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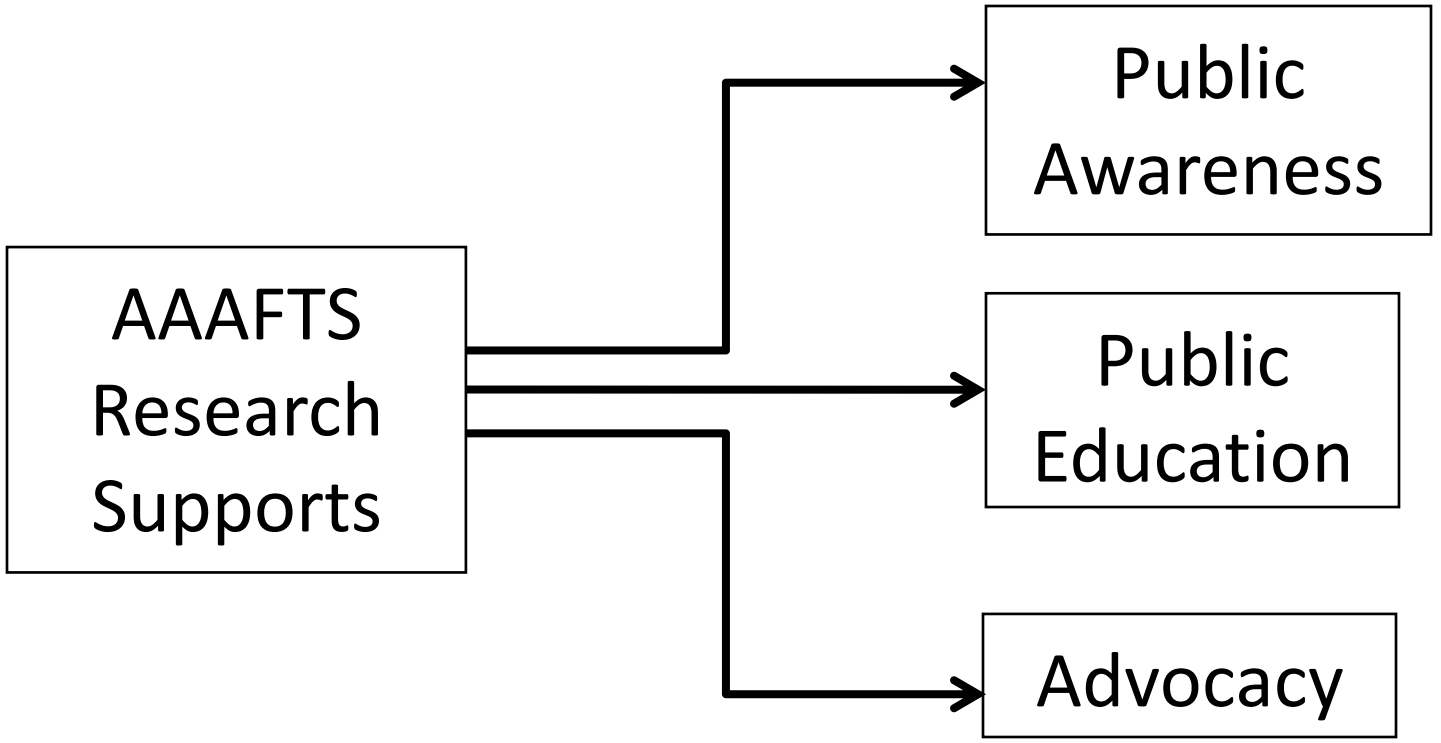
Jurek Grabowski

jgrabowski@AAAfoundation.org

AAA Foundation's Role



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Understand the Safety and Mobility Needs of Tomorrow's Older Drivers

★ ★ ★ ★ Senior Safety and Mobility

Seniors are among the safest road users; e.g.:

- Low incidence of distraction
- High prevalence of seatbelt use
- Elevated fatal crash rates due mainly to *fragility,* not higher crash likelihood
- As a group they are very “pro-safety”:
  - Support using speed cameras to ticket driving 10 mph over the limit in residential areas and urban areas
  - Support for laws against texting/emailing while driving and talking on a hand-held phone while driving
  - Support Red Light Cameras
  - Support in-person license renewal

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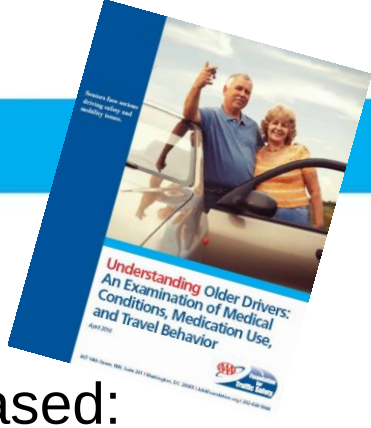
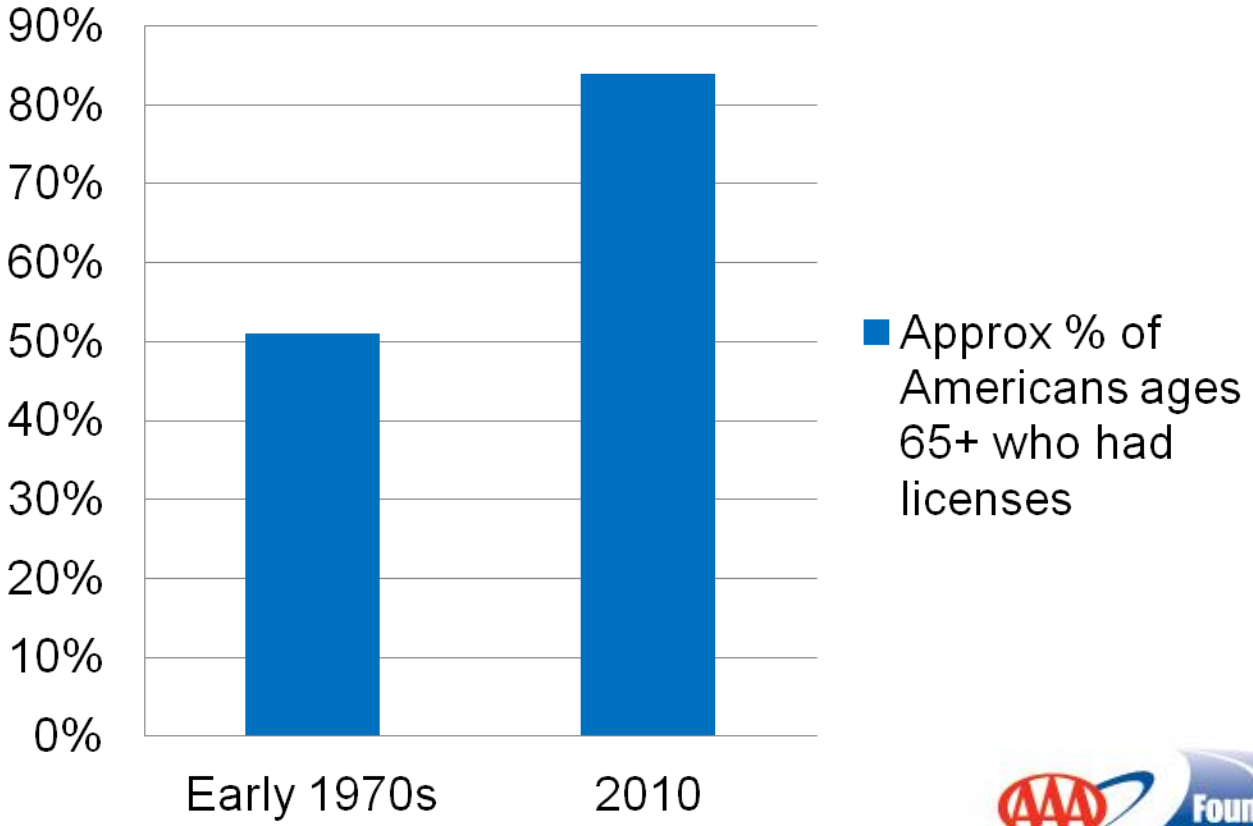


Older driver **licensing rates** have increased:



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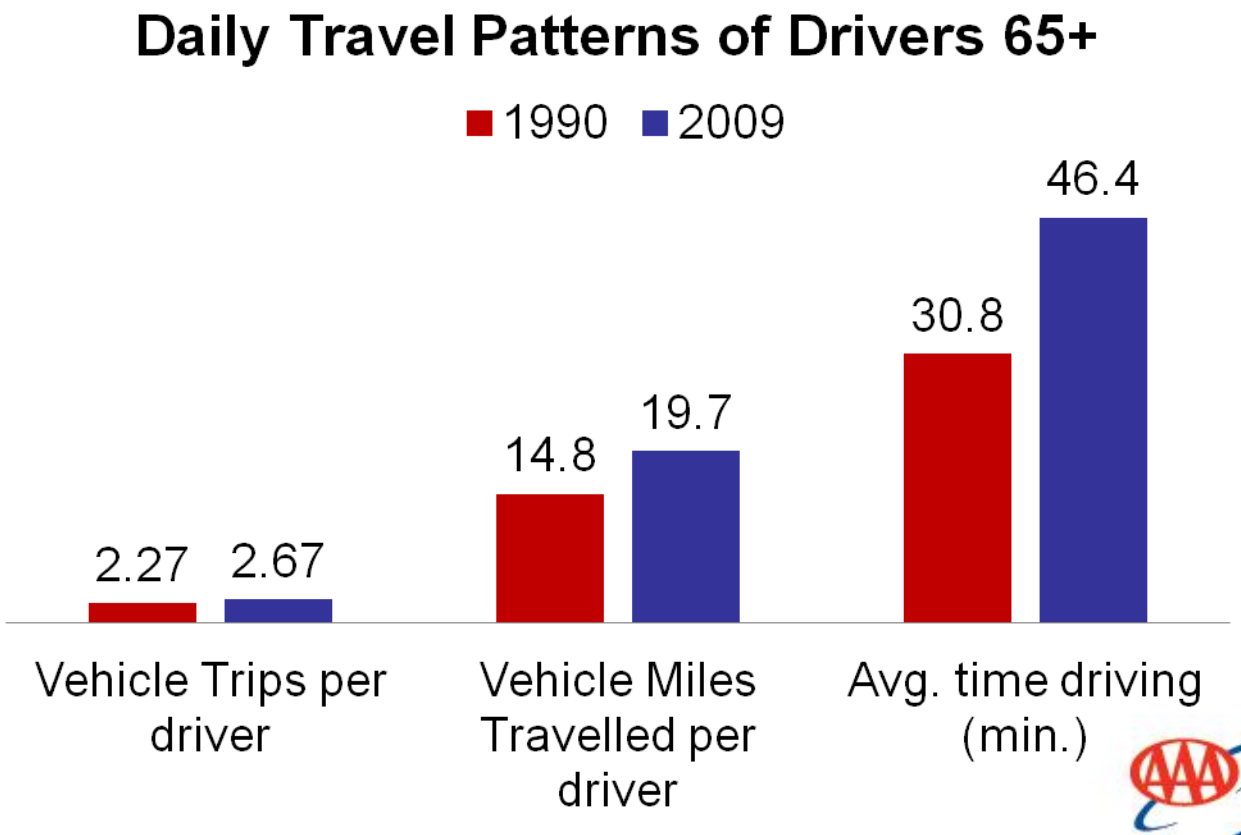
By every measure, **automobility** of older Americans increased from 1990 to 2009:



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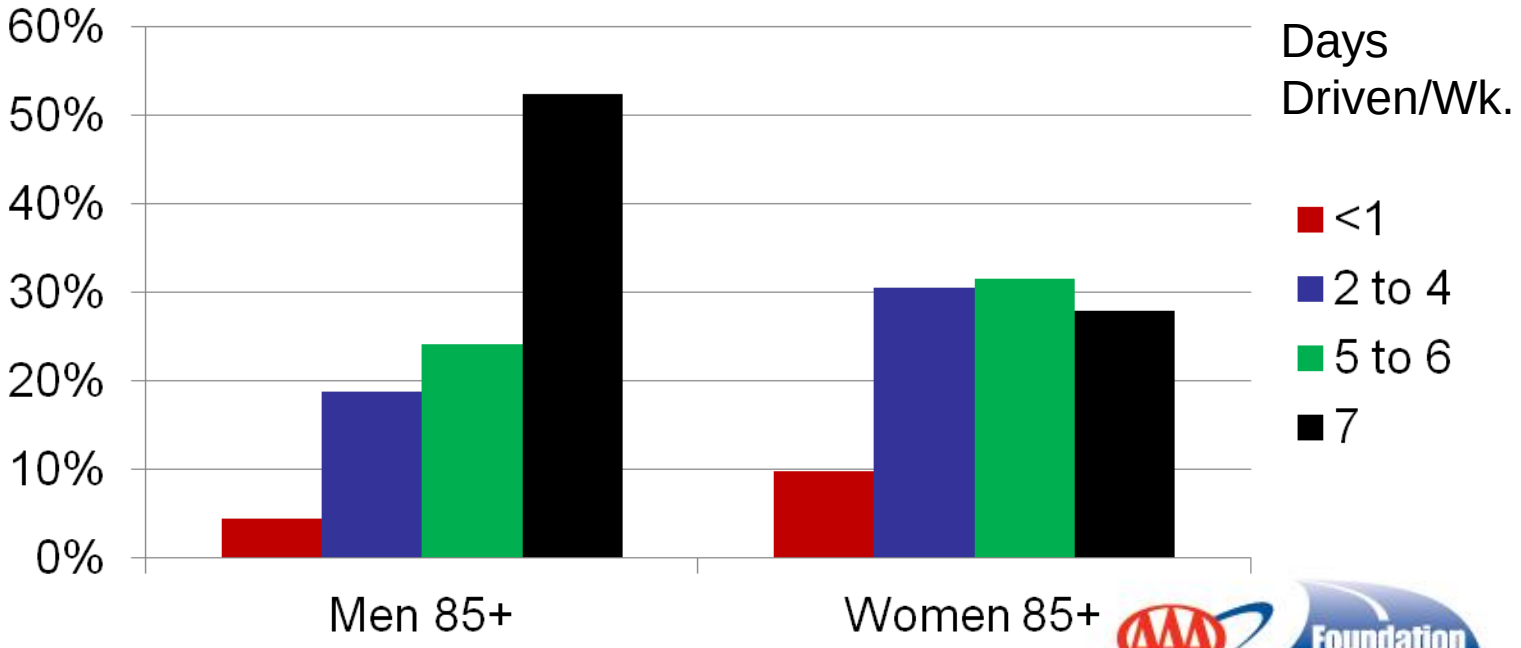
Oldest drivers are an **active group:** ~75% of men & 60% of women ages 85+ drive 5+ days per week



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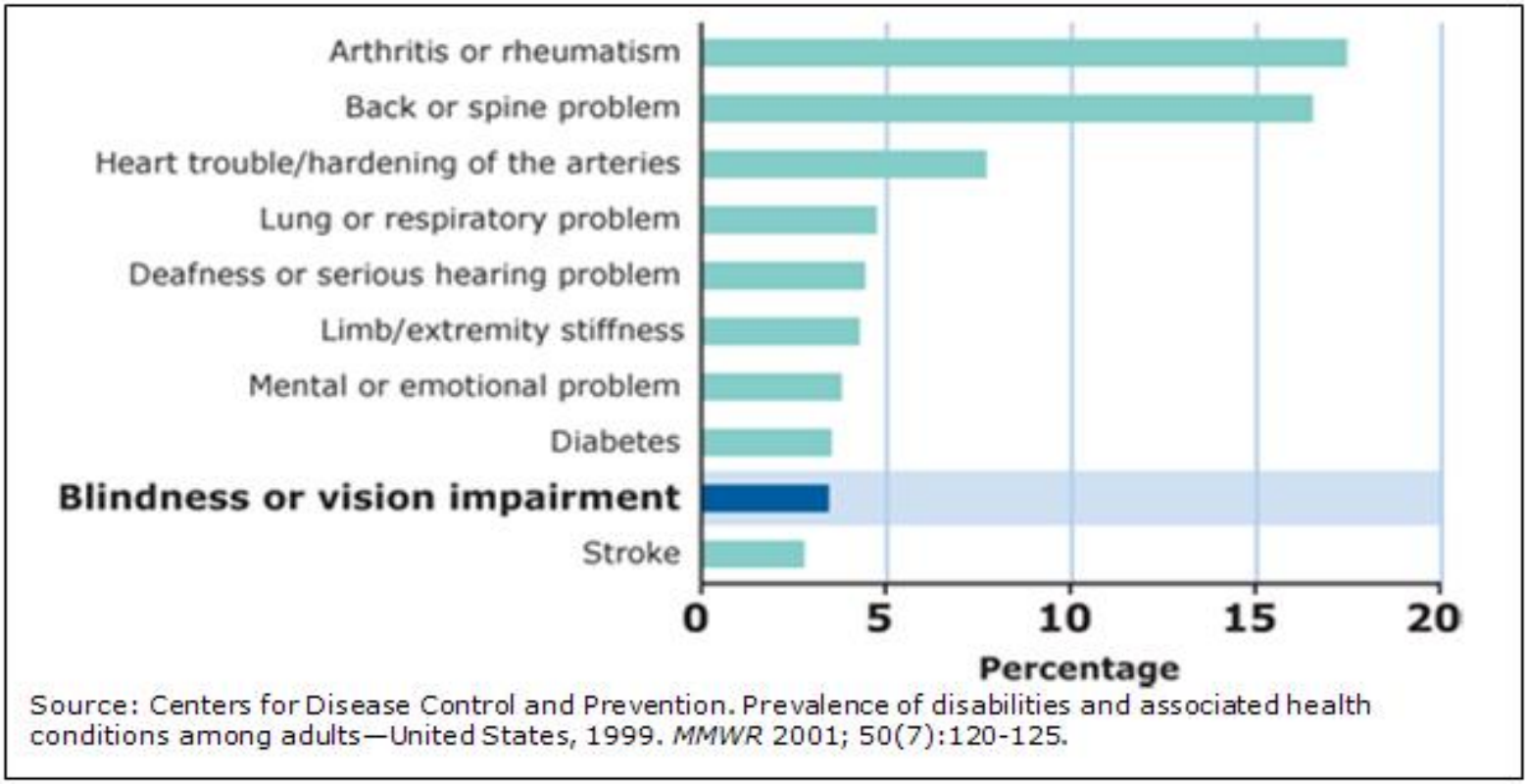
However, there are clearly complex relationships between medical conditions, medication use, gender and driving behavior.



Source: Centers for Disease Control and Prevention. Prevalence of disabilities and associated health conditions among adults—United States, 1999. *MMWR* 2001; 50(7):120-125.

The most important question you will hear today:

How can we support the twin goals of safety AND mobility for older persons?

One answer is through the increased use of safety technology….

….but is safety technology truly safe for older drivers?

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Prospective new- and used-car buyers are increasingly being offered a range of technologies that are intended to improve safety.

Electronic Stability Control

Adaptive Cruise Control

Adaptive Headlights

Back-up Cameras

Forward Collision Mitigation

Forward Collision Warning

Lane Departure Warning

Very little consumer-friendly information is currently available to help older drivers make educated decisions about which – if any – of these technologies would best suit their needs.

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Electronic Stability Control

Different Names, Same Idea

Vehicle Stability Assist
Electronic Stability Program
StabiliTrak
Vehicle Dynamic Control
Dynamic Stability Control
AdvanceTrac

ESC systems designed to detect situations in which the driver may be under- or over-steering (as in a sharp, sudden turn), or in cases where the driver is not adequately controlling the vehicle (as on icy roads).

Limitations:

The system would not affect older drivers unintentionally drifting out of the lane.

It does not have much effect on rear-end collisions.

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Electronic Stability Control

Numerous studies have been conducted of ESC, and its proven benefits are why the Federal government mandates it in all vehicles. Examples of real-world findings include:

33-34% reduction in overall fatal crash involvement risk

Single vehicle crash risk reduced by 33-35% for standard passenger vehicles and 56-67% for SUVs

Has potential to prevent 72% of car rollovers and 64% of SUV rollovers that would otherwise occur in single-vehicle crashes

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Adaptive Cruise Control

Different Names, Same Idea

Autonomous cruise control

Intelligent cruise control

What Is It?

ACC senses where the vehicle in front of you is relative to your own vehicle, and slows down and speeds up your vehicle to maintain consistent spacing.

The primary benefit of this technology is that it helps the older driver manage speed and maintain a safe distance to other cars.

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Adaptive Cruise Control

Why did ACC Earn a 1-Star Rating for overall safety benifit

- Only one publically-available report on the safety benefits of ACC
- Findings are limited only to collisions on freeways for travel velocities above 25 mph when:
  - an ACC-equipped vehicle approached a slower vehicle traveling at a constant velocity,
  - a lead vehicle slowed in front of an ACC-equipped vehicle.

However, the crash types tested in the one available study account for less than 1% of total crashes in the real world.

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Adaptive Headlights

Different Names, Same Idea

Advanced Forward Lighting System

Adaptive Headlamp

What Is It?

Adaptive headlights adjust their direction and intensity in response to the driver's steering to provide additional light on curves, turns, hills, or to highlight potential hazards.

Mobility Significance

Adaptive headlights enhance the older driver's field of view in dark or other poor visibility conditions. They extend the hours during which a older driver can comfortably drive.

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Adaptive Headlights

Adaptive are theoretically relevant to 90% of the crashes that occur on curves at night.

To date, however, little evidence exists proving such high benefits in the real world, though insurance claims data comparing vehicles with and without Adaptive Headlights generates a conservative 3 solid star rating.

Because these systems can improve visibility, they do not warn the driver about potential obstacles.

About a quarter of drivers who use adaptive headlights have reported that they are willing to drive faster with this technology turned on.

The lights do not make it safer to speed.

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Back-up Cameras

What Is It?

Back-Up Cameras allow the driver to view the area behind the rear bumper and see small objects that may be obstructed by the vehicle's blind spots.

Some have audible alarms

Some apply the brakes automatically to prevent a potential collision.

Who Benefits Most?

It seems beneficial to older drivers, who may lack the flexibility necessary to turn and thoroughly check the blind spot.

Older drivers were more likely than younger drivers to be interested in the system.

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Back-up Cameras

Why Did Back-Up Cameras Earn a 1-Star Overall Safety Benefit Rating?

Can reduce fatal backover crashes (in which a vehicle in reverse hits a person) by 46%, this crash type itself accounts for a small number of overall crashes.

Some back-up camera systems will turn off if the vehicle is traveling faster than a certain speed (6 MPH in many implementations). Drivers should remember to continue to check their rearview mirrors and look over their shoulders in order to avoid becoming overly reliant on the camera.

Image quality will vary between different implementations and conditions. Some cameras overlay guidelines onto the video.

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Forward Collision Mitigation
Forward Collision Warning

What Is It?

Forward Collision Mitigation (FCM) systems detect how far and fast the vehicle in front of you may be moving, and automatically apply the brakes if you do not respond. In this way, FCM systems work to reduce the chance of crashes, and reduce the severity of collisions when they do occur.

FCM should not be confused with Forward Collision Warning (FCW). A Mitigation system will both warn the driver and slow the vehicle, whereas a Warning system will only warn the driver.

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Forward Collision Mitigation
Forward Collision Warning

Who Benefits Most?

FCM systems would be most useful for inattentive drivers who have trouble monitoring their surroundings at all times.

It would also be especially helpful to drivers who have trouble reacting quickly to unexpected events, such as older drivers or those with disabilities.

Additionally, FCM may be particularly relevant to drivers who spend a great deal of time in stop-and-go traffic, such as commuters in congested urban areas.

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Forward Collision Mitigation
Forward Collision Warning

Who Benefits Most?

Inattentive drivers who have trouble monitoring their surroundings at all times.

Drivers who have trouble reacting quickly to unexpected events, such as older drivers or those with disabilities, arthritis, or osteoporosis.

Additionally, older drivers who spend a great deal of time in stop-and-go traffic, such as commuters in congested urban areas.

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Forward Collision Mitigation
Forward Collision Warning

In What Situations Doesn't It Work?

Camera-based FCM systems are less effective than radar-based systems, as these do not work as well at night and can be "blinded" by sunrise and sunset glare.

Additionally, some systems will only detect other moving vehicles or vehicles traveling at a minimum speed, while others will detect both moving and stationary vehicles.

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Forward Collision Mitigation
Forward Collision Warning

The 23% crash reduction reported in the insurance data translates to a 6.6% reduction in crashes overall, based on the proportion of crashes accounted for by rear-end collisions.

Potential fatality reduction of 17%, injury reduction of 21%, and crash rate reduction of 25% have been documented. Real-world insurance data have documented a 5-7% reduction in claims for FCW-equipped vehicles, yielding 1 Solid Star.

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Lane Departure Warning

What Is It?

Alerts drivers whenever they unintentionally drift too close to the edges of the lane. The warning type varies between car manufacturers; some use an alarm sound, while others cause the driver's steering wheel or seat to vibrate, creating a feeling like driving over a rumble strip.

How Well Does It Work?

Improved lane-keeping by 34%, and in one study cut unintentional lane crossing in half.

Drivers were more likely to use their turn signals, especially on highways.

Some in the driving safety research community have questioned the extent to which motorists actually turn off the warnings while driving, and thus would be unable to benefit from the system.

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Questions?

Thank You!!