

Summary of Estimate Model

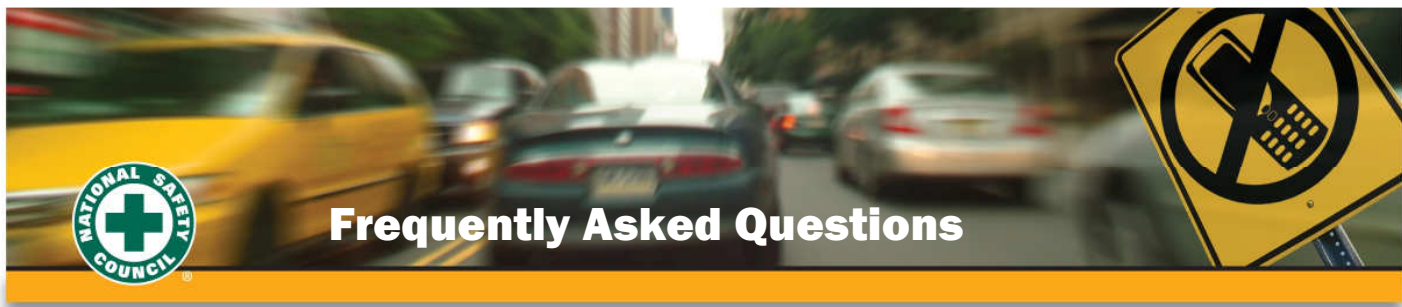
The National Safety Council created the Attributable Risk Estimate Model to estimate the number of crashes due to cell phone use and texting. This kind of crash estimate analysis is necessary because data is not currently collected on cell phone use as a cause of motor vehicle crashes. While some states or police departments may collect some data, it is not done uniformly, as for other crash causes such as alcohol. In jurisdictions where police attempt to collect this data, they must rely almost entirely on driver self-reports of cell phone use at the time of the crash, resulting in significant under reporting.

Major Findings

- In January 2009, using data from a 2003 Harvard Center for Risk Analysis¹ study, the National Safety Council estimated there were about 636,000 crashes attributable to cell phone use each year. NSC's new model estimates 28 percent of crashes, or 1.6 million crashes in 2008, were attributable to handheld and hands-free cell phone use and texting. This model estimates that 25 percent of crashes are due to cell phone use and a minimum of an additional 3 percent of crashes are caused by text messaging.
- NSC's attributable risk percent estimate of cell phones is based on two factors:
 - 1) the prevalence of drivers using cell phones and texting;
 - 2) the relative risk of cell phone use and texting compared to not using cell phones while driving.
- According to the CTIA-The Wireless Association², in 2000 there were 97 million wireless subscribers and by 2009 there were 276.6 million, accounting for the rapid growth in crashes attributable to cell phone use while driving. CTIA² also reports a rapid increase in text messaging. In 2000, 12.2 million text messages were sent monthly and by 2009, those counts had grown to 135.2 billion.

¹ [A revised economic analysis of restrictions on the use of cell phones while driving](#). Cohen & Graham. (2003) *Risk Analysis*, 23(1); 5-17.

² CTIA – The Wireless Association, an international nonprofit membership organization founded in 1984 and representing all sectors of wireless communications http://www.ctia.org/media/industry_info/index.cfm/AID/10323



Frequently Asked Questions

The following are frequently asked questions about NSC's attributable risk estimate model:

Question	Annual Estimate	Source
Background		
How many property damage-only crashes were there in 2008?	4,146,000	Traffic Safety Facts 2008 (Early Edition) National Highway Traffic Safety Administration
How many injury crashes were there in 2008?	1,630,000	Traffic Safety Facts 2008 (Early Edition) National Highway Traffic Safety Administration
How many people were injured in motor-vehicle crashes in 2008?	2,346,000	Traffic Safety Facts 2008 (Early Edition) National Highway Traffic Safety Administration
How many fatal crashes were there in 2008?	34,017	Traffic Safety Facts 2008 (Early Edition) National Highway Traffic Safety Administration
How many people were killed in motor-vehicle crashes in 2008?	37,261	Traffic Safety Facts 2008 (Early Edition) National Highway Traffic Safety Administration
What does attributable risk mean?	Attributable indicates that a behavior or circumstance is a contributing factor to a negative outcome.	
What is relative risk?	Relative risk is a measure of the risk of a certain event happening in one group compared to the risk of the same event happening in another group. Relative risk of one means there is no difference between two groups in terms of their risk. A relative risk of greater than one or less than one means an activity or circumstance either increases (relative risk greater than one) or decreases (relative risk less than one) the risk of the adverse outcome.	
What is an attributable risk percent estimate?	An attributable risk percent estimate is a mathematical model that estimates the percent of adverse outcomes that can be attributed to an unsafe activity or circumstance. The estimate is based on two factors: 1) the prevalence and 2) the relative risk of the unsafe activity or circumstance.	
Is attributable risk mutually exclusive?	Attributable risk estimates are not mutually exclusive. Multiple risks can attribute to one adverse outcome.	
Question		
Annual Estimate		
Source		
Cell Phones		
How did the NSC estimate attributable risk percent for cell phones?	NSC's attributable risk percent estimate of cell phones is based on two factors: 1) the prevalence of drivers talking on cell phones and 2) the relative risk of this activity compared to not using cell phones while driving.	
What is the prevalence of drivers talking on cell phones in 2008?	11% of drivers during any daylight moment	National Highway Traffic Safety Administration's National Occupant Protection Use Survey (NOPUS), 2009

Question	Annual Estimate	Source
Cell Phones		
What is the relative risk of cell phone use while driving?	4 times increased crash risk (as measured by emergency department visits and property damage only crashes)	McEvoy et al (2005); Redelmeier & Tibshirani (1997)
What percent of injury crashes and property damage-only crashes are likely attributable to cell phone use in 2008?	25%	NSC's Attributable Risk Estimate (2009)
How many crashes are likely attributable to cell phone use in 2008?	1.4 million.	NSC's Attributable Risk Estimate (2009) <ul style="list-style-type: none"> Estimate use a similar set of assumptions as were used by Cohen and Graham (2003.) The attributable risk estimate based on emergency department visits was generalized to estimate crash numbers.
Question	Annual Estimate	Source
Text Messaging		
What is the prevalence of drivers who are text messaging in 2008?	The prevalence of text messaging is not specifically measured, however it is has been observed that 1% of drivers manipulate handheld devices at any given daylight moment. Because text messaging is only one of several activities in this category (e.g. dialing phone numbers); it is assumed the prevalence of text messaging is 1% or less.	National Highway Traffic Safety Administration's National Occupant Protection Use Survey (NOPUS), 2009
What is the relative risk of text messaging while driving?	The relative risk of text messaging has not been studied to the same extent as it has for talking on cell phones. Two studies attempted to measure the relative risk of text messaging while driving. Because of methodological issues the applicability of these studies is limited. At this time no one risk level can be established for text messaging. Instead, a range from 8 to 23 times increased risk is currently the best estimate.	Drews et al (2009) and Olsen et al (2009)
How many crashes are likely attributable to text messaging in 2008?	200,000 to 1.0 Million, Because the relative risk estimates available for text messaging are either based on computer simulations or factors other than crashes, NSC has low confidence in any precise number of crashes attributable to texting. Therefore, NSC is reporting the minimum number of 200,000 crashes.	NSC's Attributable Risk Estimate (2009)
What percent of crashes are likely attributable to text messaging in 2008?	3% to 18%	NSC's Attributable Risk Estimate (2009)