United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM   **DATE:**

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SUBJECT: 1995 National Estimates of Electrocutions Associated with Consumer Products

        According to data from the National Center for Health Statistics (NCHS), total electrocutions in the U.S. have decreased from 810 deaths in 1985 to 560 in 1995 (the most recent year for which data are available), a reduction of 31 percent. Table 1 shows that during this period, the estimated electrocutions related to consumer products decreased from 340 to 230, a reduction of 32 percent. A regression analysis of the total and consumer product-related electrocutions from 1985 to 1995 showed a significant downward trend in both total electrocution deaths and consumer product-related deaths for this period[1] (see Figure 1). Also, the per capita electrocution death rate has declined. In 1985, estimated consumer product-related electrocutions occurred at a rate of 1.4 per million U.S. population. In 1995, that rate had been reduced to 0.9 per million, a reduction of 36 percent.

        Table 2 shows that installed home wiring was the most frequently reported product (23%) involved in electrocutions for 1995. Small appliances including fans, microwaves, radios, televisions, and stereos were the second most frequently reported group of products (17%) involved in electrocutions. Large appliances such as air conditioners, refrigerators, freezers, pumps, and generators were the third most frequently reported group of products (14%) involved in electrocutions. Antennas that came in contact with power lines accounted for 10 percent of the deaths; lighting equipment, mainly lamps and light fixtures, accounted for 9 percent; ladders that came in contact with overhead power lines accounted for 7 percent; power tools, such as drills and saws, accounted for 6 percent of electrocutions; and garden and farm equipment accounted for 6 percent of the electrocutions. Other products including pipes, poles, fences, boat hoists, and amusement rides accounted for the remaining 8 percent of the deaths.

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[1] The p-value for the regression analysis F-test statistic was 0.0001. A significant p-value is a value less than 0.05 for a 5% significance level test.

Table 1
Electrocutions Related to Consumer Products
and Death Rates Based on U.S. Population, 1985-1995

Year	U.S. Total Electrocutions	Consumer Product Related Electrocutions		Death Rate per Million U.S. Population
		Number	**Percent of Total**	
1995	560	230	41	0.9
1994	560	230	41	0.9
1993	550	210	38	0.8
1992	530	200	38	0.8
1991	630	250	40	1.0
1990	670	270	40	1.1
1989	710	300	42	1.2
1988	710	290	41	1.2
1987	760	310	41	1.3
1986	850	350	41	1.5
1985	810	340	42	1.4

Source: National Center for Health Statistics, Consumer Product Safety Commission / EHHA.

Figure 1
Total Electrocutions and
Electrocutions Associated with Cosumer Products
1985 - 1995
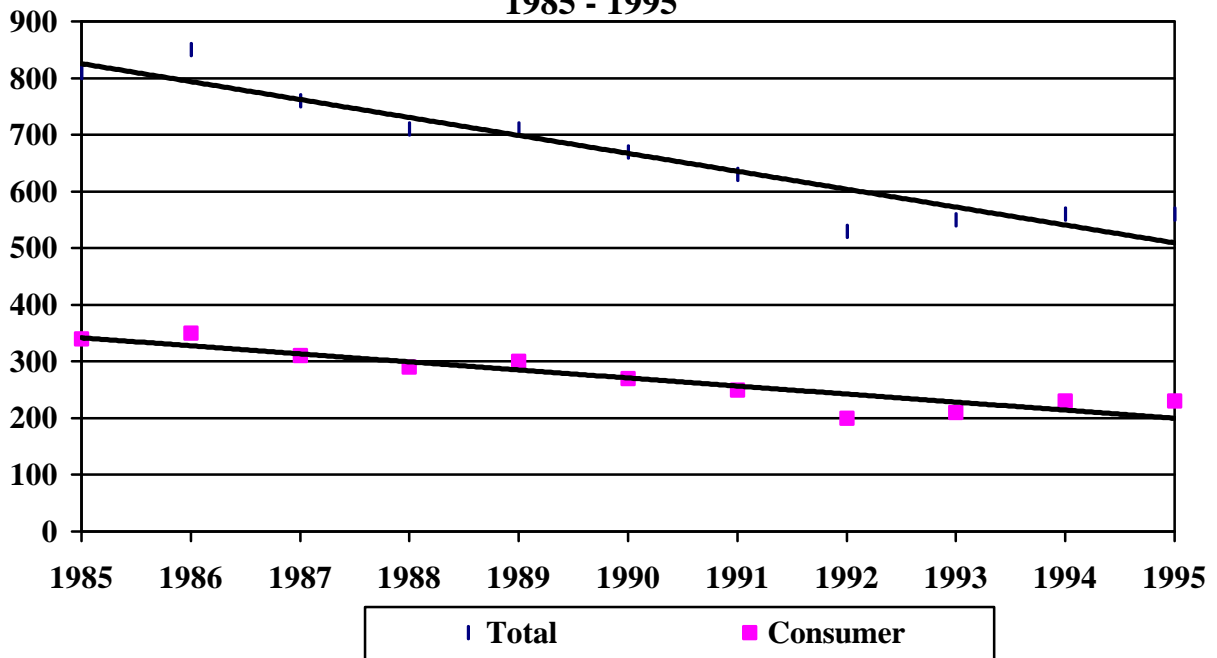
Source: National Center for Health Statistics, Consumer Product Safety Commission / EHHA.

Table 2
Electrocutions Involving Consumer Products, 1995

Type of Consumer Product	Estimate	Percent
Total Number of Deaths	**230**	**100%**
Installed Household Wiring	**53**	**23%**
Small Appliances	**40**	**17%**
Fans	10	
Microwaves	10	
Extension Cords	9	
Other	5	
Hair, Hygiene Equipment	4	
Radios, Televisions, Stereos	3	
Large Appliances	**33**	**14%**
Air Conditioners	16	
Pumps / Generators	8	
Electric Furnaces / Water Heaters	6	
Refrigerators/Freezers	3	
Antennas	**24**	**10%**
Lighting Equipment	**20**	**9%**
Lamps, Light Fixtures	14	
Work Lights	6	
Ladders	**15**	**7%**
Power Tools	**13**	**6%**
Power Saws	5	
Welding Equipment	4	
Power Drills	3	
Other	1	
Garden/Farm Equipment	**14**	**6%**
Other Products	**18**	**8%**
Pipes, Poles, Fences	11	
Boat Hoists/Amusement Rides	1	
Other	5	

Source: U.S. Consumer Product Safety Commission / EHHA
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) into multiple cause of mortality data files. The 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 1984 and 1994, 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 in a year, the electrocution deaths which occurred in homes, sport/recreational areas, and farms were summed for the Ecodes above. Assuming that those electrocutions that occurred in unspecified locations followed the same distribution as those occurring in known locations, a relative proportion of the unspecified locations was added to the known location counts for each of the Ecodes. The adjusted counts for home, sport/recreational area, and farms were summed to produce the estimated total number of electrocutions associated with consumer products.

The next step in the estimation procedure was to examine CPSC product-related data bases, 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 and then tabulated by specific consumer product. 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 deaths. The counts from the two databases were summed to provide the total number of CPSC-collected electrocutions. 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.