 - Children under five had disproportionate risk of non-fire cooking-related burns

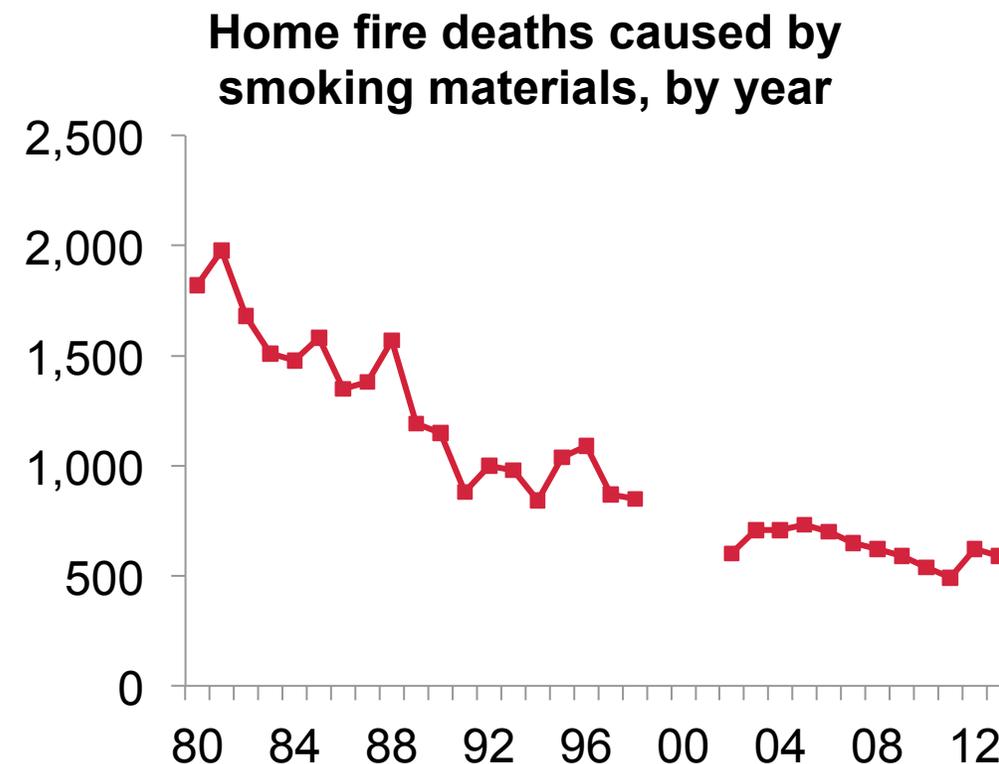
US smoking-material fires ranked

- Fifth in number of home fires (5%)
- **First** in home deaths (23%) and
- Third in home injuries (10%)



US home fire deaths from smoking materials

- Smoking-material home fire deaths were down 68% from 1980 to 2013
- 35% of deaths in 1980-84, compared with 23% in 2009-2013



US heating equipment fires

- Second in number of
 - Home fires
 - Home fire deaths
 - Home fire injuries; and
- Bigger problem in one- or two-family homes than apartments

More on heating fires

- Failure to clean was leading factor in home heating equipment fires
 - Associated with chimney fires
- In heating fire deaths, leading factor was something that could catch fire too close to the equipment
- Space heaters (portable or fixed) were involved in five out of six home heating fire deaths
 - *Space heaters need space!*

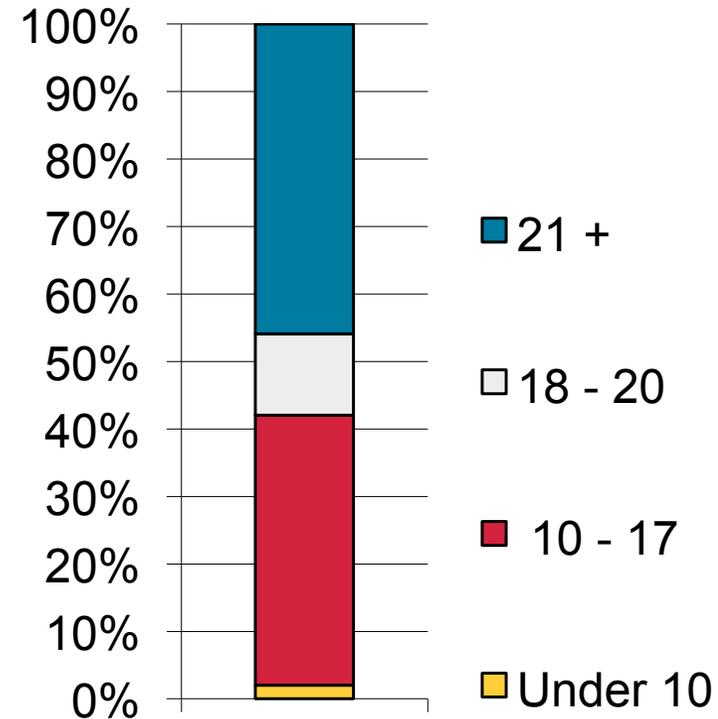
US intentional home fires ranked

- Third in number of home fires
- Fifth in home deaths and injuries
- Not all intentional fires are arson

Arson arrests by age – (not just homes)

- According to 2011 national FBI statistics:
 - 2% of were children under ten
 - 41% were under 18
- One of every five (19%) arson cases was solved

Source: FBI's *Crime in the US* series



Electrical distribution or lighting equipment fires

- Fourth in home fires, deaths and injuries
- National Electrical Code (NEC) standards make wiring safer
- Homes with older wiring face highest risk of electrical fires*
- “What Causes Wiring Fires in Residences?” by CPSC’s Linda Smith and Dennis McCoskrie

Electrical failures or malfunctions

- Can happen with anything powered by electricity
- Factor in
 - 13% of US home fires
 - 17% of home fire deaths
 - 11% of home fire injuries

Fire play in the US

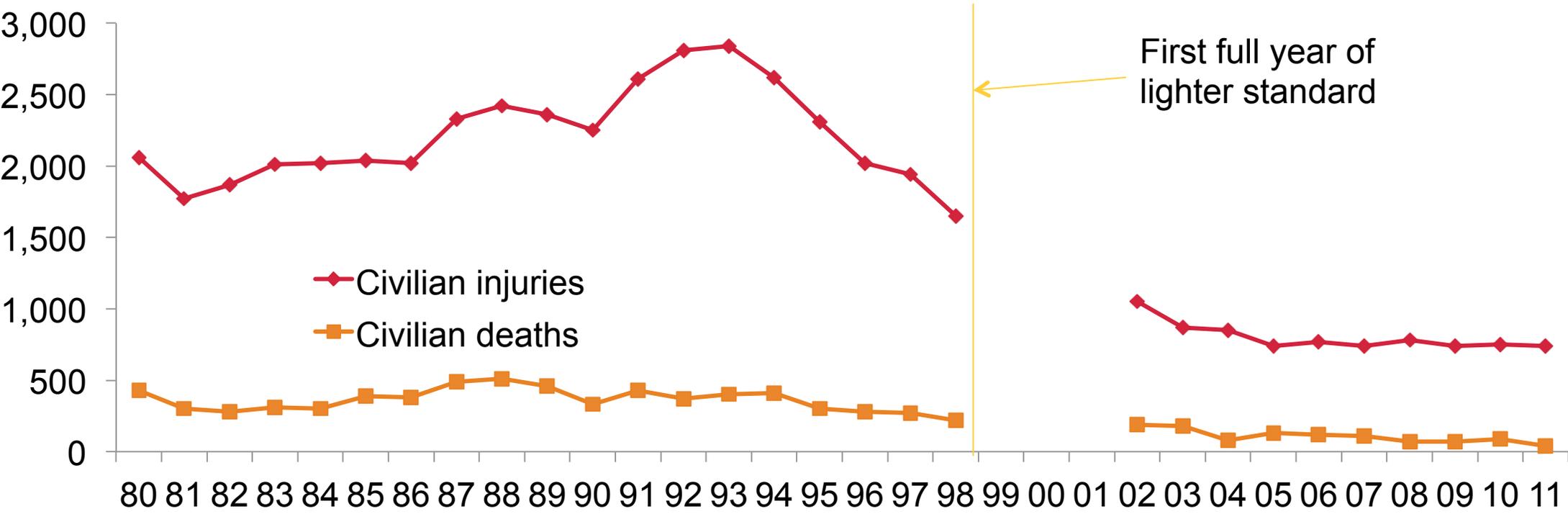
- Playing with heat source caused
 - 2% of US home fires
 - 3% of home fire deaths
 - 5% of home fire injuries
- Injury rate per 1,000 fires was higher than for other major causes
- 61% of fatalities in play fires were under five*
 - 15% were between five and nine

CPSC lighter standard

- In 1994, new CPSC standard required that 85% of all children under 4-1/2 be unable to operate disposable and novelty lighters
 - Fires and casualties associated with playing with both lighters *and* matches fell

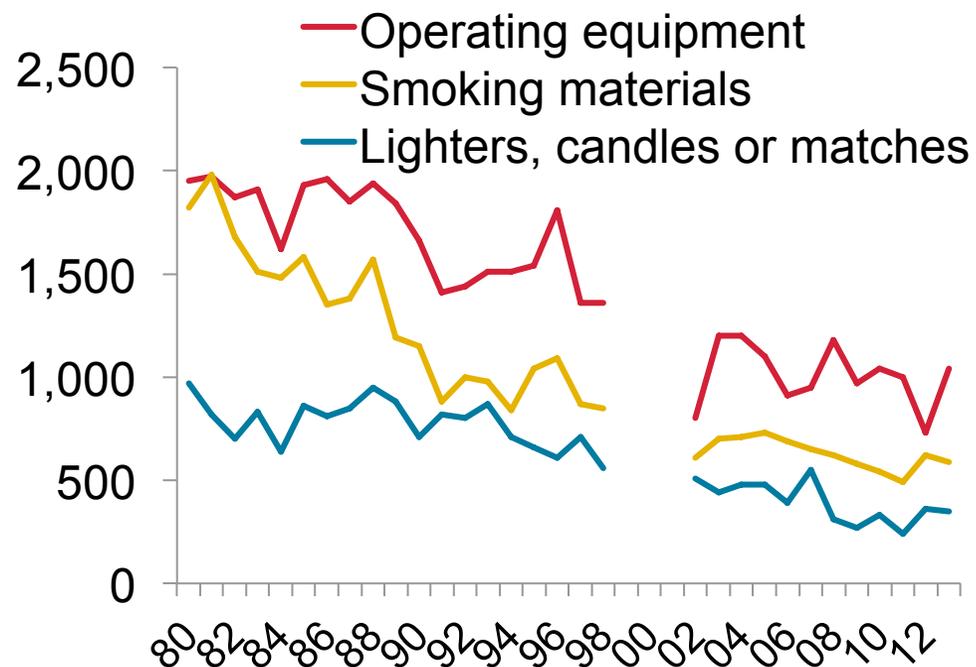


US home fire play deaths & injuries (all heat sources)

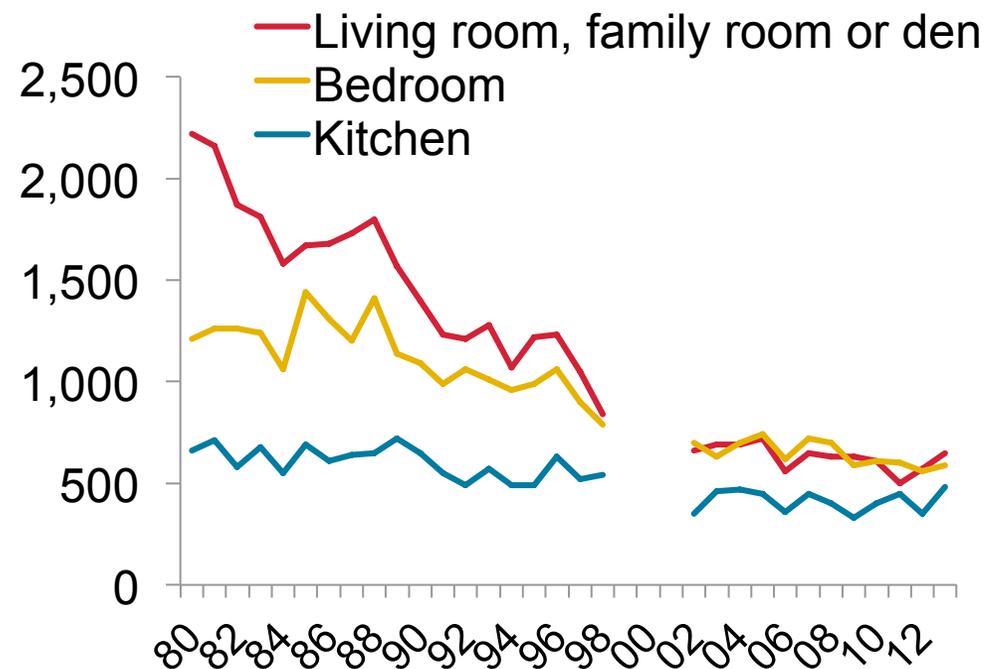


Fire death trends by heat source and area of origin

Deaths from selected heat sources



Deaths by area of origin

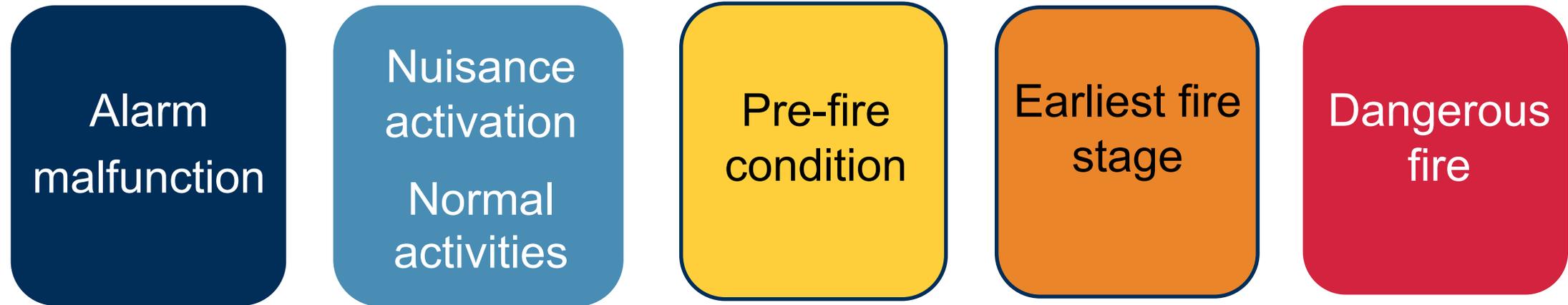


Fire protection

Smoke alarms

- 96% of US homes in phone survey had at least one smoke alarm
 - Not verified by home visits
 - CPSC 's Green and Andres found that homes with unreported fires were slightly less likely to have smoke alarms at all.
 - Pattern continued through increasing levels of protection
- Because property ownership is not a coded field in NFIRS, rental property cannot be identified in national fire data
- Unwanted alarms are an issue
 - Recent study of [NFIRS Incident Types](#) found that false alarm incident types were particularly challenging

Detection activation continuum



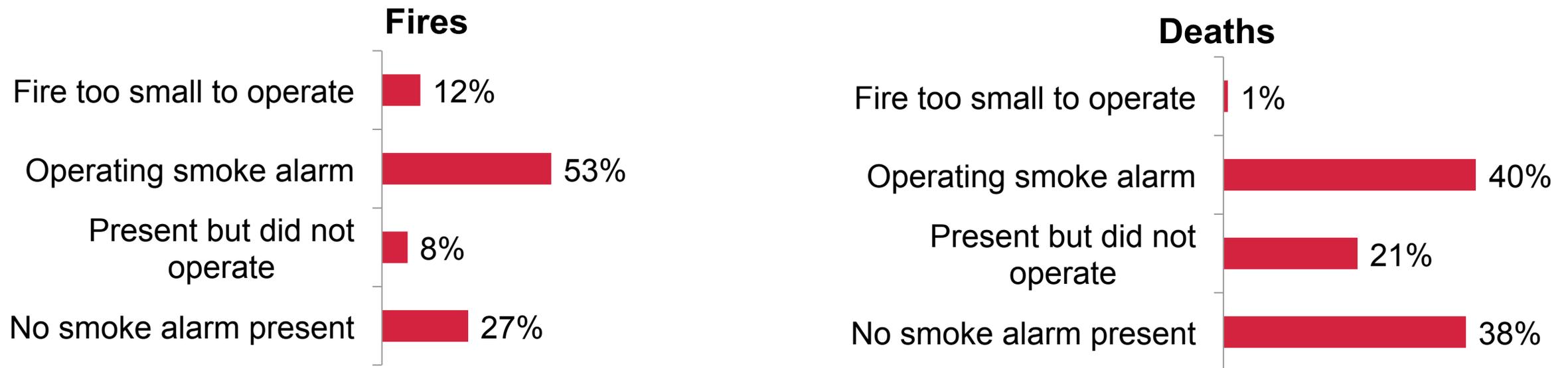
- CPSC's Greene and Andres: Fire departments went to only 3.4% of home fires in 2004-2005



Smoke alarms

- Risk of dying in a reported home fire is cut in half in homes with working alarms.

Smoke alarm status in reported home fires: 2009-2013



Percent of home fire victims with and without working smoke alarms

Who Were.....	Working alarms	No or no working alarms
In room or area when fatally injured	62%	50-52%
In area and involved in ignition	46%	32-37%
Sleeping when fatally injured	30%	37-42%
Physical disability contributed	20%	8-12%
Trying to fight fire themselves	6%	2%
Unable to act	15%	9-11%
At least 65 years old	35%	23%-29%

Sprinklers in US home fires in 2007-2011

- Present in 6% of reported home fires
 - When present in large enough fire, operated 95% of the time
- Compared to home fires with no automatic extinguishing equipment, in homes with wet pipe sprinklers, the
 - Death rate per 1,000 reported fires was 82% lower
 - Average dollar loss per fire was 68% lower

Changing fire service

- Compared to 1980, US fire departments in 2014 responded to
 - 4.0 times as many medical aid calls
 - 5.3 times as many mutual aid calls
 - 2.8 times as many false alarms
 - 2.9 times as many calls
 - Less than half (43%) as many fires
- In 2014
 - 4% of fire department responses were to fires
 - Almost two-thirds (64%) were medical aid calls



Source: NFPA survey

Summary

- Risk factors do not by themselves cause fires or fire deaths
- We know what causes fires and fire deaths
- We know how to prevent them
- Let's make it happen!

Summary

- We have made progress, but still have more to do
- Older adults have highest risk of dying in a fire
- Fires have many causes
- Smoke alarms provide critical warning but can't save everyone
- Sprinklers reduce deaths even more
- Hard to get safer products to those who need it the most