

Factors Leading to Older Drivers' Intersection Crashes

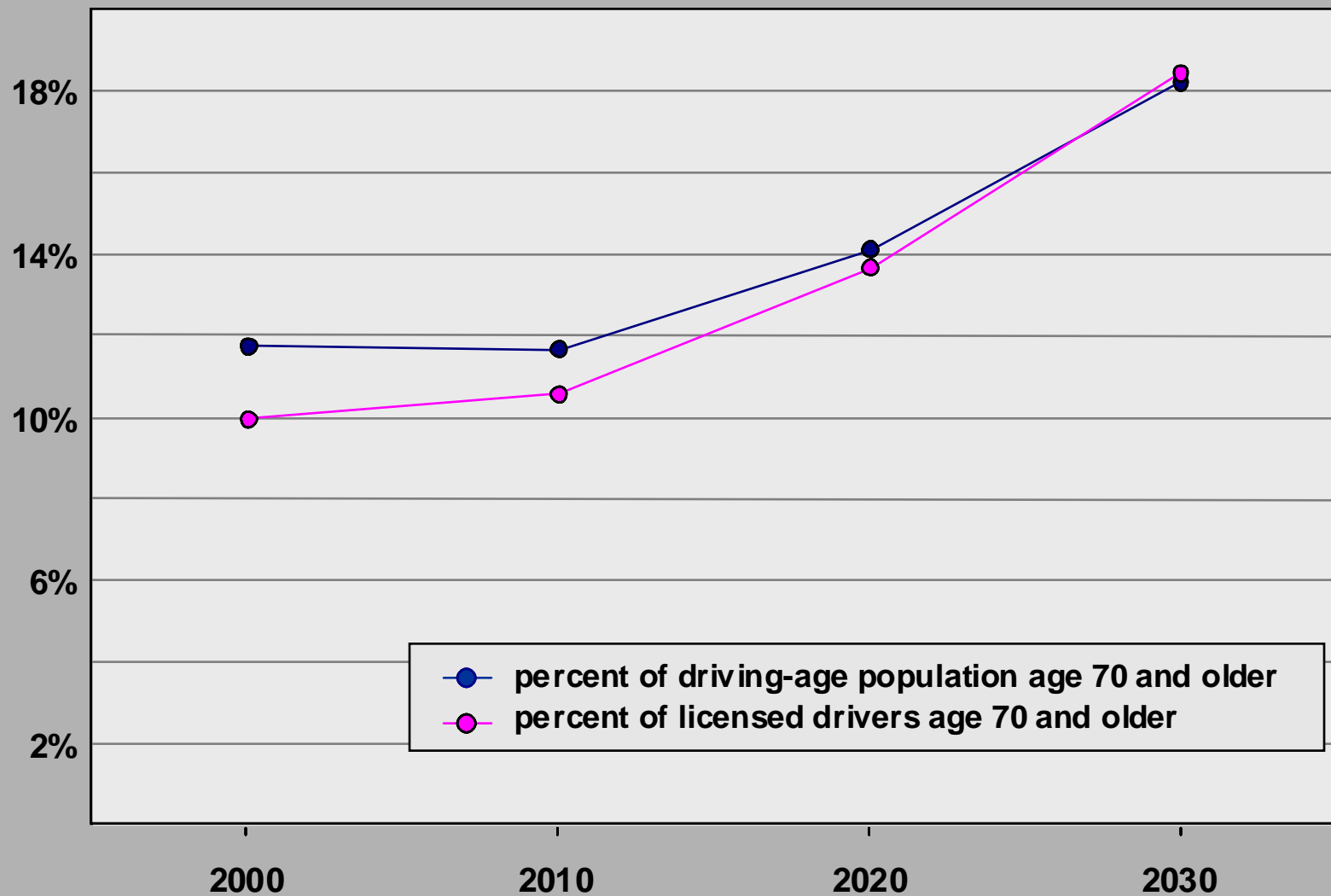
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Projections of population and licensure Ages 70 and older





Emergency personnel assist pedestrians injured after a car plowed through a farmers market in Santa Monica, Calif., where officials said at least eight people were killed.

8 Die as Car Slams Into Calif. Farmers Market

Crash Renews Debate on Older Drivers

86-Year-Old Motorist Had Clean Record, Officials Say

Crash raises old-drivers issue

Accident that killed 10 in Calif. might not result in any charges

Man loses license after disaster at Calif. market

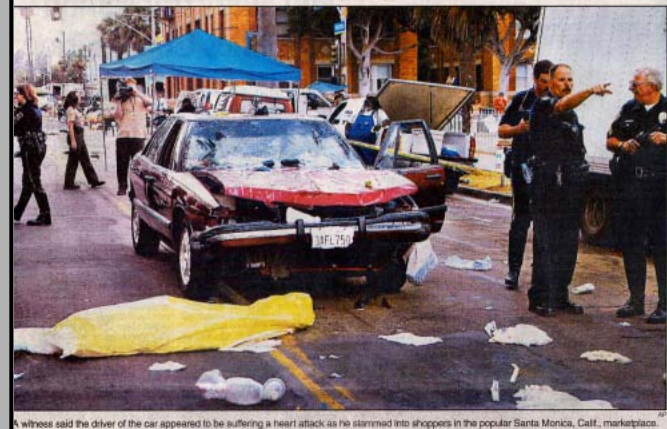
By Martin Kasindorf
USA TODAY, July 24, 2003

SANTA MONICA, Calif. — State officials have revoked the driving license of the 86-year-old man whose car plowed through an outdoor farmers market July 16, killing 10 pedestrians and injuring 69.

Calif. market tragedy raises safety concerns

Elderly drivers | Tragedy in California States should rethink policy

Eight killed in California market



A witness said the driver of the car appeared to be suffering a heart attack as he slammed into shoppers in the popular Santa Monica, Calif., marketplace.

SANTA MONICA CRASH; Stricter Rules for Elderly Motorists Could Be Urged

Elderly motorist plows into crowds in Santa Monica; up to 45 injured

8 die at market; elderly driver released

By Chris Woodyard and Scott Bowles
USA TODAY

SANTA MONICA, Calif. — A farmers market filled with afternoon shoppers was ripped apart Wednesday by an elderly driver who smashed through the produce stands and crowds of people with his four-door sedan.

When the 86-year-old man's battered Buick LeSabre came to a stop, eight people lay dead and many more were on the ground bleeding and crying for help. Scattered about them were pieces of canopies, crushed fruit and cut flowers.



By Karl Gehlb, USA TODAY
blocks from a popular ocean-side promenade in Santa Monica, a suburb of Los Angeles. Taking up two city blocks and



By Jeff Gimes, Getty Images
Fatal crash: Emergency workers cover a body Wednesday in front of the car that plowed through the market in Santa Monica.

and bleeding and crying," he said. "There were shoes and bags everywhere."

When the car finally stopped, Major said, he saw an elderly man "just sitting there looking disoriented."

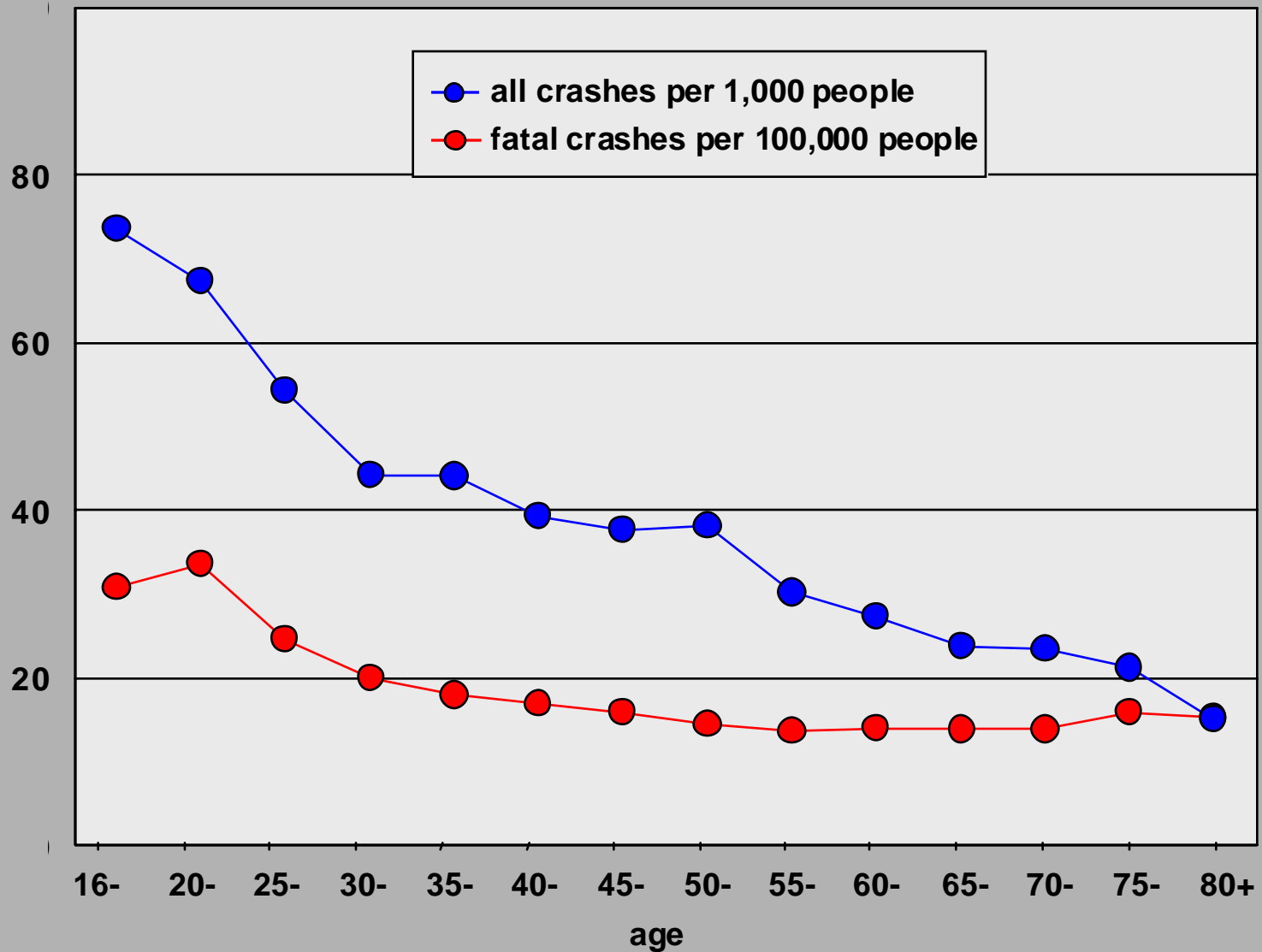
"I don't think he was angry or it was road rage or anything," Major said. "The airbag had gone off, and he looked dizzy and confused."

The car's front end and roof were badly dented; its windshield smashed. What looked like two shoes lay on its roof.

Butts said the man was taken to a hospital for a blood test, and initial results found no traces of alcohol. The man

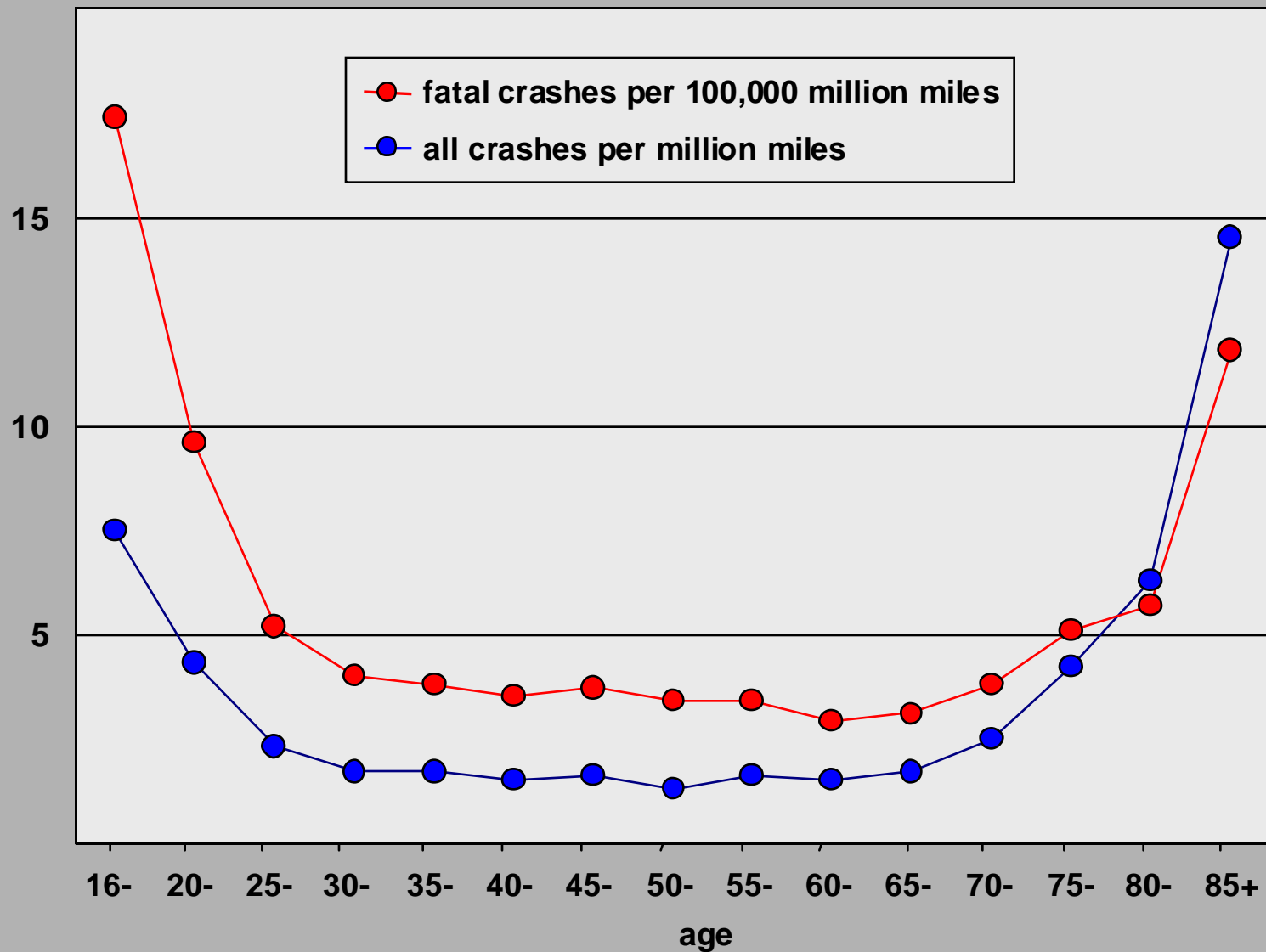
Crashes per population

By driver age, 2006



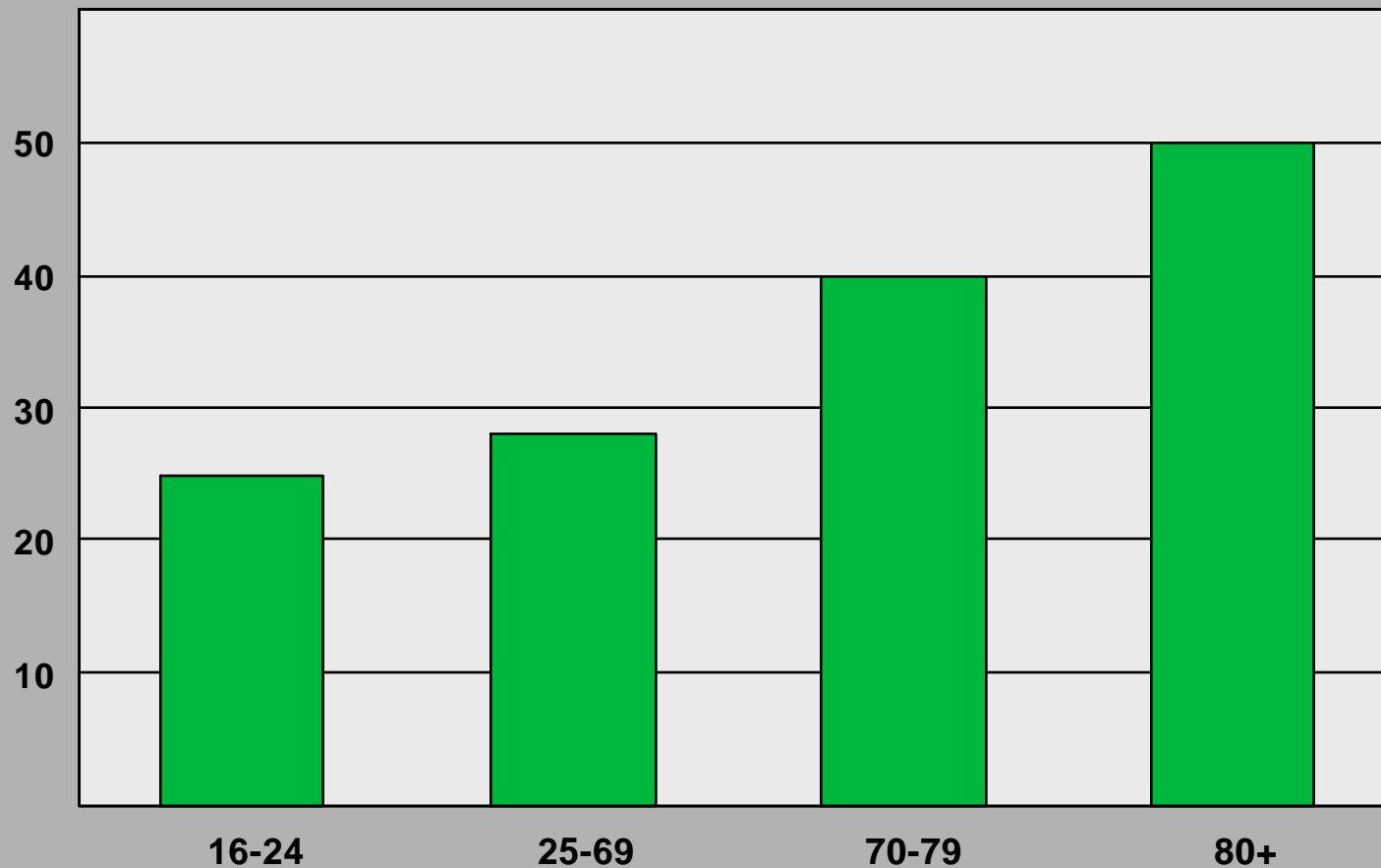
Crashes per mile traveled

By driver age, 2001-02



Percent of passenger vehicle drivers in fatal crashes occurring at intersections

By driver age, 2006



Review of older drivers' crashes

IIHS, 2006

- ◆ More likely than crashes of younger drivers to occur at intersections
- ◆ Crashes particularly likely to occur when turning left
- ◆ More likely than younger drivers to be judged at fault because of failure to yield or disregard of traffic signal
- ◆ Crash involvement of older drivers increases along with age

Study objective

- ◆ Improve understanding of factors involved in at-fault, older drivers' intersection crashes
- ◆ Previous research relied on crash data, crash investigations, or in-vehicle video observations
- ◆ In current study, in-depth telephone interviews conducted with at-fault, crash-involved drivers to gain richer insight into pre-crash circumstances

Method

- ◆ Obtained police crash reports for intersection crashes occurring in Connecticut between August 2003-October 2004
- ◆ At least 1 nonfatal injury
- ◆ Study groups of at-fault drivers
 - older drivers: ages 70-79; 80+
 - comparison drivers: ages 35-54

Telephone interviews

- ◆ Occurred within 3-10 weeks of crash
- ◆ Interviewer reviewed crash report and photos of intersection prior to interview
- ◆ Gathered accounts of crash, particularly events immediately prior to crash
- ◆ Were audio-taped with permission
- ◆ Two researchers coded each crash from interview, crash report, and photographs
 - Crash type and primary error leading to crash were coded
 - High interrater reliability

Sample

- ◆ 903 crash reports obtained
- ◆ phone numbers obtained for 398 drivers (44 percent)
 - 162 of 544 for drivers ages 35-54 (30 percent)
 - 130 of 214 for drivers ages 70-79 (61 percent)
 - 106 of 145 for drivers ages 80+ (73 percent)

Sample (continued)

- ◆ Interviews were completed for 227 drivers
 - 73 of 162 drivers 35-54 (45 percent)
 - 78 of 130 drivers 70-79 (60 percent)
 - 76 of 106 drivers 80+ (72 percent)
- ◆ No significant differences between interviewed and non-interviewed drivers on crash type or contributing factor
- ◆ One significant gender difference between interviewed and non-interviewed drivers
 - For at-fault drivers 80+, 64 percent of interviewed drivers male; 43 of non-interviewed drivers male

Percent distribution of crash type*

By driver age

	ages 35-54	ages 70-79	ages 80+
failure to yield right-of-way	26	37	58
rear-end	45	42	26
ran traffic control	8	8	7
ran-off-road	18	4	1

*These four crash types accounted for 94 percent of all crashes

Percent distribution of primary error

By driver age

	ages 35-54	ages 70-79	ages 80+
failed to see other vehicle	45	36	71
misjudged other vehicle	22	45	16
other	33	19	13

Failure to yield crashes

- ◆ Type of traffic control
 - 59 percent stop signs
 - 22 percent signalized intersections
 - 20 percent no traffic control present
- ◆ Travel direction of at-fault driver
 - 70 percent turning left
 - 18 percent traveling straight
 - 5 percent turning right
- ◆ Patterns consistent across age groups

Percent distribution of primary error in failure-to-yield crashes

By driver age

	ages 35-54	ages 70-79	ages 80+
failed to see other vehicle	84	55	86
misjudged other vehicle	5	41	12
other	10	3	2

Reasons didn't see other vehicle

Percent distribution by driver age

	ages 35-54	ages 70-79	ages 80+
looked but didn't see	27	50	65
distraction/inattention	35	29	20
obstructed view	21	21	7
information overload	0	0	6

Conclusions

- ◆ Failure to yield crashes increased with age, accounting for more than half of crashes of drivers 80 and older
- ◆ For all ages failure to yield occurred mostly when turning left and mostly at stop signs
- ◆ Reasons for failing to yield
 - For all ages not seeing other vehicle was largest factor
 - For drivers 70-79 another frequent error was misjudging whether there was time to proceed
- ◆ Oldest and youngest drivers failed to see for different reasons
 - Youngest drivers were more often distracted, whereas oldest drivers looked but didn't see

Potential countermeasures

- ◆ Convert traditional intersections to roundabouts
 - Need only look in one direction to evaluate traffic
 - Have been shown to substantially reduce all crashes and injury crashes
 - Some concern that older drivers may avoid roundabouts
- ◆ At signalized intersections add protected left turn lanes
- ◆ Crash avoidance technologies (e.g., warn driver when it is unsafe to enter an intersection)
 - But may cause confusion or distraction for older drivers

For more information:

www.iihs.org

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