



## Passenger Vehicle Driver Cell Phone Use Results from the Fall 2000 National Occupant Protection Use Survey

by Dennis Utter

### Background

Driver distraction as a cause of motor vehicle traffic crashes has become an increasingly important issue. A 1996 study<sup>1</sup> published by the National Highway Traffic Safety Administration found that driver distraction in all its various forms probably contributes to between 20 and 30 percent of all crashes. In 1999, data from the Fatality Analysis Reporting System revealed that driver distraction was a contributing factor in 11 percent of fatal crashes involving 4,462 fatalities. Additionally, the NASS General Estimates System estimated that various forms of driver distraction contributed to between 25 and 30 percent of injury and property-damage-only crashes.

Driver distraction and inattention can come from factors inside and outside of the vehicle. Observing passing scenery and/or persons outside of the vehicle can distract a driver from controlling the vehicle. Inside a vehicle a driver can be distracted by discussions with other vehicle occupants, eating or drinking, or attending to any of the numerous electronic devices found in the vehicle, primarily the radio or other sound system equipment. As more vehicles become equipped with other electronic devices such as navigational aids, the potential for driver distraction will increase.

Another source of potential driver distraction that has received much recent attention is the use of cell phones. The use of cell phones has been variously reported as contributing to the cause of a significant number of traffic crashes. Many states and localities have considered restricting cell phone use in moving vehicles within their jurisdictions. Even the use of cell phones with the aid of "hands-free" devices can distract drivers, although the use of such equipment does permit the driver to keep both hands on the steering wheel.

The actual contribution of cell phone use as a

contributing factor or cause of a motor vehicle crash is difficult to quantify. The mere presence of a cell phone in a vehicle does not indicate that it was in use just prior to a crash or that its use contributed to the cause of the crash. Also, because of potential liability issues, drivers who were using a cell phone prior to a crash are not likely to report that fact to an investigating police officer.

Quantifying the actual use of cell phones by motor vehicle drivers while they are driving is difficult. Anecdotally, most people can cite numerous instances where they were driving and observed someone using a cell phone and, often, driving slow or erratically. The 2000 Motor Vehicle Occupant Safety Survey, a telephone survey conducted by the National Highway Traffic Safety Administration (NHTSA) from November 2000 to January 2001 and whose results will be published later this year, estimated that 54 percent of drivers "usually" have some type of wireless phone in their vehicle with them. Fifty-five percent of these drivers report that their phone is on during "all" or "most" of their trips and 73 percent reported using their phone while driving.

These estimates, however, are not an indication of how many drivers are actually using their cell phone at any specified time. To obtain such an estimate, actual cell phone use by drivers while they are in the act of driving would need to be observed. NHTSA concluded that such observations could be made through its National Occupant Protection Use Survey (NOPUS) to obtain National estimates of driver cell phone use. In the NOPUS, trained data collectors obtain shoulder belt use data through observation of motor vehicle occupants and National shoulder belt use rates are estimated. NOPUS data collection protocols were expanded to include observation of driver hand-held cell phone use, and such information was collected during the NOPUS conducted during October and November 2000.

### Results

Tables 1 - 4 present National estimates of passenger vehicle driver **hand-held cell phone** use for all passenger vehicles and by type of passenger vehicle - passenger cars, vans and sport utility vehicles (SUVs),

<sup>1</sup>Wang J-S, Knipling RR, and Goodman MJ (Presented August 1996). The Role of Driver Inattention in Crashes; New statistics from the 1995 Crashworthiness Data System, Proceedings of the 40th Annual Meeting of the Association for the Advancement of Automotive Medicine, October 7-9, 1996, Vancouver, British Columbia.

and pickup trucks (pickups). Table 1 also shows use by geographic Region. Table 2 shows use by Day-of-Week and Time-of-Day. Table 3 shows use by Type of Area. Table 4 shows use by selected driver characteristics.

## Estimates and Sampling Error

Each estimate in the tables is shown with its corresponding sampling error (expressed in percentage points) in parentheses. Because estimates from the NOPUS are based on a sample, they are statistically weighted according to the sample design and are subject to sampling error. Adding and subtracting twice the sampling error from the corresponding estimate will produce an approximate 95 percent confidence interval for the estimate. This means that one can be 95 percent confident that the true use rate lies within this interval.

## Findings

Nationally, overall **hand-held cell phone use** by drivers of passenger vehicles (Table 1) was estimated at 3 percent. This means that **at any given time during daylight hours, about 3 percent of drivers of passenger cars, vans, SUVs, and pickups are actively using a cell phone**. Assuming that the 200 million registered passenger vehicles are driven on public roads for an average of one hour during daylight hours, there are an average of about 16.7 million passenger vehicles on the roads during any given daylight hour; in turn, this translates into approximately one-half million drivers using cell phones at any given time. The 2000 Motor Vehicle Occupant Safety Survey also estimated that 73 percent of drivers who said they usually have a wireless phone in their vehicle with them use a hand-held cell phone and an additional 22 percent use "hands-free" equipment. Extrapolating this result to the NOPUS hand-held cell phone observations results in an additional 0.9 percent of drivers using "hands-free" cell phones for a total of 3.9 percent (or more than 600,000) of drivers actively using cell phones at any one time.

Table 1 also shows that the highest National use rates were observed for drivers of vans and sport utility vehicles (SUVs). Drivers of vans and SUVs also had

the highest use rates in the Midwest, South and West. In the Northeast, use rates for passenger car drivers and for drivers of vans and SUVs were essentially the same (3.0 percent and 2.9 percent, respectively). The lowest overall National use rate was observed for drivers of pickup trucks. However, pickup truck driver use was higher than passenger car driver use in the Midwest and West.

Cell phone use by drivers was higher on weekdays than on weekends (Table 2). On weekends, the use rate for drivers of pickups exceeded the use rates for drivers of passenger cars and drivers of vans and SUVs. On weekdays, use rates by drivers of vans and SUVs was higher than that of drivers of other vehicles. The highest use rate observed during this survey (8 percent) was by drivers of vans and SUVs during non-rush hours. Use rates by drivers of all types of vehicles were almost twice as high during non-rush hours as during rush hours.

From Table 3, it can be seen that overall cell phone use rates were slightly higher in suburban areas than in rural areas (3.4 percent compared to 3 percent). Again, use rates by drivers of vans and SUVs were the highest in all areas. Also, use rates by drivers of pickups continued to be lower than for other vehicles, except in rural areas. In rural areas they were higher than the use rate of passenger car drivers (3.2 percent compared to 1.9 percent).

Table 4 shows some differences in use rates by driver characteristics. Female drivers were observed using a cell phone more frequently than male drivers. This was especially true for female drivers of vans and SUVs, where use rates were almost twice as high as male drivers (6.1 percent compared to 3.2 percent). There was little difference in cell phone use by drivers in the Young Adult or Adult age groups. However, use by Seniors was much less. Finally, use by drivers classified as "White" was higher than use by Black drivers or drivers of other races (3.7 percent compared to 2.3 and 1.7 percent, respectively).

Vehicle Type	Overall	Region			
		Northeast	Midwest	South	West
<b>All Passenger Vehicles</b>	3.0 (0.5)	2.9 (1.2)	3.5 (1.1)	3.5 (0.9)	2.2 (0.7)

<b>Passenger Cars</b>	2.6 (0.5)	3.0 (1.0)	2.2 (0.8)	3.2 (1.0)	2.0 (0.9)
<b>Vans and SUVs</b>	4.8 (1.0)	2.9 (2.2)	5.9 (2.5)	6.6 (2.1)	3.0 (1.4)
<b>Pickups</b>	1.9 (0.6)	0.6 (0.6)	3.6 (2.7)	1.2 (0.6)	2.3 (1.2)

<b>Table 2</b> <b>Observed Driver Cell Phone Use Rates by Vehicle Type, Day-of-Week and Time-of-Day</b> <b>NATIONAL OCCUPANT PROTECTION USE SURVEY, Controlled Intersection Study, Fall 2000</b> <b>(Estimates and Sampling Errors in Percentages)</b>					
<b>Vehicle Type</b>	<b>Overall</b>	<b>Day-of-Week</b>		<b>Time-of-Day</b>	
		<b>Weekday<sup>1</sup></b>	<b>Weekend</b>	<b>Rush Hour<sup>2</sup></b>	<b>Non-Rush Hour</b>
<b>All Passenger Vehicles</b>	3.0 (0.5)	3.2 (0.6)	2.2 (0.4)	2.4 (0.5)	4.7 (0.9)
<b>Passenger Car</b>	2.6 (0.5)	2.8 (0.6)	2.0 (0.8)	2.1 (0.5)	4.0 (0.9)
<b>Vans and SUVs</b>	4.8 (1.0)	5.8 (1.5)	1.3 (0.7)	4.7 (1.5)	8.0 (2.5)
<b>Pickups</b>	1.9 (0.6)	1.7 (0.6)	2.8 (1.9)	1.1 (0.5)	2.8 (1.6)

<sup>1</sup>Weekday is defined as Monday - Friday

<sup>2</sup>Rush Hour is defined as the hours from 8 a.m. - 9:30 a.m. and 3:30 p.m. - 6 p.m. on Weekdays.

<b>Table 3</b> <b>Observed Driver Cell Phone Use Rates by Vehicle Type and Type of Area</b> <b>NATIONAL OCCUPANT PROTECTION USE SURVEY</b> <b>Controlled Intersection Study, Fall 2000</b> <b>(Estimates and Sampling Errors in Percentages)</b>				
<b>Vehicle Type</b>	<b>Overall</b>	<b>Type of Area</b>		
		<b>Urban</b>	<b>Suburban</b>	<b>Rural</b>
<b>All Passenger Vehicles</b>	3.0 (0.5)	2.4 (0.7)	3.4 (0.8)	3.0 (0.8)
<b>Passenger Car</b>	2.6 (0.5)	2.5 (0.8)	3.0 (0.7)	1.9 (0.9)
<b>Vans and SUVs</b>	4.8 (1.0)	2.8 (1.3)	5.6 (1.7)	7.1 (2.4)
<b>Pickups</b>	1.9 (0.6)	1.9 (1.4)	1.0 (0.4)	3.2 (1.5)

<b>Table 4</b> <b>Observed Driver Cell Phone Use Rates by Vehicle Type and Driver Characteristics (Sex, Age, Race)</b> <b>NATIONAL OCCUPANT PROTECTION USE SURVEY</b> <b>Controlled Intersection Study, Fall 2000</b> <b>(Estimates and Sampling Errors in Percentages)</b>								
<b>Vehicle Type</b>	<b>Driver Characteristics</b>							
	<b>Sex</b>		<b>Age Group<sup>1</sup></b>			<b>Race</b>		
	<b>Male</b>	<b>Female</b>	<b>Young Adult</b>	<b>Adult</b>	<b>Senior</b>	<b>White</b>	<b>Black</b>	<b>Other</b>
<b>All Passenger Vehicles</b>	2.7 (0.5)	3.4 (0.6)	3.1 (0.8)	3.2 (0.5)	1.4 (0.4)	3.7 (0.8)	2.3 (0.9)	1.7 (0.7)
<b>Passenger Car</b>	2.5 (1.0)	2.8 (0.6)	2.8 (0.8)	2.8 (0.6)	1.2 (0.5)	3.7 (0.9)	1.3 (0.7)	1.2 (0.7)
<b>Vans and SUVs</b>	3.2 (0.8)	6.1 (1.7)	5.7 (2.6)	5.1 (1.2)	4.6 (3.2)	5.4 (1.1)	3.7 (2.2)	3.0 (2.9)

<b>Pickups</b>	2.5 (0.8)	1.0 (0.4)	1.0 (0.7)	3.0 (1.1)	0.7 (0.5)	1.8 (0.6)	0.5 (0.6)	9.8 (6.7)
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<sup>1</sup>Age Groups are defined to include these approximate Ages: Young Adult - Ages 16-24; Adult - Ages 24 - 69; and, Senior - Ages 70 and over

## Survey Design

NHTSA began conducting National Occupant Protection Use Surveys (Full NOPUS) in the Fall of 1994 to obtain nationwide estimates of shoulder belt use and of characteristics of their users. The Full NOPUS, which was also conducted in the Fall of 1996 and the Fall of 1998, is composed of two separate studies: the *Moving Traffic Study*, which provides information on overall shoulder belt use; and the *Controlled Intersection Study*, which provides detailed information about shoulder belt use by vehicle type, characteristics of the belt users and child restraint use. This Research Note presents results based on the Controlled Intersection Study conducted in the Fall (October - November) 2000.

The Full NOPUS was designed as a multi-stage probability sample to ensure that the results would represent occupant protection use in the country as a whole. In the first stage, counties were grouped by region (Northeast, Midwest, South, West), level of urbanization (metropolitan or not), and level of safety belt use (high, medium, or low). Fifty counties or groups of counties (called primary sampling units or PSUs) were selected, within the resulting strata, based on the vehicle miles of travel. In the next stage, within each PSU a probability sample of roadways was selected from two

categories: major roads and local roads.

Observational sites – an exit ramp on an interstate highway, an intersection controlled by a stop sign or stop light, or an uncontrolled intersection – were identified on each of the sampled roadways. The roadway sample for the Full NOPUS Moving Traffic Study conducted in Fall 2000 was 2,063 sites. The observation sites for the Controlled Intersection Study are those sites from the Moving Traffic Study controlled by a stop sign or stop light. In the Fall 2000 Controlled Intersection Study, observations were conducted at 640 sites.

## Data Collection

Data collection for the Controlled Intersection Study consists of observing shoulder belt use in passenger motor vehicles. Observers were stationed for 45 minutes at each observational site. Shoulder belt use and other demographic information (age group, sex, and race) were obtained for drivers and passengers in passenger cars, pickup trucks, vans, minivans, and sport utility vehicles (SUVs). Additionally, the driver's use of a cell phone at the time of observation was also recorded. Only use of hand-held cell phones was included. Commercial and emergency vehicles were excluded. Every day of the week and all daylight hours (8 a.m. to 6 p.m.) were covered.

For additional copies of this research note, please call 202.366.4198 or fax your request to 202.366.7078. For questions regarding the data reported in this research, contact Dennis Utter [202.366.5351] of the National Center for Statistics and Analysis. This research note and other general information on highway traffic safety may be accessed by Internet users at <http://www.nhtsa.dot.gov/people/ncsa>.

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