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

MEMORANDUM

DATE: MAY 9 1997

TO: James DeMarco, CCA

Through: Mary Ann Danello, Ph.D., Associate Executive Director
Directorate for Epidemiology and Health Sciences
Arthur McDonald, Director (Acting), Hazard Analysis Division, EHHA

FROM: C. Craig Morris, Ph.D., EHHA

SUBJECT: Deaths and Injuries Associated with Amusement Rides

This memorandum provides information on fatalities and hospital emergency room-treated injuries associated with amusement rides in calendar year 1996.. It updates the previous Division of Hazard Analysis (EHHA) memorandum which summarized amusement ride incidents for the years 1973 through 1995.[1]

Definition of Amusement Rides

Section 3(a)(1) of the Consumer Product Safety Act defines an *amusement ride* 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.

Although fixed-site rides are not included in Section 3(a)(1), incidents involving both mobile and fixed-site rides are included in the following analyses for comparison.

Injuries Associated with Amusement Rides

Hospital emergency room data on non-occupational amusement ride-related injuries for the year 1996 were obtained from the Consumer Product Safety Commission's (CPSC's) National Electronic Injury Surveillance System (NEISS) as follows. First, all NEISS records containing product code 1293 for the year 1996 were identified (n = 255). Next, descriptive comments in the identified NEISS records were screened to eliminate injuries (n = 66) involving coin-operated

[1] Cassidy, S., Deaths and Injuries Associated with Amusement Rides, May 21, 1996.

rides or free-play attractions often found at restaurants or shopping centers, alpine and water slide amusements, other water attractions such as wave machines, "moon walks", mechanical bulls, playground equipment, etc. Third, based on the descriptive comments, in-scope incidents were classified as involving fixed rides in amusement parks, mobile rides in carnivals or fairs, or amusement rides of unknown fixed or mobile type. Table 1 gives the results. An estimated total of approximately 8,300 injuries occurred in 1996, with about 2,900 involving mobile rides, 4,200 involving fixed rides, and 1,200 involving unknown rides. Most injuries appeared to be minor for both mobile and fixed rides: only an estimated 1.4% resulted in hospitalization. This low rate compares favorably to the overall hospitalization rate (across all products in NEISS) of about 4% percent for recent years.

Table 1

Amusement Ride Injuries in 1996 (NEISS Estimates)

Ride Site	Estimate	Sample Count
Mobile	2,921	59
Fixed	4,224	102
Unknown	1,189	28
Total	8,335	189

Source: National Electronic Injury Surveillance System, U.S. Consumer Product Safety Commission, 1997.

Table 2 compares the total amusement ride-related injuries from 1993 to 1996. As shown in Table 2, the 1996 total of 8,300 injuries compares fairly closely with injuries in each of the previous three years.

Table 2

Estimated Amusement Ride Injuries per Year

Year	Injuries
1996	8,300
1995	7,500
1994	7,200
1993	7,800

Source: National Electronic Injury Surveillance System, U.S. Consumer Product Safety Commission, 1997.

Deaths Associated with Amusement Rides

CPSC's files of in-depth investigations, death certificates, injury or potential injury incidents, and NEISS records contain reports of 102 non-occupational fatalities associated with amusement rides over the 24-year period from 1973 through 1996. These include reports of 31 mobile ride-related fatalities (30.3%), 48 fixed ride-related fatalities (47.1%), and 23 fatalites of unknown mobile- versus fixed-ride site (22.6%). Table 3 gives the number of non-occupational fatalities by year and site of ride (fixed, mobile, unknown). Counts in Table 3 are not derived from representative samples and do not account for all amusement ride-related deaths. Table 4 gives number of fatalities by type and site of ride. Appendix A gives information for all 102 (non-occupational) reported fatalities associated with amusement rides from 1973 through 1996.

Table 3

Number of Amusement Ride Fatalities per Year and Site of Ride

Year	Mobile	Fixed	Unknown	Total
1996	1	1	0	2
1995	1	1	0	2
1994	0	2	0	2
1993	1	1	0	2
1992	1	0	0	1
1991	0	3	0	3
1990	0	0	0	0
1989	0	3	0	3
1988	3	1	0	4
1987	0	4	1	5
1986	4	0	1	5
1985	1	1	0	2
1984	3	2	0	5
1983	1	4	0	5
1982	1	1	0	2
1981	3	3	2	8
1980	1	3	1	5
1979	4	3	0	7
1978	2	10	3	15
1977	2	1	2	5
1976	0	3	6	9
1975	0	1	0	1
1974	1	0	5	6
1973	1	0	2	3
Total	31	48	23	102

Source: U.S. Consumer Product Safety Commission, 1997.

Table 4

Number of Amusement Ride Fatalities by Type and Site of Ride

Type	Mobile	Fixed	Unknown	Total
Whirling Rides	16	9	3	28
Roller Coasters	1	17	8	26
Ferris Wheels	5	2	5	12
Tramways, Skyrides	0	5	0	5
Bumper Cars	0	2	0	2
Other	1	10	1	12
Unknown	8	3	6	17

Source: U.S. Consumer Product Safety Commission, 1997.

Appendix A

(See following three pages)

AMUSEMENT RIDE FATALITIES (EXCLUDES OCCUPATIONAL)

TASK/DOC.NO.	DATE	ST	AGE	SEX	TYPE	SITE	TYPE RIDE	SCENARIO
960819CCN1702	08/16/96	IL	13	F	M	FAIR	PENDULUM	DEV DISABLED, PANICKED, EXITED RIDE, STRUCK BY OWN PENDULUM CAR
960819HCC5534	08/11/96	IN	57	F	F	AM.PK.	TRAIN	TRAIN CARS OVERTURNED, EJECTED RIDERS, DIED OF HEAD INJURIES
9512135919	11/26/95	FL	2	F	M	CARN	U	FELL FROM STAIRS ON RIDE
9529019093	07/01/95	MO	14	F	F	AM.PK.	ROLLER COASTE	FELL 25 FEET TO HER DEATH FROM ROLLER ROASTER
940922CCC1758	08/11/94	CT	6	M	F	AM.PK.	WHIRLING	SWEPT BENEATH ARM OF CAR AS HE ATTEMPTED TO LEAVE RIDE
N480105A1	07/09/94	SC	6	F	F	AM.PK.	BUMPER RIDE	FELL FROM RIDE, DROWNED, PROPELLER CAUGHT SHIRT, HELD HER UNDER WATER
348090527	09/11/93	TX	50	M	M	CARN	U	STRUCK ON HEAD WHEN FELL OFF CARNIVAL RIDE
31703490	06/10/93	IL	67	F	F	AM.PK.	SLEIGH RIDE	THROWN FROM SLEIGH RIDE WHEN HORSES PULLING RIDE "SPOOKED" BY OPERATOR
920730CWE600	07/05/92	NM	22	F	M	CARN.	WHIRLING	SAFETY LAP BAR RELEASED & THREW VICTIMS TO WALKWAY; 16 F & 21 F INJURED
N190093	08/11/91	NY	14	M	F	AM.PK.	FERRIS WHEEL	FELL 60 FEET WHEN SEAT APPARENTLY SLIPPED OFF ITS AXLE.
N190931	07/21/91	SC	17	M	F	AM.PK.	FERRIS WHEEL	ROCKING CHAIR DESPITE WARNING AND FELL TO DEATH; TWO OTHERS INJURED
G160095	06/09/91	OH	32	F	F	AM.PK.	CAPSULE	THROWN FROM CAPSULE AND FELL TO HER DEATH
890714WES500	07/03/89	CA	9	M	F	AM.PK.	LOG RIDE	JUMPED FROM RIDE, BECAME TRAPPED IN WATER UNDER LOG
949004082	06/09/89	UT	13	F	F	AM.PK.	ROLLER COASTE	FELL 40 FEET FROM ROLLER COASTER RIDE
890522WES400	04/30/89	UT	6	M	F	AM.PK.	ROLLER COASTE	LEAVING STOPPED RIDE & FELL TO GROUND BELOW; CLIMBED BACK & HIT BY COASTE
881125NYC5011	11/23/88	FL	17	F	M	FAIR	WHIRLING	COMPONENT FELL OFF, 4 BUCKETS FELL OFF; HIT IN HEAD BY REVOLVING BUCKET
X888671A1	08/11/88	NE	31	M	F	AM.PK.	WHIRLING	FELL FROM "HURRICANE" WHILE "CLOWNING AROUND"; NOT SECURED BY SAFETY BAR
880517CEN1089	05/15/88	GA	4	F	M	FAIR	WHIRLING	SLID OUT OF SEAT, CAUGHT BETWEEN SEAT & PLATFORM
880331CCC0266	03/26/88	FL	15	M	M	U	WHIRLING	REMOVED RESTRAINT TO CHANGE SEAT; THROWN FROM RIDE; PHYS/MENT.HANDICAP
73632875	08/13/87	NY	18	M	U	U	U	FELL FROM RIDE
900309HCC1715	07/18/87	MA	18	M	F	AM.PK.	MIN.TRAIN RIDE	LAST CAR DERAILED & OVERTURNED DRAGGING 4 PASSENGERS (ONE DEATH)
870618NYC5088	06/17/87	NJ	19	F	F	AM.PK.	ROLLER COASTE	FELL TO DEATH FROM "LIGHTNIN' LOOPS"; NOT SECURED IN SHOULDER HARNESS
871013CCC0014	05/16/87	NJ	33	M	F	AM.PK.	ROLLER COASTE	STOOD AND LEANED OUT W/SEAT BELT DISENGAGED; HEAD STRUCK LIFT CHAIN
748035344	04/19/87	TX	15	M	F	AM.PK.	U	FELL FROM UNKNOWN TYPE RIDE
871013CCC0019	11/02/86	FL	26	M	M	U	WHIRLING ?	BOUNCING UP & DOWN;FELL FROM SEAT WHEN RIDE STOPPED
649005703	10/08/86	UT	9	M	M	CARN.	U	THROWN FROM CARNIVAL RIDE
608015205	09/13/86	CO	65	M	M	FAIR	MERRY GO RD.	FELL FROM MERRY GO ROUND AT COUNTY FAIR
X712106	08/17/86	MA	27	M	U	U	ROLLER COASTE	FELL 70 FT. FROM ROLLER COASTER
G670254A2	07/26/86	MI	23	M	M	U	WHIRLING ?	"UNRULY VICTIM JUST CAME OUT OF CHAIR WHILE RIDE SLOWING DOWN"
548070157	08/24/85	TX	18	F	M	FAIR	U	THROWN OUT OF FAIR RIDE
536308468	05/26/85	NY	29	M	F	AM.PK.	U	WHILE ON "RAINBOW" RIDE STOOD UP & STRUCK HEAD ON CROSS BEAM
851212HCC1058	08/08/84	MN	22	M	M	FAIR	FERRIS WHEEL	50-60 FT. FALL FROM DOUBLE FERRIS WHEEL AT FAIR
840730CHI1114	07/28/84	ND	9	M	M	FAIR	ROLLER COASTE	FLEW FROM RC, HIT MACHINERY ON WAY DOWN; FRONT SAFETY BAR NOT DOWN
F470001A1	07/07/84	MO	46	F	F	AM.PK.	ROLLER COASTE	FELL 20 FT. OUT OF LAST CAR OF STAND-UP TYPE ROLLER COASTER
840605CHI0859	05/26/84	IL	36	M	M	CARN.	WHIRLING	CHAIN SEPARATED, GONDOLA BROKE LOOSE, HIT GROUND, STRUCK TRUCK
840105WES004	01/03/84	CA	48	F	F	AM.PK.	ROLLER COASTE	FELL FROM BOBSLED-TYPE ROLLER COASTER & WAS STRUCK BY FOLLOWING SLED
X576203A1	10/31/83	CA	T	M	F	AM.PK.	GONDOLA	CLIMBED OUT ON SAFETY RAIL OF "PARACHUTE" RIDE & FELL 100 FT. TO HIS DEATH
831019DAL5008	10/17/83	TX	19	M	M	FAIR	WHIRLING	GONDOLA BROKE OFF STRUCTURE & FELL TO GROUND; 2 OTHER RIDERS INJURED

X394437A1	09/11/83	VA	13	M	F	AM.PK.	ROLLER COASTE	FOUND WITH MAJOR HEAD INJURIES AFTER "GALAXIE" RIDE; DIED MINUTES LATER
336501362	06/10/83	NJ	21	M	F	AM.PK.	LOG RIDE	HIT HEAD ON LOG RIDE
A440143A1	04/03/83	SC	13	F	F	AM.PK.	ROLLER COASTE	THROWN FROM ROLLER COASTER 30 FT. INTO GUARDRAIL
850819HCC3409	11/19/82	FL	22	F	M	CARN.	ROTATE/LIFT	FELL 29 FT FROM GONDOLA CAR WHEN LATCH OPENED; CARNIVAL HAD CLOSED
X576204A3	07/30/82	NY	27	M	F	AM.PK.	KAYAK RIDE	KILLED BY ELECTRIC SHOCK ON WHITEWATER KAYAK RIDE; 2 OTHERS INJURED
810923CEP2310	09/04/81	WI	3	M	M	FAIR	WHIRLING	FELL OUT OF TUB IN UNKNOWN MANNER; DOOR WAS CLOSED & LATCHED
830524CCC1191	08/23/81	PA	19	M	M	FEST.	WHIRLING	THROWN FROM SPINNING RIDE WHEN HE STOOD UP OR WAS FORCED OUT
134042113	08/16/81	NJ	20	M	U	U	ROLLER COASTE	FELL 100 FT. FROM ROLLER COASTER
810910CEP2294	08/02/81	IL	18	F	F	PARK	BUMPER CAR	RAN ONTO FLOOR WHILE ELECTRIC CURRENT ON; CARDIAC ARTHYTHMIA
109013104	07/19/81	CT	16	M	F	AM.PK.	ROLLER COASTE	FELL FROM ROLLER COASTER
108010876	07/19/81	CO	20	M	U	U	ROLLER COASTE	FELL FROM ROLLER5 COASTER
810708CEP1264	07/01/81	NH	15	F	M	CARN.	WHIRLING	FELL TO GROUND WHEN BUTT PLATES LOOSENED TURNING CAR UPSIDE DOWN
810603CEP1207	05/22/81	NY	14	F	F	AM.PK.	TRAIN RIDE	LEFT SLOW-MOVING CAR, FELL, CHEST COMPRESSED IN SMALL SPACE
036057148	08/09/80	NY	14	M	U	U	U	FELL FROM RIDE AND WAS CRUSHED BENEATH
800710MCI5012	07/09/80	MO	26	M	F	AM.PK.	TRAIN-TYPE	HEAD CAUGHT BETWEEN BEAM, CONDUIT & SEAT BACK WHEN TRAIN SWITCHED
800613LOS5020	06/07/80	CA	18	M	F	AM.PK.	PEOPLE MOVE	CLIMBED OUTSIDE OF CAR, FELL OFF; RUN OVER BY NEXT SET OF CARS
800513HIA0006	04/20/80	NY	24	M	M	FAIR	FERRIS WHEEL	ROCKING CHAIR; NEAR TOP TRIED TO STAND; CHAIR FLIPPED EJECTING VICT/BROTH
F070103	03/29/80	CA	13	M	F	AM.PK.	ROLLER COASTE	THROWN FROM CAR WHEN STRUCK FROM BEHIND BY SECOND CAR
791022DAL5008	10/29/79	TX	41	M	F	ST.FAI	AIR TRAMWAY	PEDESTRIAN STRUCK BY FALLING GONDOLA FROM SKYRIDE (17 OTHERS INJURED)
791004SEA5002	09/02/79	AK	26	M	M	FAIR	WHIRLING	3 PEOPLE IN ONE DBL. SEAT NOT USING BELTS; FELL OUT WHILE TRADING PLACES
930004131	08/19/79	MT	7	F	M	CARN.	U	"CAME OFF CARNIVAL RIDE"
F990060	08/14/79	CA	31	F	F	AM.PK.	ROLLER COASTE	SEMI-CONSCIOUS AFTER RIDING "SPACE MT."; OPER. SENT AGAIN; DIED 7 DAYS LATER
791127NYC5005	08/09/79	NJ	56	M	F	PIER	SHIP RIDE	STRUCK ON SPINE BY LAP BAR PREMATURELY ACTIVITATED BY OPERATOR
790712HIA0828	06/23/79	WI	3	M	M	U	FERRIS WHEEL	PINNED BETWEEN PLATFORM & CARRIAGE OF MINIATURE 12 FT. FW; NO FENCE
790612CEP0843	05/30/79	PA	6	M	M	U	WHIRLING	FELL OVER BACK OF CAR; DETAILS UNCLEAR
781226AOR0326	12/26/78	CA	21	F	F	AM.PK.	ROLLER COASTE	FELL FROM "COLOSSUS"; LAP BAR NOT FASTENED PROPERLY "DUE TO HER SIZE"
806146613	10/28/78	CA	40	F	U	U	CABLE	LOST HOLD OF PULLY ROPE OF CABLE RIDE & FELL TO GROUND BELOW
837038890	10/04/78	NC	57	M	M	FAIR	U	FAIR MACHINERY FELL ON HEAD
836209552	09/09/78	NY	51	M	U	U	FERRIS WHEEL	STRUCK BY FERRIS WHEEL
806028198	09/02/78	CA	24	F	F	AM.PK.	ROLLER COASTE	STOOD UP ON "CYCLONE" & HEAD STRUCK BRACE ON STRUCTURE
839062892	08/23/78	OH	10	F	U	U	U	KNOCKED FROM CARRIAGE & HIT BY ANOTHER CARRIAGE
780818AOR1218	08/13/78	WI	21	M	M	FAIR	DBL.FER.WHEEL	FELL FROM GONDOLA WHEN SAFETY BAR OPENED; HAD BEEN ROCKING CAR
780807CEP0838	08/03/78	NE	13	M	F	AM.PK.	WHIRLING	DOOR OF "SKYDIVER" OPENED & VICTIM FELL TO GROUND; PIN OF DOOR MISSING
780731NYC0303	07/29/78	NJ	11	F	F	AM.PK.	ROLLER COASTE	FELL FROM FRONT CAR OF "SUPERSONIC"; NO SEAT BELTS
780727MCI0815	07/26/78	MO	9	F	F	AM.PK.	SKY RIDE	GONDOLA DETACHED FROM CABLE & FELL TO GROUND; 3 FATALITIES IN SAME INCIDE
780727MCI0815	07/26/78	MO	25	M	F	AM.PK.	SKY RIDE	GONDOLA DETACHED FROM CABLE & FELL TO GROUND; 3 FATALITIES IN SAME INCIDE
780727MCI0815	07/26/78	MO	14	F	F	AM.PK.	SKY RIDE	GONDOLA DETACHED FROM CABLE & FELL TO GROUND; 3 FATALITIES IN SAME INCIDE
780731CHI1211	07/24/78	IL	14	M	F	AM.PK.	BUMPER CAR	FELL ON TRACK OF BUMPER CAR RIDE
780413CHI1207	02/18/78	IL	22	M	F	AM.PK.	WHIRLING	THROWN OFF WHILE SWITCHING CAGES AFTER UNLOCKING SAFETY CHAINS
780206BEP7003	02/04/78	CA	23	M	F	AM.PK.	GOND/TRAM	GONDOLA SEP. FROM CABLE; DIM. OUT OF TOLERANCE/RIDERS SWINGING CAR
770826OPD7133	08/12/77	PA	14	F	M	CARN.	WHIRLING	FELL 25 FT WHEN SAFETY DEVICE FAILED AND DOOR OF CAGE OPENED
770811BEP7003	08/07/77	AZ	12	F	F	AM.PK.	WHIRLING	DOOR OPENED & FELL 45' TO GROUND; PIN FROM DOOR LATCH FOUND ON GROUND

720008218	05/24/77	KS	8	M	U	U	ROLLER COASTE	FELL FROM ROLLER COASTER
701012519	04/14/77	AL	14	F	M	CARN.	U	DIED FROM HEAD INJURIES-- --GETTING OFF RIDE AT CARNIVAL
72207277	03/26/77	LA	20	M	U	U	ROLLER COASTE	JUMPED ON ROLLER COASTER & UNABLE TO HANG ON
C7C0653	11/01/76	FL	C	C	U	U	WHIRLING	EJECTED FROM "TWISTER" RIDE
647026175	08/21/76	TN	17	M	U	U	MERRY-GO-RD	CAUGHT IN MERRY-GO-ROUND
618027893	08/17/76	IN	15	F	U	U	WHIRLING	FELL OUT OF CAGE ON "ZIPPER"; SAFETY LATCH NOT IN PLACE
626045041	08/05/76	MI	8	F	U	U	FERRIS WHEEL	STRUCK ON HEAD BY FERRIS WHEEL
608009954	07/30/76	CO	49	M	U	U	ROLLER COASTE	FELL FROM ROLLER COASTER
612052565	07/20/76	FL	57	M	U	U	U	INJURED DURING RIDE
760525OPD7662	05/15/76	OK	29	F	F	AM.PK.	WHIRLING	7 YR.OLD CHILD FELL OFF & MOTHER FELL OFF TRYING TO REACH HER; CHILD INJURE
761010946	04/11/76	VA	19	M	F	AM.PK.	ROLLER COASTE	FELL FROM ROLLER COASTER
760707OPD7005	04/03/76	TX	2	F	F	AM.PK.	WHIRLING	STOOD UP & FELL OUT OF "TEA CUP "RIDE; CRUSHED UNDER PORTION OF RIDE
506129794	09/13/75	CA	36	M	F	U	ROLLER COASTE	SKULL FRACTURE' FELL OR JUMPED FROM "CYCLONE RACER"
353025938	10/31/74	WA	19	M	U	U	U	FELL 40' FROM RIDE
439069519	09/07/74	OH	22	M	U	U	WHIRLING	FELL FROM "TWISTER" - SKULL FRACTURE
455023695	07/17/74	WI	11	M	U	U	FERRIS WHEEL	SEAT HE WAS IN CAME LOOSE FROM FRAME - SKULL FRACTURE
406077549	07/08/74	CA	18	F	U	U	U	CRUSHED BETWEEN MOVING & STATIONARY WALLS OF RIDE
439052827	07/05/74	OH	20	F	M	CARN.	FERRIS WHEEL	FELL FROM FERRIS WHEEL
425005074	06/17/74	MA	20	F	U	U	FERRIS WHEEL	THROWN FROM FERRIS WHEEL
353022096	09/22/73	WA	62	M	U	U	ROLLER COASTE	STRUCK WHILL IN PATH OF ROLLER COASTER
32306481	08/28/73	ME	3	M	U	U	FERRIS WHEEL	FELL FROM FERRIS WHEEL - FRACTURED SKULL
K7C0548	01/01/73	NY	U	F	M	CARN.	WHIRLING	THROWN 40 FEET FROM "ZIPPER"; 22 YR.OLD F INJURED IN SAME INCIDENT

NOTE: C=CHILD, T=TEEN, F=FIXED, M=MOBILE, U=UNKNOWN.

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

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MEMORANDUM

DATE: MAY 19 1997

TO: James DeMarco, CCA

Through: Mary Ann Danello, Ph.D., Associate Executive Director
Directorate for Epidemiology and Health Sciences
Arthur McDonald, Director (Acting), Hazard Analysis Division, EHHA

FROM: C. Craig Morris, Ph.D., EHHA

SUBJECT: Addendum to Deaths and Injuries Associated with Amusement Rides

This memorandum is an addendum to the previous Division of Hazard Analysis (EHHA) memorandum which summarized amusement ride incidents for the years 1973 through 1996.[1] Appendix A in the present addendum is a simplified presentation of the more exhaustive data provided in Appendix A of the previous memorandum.

[1] Morris, C.C., Deaths and Injuries Associated with Amusement Rides, May 9, 1997.

Appendix A

Non-Occupational Mobile Amusement Ride Fatalities from 1973 to 1996

YEAR	STATE	VICTIM AGE	VICTIM SEX	RIDE MOBILITY	RIDE SITE	RIDE TYPE	DOCUMENT NUMBER
1996	IL	13	F	M	FAIR	PENDULUM	960819CCN1702
1996	IN	57	F	F	AM. PARK	TRAIN	960819HCC5534
1995	FL	2	F	M	CARNIVAL	U	9512135919
1995	MO	14	F	F	AM. PARK	ROLLER COASTER	9529019093
1994	CT	6	M	F	AM. PARK	WHIRLING	940922CCC1758
1994	SC	6	F	F	AM. PARK	BUMPER RIDE	N480105A1
1993	IL	67	F	F	AM. PARK	SLEIGH RIDE	31703490
1993	TX	50	M	M	CARNIVAL	U	348090527
1992	NM	22	F	M	CARNIVAL	WHIRLING	920730CWE6001
1991	NY	14	M	F	AM. PARK	FERRIS WHEEL	N190093
1991	OH	32	F	F	AM. PARK	CAPSULE	G160095
1991	SC	17	M	F	AM. PARK	FERRIS WHEEL	N190931
1989	CA	9	M	F	AM. PARK	LOG RIDE	890714WES5008
1989	UT	6	M	F	AM. PARK	ROLLER COASTER	890522WES4002
1989	UT	13	F	F	AM. PARK	ROLLER COASTER	949004082
1988	FL	15	M	M	U	WHIRLING	880331CCC0266
1988	FL	17	F	M	FAIR	WHIRLING	881125NYC5011
1988	GA	4	F	M	FAIR	WHIRLING	880517CEN1089
1988	NE	31	M	F	AM. PARK	WHIRLING	X888671A1
1987	MA	18	M	F	AM. PARK	MIN.TRAIN RIDE	900309HCC1715
1987	NJ	19	F	F	AM. PARK	ROLLER COASTER	870618NYC5088
1987	NJ	33	M	F	AM. PARK	ROLLER COASTER	871013CCC0014
1987	NY	18	M	U	U	U	73632875
1987	TX	15	M	F	AM. PARK	U	748035344
1986	CO	65	M	M	FAIR	MERRY GO RD.	608015205
1986	FL	26	M	M	U	WHIRLING ?	871013CCC0019
1986	MA	27	M	U	U	ROLLER COASTER	X712106
1986	MI	23	M	M	U	WHIRLING ?	G670254A2
1986	NY	29	M	F	AM. PARK	U	536308468
1986	UT	9	M	M	CARNIVAL	U	649005703
1985	TX	18	F	M	FAIR	U	548070157
1984	CA	48	F	F	AM. PARK	ROLLER COASTER	840105WES0048
1984	IL	36	M	M	CARNIVAL	WHIRLING	840605CHI0859
1984	MN	22	M	M	FAIR	FERRIS WHEEL	851212HCC1058
1984	MO	46	F	F	AM. PARK	ROLLER COASTER	F470001A1
1984	ND	9	M	M	FAIR	ROLLER COASTER	840730CHI1114
1983	CA	T	M	F	AM. PARK	GONDOLA	X576203A1
1983	NJ	21	M	F	AM. PARK	LOG RIDE	336501362
1983	SC	13	F	F	AM. PARK	ROLLER COASTER	A440143A1
1983	TX	19	M	M	FAIR	WHIRLING	831019DAL5008
1983	VA	13	M	F	AM. PARK	ROLLER COASTER	X394437A1
1982	FL	22	F	M	CARNIVAL	ROTATE/LIFT	850819HCC3409
1982	NY	27	M	F	AM. PARK	KAYAK RIDE	X576204A3
1981	CO	20	M	U	U	ROLLER COASTER	108010876
1981	CT	16	M	F	AM. PARK	ROLLER COASTER	109013104
1981	IL	18	F	F	PARK	BUMPER CAR	810910CEP2294
1981	NH	15	F	M	CARNIVAL	WHIRLING	810708CEP1264
1981	NJ	20	M	U	U	ROLLER COASTER	134042113
1981	NY	14	F	F	AM. PARK	TRAIN RIDE	810603CEP1207
1981	PA	19	M	M	FESTIVAL	WHIRLING	830524CCC1191
1981	WI	3	M	M	FAIR	WHIRLING	810923CEP2310

YEAR	STATE	VICTIM AGE	VICTIM SEX	RIDE MOBILITY	RIDE SITE	RIDE TYPE	DOCUMENT NUMBER
1980	CA	18	M	F	AM. PARK	PEOPLE MOVE	800613LOS5020
1980	CA	13	M	F	AM. PARK	ROLLER COASTER	F070103
1980	MO	26	M	F	AM. PARK	TRAIN-TYPE	800710MCI5012
1980	NY	24	M	M	FAIR	FERRIS WHEEL	800513HIA0006
1980	NY	14	M	U	U	U	036057148
1979	AK	26	M	M	FAIR	WHIRLING	791004SEA5002
1979	CA	31	F	F	AM. PARK	ROLLER COASTER	F990060
1979	MT	7	F	M	CARNIVAL	U	930004131
1979	NJ	56	M	F	PIER	SHIP RIDE	791127NYC5005
1979	PA	6	M	M	U	WHIRLING	790612CEP0843
1979	TX	41	M	F	FAIR	AIR TRAMWAY	791022DAL5008
1979	WI	3	M	M	U	FERRIS WHEEL	790712HIA0828
1978	CA	24	F	F	AM. PARK	ROLLER COASTER	806028198
1978	CA	40	F	U	U	CABLE	806146613
1978	CA	23	M	F	AM. PARK	GOND/TRAM	780206BEP7003
1978	CA	21	F	F	AM. PARK	ROLLER COASTER	781226AOR0326
1978	IL	14	M	F	AM. PARK	BUMPER CAR	780731CHI1211
1978	IL	22	M	F	AM. PARK	WHIRLING	780413CHI1207
1978	MO	14	F	F	AM. PARK	SKY RIDE	780727MCI0815
1978	MO	25	M	F	AM. PARK	SKY RIDE	780727MCI0815
1978	MO	9	F	F	AM. PARK	SKY RIDE	780727MCI0815
1978	NC	57	M	M	FAIR	U	837038890
1978	NE	13	M	F	AM. PARK	WHIRLING	780807CEP0838
1978	NJ	11	F	F	AM. PARK	ROLLER COASTER	780731NYC0303
1978	NY	51	M	U	U	FERRIS WHEEL	836209552
1978	OH	10	F	U	U	U	839062892
1978	WI	21	M	M	FAIR	DBL.FER.WHEEL	780818AOR1218
1977	AL	14	F	M	CARNIVAL	U	701012519
1977	AZ	12	F	F	AM. PARK	WHIRLING	770811BEP7003
1977	KS	8	M	U	U	ROLLER COASTER	720008218
1977	LA	20	M	U	U	ROLLER COASTER	72207277
1977	PA	14	F	M	CARNIVAL	WHIRLING	770826OPD7133
1976	CO	49	M	U	U	ROLLER COASTER	608009954
1976	FL	57	M	U	U	U	612052565
1976	FL	C	C	U	U	WHIRLING	C7C0653
1976	IN	15	F	U	U	WHIRLING	618027893
1976	MI	8	F	U	U	FERRIS WHEEL	626045041
1976	OK	29	F	F	AM. PARK	WHIRLING	760525OPD7662
1976	TN	17	M	U	U	MERRY-GO-RD	647026175
1976	TX	2	F	F	AM. PARK	WHIRLING	760707OPD7005
1976	VA	19	M	F	AM. PARK	ROLLER COASTER	761010946
1975	CA	36	M	F	U	ROLLER COASTER	506129794
1974	CA	18	F	U	U	U	406077549
1974	MA	20	F	U	U	FERRIS WHEEL	425005074
1974	OH	20	F	M	CARNIVAL	FERRIS WHEEL	439052827
1974	OH	22	M	U	U	WHIRLING	439069519
1974	WA	19	M	U	U	U	353025938
1974	WI	11	M	U	U	FERRIS WHEEL	455023695
1973	ME	3	M	U	U	FERRIS WHEEL	32306481
1973	NY	U	F	M	CARNIVAL	WHIRLING	K7C0548
1973	WA	62	M	U	U	ROLLER COASTER	353022096

Note: C=CHILD, T=TEEN, F=FIXED (or FEMALE), M=MOBILE (or MALE), U=UNKNOWN.

Source: U.S. Consumer Product Safety Commission's National Electronic Injury Surveillance System (NEISS), Death Certificate File, In-Depth Investigation File, and Injury or Potential Injury Incident File, 1973-1996.

Amusement Rides

bcc: EHHA
M. Danello
A. McDonald
D. Tinsworth
C. Morris

Morris

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

CPSA 6 (b)(1) Cleared
No Mfrs/PrvtLblrs or Products Identified
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MEMORANDUM

DATE: JUN 9 1997

TO: James DeMarco, CCA

Through: Mary Ann Danello, Ph.D., Associate Executive Director
Directorate for Epidemiology and Health Sciences
Arthur McDonald, Director (Acting), Hazard Analysis Division, EHHA

FROM: C. Craig Morris, Ph.D., EHHA

SUBJECT: Amusement Rides

The attached Table 4 replaces Table 4 in the Division of Hazard Analysis (EHHA) memorandum which summarized amusement ride incidents for the years 1973 through 1996[1] due to new information leading to reclassification of incidents.

[1] C. Craig Morris, Deaths and injuries associated with amusement rides, 9 May 1997.

Table 4

Number of Amusement Ride Fatalities by Type and Site of Ride

Type of Ride	Mobile	Fixed	Unknown	Total
Bumper Car	0	2	0	2
Ferris Wheel	5	2	5	12
Merry-Go-Round	1	0	1	2
Roller Coaster	1	17	7	25
Train	0	4	0	4
Tramway	0	5	0	5
Water Ride	0	5	0	5
Whirling Ride	16	7	3	26
Other	1	4	1	6
Unknown	7	2	6	15
Total	31	48	23	102

Source: U.S. Consumer Product Safety Commission, 1997.

Amusement Rides

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