Cell phone driving risk

Two epidemiological studies have found that cell phone use while driving is associated with approximately a quadrupling of crash risk. Researchers in Australia analyzed cell phone records of drivers who went to hospital emergency departments due to injuries sustained in a crash. A second group of researchers in Canada analyzed cell phone records of drivers who reported property damage-only crashes. Both studies compared cell phone use during a 10-minute period prior to the time of the crash and during non-crash periods, and found cell phone use while driving was associated with a slightly more than fourfold increase in crash risk. Results also showed no significant difference between handheld and hands-free phone use.

A review of 33 cell phone driving studies representing a total sample size of approximately 2,000 participants revealed the following:

- A cell phone conversation while driving increases driver reaction time. The total mean increase in reaction time analysis is 0.25 seconds.
- Use of handheld and hands-free phones results in similar increases in reaction time.

The National Safety Council estimates that 24% of all traffic crashes are associated with drivers using cell phones and text messaging (21% cell phone and 3% text messaging). The percent crash estimates are based on a population attributable risk percent calculation that factors in the relative risk of an activity and the prevalence of the activity. The data inputs for the 21% of crashes associated with cell phones included epidemiological studies that have found that cell phone use results in a fourfold increase in the risk of crashes as well as NHTSA's NOPUS results showing that 9% of drivers are talking on cellphones at any given daylight moment. The 3% of crashes associated with text messaging is based on an 8 times relative risk while text messaging estimate and a NOPUS estimate that about 0.9% of drivers at any given daylight moment are observed manipulating handheld electronic devices. For additional details on the National Safety Council's crash estimates, please visit *www.nsc.org/safety_road/Distracted_Driving/Pages/distracted_driving.aspx.*

State laws

Although research findings indicate that there is little to no safety advantage of hands-free over handheld cell phone use, the states that have implemented bans impacting all drivers have focused on handheld bans. As of July 2011, 10 states and the District of Columbia ban handheld devices for all drivers while 34 states and the District of Columbia have passed total texting ban laws. The only state laws banning any use of cell phones while driving are limited to either young drivers or bus drivers. As of July 2011, 30 states and the District of Columbia ban young or novice drivers from using cell phones. See page 108 for additional information regarding state motor vehicle laws.

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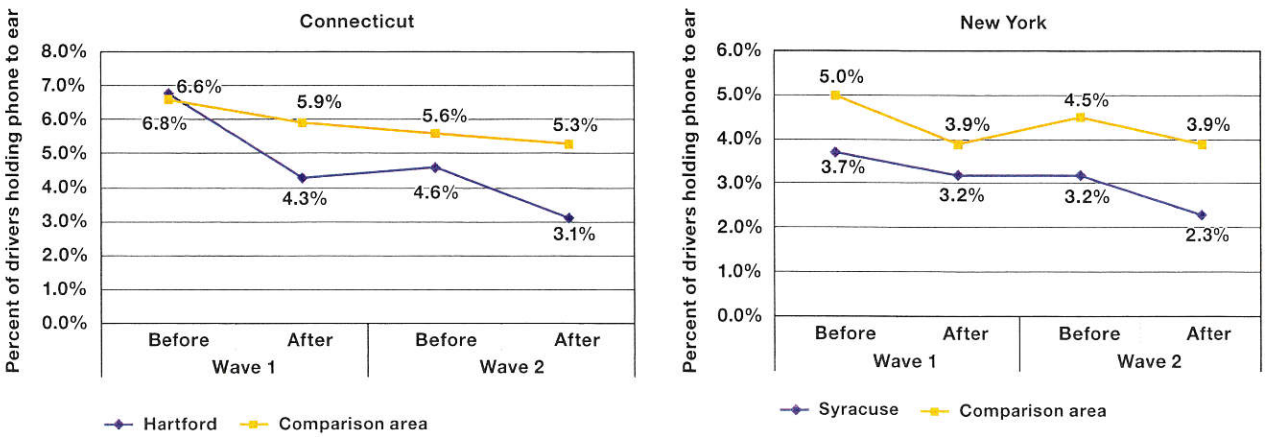
Ranney, T.A. (2008, April). Driver distraction: A review of the current state-of-knowledge (Report No. DOT HS 810 787). Washington, D.C.: National Highway Traffic Safety Administration.

Redelmeier, D.A., & Tibshirani, R.J. (1997). Association between cellular-telephone calls and motor vehicle collisions, New England Journal of Medicine, 336 (7), 453-458.

Impact of high visibility enforcement on driver handheld cell phone use



Source: NHTSA, 2010

Age of Driver

The table below shows the total number of licensed drivers and drivers involved in crashes by selected ages and age groups. Also shown is the rate of crash involvement on the basis of the number of drivers in each age group. The fatal crash involvement rates per 100,000 licensed drivers in each age group ranged from a low of 16 for drivers in the 55 to 64 and 65 to 74 age groups to a high of 37 for drivers 21 years old. The all-crashes involvement rates per 100 drivers in each age group ranged from 5 for drivers in the 65 to 74 and 75 and over age groups to 29 for drivers 16 years old.

On the basis of miles driven by each age group, however, involvement rates (not shown in the table) are highest for young and old drivers. For drivers 16 to 19 years old, the fatal involvement rate per 100 million vehicle miles traveled was about 6.1 in 2009, more than 3 times the overall rate of 1.8 for all drivers in passenger vehicles. The rate declines to about 1.3 for drivers 35 to 54 years old, and then rises somewhat for drivers 65 and older. For more details of this mileage-based analysis, please see pages 122 and 123.

Licensed drivers and number in crashes by age of driver, United States, 2010

	Licensed drivers		Drivers in ...					
			Fatal crashes			All crashes		
Age group	Number	Percent	Number	Percent	Rate[b]	Number	Percent	Rate[c]
Total	**211,900,000**	**100.0%**	**42,900**	**100.0%**	**20**	**18,600,000**	**100.0%**	**9**
Younger than 16	*806,000*	*0.4*	*200*	*0.5*	*(d)*	*60,000*	*0.3*	*(d)*
16	*1,289,000*	*0.6*	*400*	*0.9*	*31*	*370,000*	*2.0*	*29*
17	*2,078,000*	*1.0*	*600*	*1.4*	*29*	*470,000*	*2.5*	*23*
18	*2,786,000*	*1.3*	*1,000*	*2.3*	*36*	*590,000*	*3.2*	*21*
19	*3,215,000*	*1.5*	*1,000*	*2.3*	*31*	*550,000*	*3.0*	*17*
19 and younger	10,174,000	4.8	3,200	7.5	31	2,040,000	11.0	20
20	*3,519,000*	*1.7*	*1,000*	*2.3*	*28*	*550,000*	*3.0*	*16*
21	*3,495,000*	*1.6*	*1,300*	*3.0*	*37*	*540,000*	*2.9*	*15*
22	*3,507,000*	*1.7*	*1,100*	*2.6*	*31*	*560,000*	*3.0*	*16*
23	*3,526,000*	*1.7*	*1,100*	*2.6*	*31*	*630,000*	*3.4*	*18*
24	*3,602,000*	*1.7*	*1,100*	*2.6*	*31*	*470,000*	*2.5*	*13*
20-24	17,649,000	8.3	5,600	13.1	32	2,750,000	14.8	16
25-34	36,810,000	17.4	7,900	18.4	21	3,720,000	20.0	10
35-44	37,660,000	17.8	6,600	15.4	18	3,370,000	18.1	9
45-54	41,733,000	19.7	7,100	16.6	17	3,030,000	16.3	7
55-64	34,355,000	16.2	5,600	13.1	16	2,050,000	11.0	6
65-74	19,610,000	9.2	3,200	7.5	16	990,000	5.3	5
75 and older	13,909,000	6.6	3,700	8.6	27	650,000	3.5	5

Source: National Safety Council estimates. Drivers in accidents based on data from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System and General Estimates System. Total licensed drivers and age distribution estimated by National Safety Council based on data from the Federal Highway Administration.

Note: Percents may not add to total due to rounding.

[b]Drivers in fatal incidents per 100,000 licensed drivers in each age group.

[c]Drivers in all incidents per 100 licensed drivers in each age group.

[d]Rates for drivers younger than 16 are substantially overstated due to the high proportion of unlicensed drivers involved.

Type of Motor Vehicle Crash

Although motor vehicle deaths occur more often in collisions between motor vehicles than any other type of incident, this type represents only about 39% of the total. Crashes between a motor vehicle and a fixed object were the next most common type, with about 32% of the deaths, followed by pedestrian incidents and noncollisions (rollovers, etc.).

While collisions between motor vehicles accounted for less than half of motor vehicle fatalities, this crash type represented 75% of injuries, 68% of injury crashes, and 71% of all incidents. Single-vehicle crashes involving collisions with fixed objects, pedestrians, and noncollisions, accounted for a greater proportion of fatalities and fatal crashes compared to less serious crashes. These three crash types made up 58% fatalities and 59% of fatal crashes, but only 28% or less of injuries, injury crashes, or all crashes.

Of collisions between motor vehicles, angle collisions cause the greatest number of deaths, about 6,900 in 2010, and also the greatest number of fatal crashes. The table below shows the estimated number of deaths, injuries, fatal crashes, injury crashes, and all crashes, for various types of motor vehicle crashes.

Motor vehicle deaths and injuries and number of crashes by type of crash, 2010

Type of crash	Deaths	Nonfatal injuries[a]	Fatal crashes	Injury crashes	All crashes
Total	**35,500**	**3,600,000**	**32,600**	**2,500,000**	**10,800,000**
Collision with...					
Pedestrian	5,400	150,000	4,700	110,000	138,000
Other motor vehicle	13,900	2,690,000	12,100	1,710,000	7,710,000
Angle collision	*6,900*	*1,164,000*	*6,100*	*709,000*	*2,760,000*
Head-on collision	*3,700*	*204,000*	*3,100*	*110,000*	*280,000*
Rear-end collision	*2,100*	*1,168,000*	*1,900*	*792,000*	*3,640,000*
Sideswipe and other two-vehicle collisions	*1,200*	*154,000*	*1,000*	*99,000*	*1,030,000*
Railroad train	200	1,000	200	1,000	2,000
Pedalcycle	800	110,000	800	90,000	120,000
Animal, animal-drawn vehicle	100	9,000	100	9,000	550,000
Fixed or other object	11,400	510,000	11,200	470,000	2,030,000
Noncollision	**3,700**	**130,000**	**3,500**	**110,000**	**250,000**

Source: National Safety Council estimates, based on data from the National Highway Traffic Safety Administration Fatality Analysis Reporting System and General Estimates System. Procedures for estimating the number of accidents by type were changed for the 1998 edition and are not comparable to estimates in previous editions (see Technical Appendix).

[a]Nonfatal injury is defined as medically consulted injuries and is not comparable to estimates provided in earlier editions that used the definition of disabling injury. Please see the Technical Appendix for more information regarding medically consulted injuries.