



SPECIAL CRASH INVESTIGATIONS

**COUNTS OF
FRONTAL AIR BAG RELATED
FATALITIES AND SERIOUSLY
INJURED PERSONS**

REPORT DATE: July 1, 2008

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
NATIONAL CENTER FOR STATISTICS AND ANALYSIS
CRASH INVESTIGATION DIVISION
WASHINGTON, D.C. 20590

COUNTS FOR FRONTAL AIR BAG RELATED FATALITIES AND SERIOUSLY INJURED PERSONS

Counts for Confirmed Air Bag Related Fatalities through 7/1/2008:

Children	185	(US = 184; Puerto Rico = 1)
- RFCSS	29	
- Not RFCSS	156	(US = 155; Puerto Rico = 1)
Drivers (Adults)	93	
Passengers (Adults)	13	
TOTAL	291	

Table 1

Counts For Confirmed and Unconfirmed * Air Bag Related Fatalities By Crash Year

FATALS BY YEAR	Children In RFCSS	Children NOT In RFCSS	ADULT DRIVERS	ADULT PASSENGERS	TOTALS BY YEAR		**FEMALES 62" OR LESS	
					CONFIRMED	[UNCONFIRMED]	DRIVERS	PASSENGERS
1990	0 [0]	0 [0]	1 [0]	0 [0]	1	[0]	1 [0]	0 [0]
1991	0 [0]	0 [0]	4 [0]	0 [0]	4	[0]	1 [0]	0 [0]
1992	0 [0]	0 [0]	3 [0]	0 [0]	3	[0]	2 [0]	0 [0]
1993	0 [0]	1 [0]	4 [0]	0 [0]	5	[0]	2 [0]	0 [0]
1994	0 [0]	5 [0]	8 [0]	0 [0]	13	[0]	1 [0]	0 [0]
1995	3 [0]	5 [0]	6 [0]	0 [0]	14	[0]	4 [0]	0 [0]
1996	6 [0]	19 [0]	7 [0]	2 [0]	34	[0]	2 [0]	0 [0]
1997	4 [0]	27 [0]	18 [0]	4 [0]	53	[0]	4 [0]	3 [0]
1998	5 [0]	27 [0]	14 [0]	2 [0]	48	[0]	6 [0]	1 [0]
1999	3 [0]	18 [0]	3 [0]	0 [0]	24	[0]	2 [0]	0 [0]
2000	0 [0]	9 [0]	9 [0]	2 [0]	20	[0]	3 [0]	0 [0]
2001	2 [0]	14 [0]	3 [0]	0 [0]	19	[0]	0 [0]	0 [0]
2002	3 [0]	9 [0]	1 [0]	1 [0]	14	[0]	1 [0]	1 [0]
2003	0 [0]	6 [0]	6 [0]	1 [0]	13	[0]	2 [0]	1 [0]
2004	1 [0]	7 [1]	2 [0]	1 [0]	11	[1]	0 [0]	0 [0]
2005	1 [0]	4 [1]	2 [0]	0 [0]	7	[1]	2 [0]	0 [0]
2006	1 [0]	5 [1]	2 [0]	0 [0]	8	[1]	0 [0]	0 [0]
2007	0 [0]	0 [2]	0 [1]	0 [0]	0	[3]	0 [0]	0 [0]
2008	0 [0]	0 [2]	0 [0]	0 [0]	0	[2]	0 [0]	0 [0]
TOTAL	29 [0]	156 [7]	93 [1]	13 [0]	291	[8]	33 [0]	6 [0]

*Note: The unconfirmed counts are in brackets.

**Note: The females 62 inches or less value is the result of a temporary change in aggregate methodology that has now been reversed.

ESTIMATED GROSS NUMBER OF LIVES SAVED BY AIR BAGS AS OF 7/1/2008

27022 total: 22126 drivers (8720 belted, 13416 not belted) and 4896 front-right passengers (2133 belted, 2771 not belted)

Status of air bag related fatality and serious injury cases during the period 1/01/08 - 7/01/08:

- ▶ Six crash investigations were added to the summary tables: 5-fatal children, 1-nonfatal child.
- ▶ Eight crash investigations were initiated by SCI: 7-fatal children, 1-nonfatal child Note: These cases have not been confirmed during this period.
- ▶ Field investigations continued on seven previously initiated crash investigations: 3-fatal children, 2-fatal drivers, 1-nonfatal child, and 1-fatal adult passenger.
- ▶ Four crash investigations were dropped during this period: 3-fatal children, 1-fatal adult.

Summary tables for Air Bag Related Fatality and Serious Injury cases are available through the NHTSA website, <http://www.nhtsa.gov/>

CHILDREN CONFIRMED AS RECEIVING A FATAL INJURY RELATED TO AN AIR BAG

Children fatally injured by the PAB¹	177	(US=176; Puerto Rico= 1)
- Rear Facing child safety seats	29	
- Forward Facing child safety seats	8	
- Unrestrained or improperly restrained children ²		
(with pre-impact braking)	110	(US=109; Puerto Rico= 1)
(without pre-impact braking)	19	
(unknown pre-impact braking)	4	
- Wearing lap and shoulder belt		
(with pre-impact braking)	2	
(without pre-impact braking)	5	
Children fatally injured by the DAB³	8	

CHILDREN CONFIRMED AS RECEIVING A LIFE THREATENING INJURY RELATED TO AN AIR BAG

Children with life threatening injuries by the PAB	38
- Rear Facing child safety seats	8
- Forward Facing child safety seats	3
- Unrestrained or improperly restrained children	
(with pre-impact braking)	18
(without pre-impact braking)	3
(unknown pre-impact braking)	2
- Wearing lap and shoulder belt	
(with pre-impact braking)	3
(without pre-impact braking)	1
Children with life threatening injuries by the DAB	1

DRIVERS CONFIRMED AS RECEIVING A FATAL INJURY RELATED TO AN AIR BAG

Fatal Drivers	93
- Drivers belted	28
- Drivers misused belt	3
- Drivers not belted	58
- Unknown if driver belted	4

DRIVERS CONFIRMED AS RECEIVING A LIFE THREATENING INJURY RELATED TO AN AIR BAG

Driver Life Threatening Injuries	11
- Drivers belted	6
- Drivers misused belt	0
- Drivers not belted ⁴	5
- Unknown if driver belted	0

ADULT PASSENGERS CONFIRMED AS RECEIVING A FATAL INJURY RELATED TO AN AIR BAG

Fatal Passengers	13
- Passengers belted	5
- Passengers misused belt	1
- Passengers not belted	7
- Unknown if passenger belted	0

ADULT PASSENGERS CONFIRMED AS RECEIVING A LIFE THREATENING INJURY RELATED TO AN AIR BAG

Seriously Injured Passengers	9
- Passengers belted	6
- Passengers misused belt	0
- Passengers not belted	1
- Unknown if passenger belted	2

¹ PAB refers to the Passenger Airbag

² Improperly restrained children consists of children that either shared the same lap belt, used only a lap belt, or wore a shoulder belt under the arm.

³ DAB refers to the Driver Airbag

⁴ An unbelted pregnant female sustained an abruption of the placenta from the uterine wall and the fetus subsequently expired. See case CA9509.

The methods for estimating the number of “Registered Air Bag Equipped Vehicles,” and the “Fatalities Per Million Vehicle Years” have been modified to more accurately reflect the air bag exposure rates for drivers and passengers.

In Tables 2 - 4, a new estimate for “Registered Air Bag Equipped Vehicles” was compiled by using R.L. Polk vehicle registration data. The new figures have been modified to consider the attrition rates¹ of vehicles on the road by model year, and the amount of time each vehicle was on the road during its first year. The current year’s estimate for the modified “Registered Air Bag Equipped Vehicles” is the same as the previous year’s “Registered Air Bag Equipped Vehicles.” These numbers will be updated when R.L. Polk current year vehicle registration data become available the following year.

The quantity “Fatalities Per Million Vehicle Years” for a specific vehicle model year was previously calculated by dividing the count of occupants fatally injured by a deploying air bag for a given vehicle model year, by the product of the number of new vehicles registered that are air bag equipped for the given year and the number of years the vehicles of that year have been on the road. In the past when calculating the number of years vehicles of a given model year have been on the road, with the exception of the current MY, each vehicle was counted as being on the road for a full year. A new method of estimating the time each vehicle was on the road during its first year has been developed in which an even distribution of vehicle registrations is assumed throughout the year. Analysis of this distribution shows that a more accurate estimate of the time each vehicle was on the road in its first production year is one half of a year.²

The quantity “Fatalities Per Million Vehicle Years” for a normalized 12-month period was previously calculated by dividing the count of occupants fatally injured by a deploying air bag for each 12-month production period by the total number of registered vehicles with air bags during that same interval. Each 12-month production period was aligned with the vehicle production year, September 1 through August 31. A change similar to the one made for the vehicle model year exposure estimate was made for the quantity “Fatalities Per Million Vehicle Years” for a normalized 12-month period. The new method divides the count of occupants fatally injured by a deploying air bag for each 12-month period by the sum of the total number of registered vehicles with air bags of the previous model years³ and one half the registered vehicles of the vehicle model year that corresponds to the production period of the crash.

¹ The attrition rate of a vehicle is dependent on the amount of time a vehicle has been on the road. Different estimated attrition rates were initially calculated for automobiles and light trucks. Estimated attrition rates were used from “Vehicle Survivability and Travel Mileage Schedules,” January 2006, National Center for Statistics and Analysis, National Highway Traffic Safety Administration, U.S. Department of Transportation.

² The estimate for the amount time a vehicle of a given model year has been on the road during the current vehicle model year is multiplied by a correction factor that is based on the month the data is generated.

³ The term “the previous model years” refers to the vehicle model years before the vehicle model year of the production period of the crash.

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SPECIAL CRASH INVESTIGATIONS
CHILDREN FATALLY INJURED BY PAB
NORMALIZED BY VEHICLE REGISTRATIONS
Confirmed and Unconfirmed*
July 1, 2008**

Vehicle Model Year (in millions of vehicles)

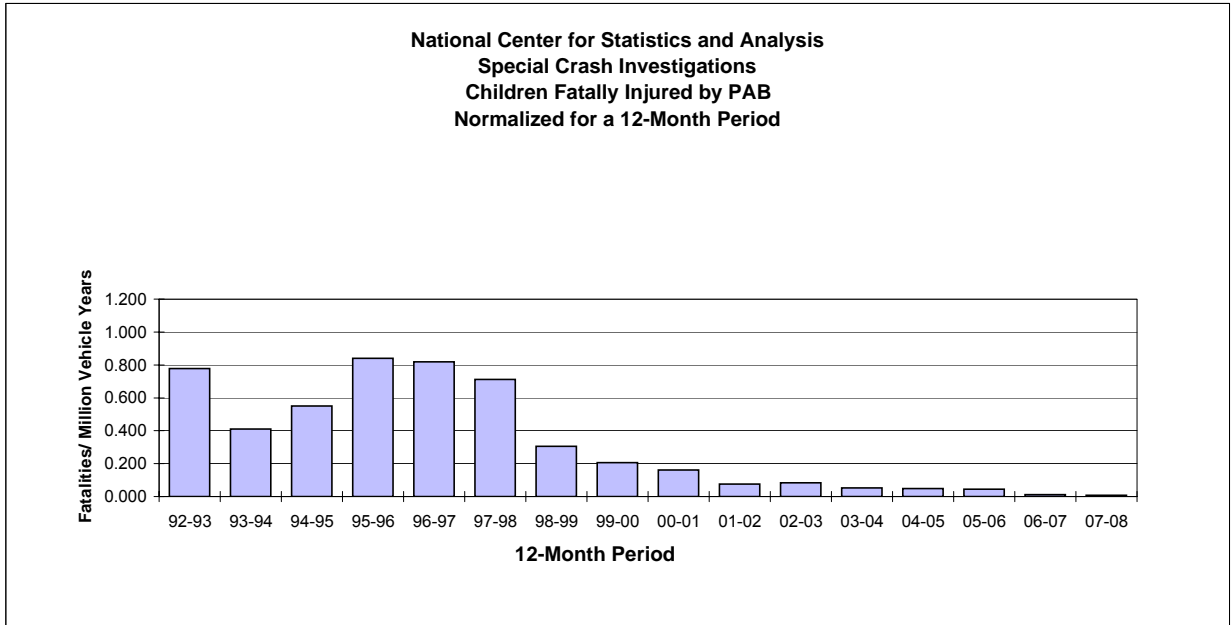
	1987-88	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Registered Passenger Air Bag Equipped Vehicles	0.000	0.061	0.144	0.037	0.405	1.311	5.918	9.987	10.240	13.690	14.491	16.070	17.065	16.402	16.883	15.575	15.375	15.516	15.516	15.516	15.516	215.718

Vehicle Model Year

Crash Date	1987-88	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	
Sep 87 to Aug 88																						0	
Sep 88 to Aug 89																							0
Sep 89 to Aug 90																							0
Sep 90 to Aug 91																							0
Sep 91 to Aug 92																							0
Sep 92 to Aug 93						1																	1
Sep 93 to Aug 94						1	1																2
Sep 94 to Aug 95						1	2	4															7
Sep 95 to Aug 96					1		6	9	4														20
Sep 96 to Aug 97							4	12	7	6													29
Sep 97 to Aug 98							4	15	5	8	2												34
Sep 98 to Aug 99							2	7	3	3	3	1											19
Sep 99 to Aug 00							1	4	6	2	2	1											16
Sep 00 to Aug 01							1	5	5	2		1		1									15
Sep 01 to Aug 02						1	1	1	2	2			1		1								9
Sep 02 to Aug 03								2	2	4			1	1									10
Sep 03 to Aug 04							1	1		3		1				1							7
Sep 04 to Aug 05							1		1	3	1		1										7
Sep 05 to Aug 06							1	2	1			1											5
Sep 06 to Aug 07									1		1												2
Sep 07 to Aug 08														1									1
Total	0	0	0	0	1	4	25	62	37	33	9	5	3	2	1	1	0	0	0	0	0	0	184
Fatalities/Million Vehicle Years	0.000	0.000	0.000	0.000	0.199	0.251	0.360	0.550	0.338	0.241	0.067	0.037	0.023	0.018	0.010	0.013	0.000	0.000	0.000	0.000	0.000	0.000	

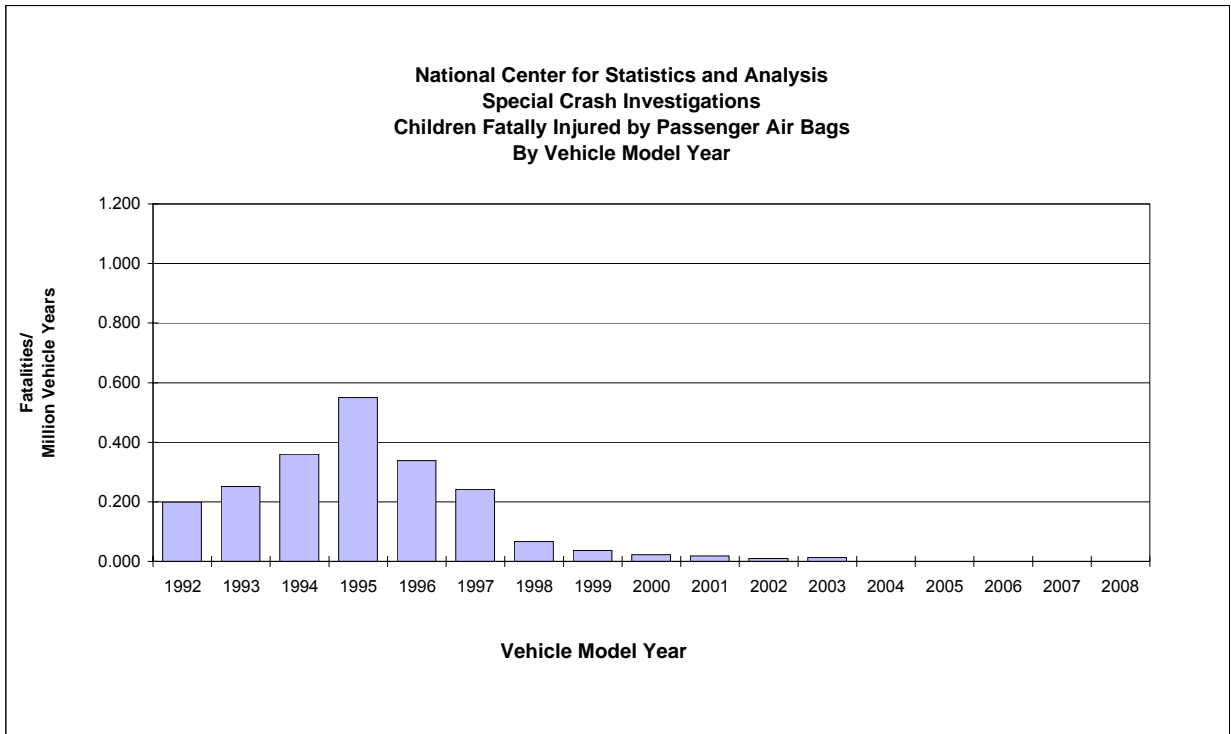
*Confirmed cases are those where the air bag has been confirmed to be the injury mechanism. Unconfirmed cases are crashes under active investigation where the air bag is suspected of being the injury mechanism.

Chart 1



July 1, 2008

Chart 2



July 1, 2008

Note: The bar charts above are shown using a different scale than the other two sets of bar charts

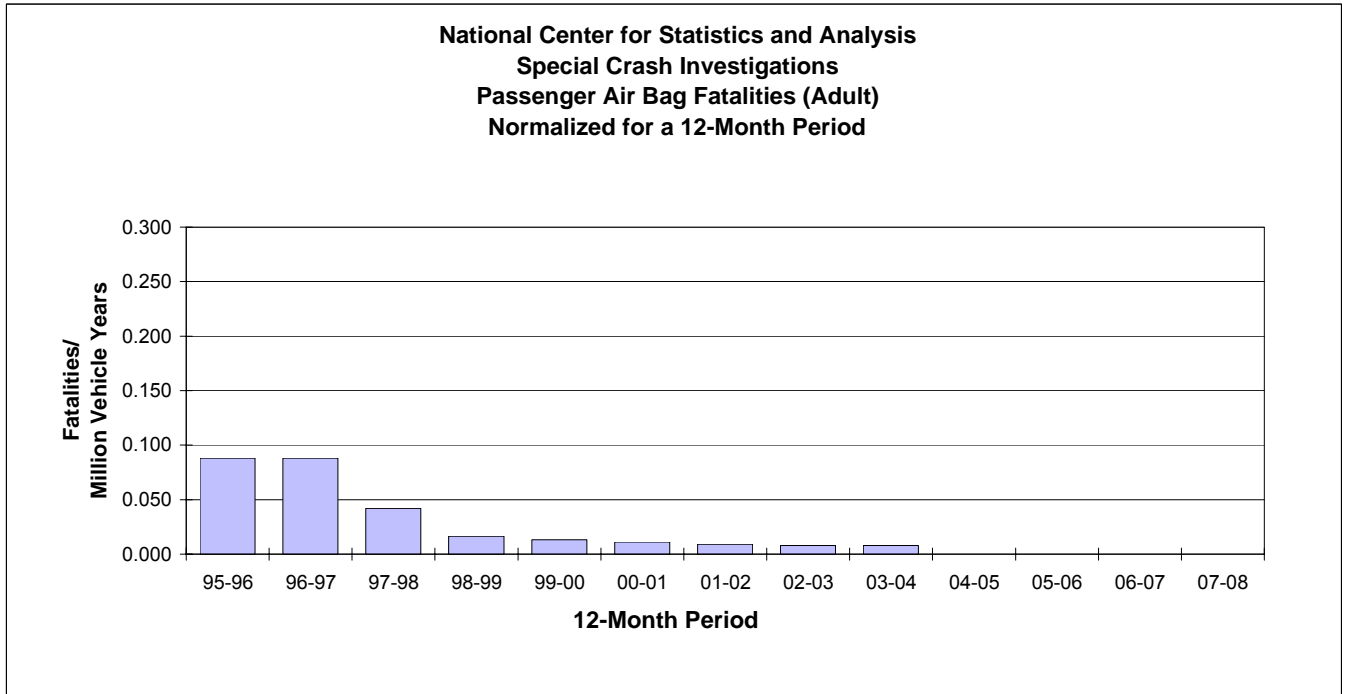
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SPECIAL CRASH INVESTIGATIONS
ADULT PASSENGERS FATALLY INJURED BY PAB
NORMALIZED BY VEHICLE REGISTRATIONS
Confirmed and Unconfirmed
July 1, 2008**

Vehicle Model Year (in millions of vehicles)

	1987-88	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Registered Passenger Air Bag Equipped Vehicles	0.000	0.061	0.144	0.037	0.405	1.311	5.918	9.987	10.240	13.690	14.491	16.070	17.065	16.402	16.883	15.575	15.375	15.516	15.516	15.516	15.516	215.718
Vehicle Model Year																						
Crash Date	1987-88	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Sep 87 to Aug 88																						0
Sep 88 to Aug 89																						0
Sep 89 to Aug 90																						0
Sep 90 to Aug 91																						0
Sep 91 to Aug 92																						0
Sep 92 to Aug 93																						0
Sep 93 to Aug 94																						0
Sep 94 to Aug 95																						0
Sep 95 to Aug 96							1	1														2
Sep 96 to Aug 97								2		1												3
Sep 97 to Aug 98					1						1											2
Sep 98 to Aug 99										1												1
Sep 99 to Aug 00						1																1
Sep 00 to Aug 01										1												1
Sep 01 to Aug 02													1									1
Sep 02 to Aug 03											1											1
Sep 03 to Aug 04																	1					1
Sep 04 to Aug 05																						0
Sep 05 to Aug 06																						0
Sep 06 to Aug 07																						0
Sep 07 to Aug 08																						0
Total	0	0	0	0	1	1	1	3	0	3	2	0	1	0	0	0	1	0	0	0	0	13
Fatalities/Million Vehicle Years	0.000	0.000	0.000	0.000	0.199	0.063	0.014	0.027	0.000	0.022	0.015	0.000	0.008	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.000	

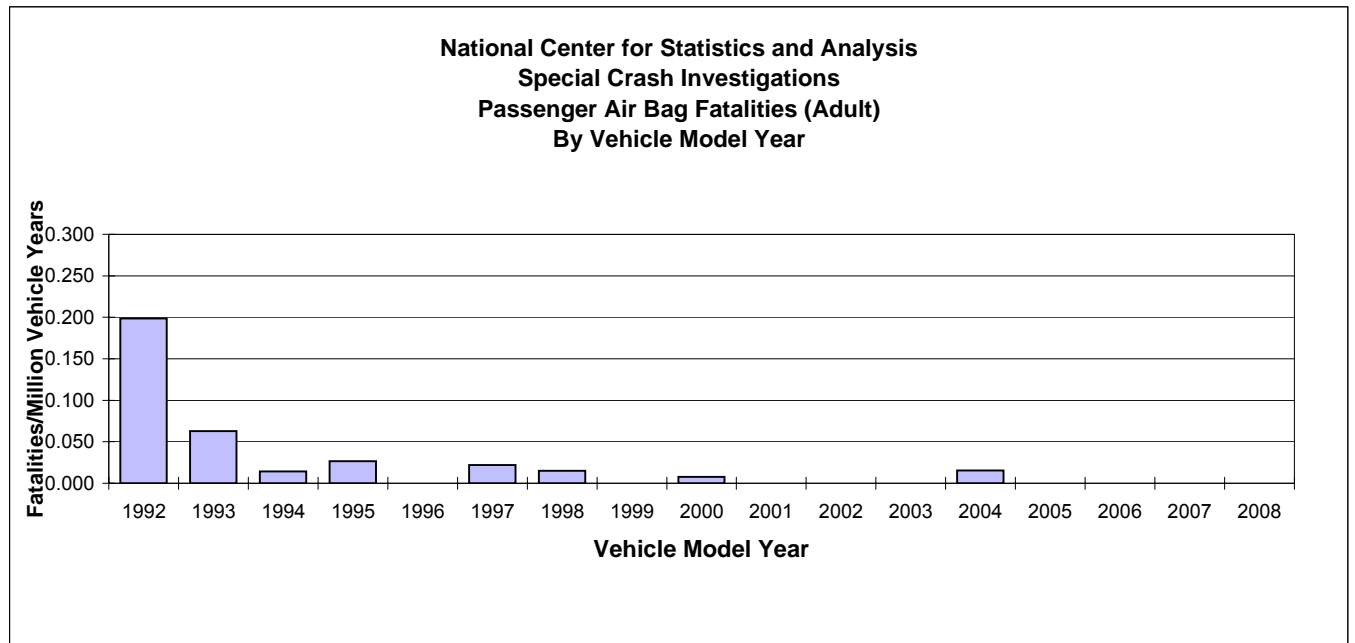
*Confirmed cases are those where the air bag has been confirmed to be the injury mechanism. Unconfirmed cases are crashes under active investigation where the air bag is suspected of being the injury mechanism.

Chart 3



July 1, 2008

Chart 4



July 1, 2008

Note: The bar charts above are shown using a different scale than the other two sets of bar charts

**NATIONAL CENTER FOR STATISTICS AND ANALYSIS
SPECIAL CRASH INVESTIGATIONS
ADULT DRIVERS FATALLY INJURED BY DAB
NORMALIZED BY VEHICLE REGISTRATIONS
Confirmed and Unconfirmed
July 1, 2008**

Vehicle Model Year (in millions of vehicles)

	1987-88	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Registered Driver Air Bag Equipped Vehicles	0.326	0.502	2.476	3.470	5.616	7.348	10.420	14.225	13.222	14.596	14.657	16.125	17.136	16.402	16.893	15.575	15.375	15.516	15.516	15.516	15.516	246.428

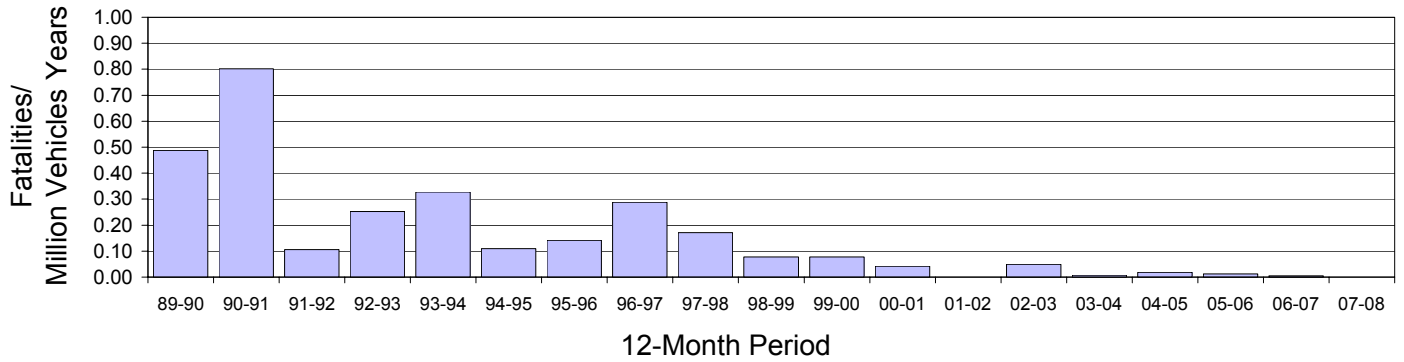
Vehicle Model Year

Crash Date	87/88	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Sep 87 to Aug 88																						0
Sep 88 to Aug 89																						0
Sep 89 to Aug 90			1																			1
Sep 90 to Aug 91			1	3																		4
Sep 91 to Aug 92				1																		1
Sep 92 to Aug 93			1	2	1																	4
Sep 93 to Aug 94			1	2	2		3															8
Sep 94 to Aug 95			3	1																		4
Sep 95 to Aug 96		1			1	1	3	1														7
Sep 96 to Aug 97				1	1	2	6		5	3												18
Sep 97 to Aug 98				2	1	1	2	4	2		1											13
Sep 98 to Aug 99				2		1				1	3											7
Sep 99 to Aug 00			1	1	1	1	2	1	1													8
Sep 00 to Aug 01							1	1	2			1										5
Sep 01 to Aug 02																						0
Sep 02 to Aug 03					1	1			1	2		1	1									7
Sep 03 to Aug 04						1																1
Sep 04 to Aug 05									1			1				1						3
Sep 05 to Aug 06										1												1
Sep 06 to Aug 07								1														1
Sep 07 to Aug 08											1										0	1
Total	0	1	8	15	8	8	17	8	12	7	5	3	1	0	0	1	0	0	0	0	0	94
Fatalities/Million Vehicle Years	0.000	0.154	0.252	0.342	0.115	0.090	0.140	0.050	0.086	0.048	0.037	0.022	0.008	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	

*Confirmed cases are those where the air bag has been confirmed to be the injury mechanism. Unconfirmed cases are crashes under active investigation where the air bag is suspected of being the injury mechanism.

Chart 5

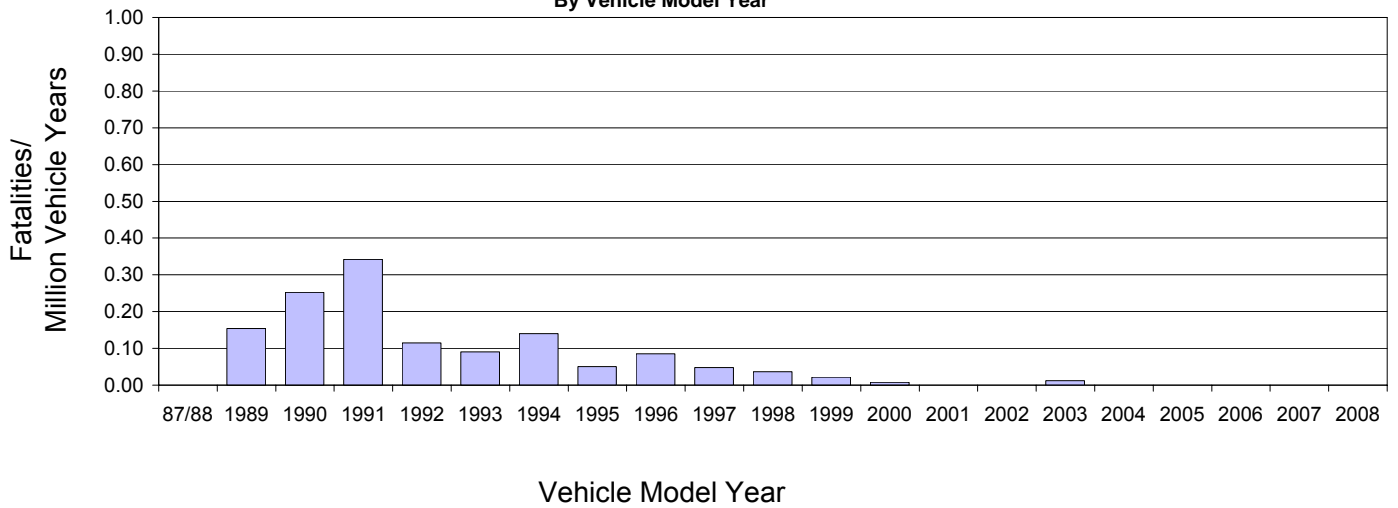
National Center for Statistics and Analysis
 Special Crash Investigations
 Driver Air Bag Fatalities (Adult)
 Normalized for a 12-Month Period



July 1, 2008

Chart 6

National Center for Statistics and Analysis
 Special Crash Investigations
 Driver Air Bag Fatalities (Adult)
 By Vehicle Model Year



July 1, 2008

Note: The bar charts above are shown using a different scale than the other two sets of bar charts