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Verifying Effects of Safety Technology: Side Impact Airbags

To investigate the effects of safety equipment in vehicles, comparisons were made between similar Crash Injury Research and Engineering Network (CIREN) cases with and without side airbags and crash outcomes were evaluated. A twelve point scoring system was used to select CIREN cases similar to regulatory crash test conditions. Scoring was then used to identify paired cases with similar crash and occupant characteristics, with and without side or curtain airbag deployment. Finally, cases with key dissimilar safety system attributes were analyzed. Four pairs of cases were chosen to verify the effect of side impact safety systems. The first comparison examined an older driver in a higher speed crash with a lower ISS and no head injuries versus a driver without side and curtain airbags suffering serious head and chest injuries with a higher ISS. The second case was fatal for the case occupant without side airbags, while the case occupant with side airbags was unbelted with a lower ISS. The third and fourth cases listed the interior door surface and b-pillar as the contacts for occupants without side airbag deployment. Both of these case occupants suffered MAIS 4 chest injuries, while the case occupants with deployed side airbags suffered no internal chest injuries. This study demonstrated a method for investigating crashes similar to regulatory conditions, similar to each other, and differing in key ways to evaluate the benefits of safety systems. These methods will be useful in the future to examine other crash types and safety systems on an extended number of cases using both CIREN and NASS. The methods may be extended to larger datasets for more population-based analyses. Quantitatively-chosen case pairs provide unique and beneficial information regarding the effectiveness of side airbags in near side impact collisions.