



## Impact of Honda Accord collision avoidance features on claim frequency by rated driver age

### ► Summary

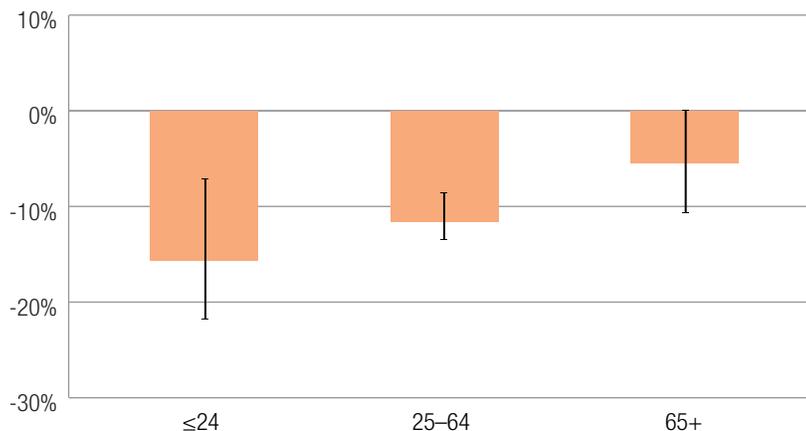
The Insurance Institute for Highway Safety and the Highway Loss Data Institute (HLDI) have done a significant amount of research on collision avoidance systems, and the insurance loss benefits for front crash prevention are clear. These systems are associated with claim frequency reductions for all crash-related coverage types. Evaluations of police reported crashes show reductions in front-to-rear crashes and associated injuries. There are however additional questions related to front crash prevention systems that need to be answered. One such question involves examining the extent to which the benefits of front crash prevention systems vary by rated driver age. The Honda Accord offers a unique opportunity to offer insights into this secondary question for several reasons. The Honda Accord is a popular passenger car and is one of the best-selling vehicles in America, thus the many units sold provide enough data to examine losses by driver age. Additionally, the Honda Accord is offered with just three vehicle variants (sedan, coupe and crosstour) and a limited number of features making this fairly homogenous group of 2013-15 vehicles unique. In contrast, prior HLDI analysis of Mercedes-Benz vehicles examined approximately a dozen features across multiple vehicle types of varying prices and vehicle types.

HLDI has shown Honda's forward collision warning FCW/LDW feature to be beneficial while results for LaneWatch are mixed (HLDI, 2017). The purpose of this analysis is to continue to evaluate the effects of these systems by rated driver age. Prior studies indicated that the FCW/LDW system was associated with the largest benefits for the youngest age group (HLDI, 2015, 2016). However, the results for the youngest group were based on the least exposure, and consequently, had the largest confidence bounds. As in prior studies, results in this update indicate that the youngest drivers benefit the most from the technology, as shown in the following figure. The added exposure has narrowed the confidence bounds.

The BI liability claim frequency benefit was largest for the youngest driver group as in prior analyses. It is however smaller than previously reported and not statistically different from the benefits for older drivers.

Honda's LaneWatch system is Honda's passenger-side blind spot detection system and is showing reductions across all coverage types and age groups. The additional exposure led many of the results for LaneWatch to now be statistically significant. The property damage liability (PDL) benefits for the oldest group (11 percent) were slightly higher than the other two groups. (9-10 percent). However, the observed benefits may not be due to LaneWatch but to other differences between vehicles with and without the feature.

**Change in PDL claim frequency by rated driver age for FCW and LDW**



## ► Introduction

This Highway Loss Data Institute (HLDI) bulletin provides an updated look at the effects of available Honda Accord collision avoidance systems on insurance losses by rated driver age. Earlier HLDI (2015, 2016) studies found these systems are beneficial, especially for rated drivers younger than 25. This HLDI bulletin updates prior analyses with more exposure. The features included in this analysis are as follows:

**Forward Collision Warning (FCW)** uses a camera system located behind the windshield to assess the risk of a collision with leading traffic. The warning system has three driver-selectable range settings. When a potential crash is detected, lights flash in the heads-up display, the FCW indicator blinks, and there is continuous beeping. The system is active only at speeds over 10 mph and can be deactivated by the driver. At each ignition cycle, the system defaults to the previous on/off setting. Vehicles with FCW also have LDW.

**Lane Departure Warning (LDW)** utilizes the same camera as forward collision warning to also identify traffic lane markings. Audio and visual warnings will indicate if the vehicle path deviates from the intended lane. The system is functional at speeds between 40 and 90 mph, but does not warn if the turn signal is on or the movement is determined to be sufficiently sudden as to be evasive. The system can be deactivated by the driver. At each ignition cycle, the system defaults to the previous on/off setting.

**LaneWatch** is Honda's term for a passenger-side-only blind spot monitor. A camera mounted behind the external passenger-side rearview mirror monitors the passenger side of the vehicle, and displays an 80-degree field of view on the console-mounted information screen when the turn signal indicator is activated. Reference lines are also provided to indicate proximity. Both the turn signal indicator and reference lines are driver-controllable settings and can be deactivated. An upcoming navigation system instructions/maneuver can also be given priority over the LaneWatch display. LaneWatch can be deactivated by the driver. At each ignition cycle, the system defaults to the previous on/off setting.

All the vehicles in this study were equipped with rear cameras. Because there were no vehicles without this feature, camera effectiveness could not be evaluated in this analysis. The vehicles in this analysis also may have been equipped with optional rear parking sensors. This feature was not controlled for in the analysis, because the availability of rear parking sensors on a vehicle was not discernible from the vehicle identification number (VIN).

## ► Methods

### Vehicles

Several trim levels are offered on the vehicles included in this study. Trim levels are bundles of vehicle options such as interior materials, engines, and comfort, convenience, and safety features. For example, the Honda Accord EX-L V6 is equipped with a 6-cylinder motor, leather seats, and several collision avoidance technologies. The less expensive LX is equipped with cloth seats, a 4-cylinder motor, and no collision avoidance technologies. For the Honda vehicles included in this study, the trim levels can be determined in the first 10 positions of the VIN. The collision avoidance features in this study are either standard or not available at the trim level. Consequently, by knowing the trim level, the presence of the collision avoidance features is known.

LaneWatch and the combination of FCW and LDW are offered as standard equipment on several 2013–15 Honda Accord models (trims). The Touring trim level of the Accord four-door was excluded from the analysis, because it is equipped with a different FCW system that uses a radar system instead of a camera and includes adaptive cruise control functionality. A prior HLDI analysis (2017) indicated this system also is associated with reductions in losses. However, there is too little data by rated driver age to study in the current report. Honda Accord vehicles without these features served as the control vehicles in the current report.

**Table 1** lists the exposure (measured in insured vehicle years) for the age groups included in the analysis. Seventy-five percent of the exposure is in the 25–64 age group, followed by 19 percent for drivers 65 and older, and 6 percent for the youngest age group (24 and younger).

<b>Table 1: 2013–15 Honda Accord collision exposure by rated driver age</b>			
<b>Age</b>	<b>December 2015 exposure</b>	<b>December 2016 exposure</b>	<b>Current exposure</b>
≤24	64,154	113,614	163,871
25–64	771,854	1,356,598	1,941,338
65+	197,308	334,576	493,109

## Rated drivers

The rated driver is the driver who is considered to represent the greatest loss potential for the insured vehicle. In a multiple-vehicle/driver household, how a driver is assigned to a vehicle can vary by insurance company and state. Information on the actual driver at the time of a loss is not available in the HLDI database. In the current study, the rated driver age groups were 24 and younger, 25–64, and 65 and older.

## Insurance data

Automobile insurance covers damages to vehicles and property in crashes plus injuries to people involved in crashes. Different insurance coverages pay for vehicle damage versus injuries, and different coverages may apply depending on who is at fault. The current study is based on PDL, collision, BI liability, personal injury protection (PIP), and medical payment (MedPay) coverages. Exposure is measured in insured vehicle years. An insured vehicle year is one vehicle insured for 1 year, two vehicles insured for 6 months, etc.

Because different crash avoidance features may affect different types of insurance coverage, it is important to understand how coverages vary among the states and how this affects inclusion in the analyses. Collision coverage insures against vehicle damage to an at-fault driver’s vehicle sustained in a crash with an object or other vehicle; this coverage is common to all 50 states. PDL coverage insures against physical damage that at-fault drivers cause to other people’s vehicle and property in crashes; this coverage exists in all states except Michigan, where vehicle damage is covered on a no-fault basis (each insured vehicle pays for its own damage in a crash, regardless of who is at fault).

Coverage of injuries is more complex. BI liability coverage insures against medical, hospital, and other expenses for injuries that at-fault drivers inflict on occupants of other vehicles or others on the road. Although motorists in most states may have BI liability coverage, this information is analyzed only in states where the at-fault driver has first obligation to pay for injuries (in the 33 states with traditional tort insurance systems). MedPay coverage, also sold in the 33 states with traditional tort insurance systems, covers injuries to insured drivers and the passengers in their vehicles, but not injuries to people in other vehicles involved in the crash. Seventeen other states employ no-fault injury systems (personal injury protection coverage, or PIP) that pay up to a specified amount for injuries to occupants of involved-insured vehicles, regardless of who is at fault in a collision. The District of Columbia has a hybrid insurance system for injuries and is excluded from the injury analysis.

## Statistical methods

Regression analysis was used to quantify the effect of FCW/LDW by rated driver age while controlling for other covariates. The covariates included calendar year, model year, garaging state, vehicle density (number of registered vehicles per square mile), rated driver gender, rated driver marital status, deductible range (collision coverage only), and risk. For each safety feature studied, a variable was included. Claim frequency was modeled using a Poisson distribution and a logarithmic link function. A separate regression was performed for each age group for a total of three regressions per feature per coverage.

## ► Results

Results for Honda Accord's FCW system including LDW for rated drivers younger than 25 are summarized in **Table 2**. The lower and upper bounds represent the 95 percent confidence limits for the estimates. For vehicle damage losses, claim frequency and overall losses are down. Only the PDL claim frequency and PDL overall loss reductions are significant (indicated in bold in the table).

For the injury-related coverage types, BI liability and MedPay claim frequencies show reductions, with the large BI liability reduction being significant. Among paid claims, BI liability claim frequency shows a benefit with significantly fewer low-severity claims.

**Table 2: Change in insurance losses for Forward Collision Warning (FCW) and Lane Departure Warning (LDW), for rated drivers younger than 25**

Vehicle damage coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	SEVERITY	Upper bound	Lower bound	OVERALL LOSSES	Upper bound
	Collision	-7.2%	-1.6%	4.3%	-\$273	\$72	\$439	-\$58	-\$2
Property damage liability	-22.4%	<b>-15.6%</b>	-8.3%	-\$190	\$117	\$450	-\$52	<b>-\$30</b>	-\$5

Injury coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	LOW SEVERITY FREQUENCY	Upper bound	Lower bound	HIGH SEVERITY FREQUENCY	Upper bound
	Bodily injury liability	-39.4%	<b>-25.5%</b>	-8.3%	-53.2%	<b>-33.1%</b>	-4.5%	-47.1%	-25.4%
Medical payment	-23.2%	-0.7%	28.4%	-52.4%	1.4%	116.1%	-24.3%	11.5%	64.2%
Personal injury protection	-9.7%	9.6%	32.9%	-28.9%	12.7%	78.6%	-10.3%	16.7%	51.8%

Results for Honda Accord's FCW system including LDW for rated drivers 25–64 are summarized in **Table 3**. Significant reductions in claim frequency are estimated for both first- and third-party vehicle damage coverages. Claim severities and overall losses are also down significantly for PDL.

For injury coverages, the frequency of claims is significantly lower for all three coverage types. Among paid claims, claim frequency shows benefits, with nearly all reductions being significant.

**Table 3: Change in insurance losses for Forward Collision Warning (FCW) and Lane Departure Warning (LDW), for rated drivers 25–64**

Vehicle damage coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	SEVERITY	Upper bound	Lower bound	OVERALL LOSSES	Upper bound
	Collision	-5.6%	<b>-3.9%</b>	-2.1%	-\$14	\$82	\$181	-\$19	-\$8
Property damage liability	-14.2%	<b>-11.6%</b>	-8.9%	-\$224	<b>-\$130</b>	-\$32	-\$22	<b>-\$18</b>	-\$13

Injury coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	LOW SEVERITY FREQUENCY	Upper bound	Lower bound	HIGH SEVERITY FREQUENCY	Upper bound
	Bodily injury liability	-25.8%	<b>-19.9%</b>	-13.5%	-32.8%	<b>-23.0%</b>	-11.9%	-30.0%	<b>-20.0%</b>
Medical payment	-28.4%	<b>-23.2%</b>	-17.5%	-38.9%	<b>-25.2%</b>	-8.4%	-28.2%	<b>-20.4%</b>	-11.7%
Personal injury protection	-15.4%	<b>-10.4%</b>	-5.1%	-18.7%	-6.2%	8.3%	-17.9%	<b>-11.5%</b>	-4.5%

Results for Honda Accord’s FCW system including LDW for rated drivers 65 and older are summarized in **Table 4**. For PDL coverage, all measures of loss are down significantly. For collision coverage, claim frequency increased slightly whereas claim severity and overall losses were reduced.

For injury coverages, the frequency of claims is lower for all three coverage types. Reductions for BI liability and MedPay were statistically significant. Among paid claims, claim frequency shows a benefit, with some reductions being significant.

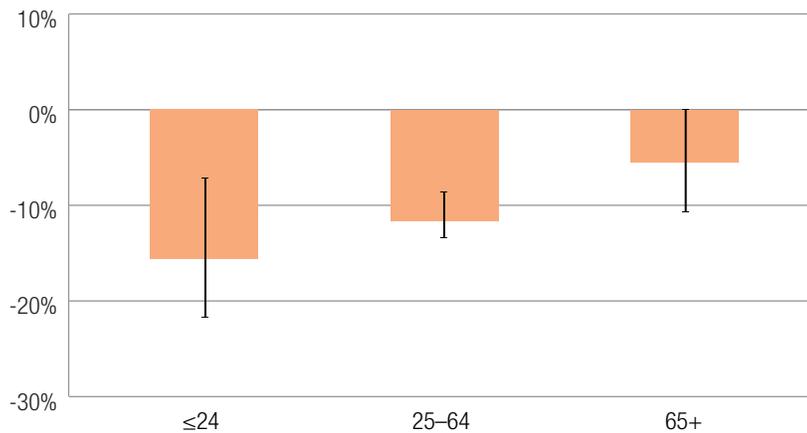
Table 4: Change in insurance losses for Forward Collision Warning (FCW) and Lane Departure Warning (LDW), for rated drivers 65+									
Vehicle damage coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	SEVERITY	Upper bound	Lower bound	OVERALL LOSSES	Upper bound
	Collision	-0.9%	2.8%	6.5%	-\$414	<b>-\$266</b>	-\$112	-\$31	-\$14
Property damage liability	-10.8%	<b>-5.5%</b>	0.0%	-\$408	<b>-\$247</b>	-\$75	-\$22	<b>-\$14</b>	-\$6

Injury coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	LOW SEVERITY FREQUENCY	Upper bound	Lower bound	HIGH SEVERITY FREQUENCY	Upper bound
	Bodily injury liability	-32.6%	<b>-19.6%</b>	-4.1%	-47.8%	<b>-28.7%</b>	-2.8%	-51.5%	<b>-35.9%</b>
Medical payment	-34.0%	<b>-22.2%</b>	-8.3%	-42.7%	-9.1%	44.2%	-42.3%	<b>-27.6%</b>	-9.0%
Personal injury protection	-22.0%	-10.7%	2.3%	-39.3%	-15.8%	16.7%	-20.4%	-4.2%	15.3%

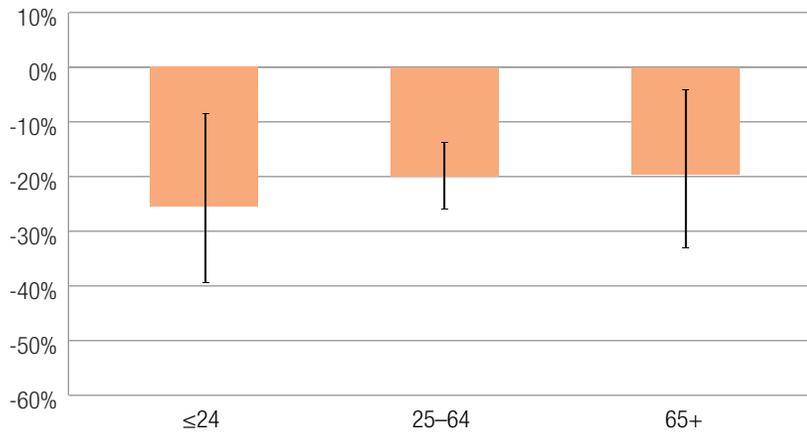
**Figure 1** summarizes the changes in PDL claim frequency for Honda’s FCW system including LDW by rated driver age. Reductions ranged from 5.5 percent for drivers 65 and older to 15.6 percent for the youngest drivers. Significant reductions were seen for all drivers regardless of age.

**Figure 1: Change in property damage liability claim frequency by rated driver age for FCW and LDW**



**Figure 2** summarizes the changes in BI liability claim frequency for Honda’s FCW/LDW system by rated driver age. The largest effect was for the youngest drivers, with a significant 25.5 percent reduction in claim frequency. Reductions also were quite large for the other age groups, with the 20 percent reductions for the other age groups being significant.

**Figure 2: Change in bodily injury liability claim frequency by rated driver age for FCW and LDW**



Results for Honda Accord’s LaneWatch system for rated drivers younger than 25 are summarized in **Table 5**. Reductions in all measures of loss are estimated for both first- and third-party vehicle damage coverages. The claim frequency reductions for both coverages as well as the decline in overall losses were statistically significant.

For injury coverages, the frequency of claims is lower for all coverage types with MedPay and PIP reductions being statistically significant. Among paid claims, claim frequency shows some significant benefits for high-severity claims.

**Table 5: Change in insurance losses for LaneWatch, for rated drivers under 25**

Vehicle damage coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	SEVERITY	Upper bound	Lower bound	OVERALL LOSSES	Upper bound
Collision	-13.2%	<b>-8.4%</b>	-3.4%	-\$453	-\$146	\$179	-\$120	<b>-\$74</b>	-\$24
Property damage liability	-15.8%	<b>-9.2%</b>	-2.0%	-\$432	-\$171	\$109	-\$52	<b>-\$31</b>	-\$8

Injury coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	LOW SEVERITY FREQUENCY	Upper bound	Lower bound	HIGH SEVERITY FREQUENCY	Upper bound
Bodily injury liability	-22.8%	-7.2%	11.6%	-25.3%	2.1%	39.6%	-33.0%	-8.7%	24.4%
Medical payment	-40.0%	<b>-23.9%</b>	-3.5%	-66.1%	-32.3%	35.4%	-53.5%	<b>-33.4%</b>	-4.4%
Personal injury protection	-33.8%	<b>-20.8%</b>	-5.2%	-44.4%	-14.6%	31.1%	-41.3%	<b>-24.9%</b>	-4.0%

Results for Honda Accord's LaneWatch system for rated drivers age 25–64 are summarized in **Table 6**. Reductions in all measures of loss are estimated for both first- and third-party vehicle damage coverages. Nearly all the reductions are significant. The exception is PDL claim severity.

For injury coverages, the frequency of claims is lower for all three coverage types. The reductions for BI liability and PIP are statistically significant. Among paid claims, claim frequency shows a benefit, especially among higher severity claims.

**Table 6: Change in insurance losses for LaneWatch, for rated drivers 25-64**

Vehicle damage coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	SEVERITY	Upper bound	Lower bound	OVERALL LOSSES	Upper bound
Collision	-5.9%	<b>-4.2%</b>	-2.6%	-\$313	<b>-\$227</b>	-\$139	-\$46	<b>-\$36</b>	-\$26
Property damage liability	-12.1%	<b>-9.7%</b>	-7.1%	-\$104	-\$12	\$83	-\$16	<b>-\$12</b>	-\$8

Injury coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	LOW SEVERITY FREQUENCY	Upper bound	Lower bound	HIGH SEVERITY FREQUENCY	Upper bound
Bodily injury liability	-20.2%	<b>-14.4%</b>	-8.2%	-19.5%	-8.8%	3.2%	-29.3%	<b>-20.0%</b>	-9.4%
Medical payment	-10.0%	-3.8%	2.8%	-14.1%	3.9%	25.7%	-18.0%	<b>-9.6%</b>	-0.4%
Personal injury protection	-15.1%	<b>-10.4%</b>	-5.5%	-21.7%	-10.4%	2.5%	-17.1%	<b>-11.1%</b>	-4.6%

Results for Honda Accord's LaneWatch system for rated drivers 65 and older are summarized in **Table 7**. Significant reductions in claim frequency are estimated for both first- and third-party vehicle damage coverages. Overall losses are also down significantly for both coverage types while claim severities are up.

For injury coverages, the frequency of claims is lower for all coverage types with BI liability and PIP estimates being significant. Among paid claims, results are mixed with only one significant benefit.

**Table 7: Change in insurance losses for LaneWatch, for rated drivers 65+**

Vehicle damage coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	SEVERITY	Upper bound	Lower bound	OVERALL LOSSES	Upper bound
Collision	-12.0%	<b>-8.8%</b>	-5.5%	-\$99	\$63	\$232	-\$41	<b>-\$24</b>	-\$7
Property damage liability	-16.1%	<b>-11.3%</b>	-6.1%	-\$68	\$112	\$303	-\$17	<b>-\$9</b>	\$0

Injury coverage type	Lower bound	FREQUENCY	Upper bound	Lower bound	LOW SEVERITY FREQUENCY	Upper bound	Lower bound	HIGH SEVERITY FREQUENCY	Upper bound
Bodily injury liability	-30.9%	<b>-17.8%</b>	-2.3%	-33.2%	-9.6%	22.2%	-27.0%	-4.3%	25.5%
Medical payment	-23.2%	-9.6%	6.4%	-41.7%	-7.2%	47.8%	-25.3%	-6.6%	16.9%
Personal injury protection	-26.5%	<b>-16.1%</b>	-4.2%	-32.1%	-6.5%	28.7%	-38.5%	<b>-26.3%</b>	-11.7%

## Comparison results

**Table 8** shows the differences in the claim frequency estimates for the FCW system with LDW by rated driver age for the three HLDI bulletins. The results for the FCW/LDW system show a small, if any, benefit for collision coverage across the age groups. However, for PDL, claim frequency is reduced significantly. For the injury coverages, reductions are seen across all coverage types and age groups with one exception. Many of the reductions are now significant.

**Table 8: Change in Forward Collision Warning (FCW) and Lane Departure Warning (LDW) claim frequencies, initial vs. updated results**

Vehicle damage coverage type	≤25			25–64			65+		
	December 2015	December 2016	Current	December 2015	December 2016	Current	December 2015	December 2016	Current
Collision	0.4%	-0.1%	-1.6%	<b>-2.9%</b>	<b>-3.0%</b>	<b>-3.9%</b>	0.9%	2.3%	2.8%
Property damage liability	<b>-14.9%</b>	<b>-12.5%</b>	<b>-15.6%</b>	<b>-10.4%</b>	<b>-11.8%</b>	<b>-11.6%</b>	-7.4%	<b>-7.4%</b>	<b>-5.5%</b>
<b>Injury coverage type</b>									
Bodily injury liability	<b>-44.5%</b>	<b>-35.6%</b>	<b>-25.5%</b>	<b>-19.7%</b>	<b>-19.2%</b>	<b>-19.9%</b>	-25.2%	-19.2%	<b>-19.6%</b>
Medical payment	-9.1%	-6.2%	-0.7%	<b>-23.1%</b>	<b>-21.1%</b>	<b>-23.2%</b>	-18.4%	<b>-29.7%</b>	<b>-22.2%</b>
Personal injury protection	21.5%	3.6%	9.6%	-8.5%	<b>-8.6%</b>	<b>-10.4%</b>	-11.5%	<b>-16.9%</b>	-10.7%

**Table 9** shows the differences in the claim frequency estimates for LaneWatch by rated driver age for the three HLDI bulletins. The results show significant reductions across the age groups for collision and PDL. Results for the injury coverages are encouraging, with many significant reductions.

**Table 9: Change in LaneWatch claim frequencies, initial vs. updated results**

Vehicle damage coverage type	≤25			25–64			65+		
	December 2015	December 2016	Current	December 2015	December 2016	Current	December 2015	December 2016	Current
Collision	-7.8%	<b>-8.8%</b>	<b>-8.4%</b>	<b>-3.5%</b>	<b>-4.4%</b>	<b>-4.2%</b>	<b>-7.4%</b>	<b>-8.7%</b>	<b>-8.8%</b>
Property damage liability	-7.1%	<b>-10.4%</b>	<b>-9.2%</b>	<b>-9.4%</b>	<b>-8.9%</b>	<b>-9.7%</b>	-7.9%	<b>-8.9%</b>	<b>-11.3%</b>
<b>Injury coverage type</b>									
Bodily injury liability	—	4.8%	-7.2%	<b>-18.7%</b>	<b>-15.8%</b>	<b>-14.4%</b>	-3.2%	-12.8%	<b>-17.8%</b>
Medical payment	-16.5%	-17.0%	<b>-23.9%</b>	-3.1%	-4.3%	-3.8%	-8.9%	4.7%	-9.6%
Personal injury protection	-22.5%	-17.0%	<b>-20.8%</b>	<b>-11.2%</b>	<b>-13.0%</b>	<b>-10.4%</b>	-17.5%	-13.9%	<b>-16.1%</b>

## ► Discussion

FCW systems are designed to prevent or mitigate front-to-rear crashes, which typically result in PDL and BI claims if an injury occurs in the struck vehicle. In a prior HLDI analysis of the Honda FCW/LDW system, large significant claim frequency benefits were observed (2017).

Two previous HLDI studies evaluated the benefits of these systems by rated driver age groups (2015, 2016). While benefits were observed for all age groups, the largest frequency reductions were associated with the youngest age group. However, the youngest age group had the least exposure and the estimates had large confidence bounds.

In the current study, exposure for the youngest group has more than doubled since the initial 2015 study. The youngest age group continues to show the largest PDL and BI claim frequency reductions for FCW/LDW. However, the estimate for BI claims dropped from 44.5 percent in 2015 to 35.6 percent in 2016, and to 25.5 percent in 2017. This a

large change, and the prior and updated estimates were statistically significant. Young drivers have the highest claim frequency of any age, and this research suggests that the youngest drivers may benefit the most from a FCW/LDW system. These results are consistent with prior HLDI (2014) research that found young drivers have more frontal crashes than drivers of other ages.

LaneWatch, a passenger-side blind spot detection system, is designed to prevent incursion into an occupied adjacent lane that would be expected to result in a two-vehicle crash leading to a PDL claim against the encroaching driver. With the additional exposure, many of the results for LaneWatch are now statistically significant. The PDL benefit for the oldest group (11.3 percent) was slightly higher than the other two groups (9-10 percent). For all age groups, the estimated reduction in PDL claims is larger than the reduction estimated for collision claims. This is consistent with the fact that the reductions in collision claims from such crashes would be diluted by the many single-vehicle crashes that result in collision claims and are unaffected by the LaneWatch system.

As previously mentioned, the collision avoidance systems are tied to the vehicle trim levels. In prior HLDI studies on the Honda systems, a supplemental analysis was performed to ensure that the measured differences were attributable to the collision avoidance features and not the trim levels. The supplemental analysis used loss data for model year 2012 Honda Accord vehicles. Although the Honda Accord was redesigned in 2013, the trim levels in 2012–15 were comparable. The inclusion of loss data for the 2012 model year, in which no crash avoidance features were present, allowed the supplemental analysis to include the vehicle trim level in addition to the control variables used in the primary analysis.

Thus, the supplemental analysis assumes that loss differences attributable to the different trim levels were the same in both model years. Results for the FCW/LDW system in both the primary and supplemental analysis were consistent. However, the supplemental estimates for the LaneWatch system are showing increased PDL claim frequencies. This suggests that the positive results may not be due to LaneWatch but to other, uncontrolled factors (HLDI, 2017). Because the data for the youngest and oldest rated drivers in this report are somewhat limited, this supplemental analysis cannot be conducted reliably. As the data matures, similar results are expected.

## ► Next steps

Future analysis includes performing similar analysis on other collision avoidance systems previously evaluated by HLDI.

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