

What does prior experience in changing driver behavior tell us about the potential for technology to reduce distracted driving?

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# Cellphone use distracts drivers but is hard to reduce

- Education alone is not effective for many drivers
  - In surveys, most drivers believe cellphone use while driving is risky, but many admit to doing it
- Effectiveness of laws limiting phone use is unclear
  - Little strong research and findings are mixed
  - Some laws are weak, e.g., secondary enforcement, exclude hands-free conversations, exclude some types of phone manipulations
  - Enforcement challenging with all cellphone laws
- Technology has helped reduce other problematic driver behaviors
- Can after-market technology or imbedded vehicle technology help to reduce driver phone use or its consequences?

# Lessons from reducing other driver behaviors

SPECIAL ISSUE: TEENAGE DRIVERS

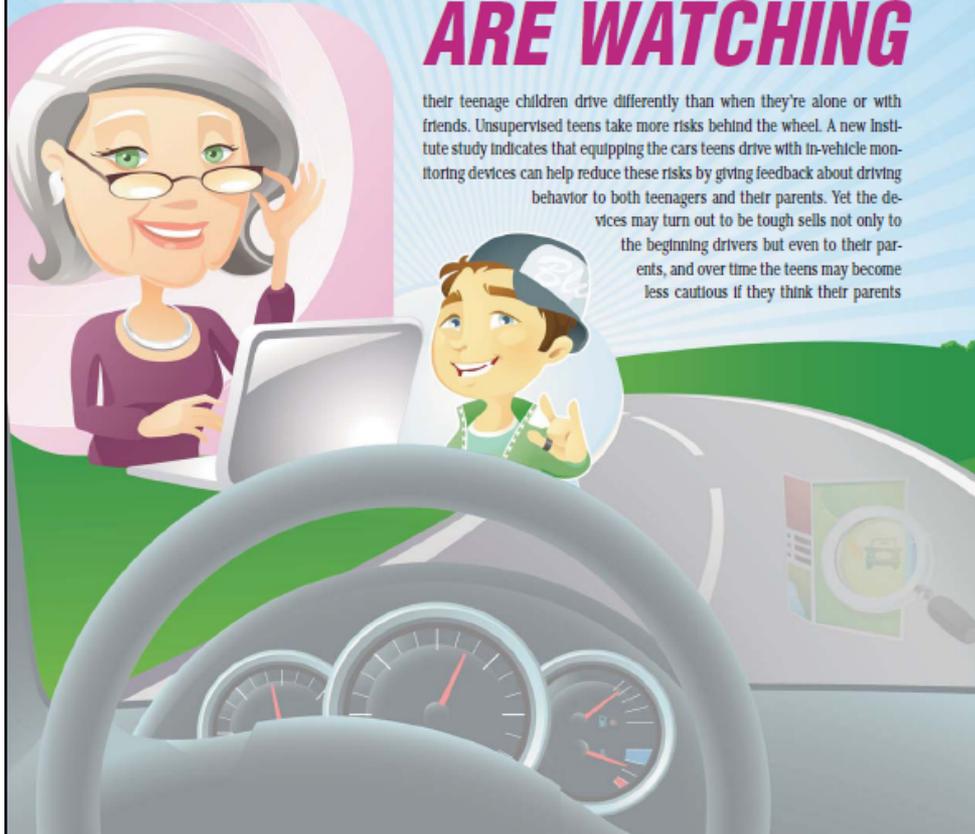
# STATUS REPORT

INSURANCE INSTITUTE  
FOR HIGHWAY SAFETY

Vol. 44, No. 5, May 7, 2009

## ***WHEN PARENTS ARE WATCHING***

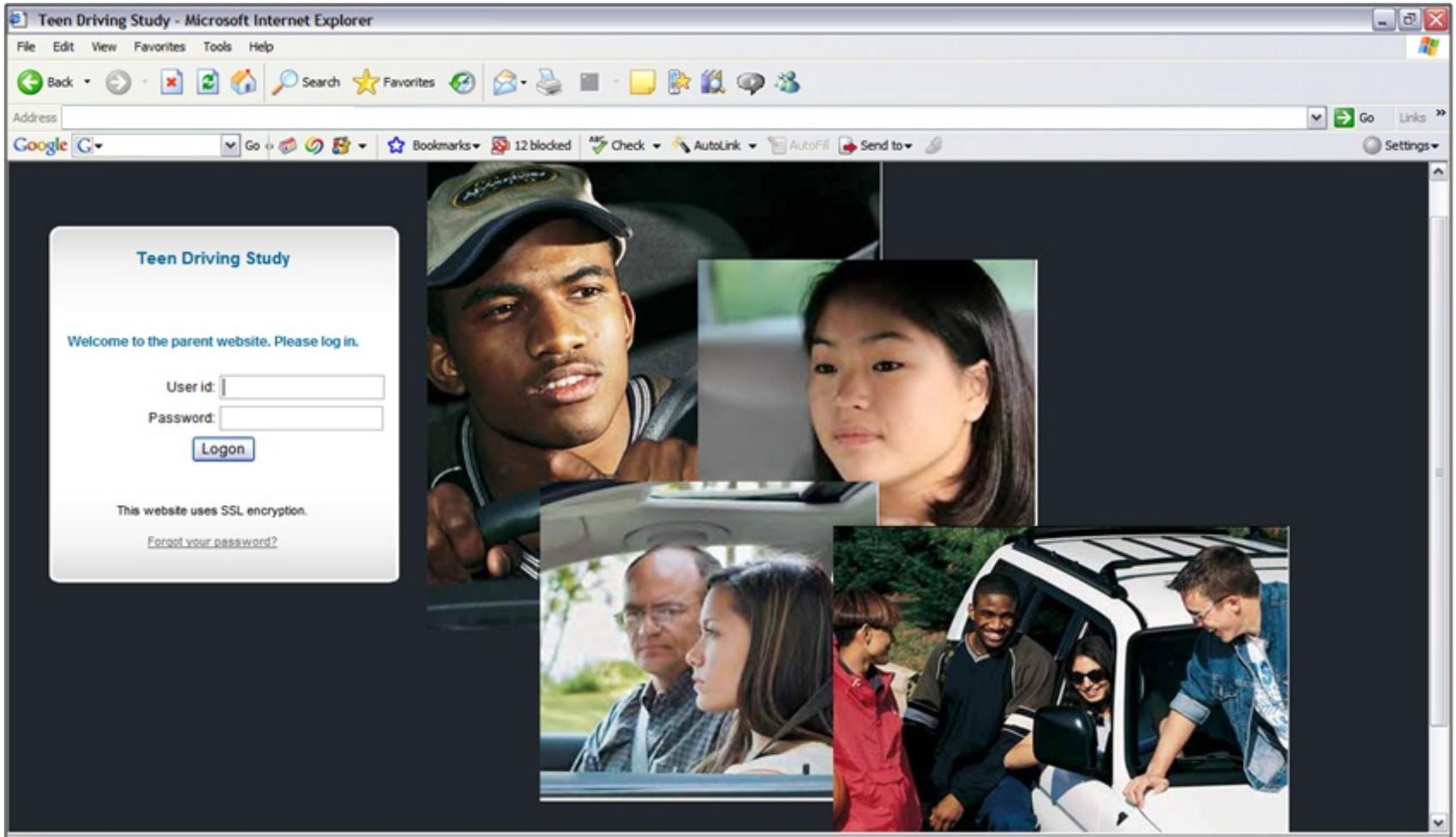
their teenage children drive differently than when they're alone or with friends. Unsupervised teens take more risks behind the wheel. A new institute study indicates that equipping the cars teens drive with in-vehicle monitoring devices can help reduce these risks by giving feedback about driving behavior to both teenagers and their parents. Yet the devices may turn out to be tough sells not only to the beginning drivers but even to their parents, and over time the teens may become less cautious if they think their parents



**Special issue:  
teenage drivers**  
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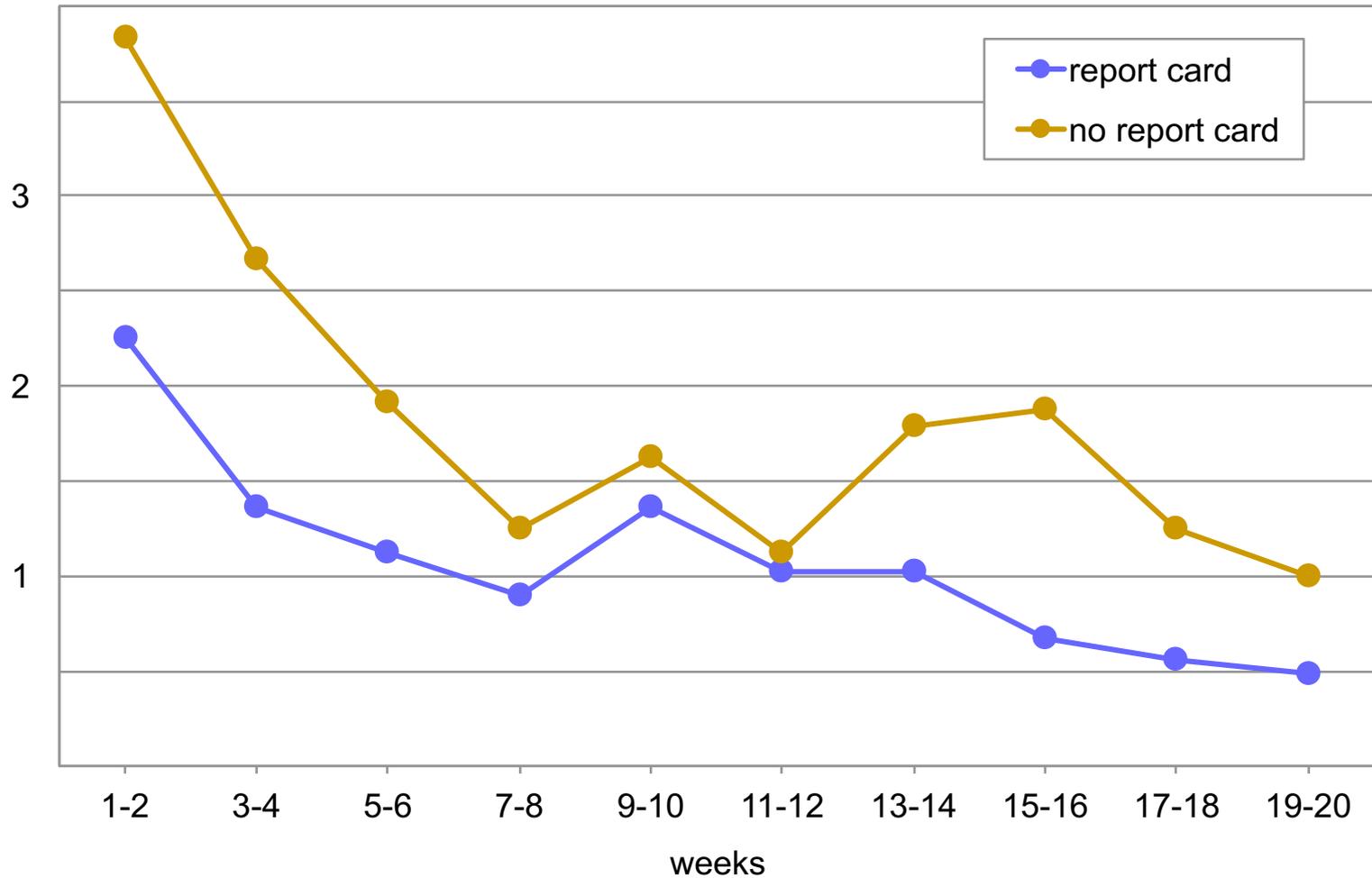
# www.teendriverstudy.com

Website with secure login, personal ID, and password to view



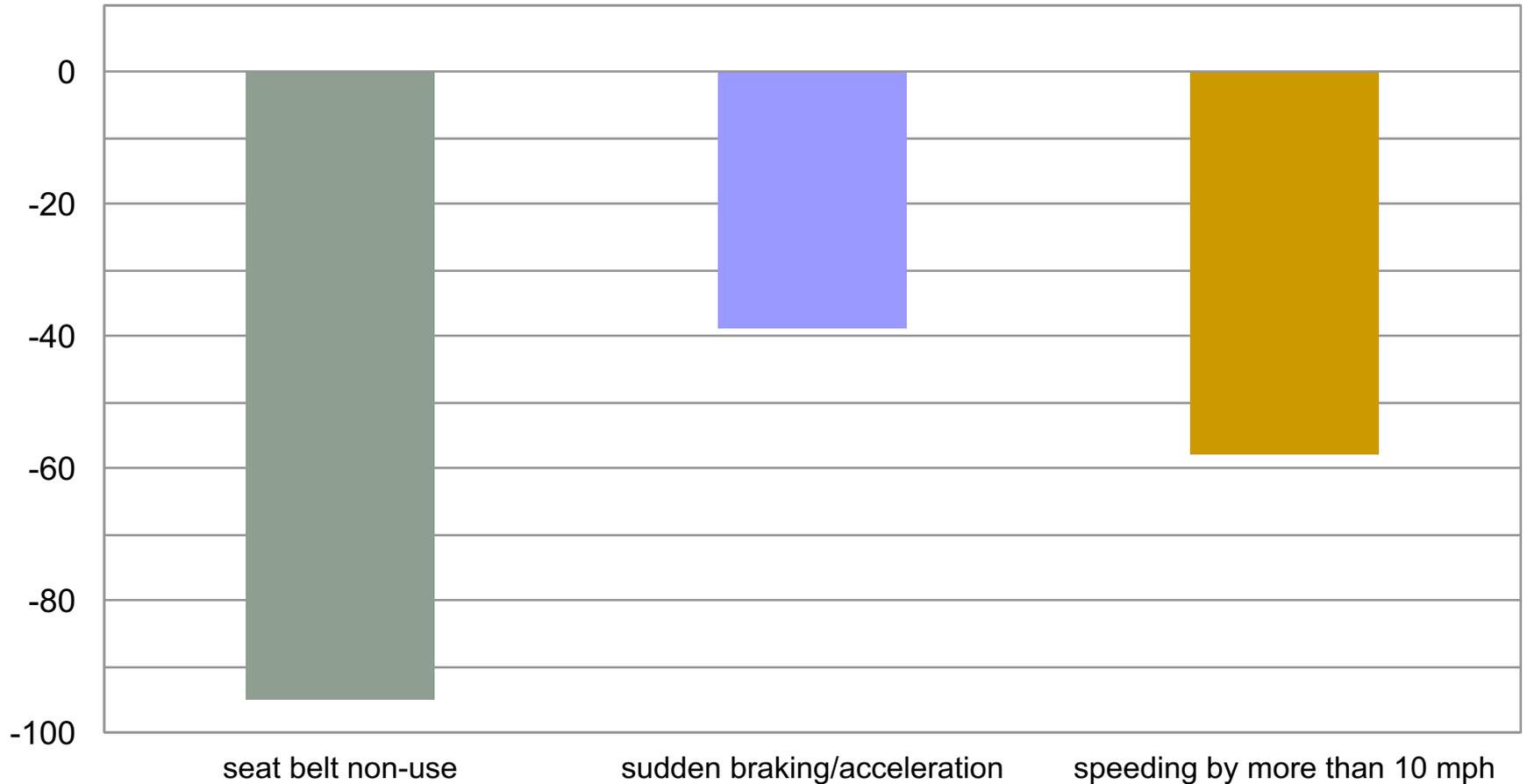
# Number of visits to parent websites per family

Every 2 weeks for parents with and without report cards



# Percent reduction in risky behaviors with monitoring device

With alert in vehicle, delayed parent notification, parent report card



# Conclusions about in-vehicle monitoring for teens

- Hard sell and unclear how many families will accept
- Can improve teenagers' driving
- Feedback to parents improves effectiveness
  - Web access alone doesn't assure feedback to parents
- Effects may level off during treatment and fade after removal
- Technology can't replace parental involvement

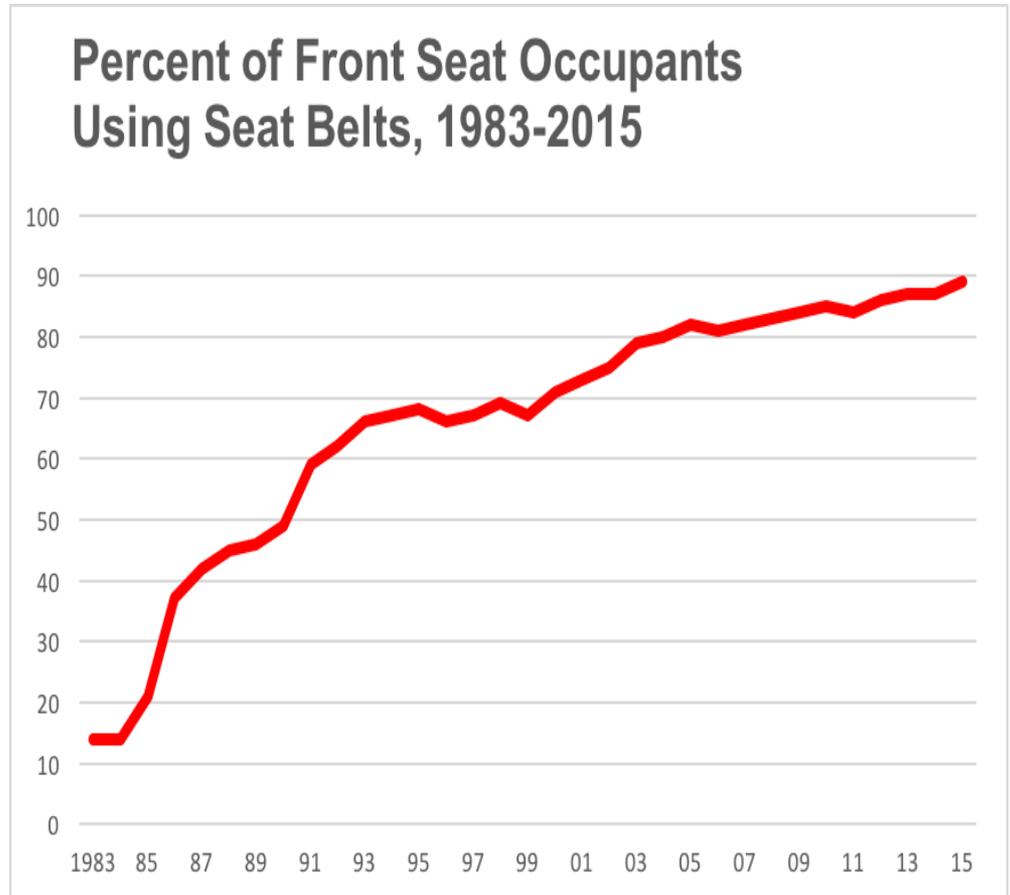
# Safety belt use in the U.S. has increased in large part due to publicized enforcement and passage of primary belt laws



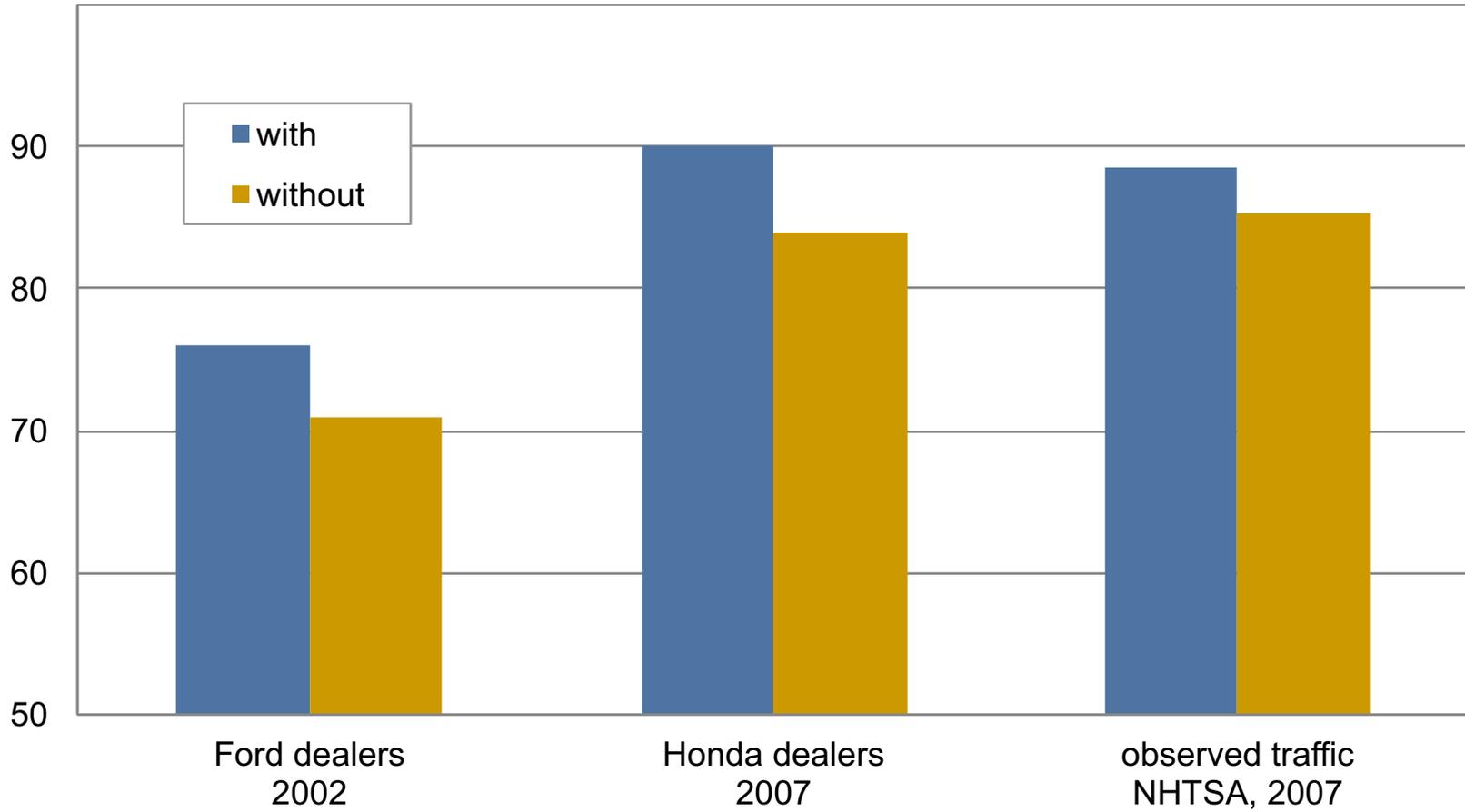
**STATUS REPORT**  
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**IT'S  
SIMPLE  
CLICK IT OR TICKET**

Sixteen years into this US belt enforcement program and its blight message still resonates. A record 83 percent of front seat occupants buckled up in 2008, thanks largely to Click It or Ticket. Considering only 73 percent used belts just 7 years earlier, the gain is impressive. More than 91,000 people have survived crashes since 2002 in the United States because of belts, federal data show. Primary laws help, too. Arkansas, Florida, Minnesota, and Wisconsin are the latest states to allow police officers to stop and ticket motorists solely for



# Percent driver belt use in vehicles with and without enhanced reminders



# More aggressive seat belt reminders or interlocks could increase belt use

- Most new vehicles now have front-seat enhanced reminders
- More aggressive reminders encouraged by EuroNCAP have been shown to increase belt use
- As of 2012, Congress allows NHTSA to require stronger belt reminders; cannot require interlocks but can allow automakers to use interlocks to comply with safety regulation
- In national survey, most part-time belt users and non-users found belt ignition interlocks unacceptable; aggressive reminders more acceptable
  - Many said technologies would lead them to buckle up
- Gearshift belt interlock offered on certain GM fleet vehicles; speed-limiting interlock on BMW prototype vehicles
- Unclear how belt technology will evolve in U.S. with or without regulation

# Vehicle technology could reduce speeding

- About one-third of U.S. crash deaths involve speeding
- NHTSA proposal will require speed governors in large trucks (set at 65 mph, for example), and theoretically governors could also be required in passenger vehicles
- Intelligent Speed Adaptation (ISA) systems provide information to drivers on their speed relative to posted speed limit
  - Degree of control varies from alert to governor-type features
  - With EuroNCAP, ISA can be considered for “advanced” rating
  - Some U.S. automakers offer optional advisory ISA systems; systems limiting gas flow to engines optional on some vehicles in Europe
- Does not appear to be an appetite in the United States for reducing speeds through lower speed limits, and no indication passenger vehicle drivers would accept vehicle technology that limits speeds

# Lessons learned?

- Roots of problematic driver behaviors are different – tricky to generalize
  - Speeding and cellphone use common; although belt technologies directed at small minority of drivers, some find technology unacceptable
  - Cellphone use an addiction for some?
- Drivers slow to seek out safety technologies focused on changing behavior
- The most safety-conscious drivers are the most likely to adopt safety technologies
- Absent government requirements for safety technology or consumer demand for it, industry may provide as option but may be reluctant to provide as standard feature

# Can voice technology reduce distraction?

- Many newer embedded vehicle infotainment systems and portable devices can be controlled using voice commands
- Experimental studies show that voice systems help drivers keep their eyes on the road, but they don't eliminate visual distraction
- Embedded and portable voice systems can vary widely in terms of visual demand, time involved, and accuracy
- Unclear whether voice systems will lead drivers to engage more often in phone use, and effects of voice systems on cognitive distraction are unknown

# Crash avoidance technologies

- Some crash avoidance technologies – notably front crash prevention systems with autobrake – are reducing crashes
- These systems have the potential to reduce or mitigate crashes due to distraction, but it will take many years for them to penetrate the vehicle fleet

# Final thoughts

- Unclear that a large proportion of U.S. drivers will voluntarily embrace technology to limit cellphone use
- In a small Australian trial of technology blocking cellphone calls in moving cars, drivers reported frustrations with technology glitches but the majority still would recommend it
- Assuming cellphone technologies can be perfected, it seems unlikely U.S. government will require them
- Difficult for government to require technology if not fully refined, there is not clear evidence of safety benefit, or there is substantial push-back from public
- Absent regulation or consumer demand, unclear whether automakers will provide technologies designed to reduce phone use, although they may seek to make phone use “safer”

Questions?

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