



**UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207**

Memorandum

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SUBJECT : 1997 Electrocutions Associated with the Use of Consumer Products

According to data from the National Center for Health Statistics (NCHS), total electrocutions in the U.S. have decreased from 760 deaths in 1987 to 490 in 1997 (the most recent year for which data are available), a reduction of 36 percent. Table 1 shows that during this period, the estimated electrocutions related to consumer products decreased from 310 to 190, a reduction of 39 percent. A regression analysis of the total and consumer product-related electrocutions from 1987 to 1997 showed a significant downward trend in both total electrocution deaths and consumer product-related electrocution deaths for this period (see Figure 1). Also, the product-related electrocution death rate has declined significantly during the same period. In 1987, estimated consumer product-related electrocutions occurred at a rate of 1.28 per million U.S. population. In 1997, that rate was 0.71 per million, a reduction of 45 percent.

Table 2 shows that small appliances including fans, microwaves, radios, televisions, and stereos were the most frequently reported group of products (24%) involved in electrocutions for 1997. Large appliances such as air conditioners, refrigerators, freezers, pumps, and generators were the second most frequently reported group of products (16%) involved in electrocutions. Installed home wiring was the third most frequently reported product (12%) involved in electrocutions. Antennas that came in contact with power lines accounted for 11 percent of the deaths as did lighting equipment, mainly lamps and light fixtures. Power tools, such as drills and saws, accounted for 8 percent of electrocutions; ladders that came into contact with overhead power lines accounted for 7 percent; and farm and lawn and garden equipment accounted for 3 percent of the electrocutions. Other products including pipes, poles, fences, boat hoists, and amusement rides accounted for the remaining 9 percent of the deaths.

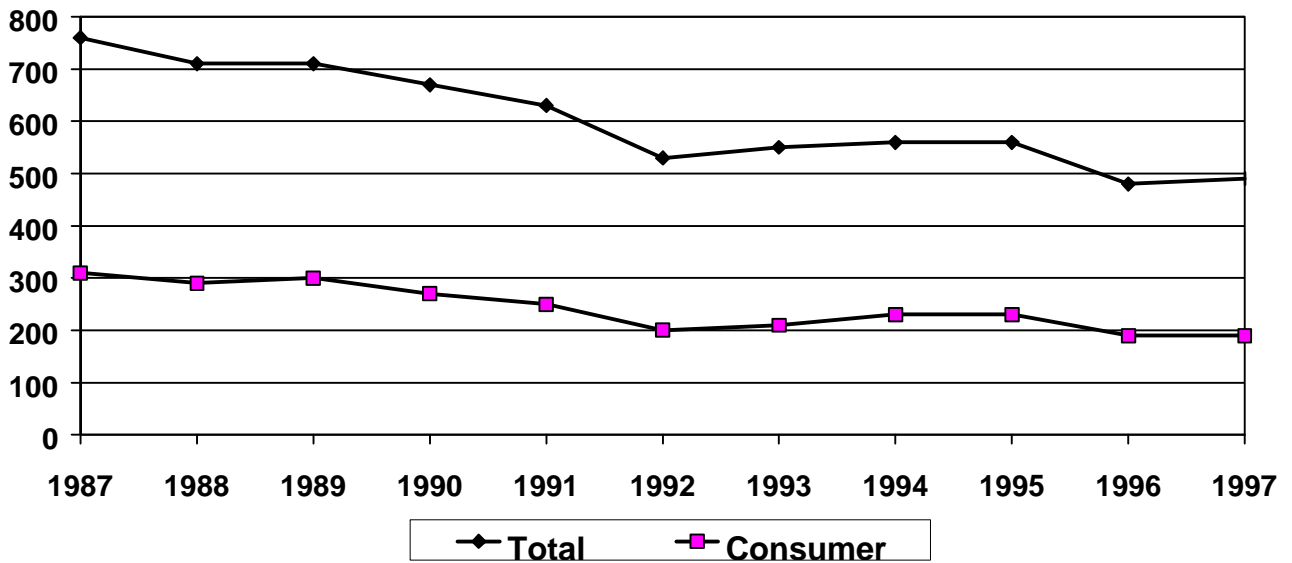
Table 1
Electrocutions Related to Consumer Products
and Death Rates Based on U.S. Population, 1986-1997

| Year | U.S. Total Electrocutions | Consumer Product Related Electrocutions | | Death Rate per Million U.S. Population ¹ |
|------|---------------------------|---|------------------|---|
| | | Number | Percent of Total | |
| 1987 | 760 | 310 | 41% | 1.28 |
| 1988 | 710 | 290 | 41% | 1.19 |
| 1989 | 710 | 300 | 42% | 1.22 |
| 1990 | 670 | 270 | 40% | 1.08 |
| 1991 | 630 | 250 | 40% | 0.99 |
| 1992 | 530 | 200 | 38% | 0.78 |
| 1993 | 550 | 210 | 38% | 0.81 |
| 1994 | 560 | 230 | 41% | 0.88 |
| 1995 | 560 | 230 | 41% | 0.88 |
| 1996 | 480 | 190 | 40% | 0.72 |
| 1997 | 490 | 190 | 39% | 0.71 |

Source: National Center for Health Statistics.

¹Death rate is for consumer product-related electrocutions.

Figure 1
Total Electrocutions and
Electrocutions Associated with Consumer Products
1987-1997



Source: National Center for Health Statistics.

Table 2
Electrocutions Involving Consumer Products, 1997

| Type of Consumer Product | Estimate | Percent |
|-----------------------------------|-----------------|----------------|
| Total Number of Deaths | 190 | 100% |
| Small Appliances | 46 | 24% |
| Extension Cords | 9 | |
| Radios, Televisions, Stereos | 9 | |
| Battery Chargers | 6 | |
| Fans | 4 | |
| Hair, Hygiene Equipment | 4 | |
| Microwaves | 4 | |
| Other | 11 | |
| Large Appliances | 30 | 16% |
| Pumps / Generators | 13 | |
| Refrigerators/Freezers | 6 | |
| Air Conditioners | 4 | |
| Clothes Dryers | 4 | |
| Electric Furnaces / Water Heaters | 4 | |
| Installed Household Wiring | 22 | 12% |
| Antennas | 20 | 11% |
| Lighting Equipment | 20 | 11% |
| Lamps, Light Fixtures | 15 | |
| Work Lights | 6 | |
| Power Tools | 15 | 8% |
| Power Saws | 7 | |
| Welding Equipment | 4 | |
| Power Drills | 2 | |
| Other | 2 | |
| Ladders | 13 | 7% |
| Garden/Farm Equipment | 6 | 3% |
| Other Products | 18 | 9% |
| Pipes, Poles, Fences | 13 | |
| Boat Hoists/Amusement Rides | 2 | |
| Other | 4 | |

Source: U.S. Consumer Product Safety Commission / EPHA

Note: The number of electrocutions associated with each consumer product is an adjusted count. The methodology section describes the estimation process in more detail. Detail may not add to total due to rounding.

Methodology

All death certificates filed in the U.S. are compiled by the National Center for Health Statistics (NCHS) and are available annually as public use mortality data files. The multiple cause mortality data files contain demographic and geographic information as well as the International Classification of Diseases codes for the underlying cause of death and up to 20 contributing conditions. The data are compiled in accordance with the World Health Organization instructions, which request that member nations classify causes of death by the current Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death. The International Classification of Diseases, Ninth Revision was implemented in 1979 and was in effect between 1986 and 1997, the years for which data are presented in this report.

The following methodology was used to determine electrocutions associated with the use of consumer products. The first step in the estimation process is searching the NCHS data for the following external cause of death codes (Ecodes):

- 925.0 Accident caused by electric current: Domestic wiring and appliances
- 925.1 Accident caused by electric current: Electric power generating plants, distribution, stations, transmission lines
- 925.2 Accident caused by electric current: Industrial wiring, appliances and electrical machinery,
- 925.8 Accident caused by electric current: Other
- 925.9 Accident caused by electric current: Unspecified

To estimate the total number of consumer product-related electrocutions annually from the NCHS file, electrocution deaths which occurred in homes, sport/recreational areas, and farms were assumed to be product-related. These three location categories were summed for the Ecodes above. Assuming that electrocutions occurring in unspecified locations followed the same distribution as the known electrocutions of all location categories, a relative proportion of the unspecified electrocutions was added to the known electrocution counts for each of the Ecodes. The adjusted counts were summed to produce the estimated total number of electrocutions associated with consumer products which occurred in homes, sport/recreational areas, and farms.

The next step in the estimation procedure was to examine CPSC product-related databases, since the NCHS data does not provide a distribution of the deaths by product. CPSC collects copies of death certificates involving electrocutions and other deaths from individual states. The death certificates that include enough information to identify a related consumer product are coded and maintained in the Death Certificate database (DCRT). Also, CPSC maintains the Injury or Potential Injury Incident database (IPII) which contains data from sources such as letters, telephone calls, newspaper clippings, and reports from consumers, coroners, medical examiners, and fire and police departments. These reports describe deaths, injuries, and "near miss" incidents involving consumer products.

The Death Certificate File (DCRT) and the Injury or Potential Injury Incident File (IPII) were searched for incidents involving electrocutions. The DCRT file and the IPII file were compared by date of death, state, sex, age, and location of death to determine if there were duplicate reports of the same death. The counts from the two databases were summed to provide the total number of CPSC-collected electrocutions and then tabulated by specific consumer product. To estimate the number of electrocutions associated with each product, the percentage of the CPSC database total for each product category was applied to the total number of estimated consumer product-related electrocutions obtained from the NCHS data. These estimates are shown in Table 2.