



TABLE 1 Comparative Safety Equipment Use By Drivers

VEHICLE OCCUPANTS	No Injury	%	Possible Injury	%	Non-Incapacitating Injury	%	Incapacitating Injury	%	Fatal	%	% Total	Total
With Safety Belt	185,636	64.47	63,374	22.01	29,033	10.08	9,541	3.31	366	0.13	100.00	287,950
With Safety Belt & Air Bag	22,056	49.01	11,640	25.86	8,463	18.80	2,690	5.98	157	0.35	100.00	45,006
With Air Bags Only	511	28.22	631	34.84	395	21.81	232	12.81	42	2.32	100.00	1,811
Not Using Safety Equipment	18,937	47.05	8,262	20.53	7,728	19.20	4,499	11.18	825	2.05	100.00	40,251
TOTAL	227,140		83,907		45,619		16,962		1,390			375,018

Comparative Safety Equipment Use By Vehicle Occupants Other Than Drivers

VEHICLE OCCUPANTS	No Injury	%	Possible Injury	%	Non-Incapacitating Injury	%	Incapacitating Injury	%	Fatal	%	% Total	Total
With Safety Belt	77,806	62.15	30,233	24.15	12,847	10.26	4,151	3.32	156	0.12	100.00	125,193
With Safety Belt & Air Bag	5,096	47.69	2,849	26.66	2,014	18.85	672	6.29	54	0.51	100.00	10,685
With Air Bags Only	151	30.38	170	34.21	113	22.74	54	10.87	9	1.81	100.00	497
Not Using Safety Equipment	25,396	57.70	8,222	18.68	6,691	15.20	3,309	7.52	395	0.90	100.00	44,013
TOTAL	108,449		41,474		21,665		8,186		614			180,388

More than 64 percent of the drivers using safety belts only avoided injury (Table 1), compared to 47 percent for those drivers not using safety equipment. For those drivers using safety belts, non-incapacitating injury, incapacitating injury, and fatal injury were 10.08 percent, 3.31 percent, and 0.13 percent respectively. The corresponding figures for drivers not using safety equipment were 19.20 percent, 11.18 percent, and 2.05 percent. The use of safety belts with air bags was more effective than the use of air bags only in preventing injury and reducing incapacitating and fatal injuries, but less effective than safety belt use only. The use of air bags only was the least effective way to avoid traffic injuries because air bags by themselves protect only in frontal crashes. Air bags offer maximum protection when used as supplemental protection for belted front-seat occupants in frontal crashes.

TABLE 1A Comparative Safety Equipment Use By Motorcyclists and Their Passengers

MOTORCYCLIST	No Injury	%	Possible Injury	%	Non-Incapacitating Injury	%	Incapacitating Injury	%	Fatal	%	% Total	Total
With Safety Helmet												
Driver	271	8.17	506	15.26	1,406	42.41	991	29.89	141	4.25	100.00	3,315
Passenger	43	9.19	68	14.53	208	44.44	136	29.06	13	2.78	100.00	468
Total	314		574		1,614		1,127		154			3,783
Without Safety Helmet												
Driver	174	15.68	247	22.25	424	38.20	248	22.34	17	1.53	100.00	1,110
Passenger	41	27.70	36	24.32	41	27.70	28	18.92	2	1.35	100.00	148
TOTAL	215		283		465		276		19			1,258

* Does not include cases with safety equipment use or injury level not stated.



TABLE 1B Comparative Safety Equipment Use By Bicyclists and Their Passengers

BICYCLIST	No Injury	%	Possible Injury	%	Non-Incapacitating Injury	%	Incapacitating Injury	%	Fatal	%	% Total	Total
With Safety Helmet												
Driver	39	6.25	153	24.52	346	55.45	78	12.50	8	1.28	100.00	624
Passenger	2	25.00	0	0.00	5	62.50	1	12.50	0	0.00	100.00	8
Total	41		153		351		79		8			632
Without Safety Helmet												
Driver	369	7.41	1,410	28.30	2,287	45.91	828	16.62	88	1.77	100.00	4,982
Passenger	55	40.74	25	18.52	39	28.89	13	9.63	3	2.22	100.00	135
TOTAL	424		1,435		2,326		841		91			5,117

Note: Injuries reported for motorcyclists and bicyclists include head and other bodily injuries.

* Does not include cases with safety equipment use or injury level not stated.

While the use of protective equipment by motorcyclists and their passengers (Table 1A) is expected to be more effective in preventing incapacitating and fatal injury, the inclusion of all types of bodily injuries for motorcyclists and their passengers fails to show the true effect of safety helmet use. The data for bicyclists (Table 1B) and their passengers are more supportive of the use of safety helmets. However, the independent effect of helmet use again can not be determined due to the inclusion of the severity of injury rather than the type of injury in the data collection instrument, where head injuries can be directly related to the use or lack of use of a helmet.



Child Restraint Device and Safety Belt Use

TABLE 2 By Age (Under 4 and 4 to 5)

Child Restraint Use	Age Group	No Injury		Injury		Fatal		% Total	TOTAL
		Injury	%	Injury	%	Fatal	%		
With Restraint	<4	7,694	78.36	2,115	21.5	10	0.1	100	9,819
	4 to 5	4,980	73.54	1,786	26.4	6	0.1	100	6,772
Without Restraint	<4	657	58.50	457	40.7	9	0.8	100	1,123
	4 to 5	468	53.55	400	45.8	6	0.7	100	874

* Does not include passengers of bicycles, motorcycles, buses, or all-terrain vehicles.

Child Passengers Injured or Killed

TABLE 3 1989 Through 1998

Year	Age Group By Injury Level								TOTAL
	Injury				Fatal				
	<4	%	4 to 5	%	<4	%	4 to 5	%	
1989	3,438	12.09	2,272	10.68	21	10.55	10	9.43	5,741
1990	3,143	11.05	2,128	10.00	23	11.56	12	11.32	5,306
1991	2,866	10.08	1,861	8.74	18	9.05	9	8.49	4,754
1992	2,882	10.13	1,935	9.09	29	14.57	7	6.60	4,853
1993	2,685	9.44	1,975	9.28	24	12.06	8	7.55	4,692
1994	2,735	9.62	2,173	10.21	21	10.55	16	15.09	4,945
1995	2,652	9.32	2,238	10.52	13	6.53	14	13.21	4,917
1996	2,730	9.60	2,300	10.81	19	9.55	9	8.49	5,058
1997	2,740	9.63	2,215	10.41	12	6.03	9	8.49	4,976
1998	2,572	9.04	2,186	10.27	19	9.55	12	11.32	4,789
TOTAL	28,443	100	21,283	100	199	100	106	100	50,031

Table 2 indicates that more than 78 percent of children under 4 years of age avoided injuries during crashes because they were properly restrained, compared to about 58.5 percent who were without restraints. Similarly, 73.5 percent of children within the 4-5 age groups escaped injury compared to 53.5 percent without child restraints. The Injury level for children under 4 and the 4-5 age group, who were properly harnessed, was 21.5 percent and 26.4 percent respectively. The Injury levels for children of the same age groups without restraints were 40.7 percent and 45.8 percent. The fatal injury for children under 4 years of age without restraints was eight times higher than the under 4 years of age with restraints. Similarly, the fatal injury for children in the 4-5 age group without safety restraints was seven times higher than the same age group with safety restraints.

Table 3 provides comparative injury and fatality data for children under the 4 and 4-5 age groups. During 1989 through 1993, the injury level was consistently higher for children under 4 years of age, compared to those between 4-5 years of age. However, that trend reverses itself in 1994 by the increase in the injury level for the 4-5 year age group, compared to children under 4. Similar patterns exist for children involved in fatal crashes. That is, the fatality level is higher for children under 4 during 1989 through 1993, but the trend reverses in 1994 and continues through 1998.