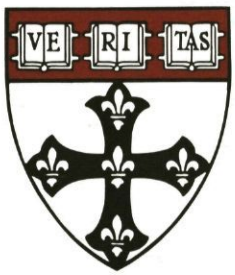
# THE AIRBAG'S TEFLON IMAGE:

# A NATIONAL SURVEY OF KNOWLEDGE AND ATTITUDES




Public Forum
Air Bags and Child Passenger Safety
National Transportation Safety Board
Washington, D.C.

Center for Risk Analysis
Injury Control Center
Harvard School of Public Health
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## EXECUTIVE SUMMARY

The Centers for Risk Analysis and Injury Control of the Harvard School of Public Health sponsored a representative survey of 1,000 randomly-sampled Americans regarding their knowledge, perceptions, and attitudes about airbags and passenger safety. The key findings of the survey are summarized below.

*KNOWLEDGE*

--67.1% of respondents recognize that it is dangerous to place an infant in a rear-facing restraint in the front seat of a vehicle with a passenger-side airbag.

--71.0% of respondents recognize that a driver can be seriously injured or killed by an airbag if the driver is seated too close to the steering wheel.

--68.4% of respondents recognize that more lives of female drivers have been saved by airbags than have been killed by airbags.

*MISPERCEPTIONS*

--59.9% of respondents are under the (mistaken) impression that the lives of more children have been saved by airbags than have been killed by airbags.

--When asked when it becomes safe for a child to sit in the front seat, fewer than 25% of respondents with children in the home picked age 12 or greater, even though safety experts recommend that children under age 12 sit in the rear seat.

--77.8% of respondents are under the (mistaken) impression that the risk of airbag-induced injury is minimal if a driver wears a seatbelt properly.

--51.3% of respondents are not aware that a majority of the lives that have been saved by airbags have been among people who were not wearing seatbelts.

--74.0% of respondents are not aware that the deployment threshold for airbags has been set by manufacturers at a level equivalent to hitting a cement wall at 12 miles per hour.

*ATTITUDES*

--70.9% of respondents would favor a law in their state requiring children under the age of 10 to be seated in the rear seat and buckled.

--66.3% of respondents favor the current law requiring all new vehicles to be equipped with dual-front airbags.

--Although 54.0% of respondents state they have the same opinion toward airbags that they did three years ago, there is clear evidence that women are developing less favorable attitudes toward the technology.

--If given the opportunity to do so, 29.0% of respondents, when buying their next vehicle, would be likely to request that the dealer disconnect the airbag system.

--If their next vehicle were equipped with a manual cutoff switch, 33.0% of respondents can imagine circumstances where they would turn the airbag system off at the start of a trip.

*CONCLUSION*

The survey results suggest that there is a widespread public support for airbags in the United States. However, this support is contingent to some extent on a variety of misperceptions about the technology. There is also substantial public support for policies to reduce the dangers of airbags, such as requiring children under the age of 10 to sit in the rear seat and wear safety belts. The public is also interested in improved airbag systems.

## SURVEY METHODS

The survey instrument was designed by scientists at the Center for Risk Analysis and Injury Control Center at the Harvard School of Public Health. The instrument was administered to a random sample of 1,000 Americans in the 48 contiguous states by Market Facts Inc., a survey research firm based in Chicago, Illinois. The survey was conducted on the weekend of February 28-March 2, 1997.

The sample of respondents was generated through random digit dialing procedures, with three attempts made at each telephone number. A screening question identified whether the respondent was licensed to drive a motor vehicle. The average respondent took 15 minutes to answer the airbag-related questions. A copy of the complete survey instrument is available from the authors upon request. The summary results reported here are for the 933 respondents who are licensed to drive a motor vehicle.

## RESPONDENT CHARACTERISTICS

**Gender**

| | |
|---|---|
| Male | 51.3% |
| Female | 48.7% |

**Age**

| | |
|---|---|
| 18-24 | 9.9% |
| 25-34 | 19.4% |
| 35-44 | 24.8% |
| 45-54 | 19.8% |
| 55-64 | 12.5% |
| 65+ | 13.5% |

**Children in House**

| | |
|---|---|
| Yes | 39.5% |
| No | 60.5% |

**Race**

| | |
|---|---|
| White | 85.4% |
| Nonwhite | 14.6% |

**Region of Country**

| | |
|---|---|
| Northeast | 21.0% |
| Midwest | 25.6% |
| South | 34.1% |
| West | 19.3% |

**Education**

| | |
|---|---|
| High School or Less | 46.1% |
| College | 43.7% |
| Post-Graduate | 10.2% |

**Primary Vehicle Has Air Bag**

| | |
|---|---|
| Driver-side only | 19.4% |
| Dual front | 19.8% |
| None | 60.3% |
| DK | 0.5% |

**Family Member Ever Involved in Crash Where Air Bag Deployed**

| | |
|---|---|
| Yes | 6.3% |
| No | 93.5% |
| DK | 0.2% |

**Self-Reported Belt Use**

| | |
|---|---|
| Always | 70.0% |
| Most of the time | 17.9% |
| Sometimes | 5.2% |
| Rarely or never | 6.9% |

## KNOWLEDGE ABOUT AIR BAGS AND PASSENGER SAFETY

**1.** True or False: Air bags are not a danger to an infant in the front seat if the infant is restrained in an approved, rear-facing child restraint device.

| **Response** | **All Respondents** | **Respondents with Kids** |
|---|---|---|
| True | 243 (26.3%) | 92 (24.8%) |
| False | 621 (67.1%) | 260 (70.3%) |
| DK | 61 ( 6.6%) | 18 ( 4.9%) |

*TECHNICAL COMMENT*

According to safety experts, the correct answer is "false". Rear-facing infant or child restraints should never be placed in the front seat of a vehicle equipped with passenger-side airbags. A rear-facing restraint placed in the front seat places the child's head and body very close to the airbag housing. When the bag deploys, it can cause the child to suffer severe or fatal brain injury.

**Reference**

K Weber, "Rear-Facing Restraint for Small Child Passengers: A Medical Alert," University of Michigan Transportation Research Institute Research Review. April-June 1995, pp.12-17.

**2.** True or False: If a driver is seated too close to the steering wheel, the airbag can cause serious injury or death to the driver in a crash.

| Response | Males | Females | Total |
|---|---|---|---|
| True | 317 (68.6%) | 340 (73.4%) | 657 (71.0%) |
| False | 104 (22.4%) | 73 (15.8%) | 177 (19.1%) |
| DK | 41 ( 8.9%) | 50 (10.8%) | 92 ( 9.9%) |

*TECHNICAL COMMENT*

This statement is true, and is amply supported by both experimental data and investigations of real-world crashes.

**References**

J. Horsch, I Lau, D Andrzejak, D Viano, J Melvin, J. Pearson, D. Cok, G. Miller, "Assessment of Air Bag Deployment Loads," SAE Technical Paper 902324.

J. Melvin, JD Horsch, JD McCleary, LC Wideman, JL Jensen, MJ Wolanin, "Assessment of Air Bag Deployment Loads with the Small Female Hybrid III Dummy," SAE Technical Paper 933119.

National Highway Traffic Safety Administration, Effectiveness of Occupant Protection Systems and Their Use, Third Report to Congress, Washington, D.C., December 1996.

SA Ferguson, "Update in Airbag Performance in the United States: Benefits and Problems," Insurance Institute for Highway Safety, Arlington, VA, Paper Presented to AIRBAG 2,000 Conference, Karlsruhe, Germany, November 1996.

**3.** True or False: The lives of more female drivers have been saved by air bags than have been killed by air bags.

| Response | Males | Females | Total |
|---|---|---|---|
| True | 342 (74.0%) | 290 (62.7%) | 632 (68.4%) |
| False | 70 (15.2%) | 86 (18.6%) | 157 (16.9%) |
| DK | 49 (10.7%) | 85 (18.4%) | 134 (14.7%) |

*TECHNICAL COMMENT*

This statement is correct and could also be correctly made for male drivers.

**References**

SA Ferguson, "Update on Airbag Performance in the United States: Benefits and Problems," Insurance Institute for Highway Safety, Arlington, VA, Paper Presented to Airbag 2,000 Conference, Karlsruhe, Germany, November 1996.

National Highway Traffic Safety Administration, Fatality Reduction by Air Bags: Analyses of Accident Data Through Early 1996, NHTSA Technical Report, DOT HS 808 470, Washington, D.C., August 1996.

AK Lund, SA Ferguson, "Driver Fatalities in 1985-1993 Cars with Airbags," Journal of Trauma: Injury, Infection, and Critical Care, 38;469–475. 1995.

## SECTION 2: MISPERCEPTIONS ABOUT AIRBAGS AND PASSENGER SAFETY

**1.** At what age would you say it is safe for a child to sit in the front seat?

| Age in Years | All Respondents | Respondents with Kids |
|---|---|---|
| 4 or less | 141 (15.3%) | 59 (16.0%) |
| 5 | 89 ( 9.7%) | 43 (11.7%) |
| 6 | 126 (13.6%) | 46 (12.5%) |
| 7 | 58 ( 6.2%) | 29 ( 7.8%) |
| 8 | 90 ( 9.7%) | 34 ( 9.2%) |
| 9 | 17 ( 1.9%) | 9 ( 2.5%) |
| 10 | 144 (15.6%) | 54 (14.7%) |
| 11 | 7 ( 0.8%) | 2 ( 0.5%) |
| 12 | 93 (10.0%) | 35 ( 9.4%) |
| 13 or more | 97 (10.5%) | 49 (13.3%) |
| DK | 62 ( 6.8%) | 9 ( 2.3%) |

*TECHNICAL COMMENT*

The American people have no consensus belief about when it is safe for children to sit in the front seat of a motor vehicle. Safety experts recommend that children under the age of 12 be seated in the rear seat and properly restrained. In vehicles with passenger-side air bags, this recommendation is especially critical because a restrained child or unrestrained child may slide forward into the airbag's deployment zone during pre-crash braking. In several European countries (e.g., Germany and France), children under the age of 10 or 12 are required by law to be seated in the rear seat.

**Reference**

National Highway Traffic Safety Administration, Effectiveness of Occupant Protections Systems and Their Use.

Third Report to Congress, Washington, D.C., December 1996.

**2.** True or False: The lives of more children have been saved by airbags than have been killed by airbags.

| **Responses** | **Males** | **Females** | **Respondents with Kids** | **All Respondents** |
|---|---|---|---|---|
| True | 307 (66.4%) | 247 (53.4%) | 206 (55.7%) | 554 (59.9%) |
| False | 107 (23.0%) | 166 (35.9%) | 128 (34.7%) | 273 (29.5%) |
| Don't Know | 98 (10.6%) | 49 (10.6%) | 35 ( 9.5%) | 98 (10.6%) |

*TECHNICAL COMMENT*

Based on the best available evidence, the correct answer to this statement is "false". We are assuming that "children" are defined, as we intended and believe respondents intended, in the age range of 12 and below. The front-seat death rate for children in cars with passenger-side airbags is elevated (relative to the death rate for front-seat children in cars without passenger-side airbags) for kids of all ages from 0 to 14. The magnitude of the increase in danger to children is not known with any precision and conclusions about the statistical significance of the elevated risk are sensitive to the choice of analytical technique.

Much of the increased danger to children from airbags is attributable to behaviors that must be changed (e.g., allowing children to ride in the front seat unrestrained or placing rear-facing infant restraints in front of the passenger-side airbag). Even if all children were properly restrained, it cannot be stated with confidence that passenger-side airbags would save more lives than they kill. There have been case reports of properly restrained children who were killed or seriously injured by airbag deployments. Whether or not airbags offer a net lifesaving benefit to children who are restrained properly is not known. The consensus of safety experts is that children under

age 12 should ride in the rear seat with restraints fastened, especially in cars with passenger-side air bags.

**References**

National Highway Traffic Safety Administration, Fatality Reduction by Air Bags: Analyses of Accident Data through Early 1996, NHTSA Technical Report, Washington, D.C., August 1996 (DOT HS 808 470), pp. 44-49.

National Highway Traffic Safety Administration, Effectiveness of Occupant Protection Systems and Their Use, Third Report to Congress, Washington, D.C., December 1996, Section III.

SA Ferguson, ER Braver, MA Greene, AK Lund, "Preliminary Report: Initial Estimates of Reductions in Deaths in Frontal Crashes Among Right Front Passengers in Vehicles Equipped with Passenger Airbags," Insurance Institute for Highway Safety, Arlington, VA, September 1996.

**3.** True or False: If a driver wears their seatbelt properly, the chance of being injured by an inflating airbag is minimal.

| Response | Males | Females | Total |
|---|---|---|---|
| True | 369 (79.9%) | 351 (75.7%) | 720 (77.8%) |
| False | 75 (16.1%) | 78 (16.9%) | 153 (16.5%) |
| DK | 19 ( 4.0%) | 34 ( 7.4%) | 52 ( 5.6%) |

*TECHNICAL COMMENT*

According to the available literature, this statement is false. A significant number of injuries to the hands, wrists, arms, and faces of belted drivers are being reported. Although most of these injuries are minor, the frequency of moderate and serious arm injuries from airbag deployment has been larger than what safety experts expected before airbags penetrated the vehicle marketplace. The risk of moderate or serious arm injury from airbags may actually be larger for belted occupants than unbelted occupants.

**References**

National Highway Traffic Safety Administration, Effectiveness of Occupant Protection Systems and Their Use, Third Report to Congress, Washington, D.C., December 1996.

DJ Dalmotas, A German, BE Hendrick, RM Hurley, "Airbag Deployments: The Canadian Experience," Journal of Trauma: Injury, Infection, and Critical Care. 38; 476–481. 1995.

DF Huelke, JL Moore, TW Compton, J Samuels, RS Levine, "Upper Extremity Injuries Related to Airbag Deployments," Journal of Trauma: Injury, Infection, and Critical Care. 38; 482–488. 1995.

SA Ferguson, "Update on Airbag Performance in the United States: Benefits and Problems," Insurance Institute for Highway Safety, Arlington, VA, Paper Presented to Airbag 2,000 Conference, Karlsruhe, Germany, November 1996.

**4.** True or False: Airbags cause at least as many injuries to drivers as they prevent.

| Response | Males | Females | Total |
|---|---|---|---|
| True | 107 (23.2%) | 141 (30.5%) | 248 (26.8%) |
| False | 326 (70.6%) | 296 (64.0%) | 622 (67.3%) |
| DK | 29 ( 6.2%) | 26 ( 5.6%) | 55 ( 5.9%) |

*TECHNICAL COMMENT*

This is a difficult question to answer definitively because injuries vary enormously in their degree of severity. The most frequent injuries in crashes are minor. Airbags probably do cause at least as many minor injuries (abrasions and contusions) as they prevent, since the best available estimates are that 20 to 40% of air bag deployments result in at least one deployment-induced injury. For injuries of moderate or greater severity, airbags are reducing significantly the number of injuries to the heads and faces of belted and unbelted drivers, while increasing the number of upper-extremity injuries. Among unbelted drivers, airbags can cause a significant number of moderate and serious chest injuries as well. For serious injuries alone, existing analyses of the National Accident Sampling System have not reached definitive conclusions, but it appears that airbags are reducing serious head injuries to a greater degree than they are increasing serious injuries at other body regions. More study of the injury issue is needed.

**References**

SA Ferguson, "Update on Airbag Performance in the United States: Benefits and Problems," Insurance Institute for Highway Safety, Arlington, VA, Paper Presented to Airbag 2,000 Conference, Karlsruhe, Germany, November 1996.

AC Malliaris, JH DeBlois, KH Digges, "Air Bag Field Performance and Injury Patterns," SAE Technical Paper 960659, Warrendale, PA.

National Highway Traffic Safety Administration, Effectiveness of Occupant Protection Systems and Their Use, Third Report to Congress, Washington, D.C., December 1996.

**5.** True or False: A majority of the lives that have been saved by airbags have been among people who were not wearing seatbelts.

| **Response** | **Males** | **Females** | **Total** |
|---|---|---|---|
| True | 194 (42.0%) | 164 (35.4% ) | 358 (38.7%) |
| False | 225 (48.6%) | 250 (54.0%) | 475 (51.3%) |
| DK | 44 ( 9.4%) | 49 (10.5%) | 92 (10.0%) |

*TECHNICAL COMMENT*

Although airbags are less effective in preventing fatalities among unbelted occupants than originally thought, a majority (59%) of the lives that have been saved have been among unbelted motorists. This calculation depends on the relative number of belted and unbelted motorists involved in crashes risk (roughly 1 to 1 in serious crashes throughout the United States) and the estimated effectiveness rate for unbelted and belted occupants (13% and 9%, respectively).

**References**

National Highway Traffic Safety Administration, Fatality Reduction by Air Bags: Analyses of Accident Data Through Early 1996, NHTSA Technical Report, DOT HS 808 470, Washington, D.C., August 1996.

National Highway Traffic Safety Administration, Effectiveness of Occupant Protection Systems and Their Use, Third Report to Congress, Washington, D.C., December 1996.

**6.** Suppose a car with airbags is crashed into a cement wall. How fast must the car be traveling at impact in order to inflate the airbag? Please answer in miles per hour.

| **Response** | **Males** | **Females** | **Total** |
|---|---|---|---|
| 5 MPH or less | 80 (17.3%) | 33 ( 7.2%) | 114 (12.3%) |
| 6 to 15 MPH | 162 (35.2%) | 79 (17.0%) | 241 (26.1%) |
| 16 to 20 MPH | 60 (12.9%) | 43 ( 9.3%) | 103 (11.1%) |
| 21 to 30 MPH | 64 (13.8%) | 119 (25.6%) | 168 (18.2%) |
| 31 MPH or more | 61 (13.2%) | 117 (25.4%) | 179 (19.4%) |
| DK | 34 ( 7.4%) | 71 (15.3%) | 105 (11.4%) |

*TECHNICAL COMMENT*

U.S. manufacturers have set the deployment threshold around 12 mph, with a "guarantee no fire" value of 9 mph and a "must fire" value of 15 mph, with considerable variability among manufacturers and in the performance of sensors. Serious technical questions have been raised, based on recent field experience, about whether the deployment threshold for air bags should be adjusted upward. A higher threshold would reduce the number of deployments, the replacement costs, and the number of airbag-induced injuries. Setting the threshold higher would, however, cause some people to experience crash-related injuries that might have been prevented by the deployment of an airbag. The technical case for a higher deployment threshold is particularly strong for drivers and passengers who regularly wear safety belts.

**References**

JV Werner, WW Sorenson, "Survey of Airbag Involved Accidents: An Analysis of Collision Characteristics, System Effectiveness, and Injuries," SAE Technical Paper Series 940802.

DJ Dalmotas, A German, BE Hendrick, RM Hurley, "Airbag Deployments: The Canadian Experience," Journal of Trauma: Injury, Infection, and Critical Care. 38; 476–481. 1995.

JV Werner, SF Roberson, SA Ferguson, KH Digges, "Air Bag Deployment Frequency and Injury Risks," SAE Technical Paper Series 960664.

DJ Dalmotas, RM Hurley, A German, "Air Bag Deployments Involving Restrained Occupants," SAE Technical Paper Series 950868.

SA Ferguson, "Update on Airbag Performance in the United States: Benefits and Problems," Insurance Institute for Highway Safety, Paper Presented to Airbag 2,000 Conference, Karlsruhe, Germany, November 1996.

**7.** When you drive a vehicle, how many inches of space would you guess there are between the center of the steering wheel and the bridge of your nose?

| **Response (inches)** | **Males** | **Females** |
|---|---|---|
| 12 inches or less | 72 (15.5%) | 149 (32.2%) |
| 13 - 18 inches | 147 (31.8%) | 143 (31.0%) |
| 19 - 24 inches | 156 (33.7%) | 94 (20.3%) |
| More than 25 inches | 72 (15.6%) | 26 ( 5.7%) |
| DK | 15 ( 3.4%) | 50 (10.7%) |

*TECHNICAL COMMENT*

Some clinicians have recommended that drivers allow at least 12 inches of space between their nose and the airbag housing. The best available evidence suggests that women perceive that they drive closer to the steering wheel than they actually do. When a large sample of women drivers were videotaped during normal driving situations, less than one percent had fewer than 12 inches of space between their nose the center of the steering wheel. Yet one third of women in the survey guessed that the bridge of their nose was within 12 inches of the steering wheel. To verify this perception, both the survey results and the observational results need to be replicated.

**Reference**

E Cullen, KM Stabler, GM Nackay, S Parkin, "How People Sit in Cars: Implications for Driver and Passenger Safety in Frontal Collisions -- The Case of Smart Restraints," 40th Annual Proceedings of the Association for the Advancement of Automotive Medicine, Vancouver, British Columbia, October 7-9, 1996.

## SECTION 3: ATTITUDES ABOUT AIR BAGS AND PASSENGER SAFETY

**1.** Would you favor or oppose a law in your state that would require all children under the age of 10 to be seated in the back seat and buckled?

| **Responses** | **All Respondents** | **Respondents With Kids** |
|---|---|---|
| Favor strongly | 476 (51.5%) | 171 (46.4%) |
| Favor mildly | 179 (19.4%) | 86 (23.4%) |
| Oppose mildly | 125 (13.5%) | 47 (12.6%) |
| Oppose strongly | 120 (13.0%) | 57 (15.5%) |
| DK | 25 ( 2.6%) | 8 ( 2.1%) |

*TECHNICAL COMMENT*

Since the mid-1970s, Germany and France have had laws that require younger children (under age 12 in Germany and 10 in France) to be seated in the rear seat (if a vehicle has a rear seat). This practice has become customary in these countries. The percentages of German and French children observed riding in the front seat are typically less than 10%. In the United States, anywhere between 30 and 50% of children under the age of 12 are observed riding in the front seat. Several states (New York, California, and Massachusetts) are at the beginning stages of public deliberation about whether state legislation should be passed to require children to sit in the rear seat.

**2.** Do you favor or oppose the current law requiring all new vehicles to be equipped with dual-front airbags?

| **Responses** | **Males** | **Females** | **All Respondents** |
|---|---|---|---|
| Strongly favor | 203 (43.9%) | 166 (35.8%) | 369 (39.8%) |
| Mildly favor | 117 (25.3%) | 127 (27.5%) | 244 (26.4%) |
| Mildly oppose | 62 (13.4%) | 74 (15.9%) | 135 (14.6%) |
| Strongly oppose | 67 (14.5%) | 69 (15.0%) | 136 (14.7%) |
| DK | 14 ( 2.9%) | 27 ( 5.8%) | 40 ( 4.4%) |

*TECHNICAL COMMENT*

This strong level of public support for mandatory air bags is no less than the level of public support measured in the mid-1980s and early 1990s. The stronger level of support of men compared to women is not typical of a public health and safety issue, possibly reflecting concerns of women about the airbag technology.

**Reference**

J Flynn, P Slovic, and CK Mertz, "Gender, Race, and Perception of Environmental Health Risks," Risk Analysis. 14(6), 1101-1108 (1994).

**3.** Compared to three years ago, would you say your attitude toward airbags is more favorable now, less favorable now, or about the same as it was three years ago?

| **Responses** | **Males** | **Females** | **All Respondents** |
|---|---|---|---|
| Less Favorable Now | 95 (20.5%) | 146 (31.5%) | 240 (26.0%) |
| More Favorable Now | 96 (20.7%) | 79 (17.0%) | 174 (18.8%) |
| About the Same | 270 (58.4%) | 230 (49.6%) | 500 (54.0%) |
| DK | 2 ( 0.4%) | 9 ( 1.9%) | 11 ( 1.1%) |

*TECHNICAL COMMENT*

Given the massive negative publicity about the dangers of airbags, it is perhaps surprising that supportive public attitudes have been maintained. Clear indications of erosion in women's support for airbags are evident.

**4.** Suppose your next vehicle is equipped with airbags but the government allowed dealers to disconnect the airbags at the buyer's request. Would you be likely to request that your airbags be disconnected?

| **Response** | **Males** | **Females** | **All Respondents** |
|---|---|---|---|
| Yes | 108 (23.4%) | 160 (34.6%) | 268 (29.0%) |
| No | 342 (74.0%) | 289 (62.4%) | 631 (68.2%) |
| DK | 12 ( 2.6%) | 14 ( 3.1%) | 26 ( 2.8%) |

*TECHNICAL COMMENT*

The government currently allows disconnection only for documented medical reasons. NHTSA is now reconsidering this policy, though there is substantial opposition to a "disconnect on demand" policy.

**5.** Suppose your next vehicle is equipped with airbags that can be turned on or off by the driver at the start of the trip. Can you imagine any trips when you might choose to turn your airbag system off?

| **Responses** | **Males** | **Females** | **All Respondents** |
|---|---|---|---|
| Yes | 141 (30.5%) | 165 (35.6%) | 305 (33.0%) |
| No | 315 (68.0%) | 288 (62.3%) | 603 (65.2%) |
| DK | 6 ( 1.5%) | 9 ( 2.1%) | 17 ( 1.8%) |

Most common examples cited in support of "yes" response are: child/baby in front seat (30.5%), leave off all the time (16.7%), short trip (15.4%), short people (12.2%).

*TECHNICAL COMMENT*

Manual cutoff switches are already permitted on vehicles that do not have a rear seat (e.g., pickup trucks).

**6.** On the next vehicle you buy, would you be willing to pay $150 extra for a special airbag that would not deploy in a crash if someone was located too close to the airbag?

| Response | Males | Females | All Respondents |
|---|---|---|---|
| Yes | 225 (48.6%) | 268 (57.9%) | 493 (53.3%) |
| No | 219 (47.4%) | 167 (36.1%) | 386 (41.8%) |
| DK | 18 ( 3.9%) | 28 ( 6.0%) | 46 ( 5.0%) |

*TECHNICAL COMMENT*

There are various technical approaches to designing a system that would suppress or slow airbag deployment when children are in the deployment zone. These systems use proximity sensors. Their reliability is now under serious examination. The incremental cost of most of the suppression systems under discussion are much lower than the $150 per vehicle cited in this question.

## CONCLUSION

The survey results suggest that there is widespread public support for airbags in the United States. However, this support is contingent to some extent on a variety of misperceptions about the technology. More public education about the risks and benefits is clearly needed. There is also substantial public support for policies to reduce the dangers of airbags, such as requiring children under the age of 10 to sit in the rear seat and wear safety belts and designing improved airbag systems.