

U.S. UNINTENTIONAL FIRE DEATH RATES BY STATE

John R. Hall, Jr.

October 2011



**National Fire Protection Association
Fire Analysis and Research Division**

U.S. UNINTENTIONAL FIRE DEATH RATES BY STATE

John R. Hall, Jr.

October 2011



**National Fire Protection Association
Fire Analysis and Research Division**

Abstract

The long-term trend in fire death rates per million population has been sloping substantially downward for nearly every state since 1980. In the five most recent years analyzed (2003-2007), Mississippi had the highest average fire death rate, and states of the southeast accounted for nine of the 13 highest rates, with Alaska, Rhode Island, and the states of Missouri and Oklahoma (which border the southeastern states) as the other four. Rhode Island's fire death rate is unusually high because of the Station night club fire. When the five-year average rates are compared to state differences, several factors show notable correlations, including poverty (46% of statistical variation explained), smoking (41%), race (35%), and education (34%). All of these findings are consistent with findings in other studies of socioeconomic and behavioral factors related to measures of fire loss.

Keywords: fire statistics, fire fatalities, fire death rates, risk factors, state

Acknowledgements

Thanks to the U.S. Consumer Product Safety Commission (CPSC) for providing fire deaths by state for 1980-1998. Thanks to the National Safety Council for providing data for later years. The author bears sole responsibility for the analysis and any conclusions.

For more information about the National Fire Protection Association, visit www.nfpa.org or call 617-770-3000. To learn more about the One-Stop Data Shop go to www.nfpa.org/osds or call 617-984-7443.

Copies of this analysis are available from:

National Fire Protection Association
One-Stop Data Shop
1 Batterymarch Park
Quincy, MA 02169-7471
www.nfpa.org
e-mail: osds@nfpa.org
phone: 617-984-7443

NFPA No. USS15
Copyright ©2011, National Fire Protection Association, Quincy, MA

Table of Contents

	Page
Table of Contents	i
Data Sources	1
Patterns and Trends of Fire Deaths by State	3
Summaries of Individual States	21
Alabama	21
Alaska	21
Arizona	21
Arkansas	21
California	21
Colorado	22
Connecticut	22
Delaware	22
Florida	22
Georgia	22
Hawaii	22
Idaho	22
Illinois	22
Indiana	23
Iowa	23
Kansas	23
Kentucky	23
Louisiana	23
Maine	23
Maryland	23
Massachusetts	23
Michigan	24
Minnesota	24
Mississippi	24
Missouri	24

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table of Contents (Continued)

	Page
Montana	24
Nebraska	24
Nevada	24
New Hampshire	24
New Jersey	24
New Mexico	25
New York	25
North Carolina	25
North Dakota	25
Ohio	25
Oklahoma	25
Oregon	25
Pennsylvania	25
Rhode Island	26
South Carolina	26
South Dakota	26
Tennessee	26
Texas	26
Utah	26
Vermont	26
Virginia	27
Washington	27
West Virginia	27
Wisconsin	27
Wyoming	27

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Data Sources

This report is based on the national data base of death certificates collected by the National Center for Health Statistics (NCHS). Death certificates are coded by local medical authorities, using codes defined by the International Classification of Diseases, prepared by the World Health Organization. Death certificate data are then compiled by the states and finally by NCHS. Deaths are assigned to states based on “place of occurrence” and not the victim’s state of residence.

Unintentional fire deaths. Fire deaths – and only fire deaths – are primarily identified by the X00-09 range (equivalent to the E890-899 range for 1980-1998) within the code for “environmental events, circumstances, and conditions” causing fatal injury. The X00-09 range includes most but not all fire deaths. The codes refer to uncontrolled vs. controlled building/structure or non-building/structure fires; fires due to ignition or melting of night wear or, separately, of other clothing; ignition of “highly flammable materials”; and unclassified or unknown-type fires.

Intentional fire deaths. As of 1999, it is possible to identify homicides (X97) and suicides (X76) involving smoke, fire or flames. These deaths are not included in the analysis in this report but are included by the U.S. Fire Administration (USFA) when they perform state-by-state analyses. In 2007, for example, the X00-X09 fire deaths averaged 3,200 per year, compared to 146 fire-related homicides per year and 165 fire-related suicides per year. Together, fire-related homicides and suicides would have added 10% to the X00-X09 deaths on average and could alter any state-to-state comparisons.

Other fire deaths excluded from report. Also excluded from this report but not from the USFA analyses are deaths due to pathological fire-setting (F63.1), discharge of fireworks (W39), and exposure to smoke, fire or flame with undetermined intent (Y26). For 2007, detailed statistics have not yet been published for F63.1, X76, and X97, and so it is necessary to discuss them in terms of 2002-2006 statistics.

Pathological fire-setting had a total of one death over five years in 2002-2006. Fireworks averaged six deaths per year, and deaths involving exposure to smoke, fire, or flame with undetermined intent averaged 106 deaths per year. The five excluded categories together – the three listed here plus homicides and suicides – would have added 13% to the X00-X09 deaths in 2002-2006 and so could alter state-to-state comparisons.

Excluded from all state-by-state analyses are fire deaths in vehicles, which the NFPA survey shows would have added 16% to the X01 to X09 base total in 2002-2006. These deaths were not readily identifiable in the NCHS mortality data base prior to 1999. Also excluded are deaths due to fire but with a proximate cause other than fire, such as the fire-caused collapse of the World Trade Center.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Statistics for W39 and Y26 in 2007 are similar to the 2002-2006 average, while NFPA vehicle fire statistics for 2007 were only 12% of the X01 to X09 base, down from 16% in 2002-2006.

Another key specification is the assignment of a state to a victim based on either the victim's home address or where the victim died (which might be a hospital). NFPA uses the state-by-state tabulations prepared by the National Safety Council (NSC) for its *Injury Facts* series, which uses the location where death occurred. On-line data bases giving access to the death certificate data base, such as the Centers for Disease Control's WISQARS, may use a different default setting, such as the victim's home address. This will produce different numbers.

Under place where death occurred, fire victims who are transported across state lines to the nearest medical facility and then pronounced dead will be assigned to the wrong state. Under place of residence, fire victims injured while away from home in another state – such as the victims of the 1980 MGM Grand Hotel fire, who came from all over the country, or the victims of the 2003 Station night club fire, many of who came from neighboring states – will be assigned to the wrong state.

As part of their review of this report, the state of Tennessee conducted a detailed analysis of their fire deaths and found that, for Tennessee, the differences between “place of occurrence” and “place of residence” all resulted in deaths being assigned to Tennessee where the victims had been fatally injured elsewhere. Using “place of residence” would have reduced their 2003-2007 average fire death toll by 9% and dropped their fire death rate ranking from 2nd highest to 6th highest.

It needs to be emphasized here that Tennessee officials identified these differences as part of a major statewide effort to reduce fire deaths in the state. They need an accurate assessment of their problem if they are to design effective programs and measure progress accurately. This is precisely the kind of use we hope all states will make of this report, and a more detailed state analysis is an excellent way to begin.

The exclusions and possible mismatches in assignment of states are noted on all tables in this report and should be considered when making comparisons.

For example, the omission of vehicle crash-fire deaths will have more of an effect in states with a higher rate of serious vehicle crashes and less in states with a lower rate of such incidents.

In addition, active state fire authorities may work closely with public health authorities to improve the accuracy of coding of possible fire deaths, and this can affect the reported total of fire deaths.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Patterns and Trends of Fire Deaths by State

Nearly every state shows a long-term trend toward fewer fire deaths.

Table 1 shows the number of fire deaths by state for 1980-2007, using consecutive 5-year averages and also showing individual years from 2003 on. States are listed alphabetically. All but two of the states show a long-term trend toward fewer fire deaths, from 1980-1984 to 2003-2007. This is not surprising because the national average number of fire deaths declined by 44% from 1980-1984 to 2003-2007.

The exceptions are Rhode Island and Arizona. Rhode Island's recent fire death average reflects the Station night club fire in 2003. Without that one fire, Rhode Island would also show a decline. Arizona's declining fire death *rate* has been offset by one of the largest percent increases in population of any state, accounting for its rising fire death *toll*.

The eight most populous states, whose death tolls are large enough to permit statistically meaningful comparisons between 5-year averages, all showed dramatic reductions from 1980-1984 to 2003-2007. They are listed here in descending order of population size:

- California, down 36%
- Texas, down 39%
- New York, down 51%
- Florida, down 30%
- Illinois, down 52%
- Pennsylvania, down 35%
- Ohio, down 44%
- Michigan, down 43%

Nearly every state shows a long-term trend toward lower fire death rates relative to population.

Table 2 shows fire death rates in the same format used in Table 1. Only one state – Rhode Island – shows no decline between 1980-1984 and 2003-2007. Rhode Island's increase in average fire death rate is entirely due to the effect of the 2003 Station night club fire, where 100 people died, which is roughly the same number of people who had died in the previous 13 years in all Rhode Island fires.

The highest state fire death rates consistently occur in the southeastern states, excluding Florida.

Tables 3 and 4 show the 50 states, ranked in order of their 2003-2007 annual average fire death rates per million population. States like Missouri and Oklahoma often appear with the southeastern states they border, and states with very small populations, like South Dakota, can have a bad year or two based on minor statistical fluctuations in their fire death experience or, like Rhode Island in this analysis, can have their five-year average

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

fire death rate sharply increased by the effect of just one devastating fire, in this case, the 2003 nightclub fire that killed 100 people.

Higher fire death rates are statistically correlated with several socioeconomic or behavioral characteristics of the states, which are described as risk factors in this report.

Table 3 lists racial and ethnic characteristics and Table 4 lists other potentially explanatory state characteristics, with state rankings for each shown in parentheses.

- Percentage of population belonging to several groupings defined by *racial or ethnic* characteristics
- Percentage of population below *poverty* line
- Percentage of adults without 12 years of *education*
- Percentage of teens and adults who *smoke*
- Percentage of population living in *rural* communities

Statistics on characteristics by state are mostly U.S. Census Bureau data shown in the *Statistical Abstract of the United States*. Tables 3 and 4 show the specific source for each characteristic in the table notes. The analysis shows that differences in some of these variables are strongly associated with differences in state fire death rates. These characteristics are at most correlated with fire risk. None of these characteristics cause higher fire risk.

Focusing on racial and ethnic characteristics, African-Americans and Native Americans have been found in multiple studies to have higher fire death rates than all races and ethnicities combined. Asian-Americans have lower fire death rates, which is why Table 3 shows states ranked from low to high percentage of Asian Americans. Studies of Hispanic Americans do not show a clear risk difference from all races and ethnicities combined. In Table 3, a composite high-risk index of racial and ethnic characteristics is shown, which is defined as the percentage African-American plus the percentage Native American minus the percentage Asian-American.

Poverty (defined as percentage of population in 2005 who were below the poverty line), *education* (defined as percentage of population age 25 or older in 2005 lacking 12 years of school), *smoking* (defined as percentage of population age 12 or older in 2004-2005 who had used cigarettes in the last month), and *rural* (defined as percentage of population living in communities of less than 2,500 population in 2000), all are correlated with fire death rates. All of these findings are consistent with findings in other studies of socioeconomic and demographic factors related to measures of fire loss.¹

All these risk factors are also correlated with each other, and so they tend to explain some of the same variations in state fire death rates. The composite high-risk race index, by

¹ See, for example, Jennifer D. Flynn, *Characteristics of Home Fire Victims*, NFPA Fire Analysis and Research Division, 1 Batterymarch Park, Quincy, MA, April 2010.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

itself, could explain 35% of the variation, and percentage black could explain 28%. Individually, poverty could explain 46% of the variation, smoker 41%, education 34%, and rural 21%. Poverty rates by state vary considerably from year to year, and poverty's explanatory power often varies a great deal as well. If the unique and atypical 2003 nightclub fire and its 100 deaths are removed from the Rhode Island total, most of the correlations change.

A state that ranks high in one or more of these risk factors could be expected to rank high in state fire death rate, and a state that ranks low in risk factors could be expected to rank low in state fire death rate. For example, Mississippi and Alabama are both among the highest ten states on at least three of the major risk factors and both have among the ten highest average state fire death rates. Utah is among the lowest ten states on three of the major risk factors and has one of the ten lowest fire death rates.

Alcohol use is often cited as a factor in fire fatalities of adults, and it has been cited as a risk factor in some studies of factors correlated with fire risk. However, the only measure of alcohol use with readily available state-level data – percentage of population age 12 or older in 2004-2005 who had five or more drinks on the same occasion, defined as “binge drinking,” in the last month – was (slightly) negatively correlated; more adults binge drinking was associated with fewer people dying. It is possible that alcohol use in general or intense, brief alcohol use (like that described by binge drinking) are not likely by themselves to lead to higher fire risk. Many of the states of the southeastern part of the U.S. have high fire death rates, high rates of poverty, high rates of lower education levels, but low rates of binge drinking. This could mean that the statistical relationship of alcohol use to fire risk is weaker than other studies have shown or is more complex. In any event, alcohol use does not qualify statistically as a leading risk factor and so is not shown in Table 4.

Age of housing is a poor predictor of fire death rates. When older housing is associated with higher rates, it usually is because older housing in that area tends to have a disproportionate share of poorer, less educated households. States with a high percentage of older, high-quality housing, like Connecticut, tend to have low fire death rates if old housing is the only predictive factor they rank high on. However, age of housing may be a strong predictor for certain types of fires that clearly involve the condition of the building. For example, analyses done by or for the U.S. Consumer Product Safety commission (CPSC) have shown that housing age is significantly connected with the frequency of fixed wiring fires.²

Manufactured homes have higher fire death rates per million housing units than other dwellings, although the stricter fire safety standards introduced in 1976 have reduced fire death rates considerably from what they were.³ Even though the overall fire death rate

² See, for example, Linda E. Smith and Dennis McCoskrie, “What Causes Wiring Fires in Residences,” *Fire Journal*, January/February 1990, p.20.

³ For more information, see John R. Hall, Jr., *Manufactured Home Fires*, NFPA Fire Analysis and Research Division,

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

for manufactured homes is higher than the rate for other dwellings, many of the states with the highest percentage of housing units that are manufactured homes were low death-rate states, apparently because other factors already discussed were more important.

Climate is not a good predictor overall, either. It is not the relative need for heating that produces greater fire risk; it is the approach to providing that heat. The region with the most serious problem of heating-related fire deaths is the Southeast, where the heating season tends to be shorter and milder than in most other states.⁴ Fire death rates are not high in states with either harsh or mild climates provided there is high use of central heating systems. Fire death rates are high primarily in states where use of central heating is lower (as it is in the South compared to the entire country). Poor households may try to overuse portable and area heating equipment or employ makeshift arrangements, like using a stove or oven to heat a room.

It should also be emphasized that fire death rates are not an inevitable consequence of any predictive characteristics. The latter merely provide a starting point. Effective programs – such as universal public fire and life safety education, wider use of home fire protection systems, and strong consensus codes with strong enforcement – can reduce fire death rates over time in any state.

¹ Batterymarch Park, Quincy, MA, July 2011.

⁴ See, for example, Michael J. Karter, Jr., *U.S. Fire Experience by Region*, NFPA Fire Analysis and Research Division, 1 Batterymarch Park, Quincy, MA, March 2010; and John R. Hall, Jr. and Susan G. Helzer, *Civilian Residential Fire Fatality Rates: Six High-Rate States Versus Six Low-Rate States*, NBSIR 83-2754, Washington: U.S. Department of Commerce, National Bureau of Standards, Center for Fire Research, August 1983.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 1. Unintentional Fire, Flame or Smoke Deaths, by State, 1980-2007

State	1980-1984 Average	1985-1989 Average	1990-1994 Average	1995-1999 Average	2000-2004 Average	2005-2007 Average
Alabama	153	154	151	115	108	98
Alaska	18	15	19	14	9	13
Arizona	38	41	43	38	43	45
Arkansas	84	82	59	59	64	65
California	338	292	259	229	203	217
Colorado	33	24	26	22	19	26
Connecticut	39	35	31	32	27	25
Delaware	15	12	10	8	8	9
Florida	191	190	182	132	133	130
Georgia	226	208	192	145	145	133
Hawaii	6	6	3	8	4	5
Idaho	16	11	12	11	8	16
Illinois	260	229	216	158	142	122
Indiana	132	108	97	87	89	84
Iowa	44	41	39	35	32	26
Kansas	53	58	46	37	40	36
Kentucky	104	98	87	73	72	78
Louisiana	159	134	117	92	98	93
Maine	30	30	20	15	12	10
Maryland	100	73	69	58	53	60
Massachusetts	120	82	68	56	53	34
Michigan	212	191	180	150	131	114
Minnesota	79	58	49	49	38	32
Mississippi	133	126	105	101	87	73
Missouri	129	118	109	93	95	86
Montana	16	11	11	11	7	9
Nebraska	26	20	17	16	16	22
Nevada	33	14	17	15	17	22
New Hampshire	14	17	10	7	10	8
New Jersey	170	139	102	76	66	59
New Mexico	23	26	21	18	18	20
New York	367	353	264	220	192	171
North Carolina	198	203	183	133	128	124
North Dakota	13	10	11	9	7	6
Ohio	216	192	178	131	127	121

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 1. Unintentional Fire, Flame or Smoke Deaths, by State, 1980-2007 (continued)

	2003-2007 Average	2003	2004	2005	2006	2007
Alabama	102	109	107	105	97	91
Alaska	10	6	7	14	11	14
Arizona	42	47	29	57	44	33
Arkansas	60	50	56	77	56	63
California	216	215	217	201	220	229
Colorado	23	20	16	23	28	26
Connecticut	26	26	31	27	18	29
Delaware	8	2	9	12	7	9
Florida	133	132	142	135	123	133
Georgia	140	145	154	109	145	146
Hawaii	5	4	6	6	4	4
Idaho	13	9	8	18	19	12
Illinois	125	134	123	117	117	133
Indiana	87	86	98	81	88	82
Iowa	29	33	33	33	21	24
Kansas	36	34	39	22	49	36
Kentucky	75	73	69	94	65	75
Louisiana	91	86	92	109	80	89
Maine	10	14	7	14	10	5
Maryland	59	49	64	58	40	82
Massachusetts	39	56	35	38	28	36
Michigan	120	135	122	122	97	122
Minnesota	33	38	28	28	37	32
Mississippi	76	74	86	71	67	80
Missouri	88	85	98	67	82	108
Montana	9	9	10	9	10	8
Nebraska	19	16	15	26	23	17
Nevada	20	18	15	14	20	32
New Hampshire	8	10	8	10	6	8
New Jersey	61	60	69	62	59	56
New Mexico	21	23	22	26	17	16
New York	180	206	181	171	160	181
North Carolina	126	126	131	111	111	151
North Dakota	6	5	8	12	4	3
Ohio	120	132	105	110	135	119

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 1. Unintentional Fire, Flame or Smoke Deaths, by State, 1980-2007 (Continued)

State	1980-1984 Average	1985-1989 Average	1990-1994 Average	1995-1999 Average	2000-2004 Average	2005-2007 Average
Oklahoma	95	82	69	65	61	76
Oregon	46	37	40	33	34	29
Pennsylvania	282	262	235	196	166	186
Rhode Island	18	12	6	6	30	4
South Carolina	149	150	102	87	76	75
South Dakota	13	14	14	8	10	12
Tennessee	149	160	136	140	132	137
Texas	367	325	252	245	231	224
Utah	24	16	20	11	12	16
Vermont	18	12	9	9	7	7
Virginia	146	138	100	94	86	89
Washington	80	63	56	53	54	48
West Virginia	65	43	37	32	26	34
Wisconsin	80	80	69	58	48	52
Wyoming	5	7	3	3	2	5
All 50 states	5,804	4,802	4,149	3,495	3,275	3,183

Note: Many of the deadliest fires in this period are not included because they fall into one of the exclusion groups cited below. For example, airplane post-crash fires and in-flight fires are not included, nor is the New York social club fire of 1989 (possibly treated as homicide by fire), the Oklahoma City office building bombing, or the World Trade Center collapse (intentional fire caused collapse, which was the proximate cause of death).

Source: National Center for Health Statistics mortality data sorted by International Classification of Diseases codes, as sorted and analyzed by U.S. Consumer Product Safety Commission (1980-1998) and National Safety Council (1999-2007). Deaths included are those coded E890-E899 (1980-1998) and X00-X09 (1999-2007). Figures do not include codes F63.1 (pathological fire setting), W39 (fireworks discharge), X76 and X97 (suicide or homicide by smoke, fire of flames), and Y26 (death involving exposure to fire, flames, or smoke with undetermined intent), which collectively would add about 13% to the total each year. These codes are included in state-by-state analyses by the U.S. Fire Administration. Figures do not include fire deaths in vehicles, which would add about another 16% to the base each year.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 1. Unintentional Fire, Flame or Smoke Deaths, by State, 1980-2007 (Continued)

State	2003-2007 Average	2003	2004	2005	2006	2007
Oklahoma	73	69	68	88	60	81
Oregon	30	29	36	24	30	33
Pennsylvania	183	184	173	167	194	196
Rhode Island	24	105	4	7	0	4
South Carolina	77	84	75	83	77	65
South Dakota	12	10	14	15	12	8
Tennessee	142	165	134	140	149	121
Texas	223	233	209	231	224	216
Utah	15	14	14	16	31	19
Vermont	6	10	1	8	6	7
Virginia	91	80	110	81	85	100
Washington	46	35	49	52	55	37
West Virginia	31	23	29	32	38	33
Wisconsin	52	51	52	51	46	59
Wyoming	3	0	1	7	4	4
All 50 states	3,223	3,359	3,209	3,191	3,091	3,267

Note: Many of the deadliest fires in this period are not included because they fall into one of the exclusion groups cited below. For example, airplane post-crash fires and in-flight fires are not included, nor is the New York social club fire of 1989 (possibly treated as homicide by fire), the Oklahoma City office building bombing, or the World Trade Center collapse (fire caused collapse, which was the proximate cause of death).

Source: National Center for Health Statistics mortality data sorted by International Classification of Diseases codes, as sorted and analyzed by U.S. Consumer Product Safety Commission (1980-1998) and National Safety Council (1999-2007). Deaths included are those coded E890-E899 (1980-1998) and X00-X09 (1999-2007). Figures do not include codes F63.1 (pathological fire setting), W39 (fireworks discharge), X76 and X97 (suicide or homicide by smoke, fire of flames), and Y26 (death involving exposure to fire, flames, or smoke with undetermined intent), which collectively would add about 13% to the total each year. These codes are included in state-by-state analyses by the U.S. Fire Administration. Figures do not include fire deaths in vehicles, which would add about another 16% to the base each year.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 2. Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population, by State, 1980-2007

State	1980-1984 Average	1985-1989 Average	1990-1994 Average	1995-1999 Average	2000-2004 Average	2005-2007 Average
Alabama	38.9	37.8	36.4	26.4	24.1	21.3
Alaska	41.4	28.2	31.6	23.5	14.4	19.2
Arizona	13.3	12.0	11.2	8.1	7.9	7.2
Arkansas	36.6	34.3	24.8	22.8	23.7	23.3
California	13.7	10.6	8.4	7.0	5.8	6.0
Colorado	10.7	7.4	7.6	5.5	4.2	5.4
Connecticut	12.5	10.8	9.6	9.6	7.8	7.1
Delaware	25.7	17.9	13.9	10.9	9.9	11.0
Florida	18.3	15.8	13.5	8.7	8.0	7.2
Georgia	40.0	33.3	28.3	18.9	17.0	14.3
Hawaii	5.8	5.2	2.4	6.8	3.1	3.7
Idaho	16.0	11.4	10.9	9.0	5.8	11.2
Illinois	22.7	19.8	18.6	12.9	11.3	9.6
Indiana	24.0	19.5	17.1	14.6	14.4	13.3
Iowa	15.3	14.6	13.8	12.2	10.8	8.8
Kansas	22.1	23.4	18.1	14.0	14.6	12.9
Kentucky	28.2	26.2	23.1	18.5	17.6	18.5
Louisiana	36.2	30.0	27.4	20.9	21.8	21.2
Maine	26.4	25.1	16.3	12.0	9.1	7.4
Maryland	23.3	16.2	14.1	11.2	9.7	10.7
Massachusetts	20.9	14.0	11.3	9.0	8.2	5.3
Michigan	23.3	20.8	19.0	15.3	13.0	11.3
Minnesota	19.0	13.6	11.0	10.2	7.6	6.3
Mississippi	51.8	48.1	40.1	36.4	30.2	25.0
Missouri	26.2	23.1	21.0	17.0	16.7	14.7
Montana	19.4	13.8	13.9	12.1	7.7	9.5
Nebraska	16.4	12.8	10.6	9.5	9.1	12.5
Nevada	37.6	13.7	12.4	8.5	7.8	8.9
New Hampshire	15.0	16.5	8.6	6.2	8.0	6.1
New Jersey	22.9	18.1	13.1	9.3	7.8	6.8
New Mexico	16.8	17.1	13.1	9.9	9.9	10.1
New York	20.9	19.8	14.6	11.8	10.0	8.8
North Carolina	32.9	31.7	26.8	17.4	15.4	14.0
North Dakota	18.8	14.9	17.7	13.2	11.0	10.0
Ohio	20.1	17.8	16.1	11.6	11.1	10.6

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 2. Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population, by State, 1980-2007

State	2003-2007 Average	2003	2004	2005	2006	2007
Alabama	22.3	24.2	23.6	23.1	21.1	19.6
Alaska	15.6	9.2	10.7	20.9	16.3	20.5
Arizona	7.0	8.4	5.0	9.6	7.1	5.2
Arkansas	21.7	18.3	20.3	27.8	20.0	22.2
California	6.0	6.1	6.0	5.6	6.1	6.3
Colorado	4.8	4.4	3.5	4.9	5.9	5.4
Connecticut	7.5	7.5	8.8	7.8	5.2	8.3
Delaware	9.3	2.4	10.8	14.3	8.2	10.4
Florida	7.5	7.8	8.2	7.6	6.8	7.3
Georgia	15.4	16.7	17.4	12.0	15.6	15.3
Hawaii	3.8	3.2	4.8	4.7	3.1	3.1
Idaho	9.2	6.6	5.7	12.6	13.0	8.0
Illinois	9.8	10.6	9.7	9.2	9.2	10.4
Indiana	13.9	13.9	15.7	13.0	14.0	12.9
Iowa	9.7	11.2	11.2	11.2	7.1	8.1
Kansas	13.1	12.5	14.3	8.0	17.8	13.0
Kentucky	18.0	17.7	16.6	22.6	15.5	17.6
Louisiana	20.6	19.1	20.4	24.2	18.9	20.3
Maine	7.6	10.7	5.3	10.7	7.6	3.8
Maryland	10.5	8.9	11.5	10.4	7.1	14.6
Massachusetts	6.0	8.7	5.5	5.9	4.3	5.5
Michigan	11.9	13.4	12.1	12.1	9.6	12.1
Minnesota	6.4	7.5	5.5	5.5	7.2	6.2
Mississippi	26.1	25.7	29.6	24.5	23.1	27.4
Missouri	15.2	14.9	17.0	11.6	14.1	18.3
Montana	9.8	9.8	10.8	9.6	10.6	8.4
Nebraska	11.1	9.2	8.6	14.8	13.1	9.6
Nevada	8.2	8.0	6.4	5.8	8.1	12.5
New Hampshire	6.4	7.8	6.2	7.7	4.6	6.1
New Jersey	7.1	6.9	7.9	7.2	6.8	6.5
New Mexico	10.8	12.3	11.6	13.6	8.8	8.1
New York	9.3	10.7	9.4	8.8	8.3	9.3
North Carolina	14.5	15.0	15.3	12.8	12.5	16.7
North Dakota	10.1	7.9	12.6	18.9	6.3	4.7
Ohio	10.5	11.5	9.2	9.6	11.8	10.3

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 2. Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population, by State, 1980-2007 (Continued)

State	1980-1984 Average	1985-1989 Average	1990-1994 Average	1995-1999 Average	2000-2004 Average	2005-2007 Average
Oklahoma	29.3	25.2	21.5	19.2	17.6	21.4
Oregon	17.2	13.7	13.6	10.0	9.6	7.9
Pennsylvania	23.7	21.9	19.6	16.0	13.5	14.9
Rhode Island	18.7	12.0	6.0	6.0	27.9	3.5
South Carolina	46.1	43.9	28.4	22.4	18.4	17.3
South Dakota	19.3	19.2	20.3	10.8	13.4	14.8
Tennessee	31.9	33.0	27.0	25.5	22.8	22.5
Texas	23.9	19.4	14.3	12.4	10.6	9.6
Utah	15.0	9.4	10.8	5.1	5.4	6.2
Vermont	35.0	22.3	15.1	14.7	11.7	11.3
Virginia	26.5	23.3	15.6	13.8	11.8	11.6
Washington	18.7	13.8	10.8	9.4	8.9	7.5
West Virginia	33.0	22.9	20.3	17.6	14.2	19.0
Wisconsin	16.9	16.7	13.9	11.0	8.9	9.3
Wyoming	10.6	13.9	7.3	6.1	4.4	9.7
All 50 states	23.0	19.8	16.3	12.8	11.4	10.7

Note: Many of the deadliest fires in this period are not included because they fell into one of the exclusion groups cited below. For example, airplane post-crash and in-flight fires are not included, nor is the New York social club fire of 1989 (possibly treated as homicide by fire), the Oklahoma City office building bombing, or the World Trade Center collapse (fire caused collapse, which was the proximate cause of death).

Source: National Center for Health Statistics mortality data sorted by International Classification of Diseases codes, as sorted and analyzed by U.S. Consumer Product Safety Commission (1980-1998) and National Safety Council (1999-2007). Deaths included are those coded E890-E899 (1980-1998) and X00-X09 (1999-2007). Figures do not include codes F63.1 (pathological fire setting), W39 (fireworks discharge), X76 and X97 (suicide or homicide by smoke, fire of flames), and Y26 (death involving exposure to fire, flames, or smoke with undetermined intent), which collectively would add about 13% to the total each year. These codes are included in state-by-state analyses by the U.S. Fire Administration. Figures do not include fire deaths in vehicles, which would add about another 16% to the base each year.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 2. Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population, by State, 1980-2007 (Continued)

State	2003-2007 Average	2003	2004	2005	2006	2007
Oklahoma	20.6	19.6	19.3	24.9	16.8	22.4
Oregon	8.4	8.1	10.0	6.6	8.1	8.8
Pennsylvania	14.7	14.9	13.9	13.5	15.7	15.7
Rhode Island	22.5	97.6	3.7	6.6	0.0	3.8
South Carolina	18.0	20.3	17.9	19.5	17.8	14.7
South Dakota	15.1	13.1	18.2	19.3	15.2	10.0
Tennessee	23.7	28.2	22.7	23.4	24.6	19.6
Texas	9.7	10.5	9.3	10.1	9.6	9.1
Utah	6.1	6.0	5.9	6.4	5.0	7.1
Vermont	10.3	16.2	1.6	12.9	9.7	11.3
Virginia	12.1	10.8	14.7	10.7	11.1	13.0
Washington	7.3	5.7	7.9	8.3	8.6	5.7
West Virginia	17.1	12.7	16.0	17.7	21.0	18.2
Wisconsin	9.4	9.3	9.4	9.2	8.3	10.5
Wyoming	6.3	0.0	2.0	13.8	7.8	7.6
All 50 states	10.9	11.6	10.9	10.8	10.4	10.9

Note: Many of the deadliest fires in this period are not included because they fell into one of the exclusion groups cited below. For example, airplane post-crash and in-flight fires are not included, nor is the New York social club fire of 1989 (possibly treated as homicide by fire), the Oklahoma City office building bombing, or the World Trade Center collapse (fire caused collapse, which was the proximate cause of death).

Source: National Center for Health Statistics mortality data sorted by International Classification of Diseases codes, as sorted and analyzed by U.S. Consumer Product Safety Commission (1980-1998) and National Safety Council (1999-2007). Deaths included are those coded E890-E899 (1980-1998) and X00-X09 (1999-2007). Figures do not include codes F63.1 (pathological fire setting), W39 (fireworks discharge), X76 and X97 (suicide or homicide by smoke, fire of flames), and Y26 (death involving exposure to fire, flames, or smoke with undetermined intent), which collectively would add about 13% to the total each year. These codes are included in state-by-state analyses by the U.S. Fire Administration. Figures do not include fire deaths in vehicles, which would add about another 16% to the base each year.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 3. 2003-2007 Annual Average Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population Versus Potentially Related Racial Characteristics, by State

State	Fire Deaths per Million Population 2003-2007		<u>High Risk Index</u> Black + Indian - Asian 2005		<u>Black</u> Includes African American 2005		<u>Indian</u> American Indian or Alaska Native 2005		<u>Asian</u> Includes Native Hawaiian or Other Pacific Islander 2005		<u>Hispanic</u> includes Latino Origin 2005	
	Average	Rank (High to Low)	Index	Rank (High to Low)	Percent	Rank (High to Low)	Percent	Rank (High to Low)	Percent	Rank (Low to High)	Percent	Rank (High to Low)
Mississippi	26.1	1	36.8%	1	37.2%	1	0.4%	30D	0.8%	6B	1.8%	46
Tennessee	23.7	2	15.9%	9	17.0%	11	0.3%	35I	1.3%	14B	3.1%	37
Rhode Island	22.5	3	4.0%	33	6.2%	28	0.6%	23C	2.8%	32D	10.8%	13
Alabama	22.3	4	26.3%	5	26.6%	6	0.5%	26A	0.9%	8	2.3%	41A
Arkansas	21.7	5	15.5%	11	15.9%	12	0.7%	21A	1.1%	11A	4.8%	29
Louisiana	20.6	6A	32.5%	2	33.4%	2	0.6%	23A	1.4%	16A	2.9%	38
Oklahoma	20.6	6B	14.9%	13	8.1%	23	8.5%	4	1.7%	22	6.9%	22
Kentucky	18.0	8A	6.8%	27	7.6%	25	0.2%	46A	1.0%	9A	2.0%	45
South Carolina	18.0	8B	28.8%	3	29.5%	5	0.4%	30E	1.1%	11B	3.3%	36
West Virginia	17.1	10	2.8%	36	3.2%	37	0.2%	46E	0.6%	2B	0.8%	50
Alaska	15.6	11	15.2%	12	3.8%	34	16.7%	1	5.4%	44	5.4%	28
Georgia	15.4	12	27.6%	4	30.1%	3	0.3%	35B	2.8%	32C	7.2%	20A
Missouri	15.2	13	10.7%	20	11.7%	19	0.5%	26C	1.4%	16B	2.7%	39
South Dakota	15.1	14	9.0%	22	0.8%	44C	8.9%	3	0.7%	5	2.1%	44
Pennsylvania	14.7	15	8.6%	23	10.7%	20	0.2%	46D	2.3%	28B	4.1%	32
North Carolina	14.5	16	21.4%	7	22.0%	7	1.3%	14	1.9%	24	6.4%	24
Indiana	13.9	17	8.0%	24	8.9%	22	0.3%	35D	1.3%	14A	4.6%	30
Kansas	13.1	18	4.7%	32	6.0%	29A	1.0%	18A	2.2%	26B	8.4%	18
Virginia	12.1	19	15.8%	10	20.2%	9	0.3%	35K	4.7%	41	6.1%	25B
Michigan	11.9	20	12.8%	15	14.6%	16	0.6%	23B	2.3%	28A	3.9%	33

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 3. 2003-2007 Annual Average Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population Versus Potentially Related Racial Characteristics, by State (Continued)

State	Fire Deaths per Million Population 2003-2007		<u>High Risk Index</u> Black + Indian - Asian 2005		<u>Black</u> Includes African American 2005		<u>Indian</u> American Indian or Alaska Native 2005		<u>Asian</u> Includes Native Hawaiian or Other Pacific Islander 2005		<u>Hispanic</u> includes Latino Origin 2005	
	Average	Rank (High to Low)	Index	Rank (High to Low)	Percent	Rank (High to Low)	Percent	Rank (High to Low)	Percent	Rank (Low to High)	Percent	Rank (High to Low)
Nebraska	11.1	21	3.7%	34	4.4%	31	1.0%	18B	1.6%	21	7.2%	20B
New Mexico	10.8	22	11.5%	16	2.5%	39	10.4%	2	1.4%	16C	44.1%	1
Maryland	10.5	23A	25.2%	6	29.7%	4	0.3%	35F	4.9%	42A	5.8%	27
Ohio	10.5	23B	10.8%	19	12.1%	17	0.2%	46C	1.5%	19B	2.3%	41B
Vermont	10.3	25	0.0%	44	0.6%	48B	0.3%	35J	1.0%	9B	1.1%	48
North Dakota	10.1	26	5.5%	30	0.8%	44B	5.4%	6	0.6%	2A	1.6%	47
Illinois	9.8	27A	11.4%	17	15.3%	14	0.3%	35C	4.2%	40	14.5%	10
Montana	9.8	27B	6.4%	28B	0.4%	50	6.5%	5	0.5%	1	2.5%	40
Iowa	9.7	29A	1.2%	41	2.3%	40	0.3%	35E	1.5%	19A	3.7%	34A
Texas	9.7	29B	9.1%	21	11.8%	18	0.7%	21B	3.4%	37	35.5%	3
Wisconsin	9.4	31	5.0%	31	6.0%	29B	0.9%	20	2.0%	25	4.5%	31
Delaware	9.3	32A	18.5%	8	20.9%	8	0.4%	30A	2.8%	32B	6.1%	25A
New York	9.3	32B	11.3%	18	17.6%	10	0.5%	26D	6.8%	46	16.4%	8
Idaho	9.2	34	0.8%	42	0.6%	48A	1.4%	10A	1.2%	13	9.2%	16
Oregon	8.4	35	-0.6%	46B	1.9%	41	1.4%	10C	3.8%	39	10.1%	14
Nevada	8.2	36	3.0%	35	7.9%	24	1.4%	10B	6.4%	45	24.1%	5
Maine	7.6	37	0.5%	43	0.8%	44A	0.5%	26B	0.8%	6B	1.0%	49
Connecticut	7.5	38A	7.3%	26	10.2%	21	0.3%	35A	3.3%	36	11.0%	11A
Florida	7.5	38B	14.2%	14	15.9%	12B	0.4%	30B	2.2%	26A	19.7%	7
Washington	7.3	40	-1.7%	48	3.6%	36	1.7%	9	7.1%	47	9.0%	17

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 3. 2003-2007 Annual Average Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population Versus Potentially Related Racial Characteristics, by State (Continued)

State	Fire Deaths per Million Population 2003-2007		<u>High Risk Index</u> Black + Indian - Asian 2005		<u>Black Includes</u> African American 2005		<u>Indian</u> American Indian or Alaska Native 2005		<u>Asian</u> Includes Native Hawaiian or Other Pacific Islander 2005		<u>Hispanic</u> includes Latino Origin 2005	
	Average	Rank (High to Low)	Index	Rank (High to Low)	Percent	Rank (High to Low)	Percent	Rank (High to Low)	Percent	Rank (Low to High)	Percent	Rank (High to Low)
New Jersey	7.1	41	7.6%	25	14.7%	15	0.3%	35H	7.4%	48	15.4%	9
Arizona	7.0	42	6.4%	28A	3.7%	35	5.1%	7	2.4%	30	29.0%	4
Minnesota	6.4	43A	1.9%	40	4.3%	32	1.2%	15B	3.6%	38	3.7%	34B
New Hampshire	6.4	43B	-0.6%	46A	1.0%	42A	0.2%	46B	1.8%	23	2.2%	43
Wyoming	6.3	45	2.6%	37	0.8%	44D	2.4%	8	0.6%	2C	6.8%	23
Utah	6.1	46	-0.3%	45	1.0%	42B	1.4%	10D	2.7%	31	11.0%	11B
California	6.0	47A	-4.9%	49	6.9%	27	1.2%	15A	13.0%	49	36.1%	2
Massachusetts	6.0	47B	2.4%	39	7.0%	26	0.3%	35G	4.9%	42B	8.0%	19
Colorado	4.8	49	2.5%	38	4.2%	33	1.1%	17	2.8%	32A	19.8%	6
Hawaii	3.8	50	-59.8%	50	2.9%	38	0.4%	30C	63.1%	50	10.0%	15
All 50 states	10.9		9.4%		12.9%		1.0%		4.5%		14.6%	

Note: Many of the deadliest fires are not included because they fall into one of the exclusion groups cited below. For example, airplane post-crash fires and in-flight fires are not included, nor is the New York social club fire of 1989 (possibly treated as homicide by fire), the Oklahoma City office building bombing, or the World Trade Center collapse (fire caused collapse, which was the proximate cause of death).

Source: National Center for Health Statistics mortality data sorted by International Classification of Diseases codes, as sorted and analyzed by U.S. Consumer Product Safety Commission (1980-1998) and National Safety Council (1999-2007). States are assigned based on “place of occurrence,” which means state where death occurred, which may be different from the victim’s state of residence and the state where fatal fire injury occurred. Deaths included are those coded E890-E899 (1980-1998) and X00-X09 (1999-2007). Figures do not include codes F63.1 (pathological fire setting), W39 (fireworks discharge), X76 and X97 (suicide or homicide by smoke, fire of flames), and Y26 (death involving exposure to fire, flames, or smoke with undetermined intent), which collectively would add about 13% to the total each year. These codes are included in state-by-state analyses by the U.S. Fire Administration. Figures do not include fire deaths in vehicles, which would add about another 16% to the base each year.

Source for factors: *Statistical Abstract of the United States: 2011*, Table 19 (race groups and Hispanic origin), and corresponding tables in earlier editions with data for the cited year.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 4. 2003-2007 Annual Average Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population Versus Potentially Related Characteristics Other Than Race, by State

State	Fire Deaths per Million Population 2003-2007		Education Adults Without 12 Years of School 2005		Smoking People 12 or Over Who Used Cigarettes in Last Month 2004-2005		Poverty People Below Poverty Line 2005		Rural People Who Live in Rural Communities 2000	
	Average (High to Low)	Rank	Index (High to Low)	Rank	Percent (High to Low)	Rank	Percent (High to Low)	Rank	Percent (High to Low)	Rank
Mississippi	26.1	1	20.1%	3	26.6%	19B	21.3%	1	51.2%	4
Tennessee	23.7	2	18.2%	9	29.6%	4	15.5%	11	36.4%	15
Rhode Island	22.5	3	16.0%	12B	24.8%	31A	12.3%	26	9.1%	45
Alabama	22.3	4	19.1%	6	27.1%	13A	17.0%	7	44.6%	8
Arkansas	21.7	5	18.6%	8	28.0%	9A	17.2%	6	47.6%	6
Louisiana	20.6	6A	19.8%	4	27.5%	11	19.8%	2	27.3%	27
Oklahoma	20.6	6B	14.8%	14	29.0%	5	16.5%	9	34.7%	17
Kentucky	18.0	8A	21.1%	2	31.5%	2	16.8%	8	44.3%	9
South Carolina	18.0	8B	17.0%	11	28.7%	6	15.6%	10	39.5%	13
West Virginia	17.1	10	17.6%	10	32.4%	1	18.0%	4	53.9%	3
Alaska	15.6	11	8.3%	46	24.6%	34	11.2%	33A	34.3%	18
Georgia	15.4	12	14.3%	17B	24.7%	33	14.4%	13A	28.3%	26
Missouri	15.2	13	14.6%	15	29.9%	3	13.3%	20B	30.6%	21
South Dakota	15.1	14	11.5%	32B	26.2%	22	13.6%	19	48.1%	5
Pennsylvania	14.7	15	13.7%	20	26.9%	17B	11.9%	29A	23.0%	31
North Carolina	14.5	16	16.0%	12A	26.9%	17A	15.1%	12	39.8%	12
Indiana	13.9	17	12.8%	26A	28.0%	9B	12.2%	27	29.2%	23
Kansas	13.1	18	8.6%	44	27.6%	12	11.7%	31	28.6%	25
Virginia	12.1	19	13.9%	19	24.8%	31B	10.0%	43	27.0%	28
Michigan	11.9	20	11.5%	32A	28.1%	8	13.2%	22	25.3%	29

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 4. 2003-2007 Annual Average Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population Versus Potentially Related Characteristics Other Than Race, by State (Continued)

State	Fire Deaths per Million Population 2003-2007		Education Adults Without 12 Years of School 2005		Smoking People 12 or Over Who Used Cigarettes in Last Month 2004-2005		Poverty People Below Poverty Line 2005		Rural People Who Live in Rural Communities 2000	
	Average (High to Low)	Rank	Index (High to Low)	Rank	Percent (High to Low)	Rank	Percent (High to Low)	Rank	Percent (High to Low)	Rank
Nebraska	11.1	21	10.3%	37	24.5%	35A	10.9%	37B	30.3%	22
New Mexico	10.8	22	19.0%	7	23.6%	39	18.5%	3	25.0%	30
Maryland	10.5	23A	13.0%	24A	22.6%	45B	8.2%	49	13.9%	38
Ohio	10.5	23B	12.1%	31	28.2%	7	13.0%	23	22.7%	32
Vermont	10.3	25	10.0%	39C	25.4%	27	11.5%	32	61.8%	1
North Dakota	10.1	26	10.0%	39B	26.1%	23	11.2%	33B	44.2%	10
Illinois	9.8	27A	12.7%	28B	27.0%	16	12.0%	28	12.2%	41
Montana	9.8	27B	7.9%	48	27.1%	13B	14.4%	13B	46.0%	7
Iowa	9.7	29A	10.1%	38	25.7%	24B	10.9%	37A	38.9%	14
Texas	9.7	29B	21.8%	1	25.1%	29	17.6%	5	17.5%	36
Wisconsin	9.4	31	9.5%	42	27.1%	13C	10.2%	41B	31.7%	20
Delaware	9.3	32A	13.2%	22A	25.7%	24A	10.4%	39	20.0%	34
New York	9.3	32B	14.4%	16	24.5%	35B	13.8%	18	12.5%	39
Idaho	9.2	34	10.9%	35	23.4%	40	13.9%	17	33.6%	19
Oregon	8.4	35	11.3%	34	25.2%	28	14.1%	16	21.3%	33
Nevada	8.2	36	13.4%	21	26.6%	19C	11.1%	35B	8.4%	47B
Maine	7.6	37	12.8%	26B	26.6%	19A	12.6%	25	59.8%	2
Connecticut	7.5	38A	10.0%	39A	23.1%	41A	8.3%	48	12.3%	40
Florida	7.5	38B	13.2%	22B	24.3%	37	12.8%	24	10.7%	44
Washington	7.3	40	8.5%	45	24.0%	38	11.9%	29B	18.0%	35

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Table 4. 2003-2007 Annual Average Rates of Unintentional Fire, Flame or Smoke Deaths per Million Population Versus Potentially Related Characteristics Other Than Race, by State (Continued)

State	Fire Deaths per Million Population 2003-2007		Education Adults Without 12 Years of School 2005		Smoking People 12 or Over Who Used Cigarettes in Last Month 2004-2005		Poverty People Below Poverty Line 2005		Rural People Who Live in Rural Communities 2000	
	Average (High to Low)	Rank	Index (High to Low)	Rank	Percent (High to Low)	Rank	Percent (High to Low)	Rank	Percent (High to Low)	Rank
New Jersey	7.1	41	13.0%	24B	22.1%	47	8.7%	47	5.7%	49
Arizona	7.0	42	14.3%	17A	22.7%	44	14.2%	15	11.8%	42
Minnesota	6.4	43A	7.3%	49A	25.0%	30	9.2%	46	29.1%	24
New Hampshire	6.4	43B	8.1%	47	23.0%	43	7.5%	50	40.8%	11
Wyoming	6.3	45	9.1%	43	25.5%	26	9.5%	45	34.8%	16
Utah	6.1	46	7.3%	49B	19.1%	49	10.2%	41A	11.7%	43
California	6.0	47A	19.7%	5	18.3%	50	13.3%	20A	5.5%	50
Massachusetts	6.0	47B	12.5%	30	23.1%	41B	10.3%	40	8.6%	46
Colorado	4.8	49	10.8%	36	22.6%	45A	11.1%	35A	15.5%	37
Hawaii	3.8	50	12.7%	28A	19.5%	48	9.8%	44	8.4%	47A
All 50 states	10.9		14.8%		24.9%		13.3%		21.0%	

Note: Many of the deadliest fires in this period are not included because they fall into one of the exclusion groups cited below. For example, airplane post-crash fires and in-flight fires are not included, not is the New York social club fire of 1989 (possibly treated as homicide by fire) or the World Trade Center collapse (fire caused collapse, which was the proximate cause of death).

Source: National Center for Health Statistics mortality data sorted by International Classification of Diseases codes, as sorted and analyzed by U.S. Consumer Product Safety Commission (1980-1998) and National Safety Council (1999-2007). States are assigned based on “place of occurrence,” which means state where death occurred, which may be different from the victim’s state of residence and the state where fatal fire injury occurred. Deaths included are those coded E890-E899 (1980-1998) and X00-X09 (1999-2007). Figures do not include codes F63.1 (pathological fire setting), W39 (fireworks discharge), X76 and X97 (suicide or homicide by smoke, fire of flames), and Y26 (death involving exposure to fire, flames, or smoke with undetermined intent), which collectively would add about 13% to the total each year. These codes are included in state-by-state analyses by the U.S. Fire Administration. Figures do not include fire deaths in vehicles, which would add about another 16% to the base each year.

Source for factors: *Statistical Abstract of the United States: 2011*, Table 229 (education), Table 204 (smoking), Table 708 (poverty), and corresponding tables in earlier editions with data for the cited year; and Northeast-Midwest Institute calculations accessed on May 23, 2005, at <http://www.nemw.org/poprural.htm> (rural).

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Summaries of Individual States

Each of the 50 states is briefly characterized in terms of how it ranks on 2003-2007 average fire death rate and any of the population characteristics cited as having considerable explanatory power – composite (high-risk) racial index, poverty, rural, smoking, and education – for which the state ranked among the highest ten states or lowest ten states. Also listed is the state’s deadliest fire or explosion in or after 1900 (i.e., since 1899). These fires are identified through NFPA’s Fire Incident Data Organization (FIDO) and NFPA’s historical files on fires that killed at least 10 people, except for New Hampshire and North and South Dakota, which show no record of fires of this size in NFPA records.

Alabama. Alabama had the fourth highest average fire death rate (22.3 deaths per million population) in 2003-2007. Alabama ranked among the ten highest states on the education, poverty, and rural factors and the composite race index. Alabama’s deadliest fire since 1899 occurred in April 1911, when a coal mine explosion killed 128 people.

Alaska. Alaska’s average fire death rate (15.6) was 11th highest in 2003-2007. Alaska is among the ten least populous states, which means its fire death rate is subject to considerable variability even with 5-year averages, but its rate has been fairly consistently high. Alaska ranked among the lowest (best) ten states on the education factor. Alaska ranked 12th highest on the composite race index, primarily because of its high percentage of Native Alaskans (included in the Native American group), giving Alaska the highest percentage of American Indians of any state. Alaska’s deadliest fire since 1899 was a post-crash fire on a chartered jet airliner in November 1970; fire deaths alone totaled 47.

Arizona. Arizona’s average fire death rate (7.0) per million population was ninth lowest in 2003-2007. Arizona ranked among the lowest (best) ten states on the smoker and rural factors. Arizona’s deadliest fire since 1899 was a hotel fire in December 1970, which killed 28 people.

Arkansas. Arkansas had the fifth highest average fire death rate (21.7) in 2003-2007. Arkansas ranked among the ten highest states on the education, smoker, rural and poverty factors. The deadliest Arkansas fire since 1899 occurred at an inter-continental ballistic missile (ICBM) silo in August 1965, and killed 53 people.

California. California tied for the third lowest average fire death rate (6.0) in 2003-2007. California ranked among the ten highest states on the education factor, a dramatic change from two decades ago. This change in characteristics has not manifested in any increase in fire death rate. California ranked among the lowest (best) ten states on the smoker and rural factors and the composite race index. The deadliest California fire since 1899 involved the collision of two munitions ships in July 1944. The explosion and ensuing fire, which spread to a depot, killed 322 people.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Colorado. Colorado had the second lowest average fire death rate (4.8) in 2003-2007. Colorado ranked among the ten lowest (best) states on the smoker factor. The deadliest Colorado fire since 1899 occurred in April 1917, when a coal mine explosion killed 121 people.

Connecticut. Connecticut tied for the 12th lowest average fire death rate (7.5) in 2003-2007. Connecticut ranked among the ten lowest (best) states on the poverty and smoker factors. The deadliest Connecticut fire since 1899 occurred in July 1944, when a circus tent fire killed 168 people.

Delaware. Delaware's 2003-2007 average fire death rate (9.3) tied for 18th lowest among the 50 states. Delaware is one of the ten least populous states, which is why its fire death rate has varied widely over the years and can vary considerably even with 5-year averages. Delaware ranked among the ten highest states on the composite race index. Delaware's deadliest fire since 1899 was a dwelling fire that killed 11 people in January 2001.

Florida. Florida's 2003-2007 average fire death rate (7.5) tied for 12th lowest. Florida ranked among the bottom ten states on the rural factor. The deadliest fire in Florida since 1899 occurred in May 1996, when 110 died in a passenger jet crash caused by an on-board fire. Even though this incident occurred during the 1980-2007 period covered by this report, it involved a vehicle crash so was not within the study's scope, as noted earlier.

Georgia. Georgia's average fire death rate (15.4) ranked 12th highest in 2003-2007. Georgia ranked among the ten highest states on the composite race index. The deadliest Georgia fire since 1899 was a hotel fire in December 1946, which killed 119 people.

Hawaii. Hawaii's average 2003-2007 fire death rate (3.8) ranked lowest of any state. Hawaii is one of the ten least populous states, which means its fire death rate can vary substantially even with 5-year averages, but it has been consistently low. Hawaii ranked among the ten lowest states on the poverty, smoker and rural factors and was the lowest (best) by far on the composite race index. The deadliest fire in Hawaii since 1899 occurred in January 1969, on a nuclear powered aircraft carrier, where 24 people died.

Idaho. Idaho's 2003-2007 average fire death rate (9.2) was 17th lowest in the U.S. Idaho is one of the ten least populous states, which means its fire death rate can vary substantially even with 5-year averages. Idaho ranked among the ten lowest (best) states on the composite race index. The deadliest Idaho fire since 1899 occurred in May 1972, at a silver mine, where 91 people died.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Illinois. Illinois's 2003-2007 average fire death rate (9.8) tied for 23rd lowest in the U.S. Illinois ranked among the ten lowest (best) states on the rural factor. The deadliest Illinois fire in history was a theater fire in December 1903, when 602 people died.

Indiana. Indiana's 2003-2007 average fire death rate (13.9) was 17th highest in the U.S. Indiana was one of the ten highest states on the smoker factor. The deadliest fire in Indiana since 1899 was a gas explosion at a fairgrounds coliseum in October 1963; 75 people were killed.

Iowa. Iowa's 2003-2007 average fire death rate (9.7) tied for 21st lowest in the U.S. Iowa ranked among the ten lowest (best) states on the composite race index. The identification of the deadliest Iowa fire since 1899 involves some uncertainty. NFPA records identify a starch plant explosion and fire in May 1919, which was reported to have killed 43-44 people, according to insurance reports. Research by the Iowa state fire marshal, however, indicates that the death toll on this fire was revised downward, making the deadliest Iowa fire a mental hospital fire in January 1950, which killed 41 people.

Kansas. The average 2003-2007 fire death rate (13.1) in Kansas ranked 18th highest in the U.S. The deadliest Kansas fire since 1899 was a coal mine incident in December 1916, which killed 20 people.

Kentucky. Kentucky's 2003-2007 average fire death rate (18.0) tied for eighth highest. Kentucky was one of the ten highest states on the education, poverty, smoker, and rural factors. A lounge fire in May 1977, which killed 165 people, accounted for the highest death toll in a Kentucky fire since 1899.

Louisiana. Louisiana's average 2003-2007 fire death rate (20.6) tied for sixth highest. Louisiana was one of the top ten states for the education and poverty factors and the composite race index. The deadliest Louisiana fire since 1899 occurred at a grain elevator in December 1977; 36 people were killed.

Maine. Maine's average 2003-2007 fire death rate (7.6) was 14th lowest overall. Maine ranked among the top ten states on the rural factor and among the ten lowest (best) states on the composite race index. The deadliest Maine fire since 1899 was an orphanage fire in January 1945, which killed 17 people.

Maryland. Maryland's 2003-2007 average fire death rate (10.5) tied for 23rd highest in the U.S. Maryland was one of the ten highest states on the composite race index and one of the ten lowest (best) states on the poverty and smoking factors. The deadliest Maryland fire since 1899 occurred when lightning struck three fuel tanks on a passenger airliner in flight, resulting in explosion of the tanks and the deaths of all 81 people on board, in December 1963.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

Massachusetts. Massachusetts tied for third lowest in fire death rate (6.0) average in 2003-2007. Massachusetts was one of the ten lowest (best) states on the smoker and rural factors. The deadliest Massachusetts fire since 1899 was a November 1942 night club fire that killed 492 people.

Michigan. Michigan's 2003-2007 average fire death rate (11.9) ranked 20th highest in the U.S. Michigan was one of the ten highest states on the smoker factor. The deadliest Michigan fire since 1899 occurred at a metal mine in November 1926, where 51 people were killed.

Minnesota. Minnesota's average 2003-2007 fire death rate (6.4) tied for seventh lowest in the U.S. Minnesota ranked among the ten lowest (best) states on the education and poverty factors. The deadliest Minnesota fire since 1899 was a forest fire in October 1918, which killed 559 people.

Mississippi. Mississippi had the highest average state fire death rate (26.1) in 2003-2007. Mississippi was one of the top ten states on the poverty, education, and rural factors and the composite race index. The deadliest Mississippi fire since 1899 occurred at a night club in April 1940, when 207 people were killed.

Missouri. Missouri's average 2003-2007 fire death rate (15.2) ranked 13th highest in the U.S. Missouri was one of the top ten states on the smoker factor. The deadliest Missouri fire since 1899 was a nursing home fire in February 1957, which killed 72 people.

Montana. Montana's average 2003-2007 fire death rate (9.8) tied for 23rd lowest in the U.S. Montana is one of the ten least populous states and so its fire death rate can vary considerably even with 5-year averages. Montana was one of the ten highest states on the rural factor but one of the ten lowest (best) states on the education factor. Montana's deadliest fire since 1899 involved a metal mine where 163 people died in June 1917.

Nebraska. Nebraska's average 2003-2007 fire death rate (11.1) was the 21st highest in the U.S. Nebraska's deadliest fire since 1899 was a hotel fire which killed 20 people in January 1976.

Nevada. Nevada's 2003-2007 average fire death rate (8.2) was 15th lowest in the U.S. Nevada was one of the ten lowest states on the rural factor. The deadliest Nevada fire since 1899 was a hotel fire, which killed 85 people in November 1980.

New Hampshire. New Hampshire's 2003-2007 average fire death rate (6.4) tied for seventh lowest of all the states. New Hampshire is one of the ten least populous states and its fire death rate has fluctuated considerably, even with 5-year averages. New Hampshire was one of the ten lowest (best) states on the education, smoker, and poverty factors and the composite race index. The deadliest New Hampshire fire was an insane

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

asylum fire in February 1893 that killed 41 people. NFPA records show no New Hampshire fires after 1899 that killed ten or more people.

New Jersey. New Jersey's 2003-2007 average fire death rate (7.1) was tenth lowest among all states. New Jersey was one of the ten lowest (best) states on the smoker, poverty, and rural factors. The deadliest New Jersey fire since 1899 came in June 1900, when a fire on a steamship killed 326 people.

New Mexico. New Mexico's 2003-2007 average fire death rate (10.8) was the 22nd highest in the U.S. New Mexico was one of the ten highest states on the poverty and education factors. The deadliest New Mexico fire since 1899 was a coal mine fire in October 1913, which killed 263 people.

New York. New York's 2003-2007 average fire death rate (9.3) tied for 18th lowest. The deadliest fire since 1899 in New York was in September 2001, when terrorist attacks initiated fires that led to building collapses that killed 2,749 civilians and firefighters. These fire deaths, possibly because they were not the direct result of fire, possibly because they were not unintentional, were not included in the 2001 statistics for New York.

North Carolina. North Carolina's 2003-2007 average fire death rate (14.5) ranked 16th highest. North Carolina was one of the ten highest states on the composite race index. North Carolina's deadliest fire since 1899 was a coal mine fire in May 1925, which killed 53 people.

North Dakota. North Dakota's 2003-2007 average fire death rate (10.1) was the 25th lowest. North Dakota is one of the ten least populous states, and its fire death rate has varied considerably, even with 5-year averages. North Dakota ranks among the ten highest states on the rural factor. North Dakota is one of three states that have had no fire killing ten or more people since 1899, according to NFPA records.

Ohio. Ohio's 2003-2007 average fire death rate (10.5) tied for 23rd highest in the U.S. Ohio was one of the ten highest states on the smoker factor. Ohio's deadliest fire since 1899 occurred in April 1930, at a penitentiary, when 320 people were killed.

Oklahoma. Oklahoma's 2003-2007 average fire death rate (20.6) tied for sixth highest. Oklahoma was one of the ten highest states on the poverty and smoker factors. The deadliest Oklahoma fire or explosion since 1899 occurred in April 1995, when the bombing of an office building killed 168 people. Although this incident occurred during the period studied, it is not part of the statistics, probably because it involved a bomb blast.

Oregon. Oregon's 2003-2007 average fire death rate (8.4) was 16th lowest in the nation. Oregon ranked among the lowest (best) ten states on the composite race index. The

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

deadliest Oregon fire since 1899 was a blasting-agent explosion and fire that destroyed or damaged several buildings in August 1959, killing 13 people.

Pennsylvania. Pennsylvania's 2003-2007 average fire death rate (14.7) was 15th highest in the nation. The deadliest Pennsylvania fire since 1899 was a coal mine fire that killed 273 people in May 1928.

Rhode Island. Rhode Island's 2003-2007 average fire death rate (22.5) was the third highest in the U.S. Rhode Island is one of the ten least populous states, so its fire death rate could vary substantially, even with 5-year averages. In this case, Rhode Island's five-year-average fire death rate drops from second highest to below average if the 2003 nightclub fire that killed 100 people is excluded. Rhode Island ranked among the ten lowest (best) states on the rural factor. The deadliest Rhode Island fire since 1899 occurred on an aircraft carrier just off-shore, when 103 people died in a May 1954 fire. The deadliest on-shore Rhode Island fire since 1899 occurred in a nightclub, when 100 people died in a February 2003 fire.

South Carolina. South Carolina's 2003-2007 average fire death rate (18.0) tied for eighth highest. South Carolina ranked as one of the ten highest states on the poverty and smoking factors and the composite race index. The deadliest South Carolina fire since 1899 occurred in May 1923, when a fire at a school killed 77 people.

South Dakota. South Dakota's 2003-2007 average fire death rate (15.1) was 14th highest in the U.S. South Dakota is one of the ten least populous states, and its fire death rate has fluctuated considerably, even with 5-year averages. South Dakota was one of the ten highest states on the rural factor. South Dakota is one of three states that have not had any fires killing ten or more people since 1899, according to NFPA records. In 1899, a fire in what was then called an insane asylum, in Yankton, killed 17 people.

Tennessee. Tennessee's 2003-2007 average fire death rate (23.7) was second highest in the U.S. Tennessee's own analysis has shown that its fire death rate, based on victim's place of death, is inflated by neighboring states using their excellent medical facilities. Analysis by victim's state of residence would show them as having the sixth highest fire death rate. Tennessee was one of the ten highest states on the education and smoker factors and the composite race index. The deadliest Tennessee fire since 1899 was a coal mine fire in May 1902, which killed 184 people.

Texas. In terms of its 2003-2007 average fire death rate (9.7), Texas tied for 21st lowest. Texas was one of the ten highest states on the education and poverty factors. The deadliest Texas fire since 1899 began on a ship and spread to a dockside chemical plant in April 1947, killing 468 people.

Utah. Utah's 2003-2007 average fire death rate (6.1) was the fifth lowest in the nation. Utah was one of the ten lowest (best) states on the poverty, education, rural, and smoker

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.

factors and the composite race index. The deadliest Utah fire since 1899 was a coal mine fire in May 1900, which killed 200 people.

Vermont. Vermont's 2003-2007 average fire death rate (10.3) was 25th highest. Vermont is one of the ten least populous states and its fire death rate has varied considerably, even with 5-year averages. Vermont ranked among the ten highest states on the rural factor but among the ten lowest states on the composite race index. The deadliest Vermont fire since 1899 began in a hardware store in February 1924; 11 people were killed.

Virginia. Virginia's 2003-2007 average fire death rate (12.1) was 19th highest. Virginia was one of the ten highest states on the composite race index but one of the ten lowest (best) states on the poverty factor. The deadliest Virginia fire since 1899 was a coal mine fire that killed 45 people in April 1938.

Washington. Washington's 2003-2007 average fire death rate (7.3) ranked 11th lowest in the U.S. Washington was one of the ten lowest states on the education factor and the composite race index. The deadliest Washington fire since 1899 occurred at a sanitarium in July 1943, when 32 people were killed.

West Virginia. West Virginia's 2003-2007 average fire death rate (17.1) ranked 10th highest in the nation. West Virginia was one of the ten highest states on the poverty, smoker, rural, and education factors. The deadliest West Virginia fire since 1899 was a coal mine fire in December 1907, which killed 362 people.

Wisconsin. Wisconsin's 2003-2007 average fire death rate (9.4) was 20th lowest in the nation. Wisconsin was one of the ten lowest (best) states on the poverty and education factors. The deadliest Wisconsin fire since 1899 was a single-family dwelling fire in September 1987, which killed 12 people.

Wyoming. Wyoming's 2003-2007 average fire death rate (6.3) was sixth lowest in the U.S. Wyoming is one of the ten least populous states, but its fire death rate has been consistently low. Wyoming was one of the ten lowest states on the poverty and education factors. The deadliest Wyoming fire since 1899 was a coal mine fire in June 1903, which killed 169 people.

NOTE: Death certificate data in the national database were used to ensure consistency across the 50 states. The unintentional injury codes were used for consistency over time. This approach omits some fire deaths (e.g., vehicle). State authorities are the best sources for fire death statistics in their states.