



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

MEMORANDUM

DATE: JUL 18 1994

TO : James A. DeMarco, CECA

Through: Robert E. Frye  
Director, Hazard Analysis Division (EPHA) *RF*

FROM : Suzanne P. Cassidy, EPHA (301) 504-0470, ext. 1260 *spc*

SUBJECT: Deaths and Injuries Associated with Amusement Rides

This memorandum provides information on deaths and emergency room-treated injuries associated with amusement rides in calendar year 1993. It updates an earlier memorandum discussing amusement ride incidents for the years 1973 through 1992.<sup>1</sup>

"Ride" incidents were limited to those defined by Section 3(a)(1) of the Consumer Product Safety Act as:

"...any mechanical device which carries or conveys passengers along, around, or over a fixed or restricted route within a defined area for the purpose of giving its passengers amusement, which is customarily controlled or directed by an individual who is employed for that purpose and who is not a consumer with respect to that device, and which is not permanently fixed to a site."

While fixed-site rides are not considered consumer products under the Act, both mobile and fixed-site rides are included in the following analysis for purposes of comparison.

Injuries

Hospital emergency room data on amusement ride-related injuries for 1993 were obtained from the National Electronic Injury Surveillance System (NEISS). Free text descriptive comments for all injuries within the amusement attraction (including rides) category were screened to eliminate out-of-scope injuries such as those involving coin-operated rides or attractions usually found at restaurants and shopping malls. Injuries associated with alpine and water slide-type amusements, other water attractions such as wave machines, "moon walks," and "mechanical bulls" were also eliminated, as well as those where it appeared that playground equipment might have been involved.

<sup>1</sup> Cassidy, S., and Tinsworth, D., "Deaths and Injuries Associated with Amusement Rides" February 12, 1993

*4 3/29/95 [signature]*

After elimination of the out-of-scope injuries described above, NEISS data show that in 1993 an estimated 7,800 persons were treated in hospital emergency rooms for injuries associated with amusement rides. The type of facility (i.e., amusement park, carnival, etc.) was identified in about 70 percent of the records. Of these cases, assuming that rides in permanent theme parks and traditional amusement parks would be fixed-site types and that rides at carnivals would be mobile, NEISS comments show that for 1993 about 65 percent of the injuries occurred at fixed sites such as amusement parks, while about 35 percent involved mobile rides.

Injuries appeared to be minor for both types of rides, with just over one percent (1.3%) of the victims admitted for hospitalization. (The overall NEISS hospitalization rate for 1993 was 4 percent.)

Appendix A shows a listing of sample cases by state. However, caution must be exercised when using this information since it reflects only actual cases treated in emergency rooms of hospitals participating in the NEISS. It is not a complete count because NEISS hospitals are not located in every state, and in those states with NEISS hospitals the entire area of any of the 27 states is not covered. Thus, it cannot be assumed that the absence of any state from the list indicates that there were no amusement ride injuries in that area.

### Deaths

The Commission's files of in-depth investigations (INDP), death certificates (DTHS), injury or potential injury incidents (IPII) and data from the NEISS contain reports of 96 deaths associated with amusement rides from 1973 through 1993. Two of these fatalities occurred in 1993. The distribution of non-occupational fatalities by year and type of facility is shown in Table 1. A list of fatalities by site and type of ride is shown in Table 2. These numbers do not represent a sample of known probability of selection nor a complete count of all amusement-related deaths, but they do provide some information about the circumstances involved in the incidents. Occupational deaths are not included, but those reported to CPSC often indicate that the work-related deaths occurred during assembly or disassembly of the rides.

Of the two non-occupational deaths reported for calendar year 1993, one occurred in Texas at a carnival (mobile) in September 1993 when a 50-year old male was struck on his head when he fell from an unidentified ride. There is no additional information on this incident. The other fatality was at an Illinois amusement park (fixed) in June 1993, and happened when a 67 year-old female died in an incident involving a horse-drawn sleigh on a fixed track. Reportedly the two horses pulling the sleigh became "spooked" when the operator hit them and began speeding around the track, dragging the sleigh behind them until it overturned, spilling the victim and some other occupants out of the sleigh.

Appendix B is a listing of the 29 reported fatalities associated with mobile rides for the period 1973 through 1993. As stated earlier, these rides, found at facilities such as carnivals and fairs, are considered consumer products under the Consumer Product Safety Act. In addition, 44 deaths during the 1973-1993 period were classified as fixed-site rides, and in 23 cases the type of facility could not be determined from available information.

#### Attachments

cc: Dr. Verhalen, AEDEP

Table 1

AMUSEMENT RIDES  
REPORTED FATALITIES BY YEAR AND TYPE OF FACILITY

Year	Total	Mobile	Fixed	Unknown
Total	96	29	44	23
1993	2	1	1	-
1992	1	1	-	-
1991	3	-	3	-
1990	-	-	-	-
1989	3	-	3	-
1988	5	3	2	-
1987	4	-	4	-
1986	5	4	-	1
1985	2	1	1	-
1984	5	3	2	-
1983	5	1	4	-
1982	2	1	1	-
1981	8	3	3	2
1980	5	1	3	1
1979	7	4	3	-
1978	15	2	10	3
1977	5	2	1	2
1976	9	-	2	7
1975	1	-	1	-
1974	6	1	-	5
1973	3	1	-	2

Source: National Electronic Injury Surveillance System (NEISS), Death Certificate, In-Depth Investigation, and Injury and Potential Injury Incident Files, 1973-1993  
U.S. Consumer Product Safety Commission, EPHA

Table 2

AMUSEMENT RIDE FATALITIES BY  
TYPE AND SITE OF RIDE

1973 - 1993

Type	Total	Mobile	Fixed	Unknown
Total	96	29	44	23
Whirling Rides	28	17	8	3
Roller Coasters	25	1	16	8
Ferris Wheels	12	5	2	5
Tramways, Skyrides	5	-	5	-
Bumper Cars	2	-	2	-
Other	9	-	8	1
Unknown	15	6	3	6

Source: National Electronic Injury Surveillance System (NEISS), In-Depth Investigation, Death Certificate, and Injury and Potential Injury Incident Files, 1973-1993  
U.S. Consumer Product Safety Commission

## AMUSEMENT RIDE INJURIES - 1993

## NUMBER OF SAMPLE CASES BY STATE AND TYPE OF RIDE

State	Total	Mobile	Fixed	Unknown
Alabama	3	-	3	-
Arizona	8	5	1	2
Arkansas	2	2	-	-
California	1	-	1	-
Connecticut	1	-	-	1
Georgia	18	3	11	4
Illinois	2	2	-	-
Indiana	6	1	1	4
Maryland	15	2	1	12
Massachusetts	3	-	1	2
Michigan	6	3	1	2
Mississippi	4	2	-	2
New Jersey	35	2	32	1
New York	28	6	15	7
North Carolina	2	1	1	-
Ohio	9	7	1	1
Oklahoma	1	1	-	-
Pennsylvania	21	5	12	4
Rhode Island	14	-	12	2
South Dakota	1	-	-	1
Tennessee	1	-	-	1
Texas	3	1	1	1
Utah	1	-	-	1
Virginia	3	3	-	-
Washington	4	2	1	1
Wisconsin	1	1	-	-
Wyoming	1	1	-	-

Source: National Electronic Injury Surveillance System (NEISS), 1993  
U.S. Consumer Product Safety Commission, EPHA

**MOBILE AMUSEMENT RIDE FATALITIES, 1973 THROUGH 1993  
NUMBER OF CASES BY DATE, STATE, VICTIM AND TYPE OF RIDE**

Year <sup>1</sup>	State	Victim Age/Sex	Type of Ride	Document No.
1973	New York	unk. F	whirling	K7C0548
1974	Ohio	20 F	ferris wheel	43905187
1977	Alabama	14 F	unknown	701012519
1977	Pennsylvania	14 F	whirling	770826OPD7133
1978	Wisconsin	21 M	ferris wheel	780818AOR1218
1978	North Carolina	57 M	unknown	837038890
1979	Pennsylvania	6 M	whirling	790612CEP0843
1979	Wisconsin	3 M	ferris wheel	790712HIA0828
1979	Montana	7 F	unknown	930004131
1979	Arkansas	26 M	whirling	791004SEA5002
1980	New York	24 M	ferris wheel	800513HIA0006
1981	New Hampshire	15 F	whirling	810708CEP1264
1981	Pennsylvania	19 M	whirling	830524CCC1191
1981	Wisconsin	3 M	whirling	810923CEP2310
1982	Florida	22 F	whirling	850819HCC3409
1983	Texas	19 M	whirling	831019DAL5008
1984	Illinois	36 M	whirling	840605CHI0859
1984	North Dakota	9 M	roller coaster	840730CHI1114
1984	Minnesota	22 M	ferris wheel	851212HCC1058
1985	Texas	18 F	unknown	548070157
1986	Michigan	23 M	unknown	G670254A2
1986	Colorado	65 M	merry go round	608015205
1986	Utah	9 M	unknown	649005703
1986	Florida	26 M	unknown	871013CCC0019
1988	Florida	15 M	whirling	880331CCC0266
1988	Georgia	4 F	whirling	880517CEN1089
1988	Florida	17 F	whirling	881125NYC5011
1992	New Mexico	22 F	whirling	910720CWE6001
1993	Texas	50 M	unknown	348090527

<sup>1</sup> There were no reported fatalities associated with mobile rides in 1975, 1976, 1987, 1989, 1990, and 1991.

Source: National Electronic Injury Surveillance System (NEISS), Death Certificate, In-Depth Investigation, and Injury or Potential Injury Incident Files, 1973-1993, U.S. Consumer Product Safety Commission