Distracted Driving

Daniel Callahan, CSP
Agenda

- Distracted Driving – Specifically Cell Phone Usage
- Statistics and Science behind the data.
- Education – Educate folks about the risk.
- Culture
  - Changing the norm - What is your role?
- Policy - How to positively impact it and influence people and policy
- Technology
Distracted Driving – What is it?

- Distracted driving is any activity that takes your eyes off the road, your hands off the wheel, or your mind off of your primary task of driving safely, potentially endangering the driver, passenger, and bystander safety. Some forms of distracted driving include:
  1. Texting
  2. Using a cell phone or smartphone
  3. Eating and drinking
  4. Talking to passengers
  5. Grooming
  6. Reading, including maps
  7. Using a navigation system
  8. Watching a video
  9. Adjusting a radio, CD player, or MP3 player
Distracted Driving

- NETS Videos
- Need to start by changing the mind set about what is acceptable and what is not
  - Fatalities
  - Behaviors
Changing the Mind Set

- Is 99.9% good enough?
- A 99.9% safety standard in the U.S. equals
  - 1-hour of unsafe drinking water every month.
  - 881-unsafe landings at Chicago O’Hare this year putting about 132,000 passengers in jeopardy.
  - 500-improper surgical procedures each day.
  - 268,500-tires produced per year with serious defects.
- Mission Zero is the only acceptable goal
Traffic fatalities in 2015 were at the highest level since 2008, according to new data from the National Highway Traffic Safety Administration. The increase can be attributed at least in part to more miles on the road during that year, which could be due to a combination of an improved economy, higher employment rates and lower gas prices. However, statistics also show that failure to wear a seatbelt, driving under the influence and distracted driving also played a role.
Statistics – Cell Phone Usage

- Research has indicated that talking on a cell phone while operating a vehicle produces a four-fold increase in the risk of involvement in a collision compared to when not talking on a cell phone (McEvoy et al.).
- Furthermore, Strayer et al. found that the impairments of using a cell phone while driving could be as severe as the deficiencies associated with driving drunk.
- The same as driving under the influence! Think about that for a minute.
- Research also has indicated that talking on a cell phone while driving poses a safety threat to people both in the vehicle and on the road. This is because cell phone conversations take considerable cognitive, visual, and physical demands on the person involved in this task.
Statistics – Cell Phone Usage

- By analyzing drivers’ detailed billing records and cell-phone calls made on the “day of the collision”, Redelmeier and Tibshirani discovered that a driver had 4.3 times higher risks of involvement in a collision while using a cell phone than when not using a cell phone. McEvoy et al. followed similar methodology used in Redelmeier and Tibshirani’s study with a sample of 456 drivers in Australia.

- McEvoy et al. found that drivers who used a cell phone up to 10 minutes before the collision had 4.1 times greater likelihood of an accident from cell phone usage, which is similar to that of Redelmeier and Tibshirani’s findings.

- Similarly study’s indicate 80% of folks involved in a crash were on their cell phone within 10 minutes of the accident.
Statistics – Cell Phone Usage

- Studies report that the **risks of using hands-free cell phones can be as great as using hand-held ones**, because regardless of the phone type cell-phone use while driving decreases people’s driving performance and increases the likelihood of involvement in an accident (Amado & Ulupinar, 2005; Caird, Willness, Steel, & Scialfa, 2008; Collet, Guillot, & Petit, 2010a, 2010b; Dragutinovic & Twisk 2005; Hendrick & Switzer, 2007; Ishigami & Klein, 2009; McEvoy et al., 2005; Törnros & Bolling, 2005; Zhao et al., 2013)

- This means that using either a hands-free or a hand-held cell phone can cause drivers failing to notice pedestrians or other vehicles in their vicinity, or missing traffic signals and lanes, resulting in traffic collisions
Hand Heleds vs Hands Free

- Nurullah et al. (2013) found that a majority (76.7 percent) of those who used a cell phone agreed (either ‘strongly’ or ‘somewhat’) that hands-free devices are safer while operating a vehicle.
- However, research consistently suggests that the use of hands-free and hand-held cell phones while driving produce analogous collision risks and similar driver reaction time decrements.
- Hmmmm??
- White et al. (2010) suggested that compared to hand-held cell phone users, hands-free cell phone users reported a higher frequency of answering and making calls while driving.
- Caird et al. (2008) reported that drivers with hand held phones reduced their speed slightly more than did those with hands-free phones, perhaps because drivers were more aware of the potential safety threats imposed by hand-held phones.
Conversation impairs visual processing - fMRI

Driving alone

Driving with sentence listening
Conversation restricts visual processing - eye movements

Eye movements
attended on cell
Statistics – Effects of Cell Phone Usage on Driving Performance

- **Performance improved**
  - Talking (hand held): 5
  - Talking (hands free): 7
  - Texting: 9

- **No effect**
  - 22

- **Performance degraded**
  - 115
  - 219
  - 120

*Source: SafetyMatters - AT WORK AT HOME*
Risk perception

- The problem is that research has also shown that people engage in risky driving behavior, even after being cognizant of the dangers associated with it.
- Although many drivers think that cell phone use while driving is a very serious road safety problem (Vanlaar et al), this risk perception may not always drive their actual behavior.
- **Why??**
- What is your (everyone's) reaction when you see someone driving while distracted
  - “By Golly Get off your Gosh Darn Cell Phone“
- Now, when was the last time you drove distracted or drove with someone who was distracted, were you as hard on your self or the other person who was distracted?
Psychological Needs

- Research suggests that the perceived practical, social, and psychological benefits of using cell phones while operating a vehicle potentially outweigh the perceived risks (Atchley, Atwood, & Boulton, 2011; Nelson, Atchley, & Little, 2009).
- Psychological needs, practical necessities, and social expectations to return calls immediately are the likely factors that influence talking on a cell phone while operating a motor vehicle.
- Hmmm?
- A study has shown that emotionally intense conversation on a cell phone while driving is significantly more dangerous than no call and mundane calls (Dula, Martin, Fox, & Leonard, 2011).
- Need to think about this from a business perspective and what is the way forward is.
Risk perception – Young Drivers

- Drivers 18 – 25 this especially true, the inability quantify risk.
- Brain development
TEEN BRAIN DEVELOPMENT – THE FRONTAL LOBE OF THE BRAIN IS ESSENTIAL FOR DRIVING
Risk perception – Young Drivers

- Although the brain is 80 percent developed at adolescence, new research indicates that brain signals essential for motor skills and emotional maturity are the last to extend to the brain’s frontal lobe, which is responsible for many of the skills essential for driving.

- The new research, first released by the National Institute of Mental Health, suggests that emotional immaturity, not inexperience, is the primary reason that teenage drivers are responsible for far more car accidents than any other age demographic.

- When adults reach age 20, white matter begins to spread, from the back of the brain forward, usually completing this process between 25 and 30 years of age. The section of the brain most responsible for driving skills is the frontal lobe (shown above), which manages the body’s motor skills, emotional maturity, and aversion to taking risks. A dearth of white matter here explains why young drivers are much more likely to speed, disobey traffic signs, lose control of their vehicles and drive distracted!!
Risk perception – Young Drivers

- Studies also have consistently found that younger drivers are more likely to use their cell phones, more likely to report sending text messages while driving, and more likely to be socially influenced to use their cell phones while driving compared to older drivers (Harrison; Hosking, Young, & Regan; Walsh et al.; Zhou et al.,).

- Existing literature indicates that younger individuals generally use cell phones more frequently in both contexts of driving and daily life compared to older persons (Brusque & Alauzet; Pöysti, Rajalin, & Summala).

- Furthermore, research suggests that young drivers are at a higher risk of collisions and severe injuries when they use a cell phone while driving (Neyens & Boyle). A recent study has shown that young drivers’ (17–28 years) attachment towards their cell phones was associated with their use of cell phones while driving and their self-reported distracted driving behaviors, such as social media use (e.g., Facebook, Twitter) (Weller, Shackleford, Dieckmann, & Slovic, 2013).

- It is critically important to ensure that policy interventions focus upon younger drivers in order to reduce their distracted driving habits.

- “Alive at 25” risk of passengers in car vs “older folks”
Cultural Norms

- Social Pressure – Change the “Norm”!!
  - Video
Building Culture to Create Desired Change

Culture DRIVES Behaviors SET Norms
(Culture Drives Behaviors, Behaviors set the Norms)

*Change the Norm, you change Behavior
*Change Behavior, you change the Culture

What is your Safety Culture?
People will very quickly conform to the group norm.
Culture Norms

- What were some of the “social norms” in the 50’s, 60’s and 70’s around:
  - 3 martini lunches were the norms.
  - Smoking cigarettes on planes
  - Seatbelts usage “optional”
  - Smoking in restaurants

- So what is the current social norm in your circle while around distracted driving.
  - Examples from the audience

- Friends and family members should internalize the notion that it is not appropriate to drive while using a cell phone, and should not expect others to respond to their calls when driving.

- **Passengers in vehicles should exert pressure on the fellow drivers to refrain from using cell phones while driving, and to answer the phone only after pulling over at the side of the road when it is safe.**

- Change the mind set!! Change the Norm change, Change the Behavior, Change Culture!!
<table>
<thead>
<tr>
<th>Country</th>
<th>Deaths/ 100,000 Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>6</td>
</tr>
<tr>
<td>U.K.</td>
<td>7</td>
</tr>
<tr>
<td>Sweden</td>
<td>7</td>
</tr>
<tr>
<td>U.S.</td>
<td>13</td>
</tr>
<tr>
<td>China</td>
<td>84</td>
</tr>
</tbody>
</table>
Strategies - Policy

- What is your policy around DUI?
- What is your current policy around cell phone usage?
- Hmmm?
- Employers at the workplace should insist the responsible use of cell phones for their employees. As for policy, it is perhaps a suitable idea to introduce the accumulation of demerit points for the use of cell phones while driving. Countries such as Australia and New Zealand have already introduced demerit points for drivers who use their cell phones while driving.
- A recent study affirms that policies banning the use of cell phones while driving should be regarded as one of the crucial factors in reducing cell-phone related collisions (Kwon, Yoon, & Jang, 2014)
Strategies - Technology

- Technology
  - Signal canceling on all trucks and cars.
  - Automatic braking
  - Self driving vehicle
  - On-board drive cams
  - Use of Telematics
Strategies - Education

- Education designed to make people aware of the dangers associated with using a cell phone while driving, both for themselves and for risking the lives of others.
- This could be done through driving schools (e.g., including cell-phone related curriculum, or showing videos of collisions involving the use of cell phones while driving) or by government initiatives in the form of spreading targeted messages in the media.
- Another approach is to make it mandatory for new drivers to attend a special session on the dangers of cell phone use or on how to use cell phones responsibly while driving.
- For existing drivers, this can be done at times when they renew their driving licenses. In both cases, the state should sponsor the lessons (i.e., these specific lessons should be free of costs) so that drivers do not think of this as a burden.
- Exceptional focus should be put around younger drivers specifically.
Take-Aways

- Education – Educate folks about the facts and the risk.
- Policy – Move towards complete ban!
- Culture – Change the Norm
  - Changing the norm - What is your role and how will you commit to changing current norms?
- Technology
  - Leverage technology
  - It is critically important to ensure that policy interventions and education focus upon younger drivers in order to reduce their distracted driving habits.
- Need to start by changing the mind set about what is acceptable and what is not