

Side Airbags Save Lives Without Increasing Collision Losses
Rebecca Trempel, Statistician, Highway Loss Data Institute

Side airbags debuted on the 1995 Volvo 850. Initially side airbags were available mainly on luxury cars and luxury SUVs but have now increased in popularity and were installed in more than 70 percent of 2006 passenger vehicle models.. Side airbags come in several forms (curtain, pillow, and tube) and can be mounted in the seat, door, and/or roof. Depending on the location and type of airbag, the system protects an occupant's head and/or torso (chest and abdomen) in side impacts. Side airbag replacement costs vary significantly by vehicle series. Excluding other vehicle damage, costs range from a few hundred dollars (e.g., Chrysler PT Cruiser) to more than \$5,000 (e.g., Toyota Camry) but typically are \$1,000 to \$3,000 (e.g., Honda Accord).

Research by the Insurance Institute for Highway Safety (IIHS) shows that side impact airbags that provide head protection are reducing driver deaths in cars struck on the near (driver) side by an estimated 37 percent. Airbags that protect the torso but not the head are reducing deaths by 16 percent.

The Highway Loss Data Institute (HLDI) recently examined side airbag deployments and the effect of side airbags on collision losses. Deployment results were based on the presence of side airbag replacements in the damage repair data provided by CCC Information Services Inc. Although some airbag replacements may have been due to causes other than deployments, it was assumed that the majority were due to deployments from impacts. Claims from selected 2000-05 models with optional or standard side airbags were used in the deployment analyses. The analyses were based on almost 600,000 collision and property damage liability (PDL) claims with about 12,800 side airbag deployments.

HLDI looked at the deployment rates for side and front airbags by coverage and damage amount based on selected 2000-05 models. For collision and PDL claims combined, deployment rates were 2.2 percent for side airbags and 3.9 percent for front airbags. For damage amounts less than \$5,000, only 0.3 percent of claims involved side or front airbag deployments. This percentage increased rapidly as the amount of damage increased, with side airbag deployments in 6.6 percent of claims of \$5,000-\$10,000 and in 20.4 percent of claims of more than \$10,000. Side airbag deployment rates can vary significantly at the vehicle series level because of differences in airbag design and vehicle characteristics.

Collision losses were examined in two ways: comparing losses before and after side airbags were introduced and comparing vehicles with and without side airbags for vehicle series with VIN-discernible optional side airbags. Results are presented in relative terms, with 100 equaling the all-passenger-vehicle average. Relative results control for vehicle aging and trends in losses across calendar periods. Results across model years were computed by taking an exposure-based weighted average.

HLDI then examined the collision losses for 1998-2005 models before and after standard side airbags were introduced. Results are an exposure-weighted total of the 15 individual vehicle series that added standard side airbags with no concurrent redesign. Model years spanned from 1998 to 2005 but were fewer for most vehicles due to

redesigns. Losses are reported in relative terms with 100 representing the average collision loss for all vehicles. Model years after side airbags were introduced had slightly lower claim frequencies (102 vs. 104) and slightly higher average loss payments per claim (90 vs. 88) than the model years before side airbags. These results combined to produce no change in overall losses—91 for model years both before and after side airbags were introduced.

HLDI also looked at relative collision losses by side airbag availability for 2000-05 models with VIN-discernible optional side airbags. Results are an exposure-weighted total of the 69 individual vehicle series. Vehicles with side airbags, compared with vehicles without side airbags, had slightly lower claim frequencies (103 vs. 106) and slightly higher average loss payments per claim (94 vs. 92). Overall losses were equal for the two groups (97).

Conclusion

IIHS research has found that side airbags are reducing driver fatalities in side crashes. When HLDI looked at collision losses for vehicles with and without side airbags, it found that the addition of side airbags had no significant effect on collision losses. Thus, the installation of side airbags is a win-win situation – lives are being saved and insurance crash damage losses are not increasing.