

The Impact of Driver Age on Crash Rates and Outcomes, Wisconsin, 1991-1995

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Importance of Age as a Factor in Crash Rates and Outcomes

- Population is aging.
- Policy makers are evincing interest in delimited forms of licensing to reduce crashes.
- Do significant crash outcome differences exist between age groups, and if so, what are they?

Wisconsin CODES Data

- 1991-1995 Motor Vehicle Crash Data with VINs
- 1991-1995 Hospital Discharge Data
- No EMS or ED data available

- Data Linkage Based On:
 - ❖ Zipcode of Residence
 - ❖ Date of Crash/Hospital Admission
 - ❖ Birthdate
 - ❖ Sex
 - ❖ Data linked via probabilistic linkage using Automatch

Outcome Unit of Analysis

Driver Analysis:

- Includes Outcomes for Driver only
- Both standardized and actual rates are presented

Other Crash Occupants Analysis:

- Includes outcomes for anyone other than a given driver.
- Only actual rates are presented
- Outcomes for other drivers in multiple car crashes are attributed back to every other driver in the crash.

OUTCOMES

CRASHES

HOSPITALIZATIONS

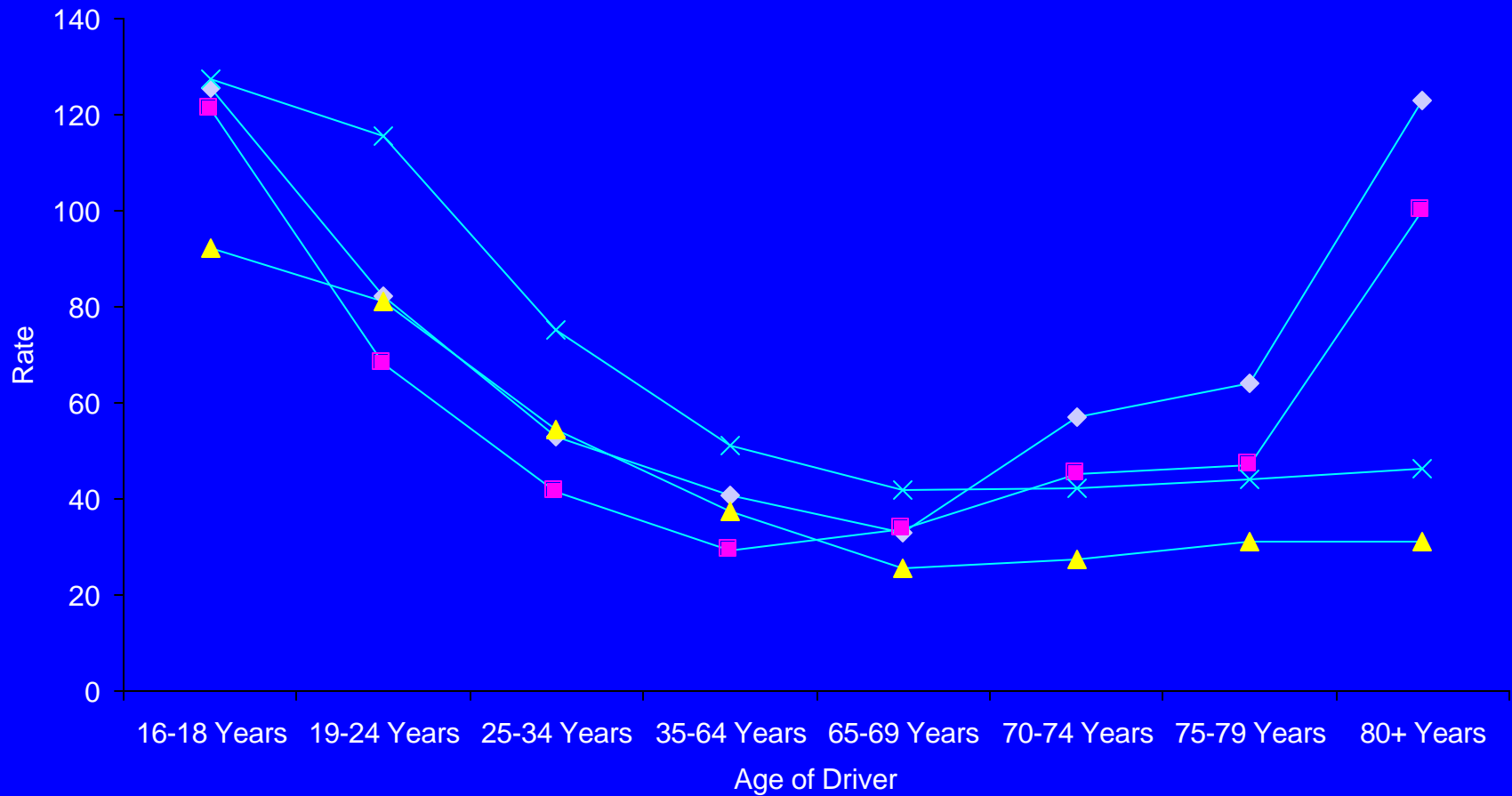
DEATHS

HOSPITAL CHARGES

Number of Crash Related Crashes, Hospitalizations and Deaths, Wisconsin, 1991-1995

	<u>Drivers</u>	<u>Occupants</u>
Total Number of Crashes:	1,036,170	1,036,170
Number of Hospitalizations:	12,701	13,496
Number of Deaths:	2,103	1,965

Standardized Crash Rates, by Age and Sex, Wisconsin, 1991-1995



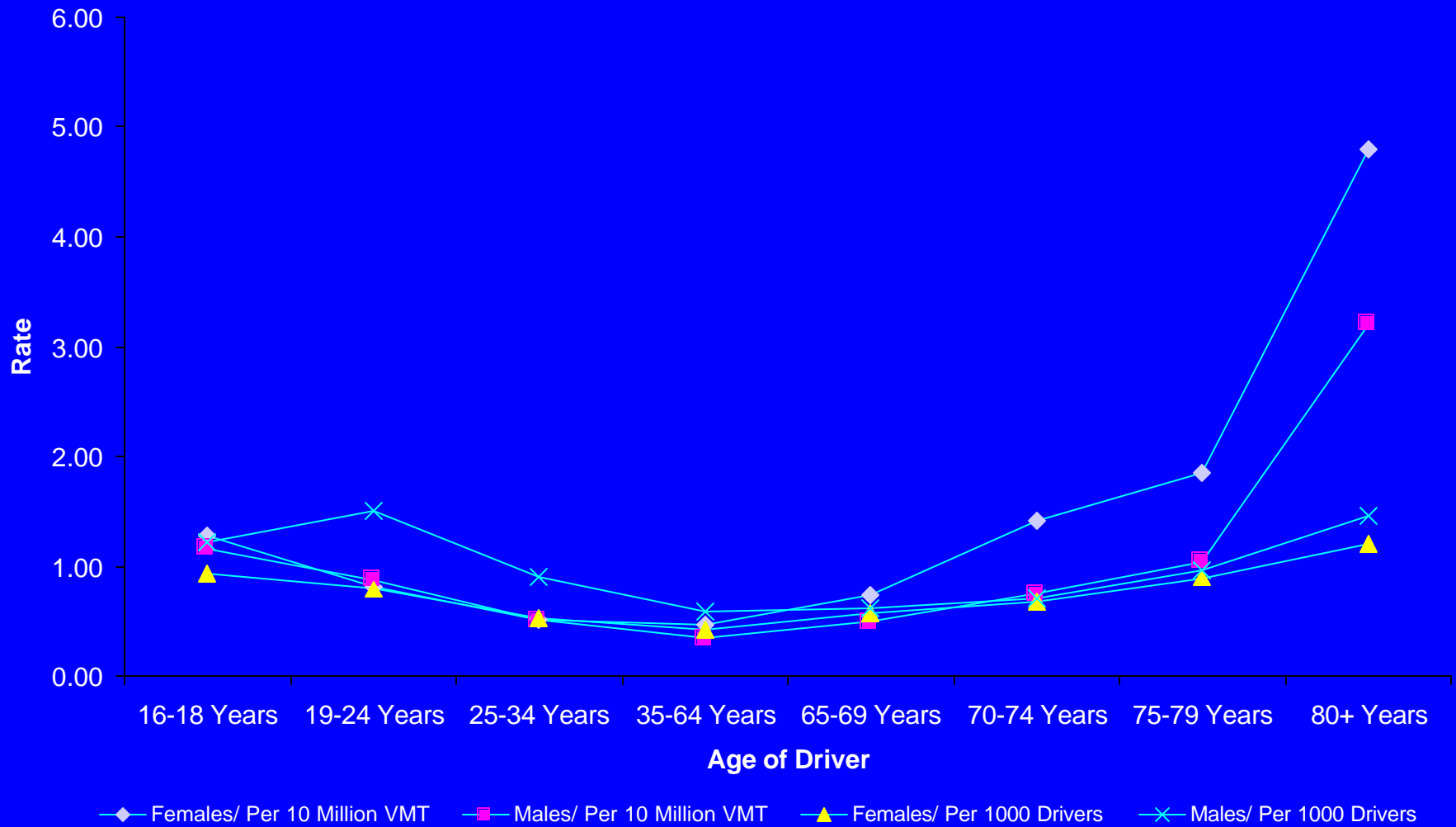
◆ Females/ Per 10 Million VMT

■ Males/ Per 10 Million VMT

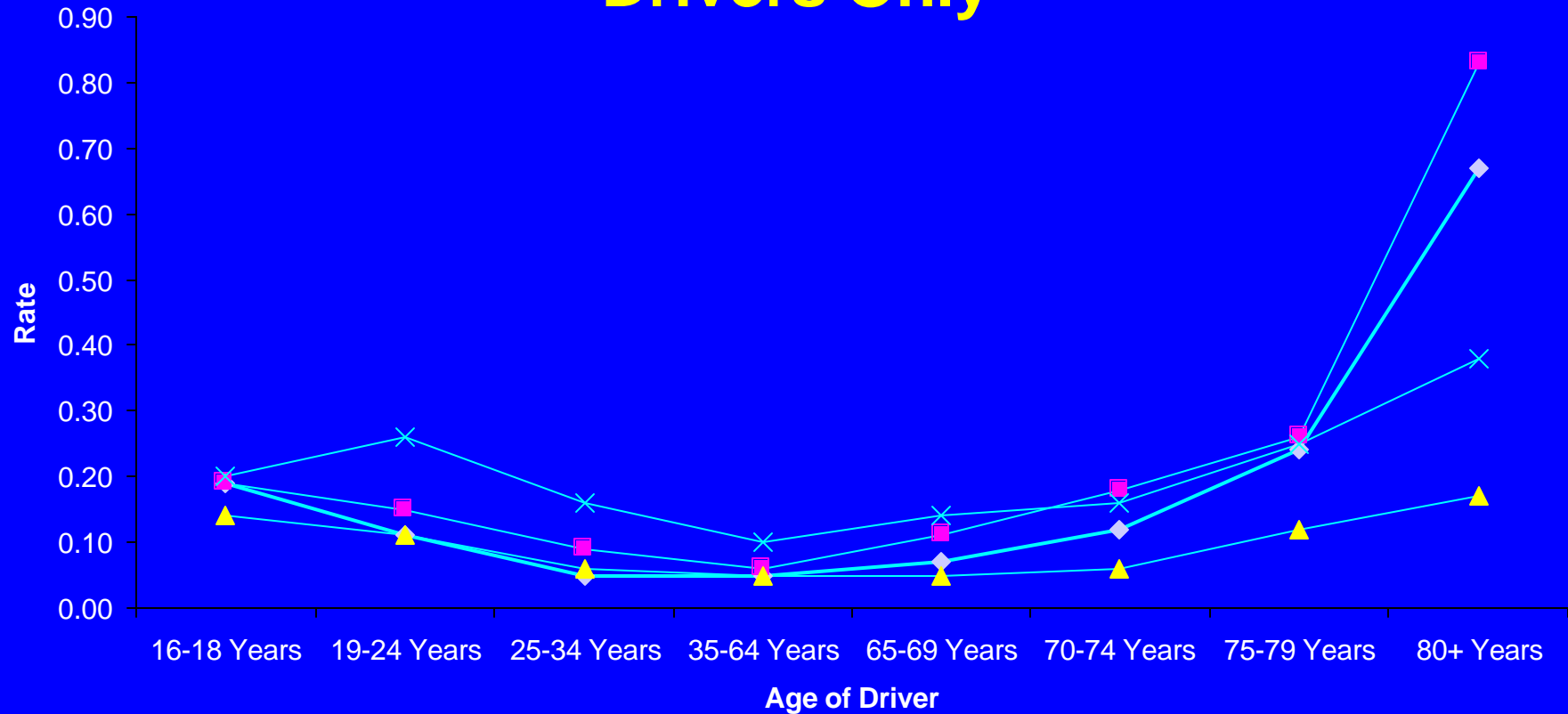
▲ Females/ Per 1000 Drivers

× Males/ Per 1000 Drivers

Standardized Rates of Hospitalization, by Driver Age, Wisconsin, 1991-1995 Drivers Only



Standardized Rates of Death, by Driver Age, Wisconsin, 1991-1995 Drivers Only



◆ Females/ Per 10 Million VMT ■ Males/ Per 10 Million VMT
▲ Females/ Per 1000 Drivers × Males/ Per 1000 Drivers

Results from Standardized Rates

For Crashes:

Using VMT, drivers with highest risk are drivers at each end of the age spectrum and female drivers.

Using number of licensed drivers, drivers with highest risk are younger drivers and male drivers.

For Hospitalization:

Using VMT, drivers with highest risk are drivers at both ends of the age spectrum and female drivers.

*Using number of licensed drivers, drivers with highest risk are drivers who are under 25 and over 65, and male drivers. However, *using VMT* yields higher increased risk for older drivers by comparison to using licensed drivers.*

Results from Standardized Rates(2)

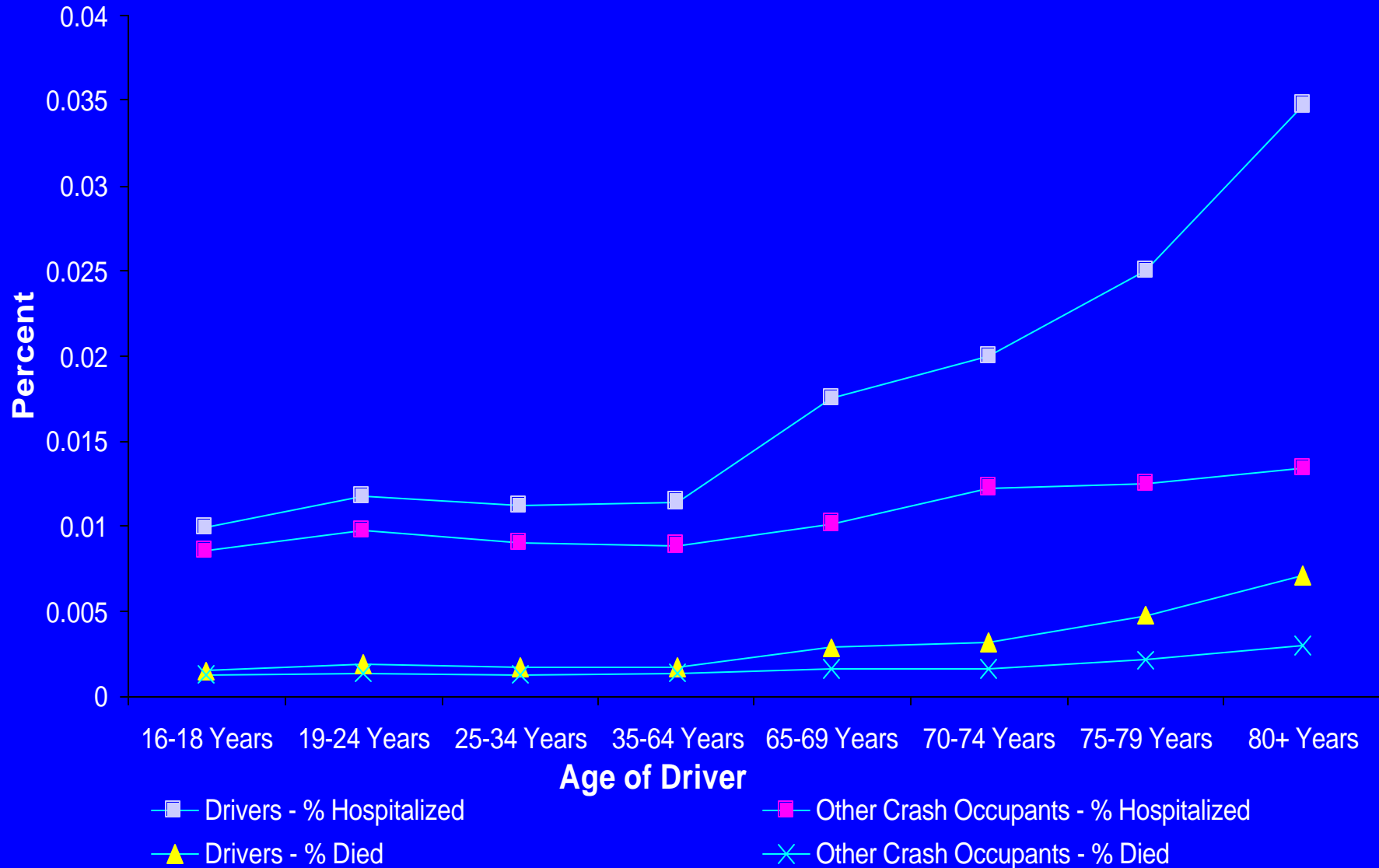
For Death:

Using VMT or number of licensed drivers, drivers with highest risk are drivers under 25 years old and over 65, as well as male drivers. Using VMT yields higher increased risk for older drivers by comparison to using licensed drivers.

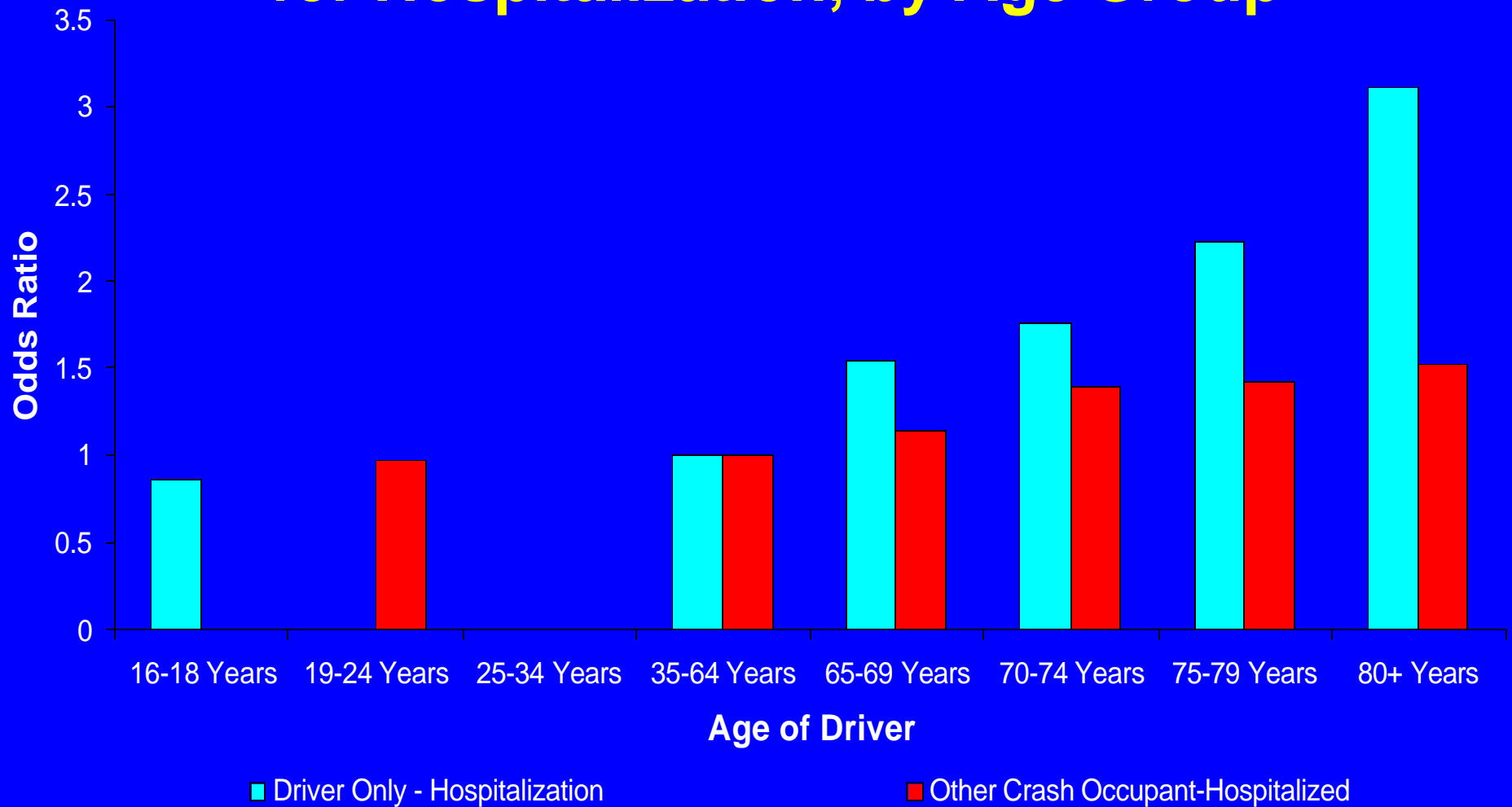
In General:

using Vehicle Miles Traveled (VMT) vs. number of licensed drivers as a tool to standardize the crash and crash outcome rates yields different results.

Percent of Crash Occupants Hospitalized or Dead, Wisconsin, 1991-1995

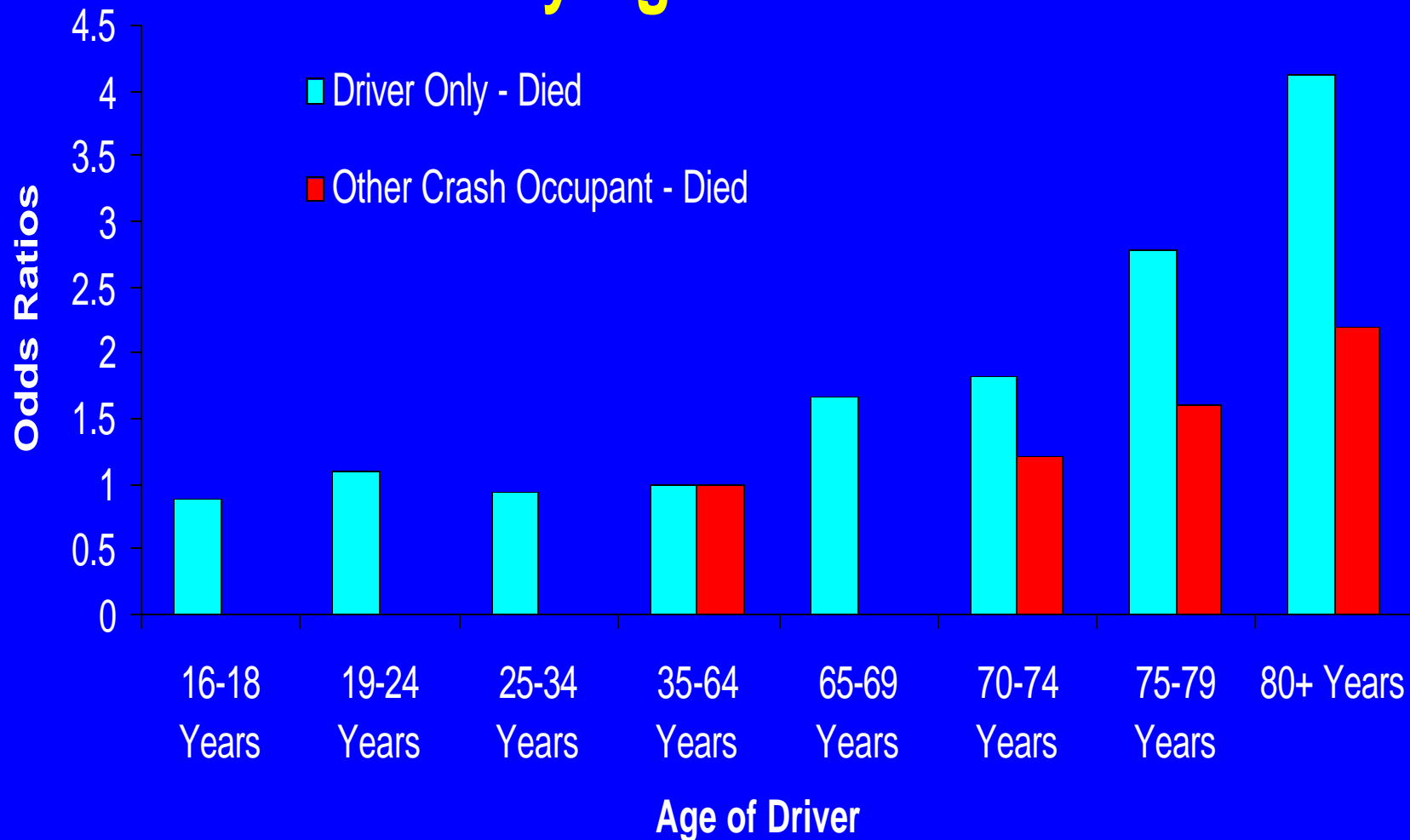


Logistic Regression Risk Ratios for Hospitalization, by Age Group



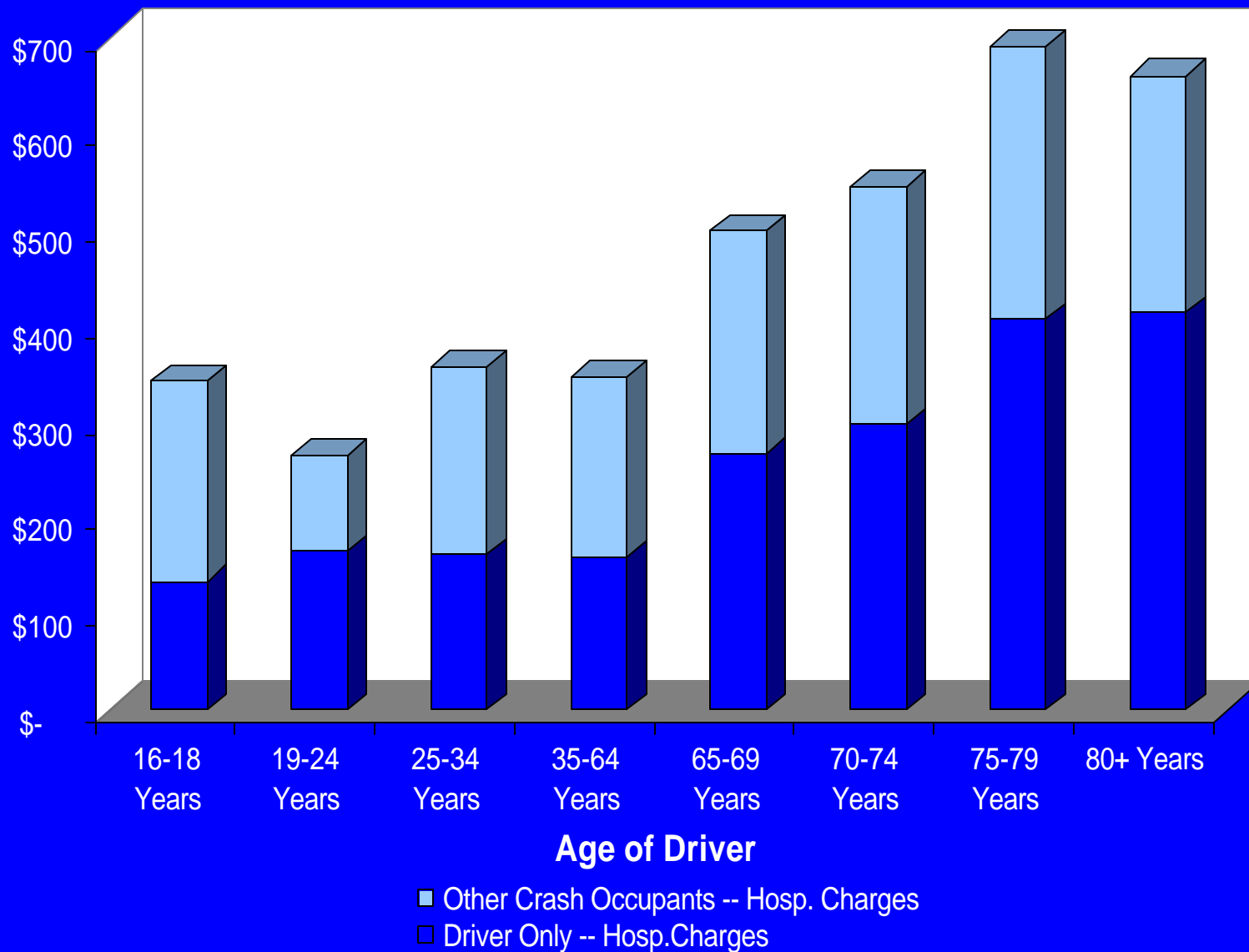
Note: Comparison group are drivers aged 35-64
Ratios only shown if significantly different at .05 level (except for comparison group)

Logistic Regression Risk Ratios for Death, by Age of Driver



Note: Comparison group are drivers aged 35-64
Ratios only shown if significantly different at .05 level (except for comparison group)

Hospital Charges per Crash Occupant, Wisconsin, 1991-1995



Results for Hospitalization and Death Rates, and Hospital Charges

For Hospitalization:

- ❖ Drivers with highest risk are those over age 65. Older drivers also tend to pose greater risks to other crash occupants than do younger drivers.

For Death:

- ❖ Drivers posing higher risks are older drivers.
- ❖ However, as with hospitalization, older drivers pose a greater risk to themselves by comparison to other crash occupants.

For Charges

- ❖ Although the trend is not monotonic over the life cycle, older drivers tend to have higher charges for themselves, and somewhat higher charges for other crash occupants as well.

CONCLUSIONS

- Older drivers have higher risk of being involved in crashes, being hospitalized and dying than do younger drivers. They also have higher hospital charges.
- While older drivers appear to pose greater risk to other crash occupants than younger drivers, they pose a greater risk to themselves.
- Linked data provides valuable additional information regarding crash outcomes and the impact of age on those outcomes and should be utilized in developing new policy regarding licensing.