Accidental Deaths from Natural and Environmental Factors, New Mexico: 1990-1998

Patricia Totkamachi

State Center for Health Statistics at New Mexico Vital Records and Health Statistics, Office of Information Management, Public Health Division, New Mexico Department of Health

Accidental deaths due to **natural and environmental factors** include such phenomena as excessive heat, excessive cold, other weather-related events, and injuries from animals[1]. From 1990 through 1998, 300 accidental (unintentional injury) deaths caused by natural and environmental factors (ICD-9 codes E900-E909) occurred in New Mexico. These deaths accounted for only 1 out of every 360 deaths occurring in the State during this period (which translates into 1 in every 28 accident deaths and 1in every 13 non-motor vehicle accident deaths). Nationally, from 1989 to 1997, accidental deaths from natural and environmental factors accounted for an even lower proportion of deaths: 1 in every 1500 deaths (1 in 62 deaths from accidents and 1in 32 non-motor vehicle accident deaths)[2]. The rate for accidental death from natural and environmental factors in New Mexico (2.0 deaths per 100,000 population) was over three times higher than the national rate (0.6 deaths per 100,000 population[2]), comparing average rates for 1990-1998 New Mexico and 1989-1997 United States.

As shown in **Figure 1,** the vast majority, 85.3%, of all accidental **natural and environmental factor** deaths occurring in the State during 1990-1998 were due to excessive cold/exposure. The next largest category included injury from animals, followed by lightning, excessive heat, and cataclysm. As found in a special review, deaths resulting from injury by animals included the following: 1 bitten by rattlesnake, 1 stung by bees, 1 mauled by dog, 1 butted by cow, 1 butted by ram, 1 crushed by falling horse, 1 trampled by ram, 1 trampled by cow, 2 trampled by bulls, 2 kicked by bulls and 6 kicked by horses. Of the deaths from cataclysm, 3 died in (flash) floods, 1 died in an avalanche, and 1 died in a rockslide.

Figure 1

1990-1998 New Mexico Occurrence Accidental Deaths Due to Natural and Environmental Factors

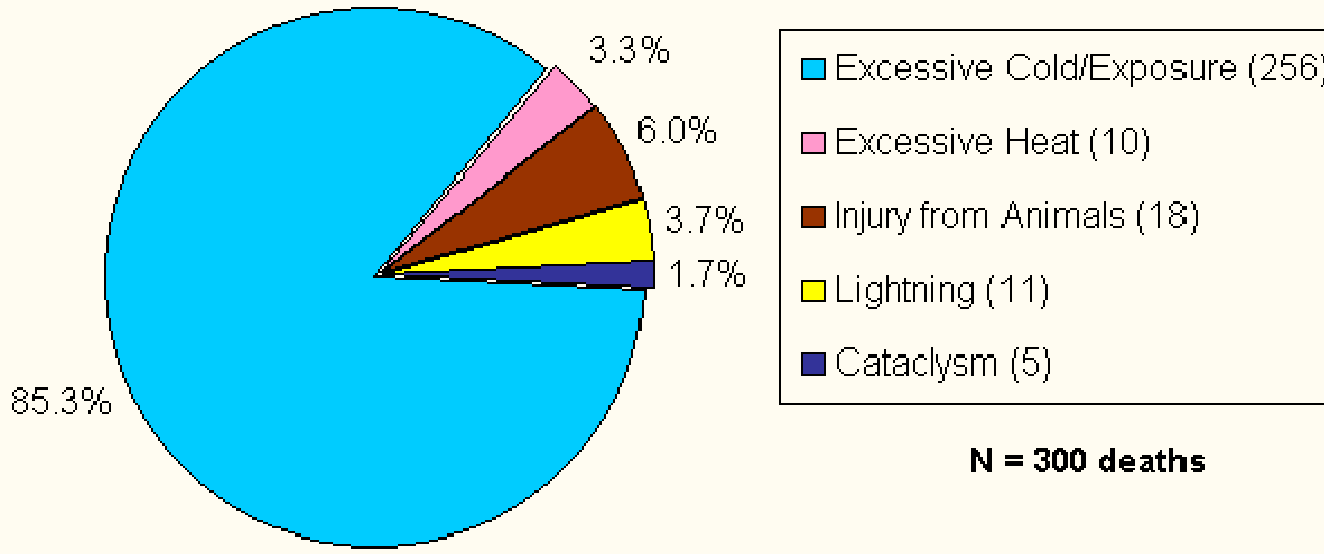

Table 1 presents rates and frequencies of deaths by selected causes grouped within the natural and environmental factors category. For New Mexico, as well as nationally, excessive cold/exposure (hypothermia) accounted for more deaths from **natural and environmental factors** than any other cause; however, New Mexico's (average) rate of 1.73 deaths per 100,000 population was over six times higher than the U.S. rate of 0.28. The next highest for the Nation[2] was "excessive heat" with a rate of 0.11; "other injury by animals" (non-poisoning injuries) was the second highest for the State with a rate of 0.11 (representing 16 deaths).

Table 1

Deaths from Accidents Caused by Natural and Environmental Factors
Aggregate Number of Deaths and Average Rates per 100,000 Population
1990-1998 New Mexico Occurrence and 1989-1997 United States

CAUSE OF DEATH		New Mexico		United States	
ICD-9 Code*	Description of Cause of Death by Type of Accident*	Aggregate Number	Average Rate**	Aggregate Number	Average Rate
E900-E909	Natural and Environmental Factors	300	2.03	13,496	0.58
E900	Excessive Heat	10	0.07	2,523	0.11
E901, E904.3	Excessive Cold/Exposure	256	1.73	6,545	0.28
E905	Poisoning by & toxic reactions to venomous animals, plants	2	0.01	626	0.03
E905.0	*Venomous snakes and lizards*	*1*	*0.01*	*43*	*0.00*
E905.1	*Venomous spiders*	*0*	-	*55*	*0.00*
E905.3	*Hornets, wasps and bees*	*1*	*0.01*	*438*	*0.02*
E905.2, E905.4-E905.9	*Other and unspecified animals, plants*	*0*	-	*90*	*0.00*
E906	Other Injury by Animals	16	0.11	905	0.04
E906.0	*Dog Bite*	*1*	*0.01*	*154*	*0.01*
E906.1-E906.9	*Other and unspecified injury by animals*	*15*	*0.10*	*751*	*0.03*
E907	Lightning	11	0.07	630	0.03
E908	Cataclysmic storms and floods resulting from storms	3	0.02	889	0.04
E909	Cataclysmic earth surface movements and eruptions	2	0.01	269	0.01
E902, E903, residual E904	All other natural and environmental factors	0	-	1,109	0.05

** Based on the Ninth Revision, International Classification of Diseases, 1975.*

*** Because of relatively small frequencies of events, rates are unstable. During the nine years from 1990 to 1998, the number of deaths in this category (Natural and environmental factors) has shown wide variation from year to year in New Mexico (low = 19, high = 45, mean = 33). Even nationally the number of deaths in this category has varied widely by year from 1989 through 1997 (low = 1,232; high = 1,821; mean = 1,500).*

Not surprisingly, in New Mexico (1990-1998) most deaths from excessive cold/exposure occurred during winter and late fall, with the highest number of deaths occurring during the month of January (62), followed closely by December (59), then February (35), November (30), March (27), October (18), April (11), May (7), June (4), August (3), September (1), with no deaths reported for the month of July. This seasonal pattern of deaths reflects New Mexico's climate summary data[3]. The average annual

minimum temperature ranges from 25.5° F for Dulce to 46.6° F Roswell (**Table 2**, below). By month, the lowest temperatures occur throughout the State during January, with average minimum temperatures ranging from 2.6° F in Dulce to 27.6° F in Las Cruces. In July, the warmest month in New Mexico, some areas can become quite cool with average minimum temperatures dropping below 50° F.

Table 2

Climate Summaries in Average Temperatures for Selected New Mexico Cities

		Average Temperature in Degrees Fahrenheit										
Location	County	Annual Minimum	Annual Maximum	Lowest Minimum	Month	Highest Minimum	Month	Lowest Maximum	Month	Highest Maximum	Month	Pe... Re...
Albuquerque	Bernalillo	42.9	69.9	23.0	January	64.4	July	47.0	January	91.7	July	191...
Roswell	Chaves	46.6	75.3	26.2	January	67.7	July	54.0	January	94.0	July	192...
Grants	Cibola	32.8	67.1	14.1	January	54.9	July	45.5	January	87.6	July	195...
Las Cruces	Dona Ana	45.7	77.1	27.6	January	66.9	July	57.7	January	94.6	July	195...
Gallup	McKinley	31.3	65.7	13.3	January	53.2	July	44.0	January	87.1	July	192...
Zuni	McKinley	34.0	67.2	16.3	January	54.3	July	46.3	January	88.3	July	194...
Dulce	Rio Arriba	25.5	62.4	2.6	January	46.8	July	37.8	January	85.4	July	190...
Cuba	Sandoval	28.5	63.4	9.8	January	50.1	July	41.3	January	85.5	July	194...
Farmington	San Juan	38.4	66.2	19.2	January	59.4	July	41.5	January	90.3	July	197...
Las Vegas	San Miguel	35.1	64.1	18.2	January	53.9	July	45.3	January	83.0	July	194...
Santa Fe	Santa Fe	36.2	64.4	18.3	January	55.6	July	42.1	January	85.6	July	197...
Taos	Taos	30.7	63.2	9.5	January	50.8	July	39.7	January	85.4	July	191...

Source: Climate Summary List. Climate of New Mexico. Monthly Climate Summary. Western Regional Climate Center. 6/28/2000: http://www.wrcc.dri.edu/summary/climsnm.html

Through a special review, it was found that nearly half (46.1 %) of the State's deaths from excessive cold/ exposure reported alcohol (ethano l) abuse/intoxication for the nine years from 1990 through 1998. Although other factors were occasionally noted, such as arteriosclerotic cardiovascular disease, chronic obstructive pulmonary disease, senility, trauma, and *rarely*, lack of heat or being stranded; alcohol was the one factor mentioned far more frequently and consistently. Looking at three-year periods, the reported percentage of alcohol-involved deaths from excessive cold/exposure has dropped, from 60.2% of 103 deaths in 1990-1992, to 38.6% of 70 deaths in 1993-1995 and to 34.9% of 83 deaths in 1996-1998. It should be noted, though, that even if New Mexico deaths from excessive cold/exposure excluded all deaths of reported alcohol involvement, the State's rate for deaths from this cause would still more than triple the National rate.

McKinley County had 38% of the State's deaths from excessive cold/exposure, but 53% of the State's alcohol-involved deaths from this cause during 1990-1998. **Figure 2** presents these data for McKinley County compared to the rest

of New Mexico. Examining the data by three-year periods shows the drop in the reported percentage of alcohol-involved excessive cold/exposure deaths for McKinley County; the rate for 1996-1998 is just over half of that for 1990-1992. The rest of the state showed a substantial decrease from 1990-1992 to 1993-1995, but an increase in 1996-1998. Even with McKinley County's consistent decline, it remained higher than the rest of the State in alcohol-involved excessive cold/exposure deaths in 1996-1998. However, this is still a vast improvement for McKinley County, as the gap between McKinley County and rest of the state was nearly three times greater during 1990-1992 than for 1996-1998.