

# The Contribution of Medical Conditions to Passenger Vehicle Crashes

Using NMVCCS Data



Refaat Hanna

Office of Traffic Records and Analysis

The National Center for Statistics and Analysis

**The National Highway Traffic Safety Administration**

**January 28, 2010**



“This is a work of the U.S. Government and is not subject to copyright protection in the United States; it may be used or reprinted without permission”



# Objective

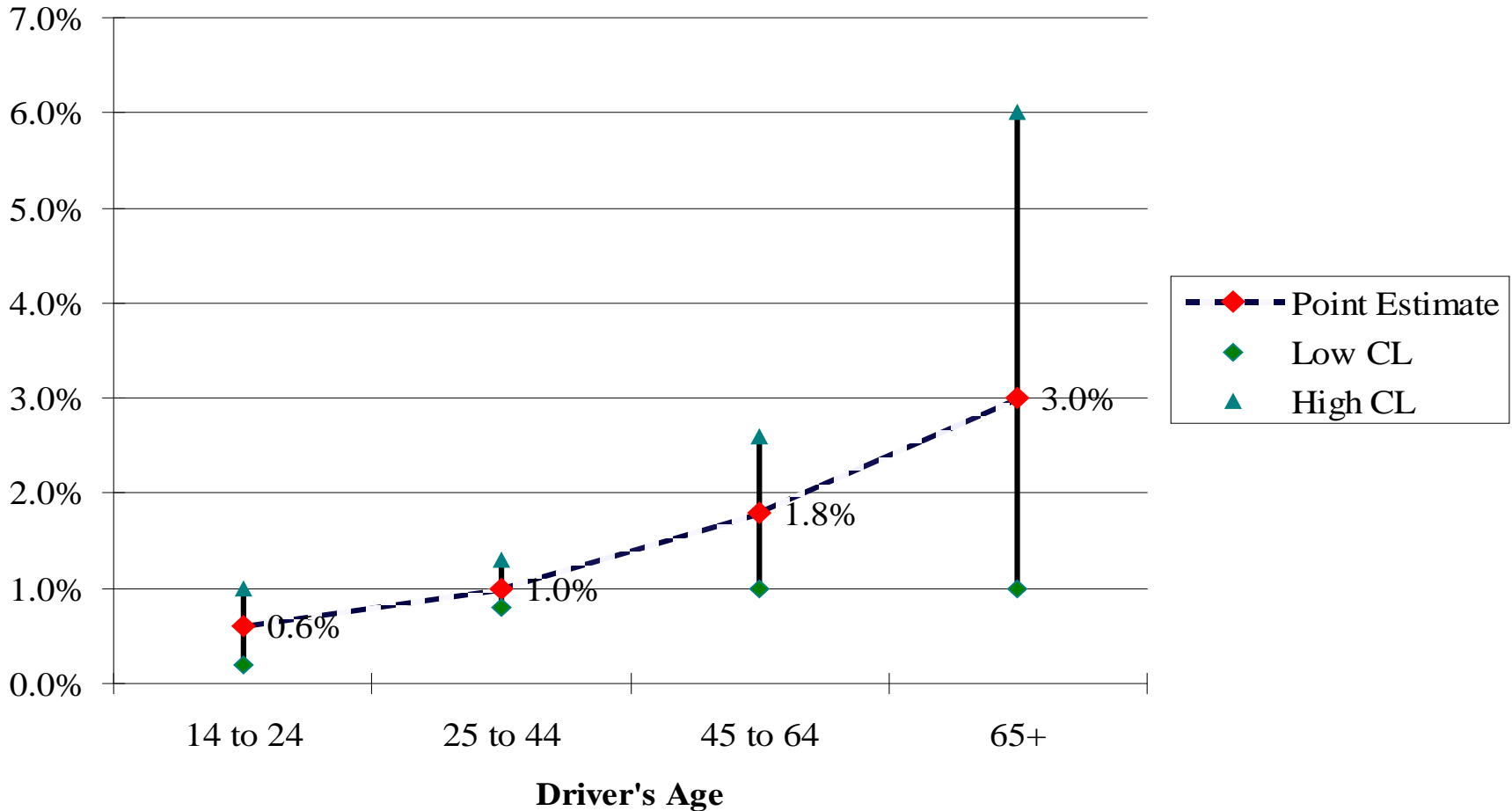
This analysis aims to identify drivers in crashes that have been precipitated by medical emergencies or other medical conditions while driving.

# Data Source

- This study provides a retrospective analysis of the National Motor Vehicle Crash Causation Survey (NMVCCS).
- NMVCCS was a nationwide survey of crashes that occurred between 6 am and 12 am in the period from July 3, 2005 to December 31, 2007.
- NMVCCS was limited to crashes involving light passenger vehicles to which EMS had been dispatched.
- Type of medical conditions that were identified as precipitating factor in the crashes were obtained by reviewing the crash description files.

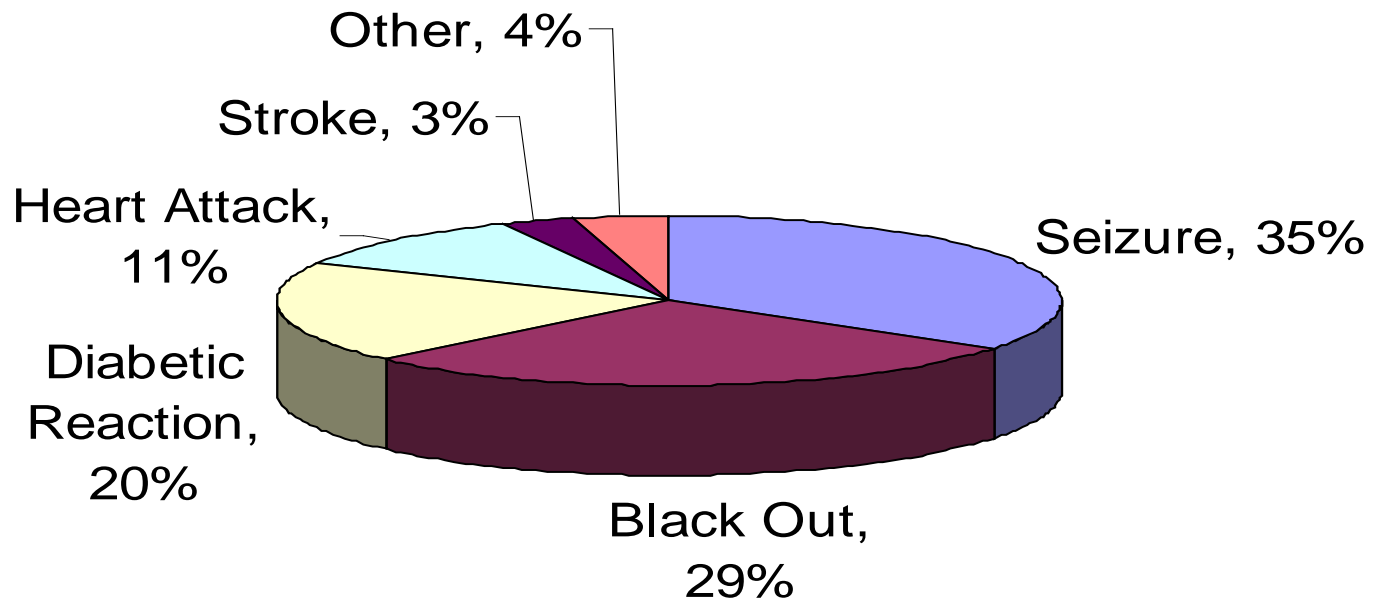
# *1- DRIVERS' Characteristics*

# Estimated distribution of drivers' age by presence of medical emergency

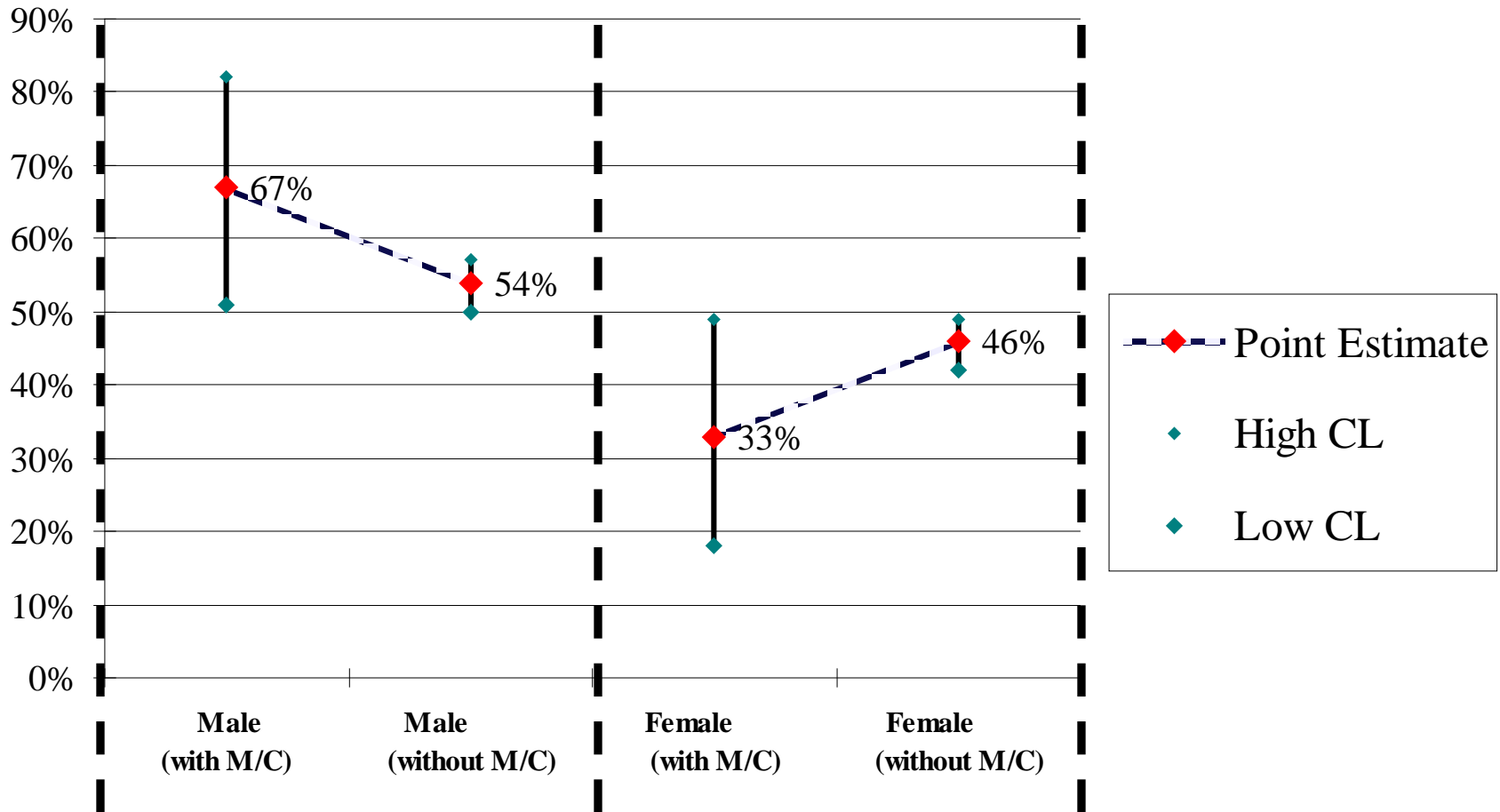


# Distribution of medical conditions that precipitated car crashes

Unweighted n= 138  
Weighted n= 49,868



# Estimated distribution of drivers' gender by presence of medical emergency



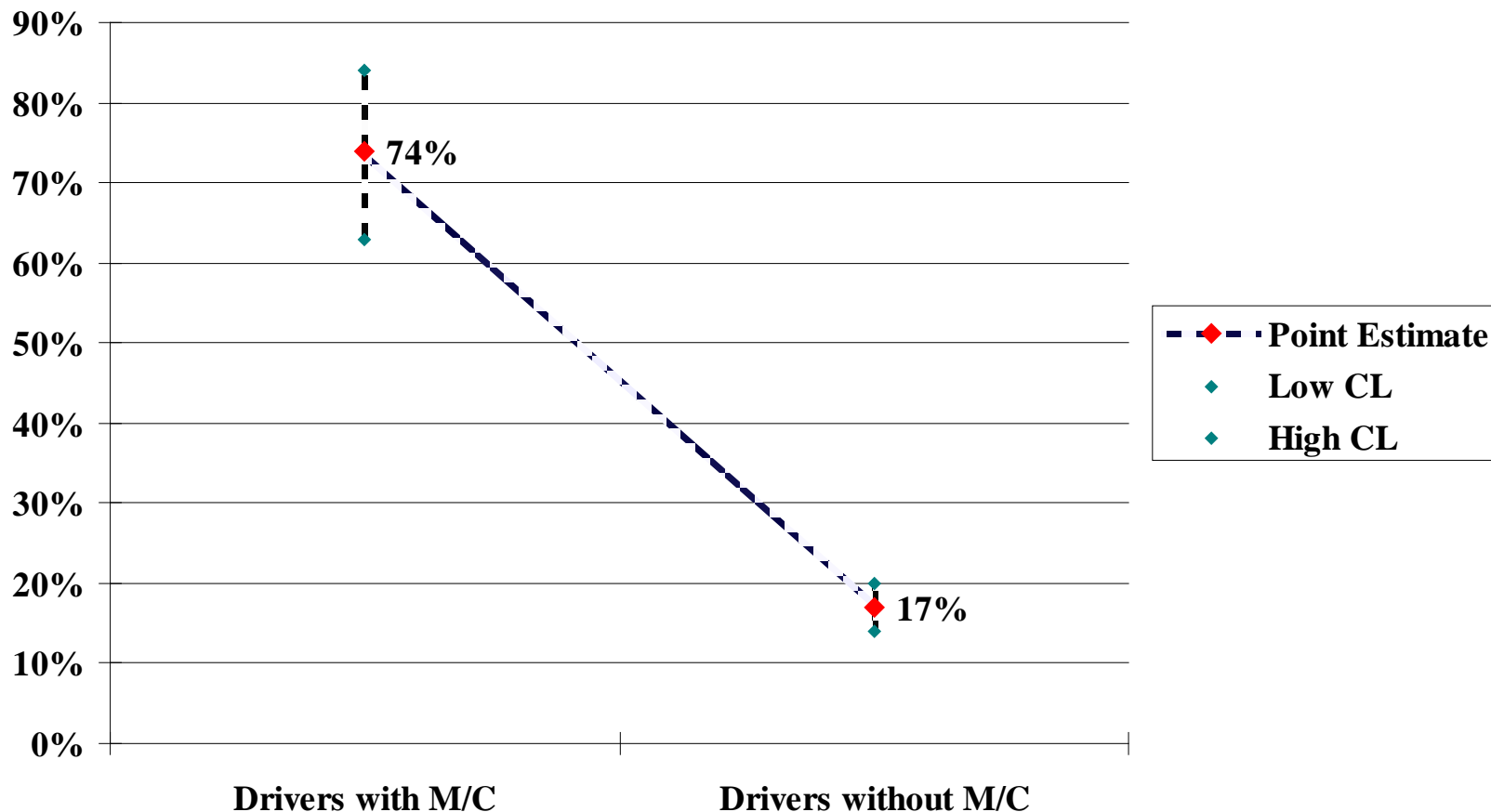
# Drivers' general health condition prior to crash

*Drivers were asked questions related to their:-*

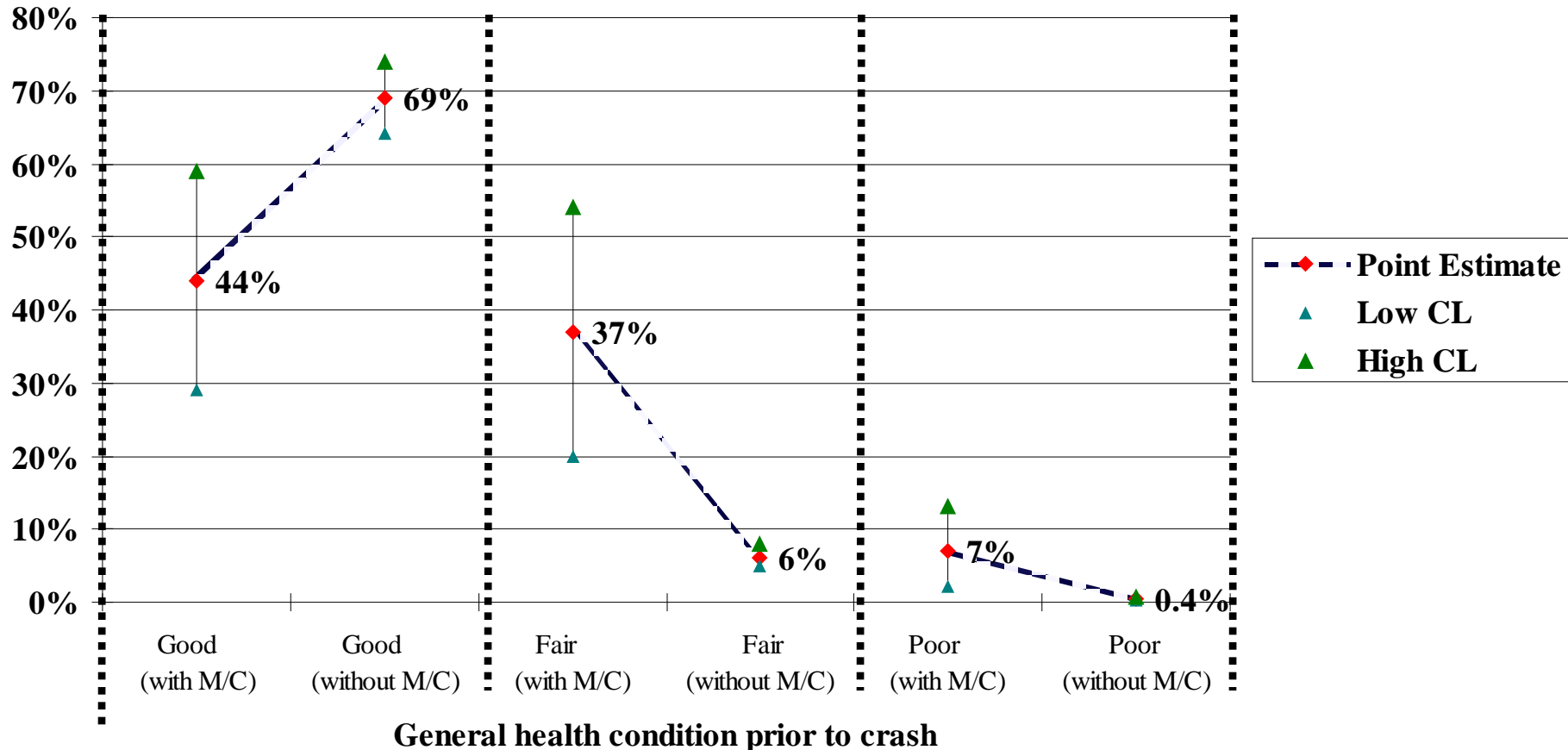
- ✓ General health condition
- ✓ Use of medications
- ✓ Feelings during the day of the crash



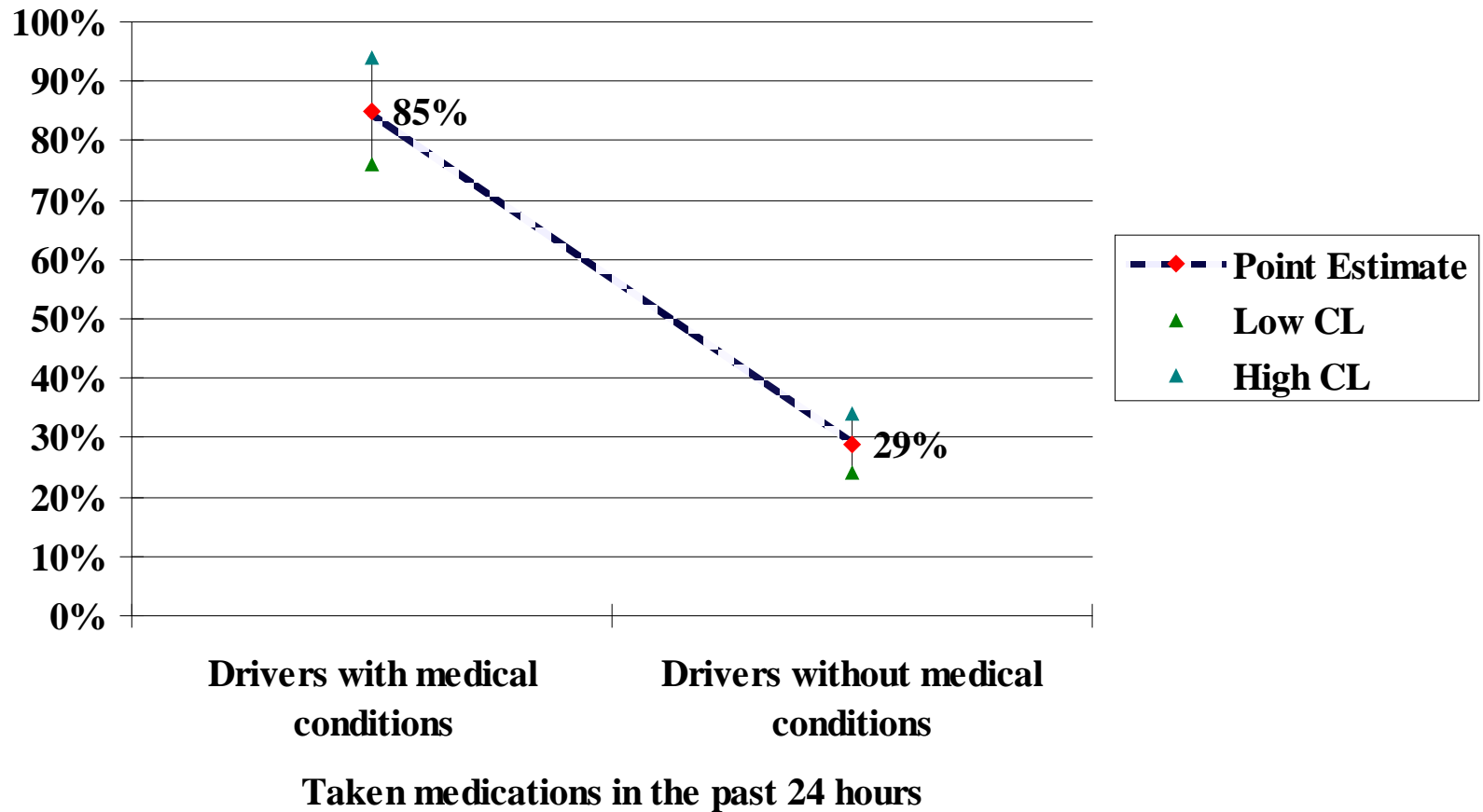
# Estimate distribution of drivers' awareness of their preexisting medical conditions



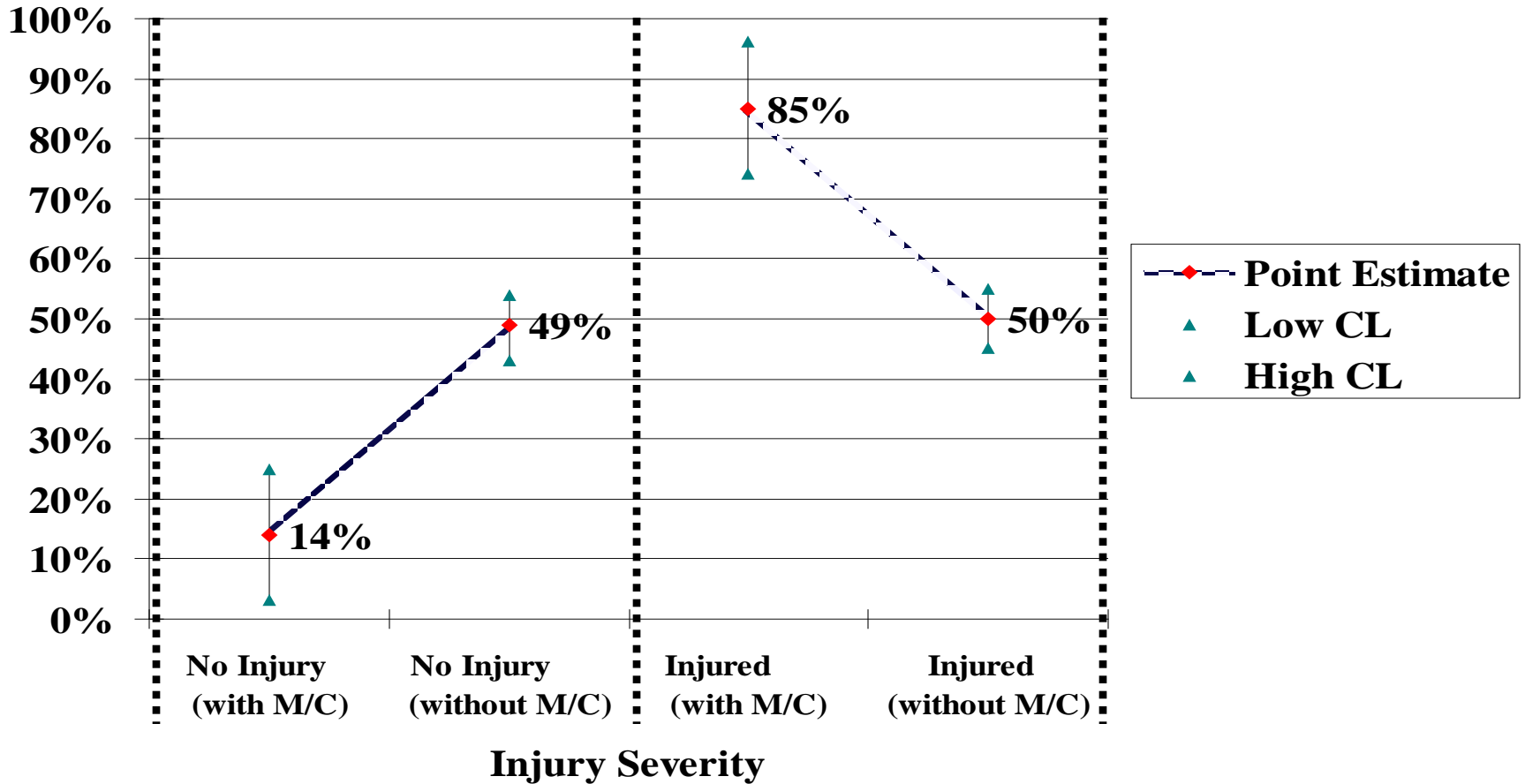
# Estimated distribution of driver's general health condition prior to crash



# Estimated distribution of drivers by medications use in the last 24 hours



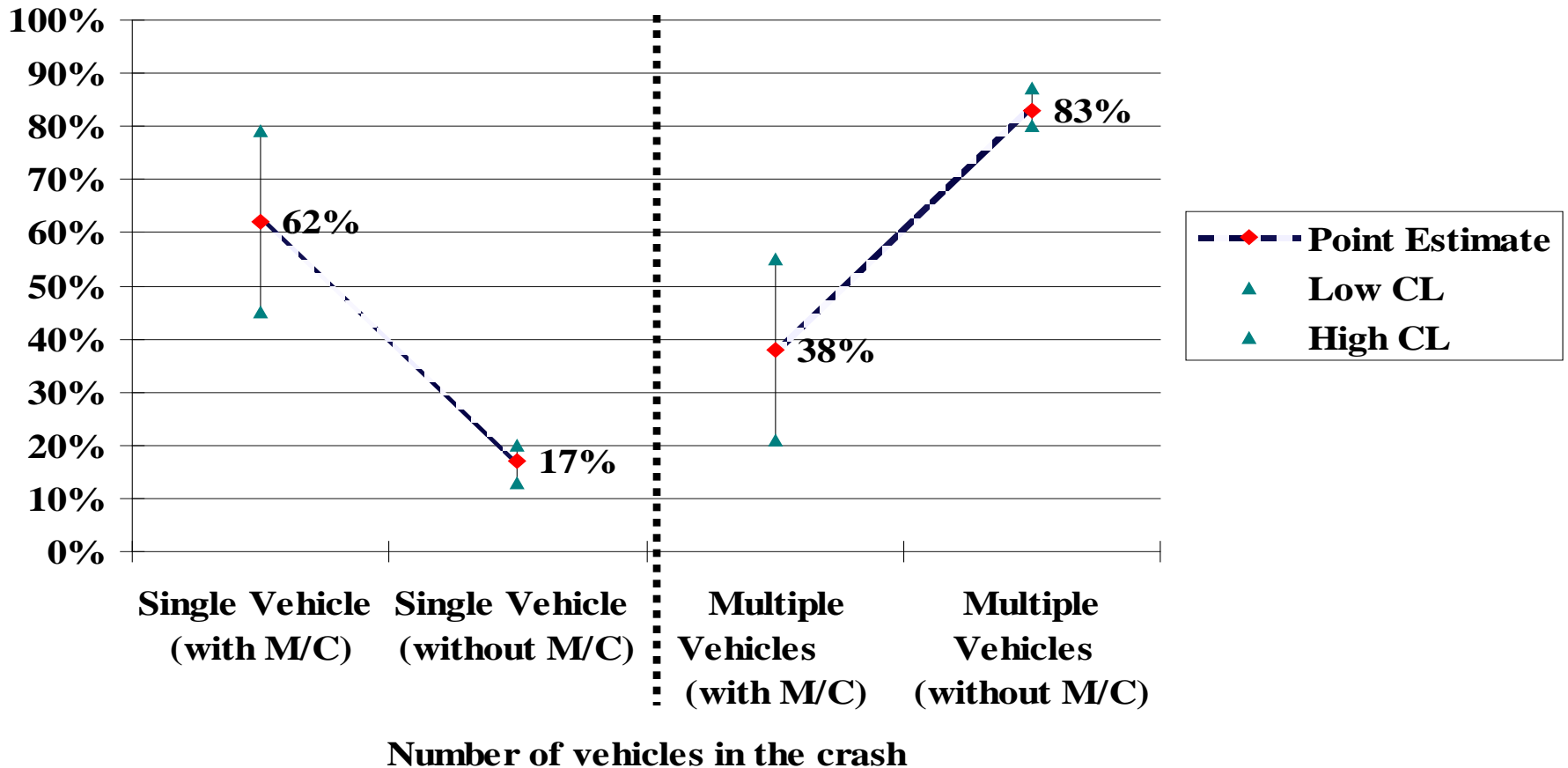
# Estimated distribution of drivers' injury severity



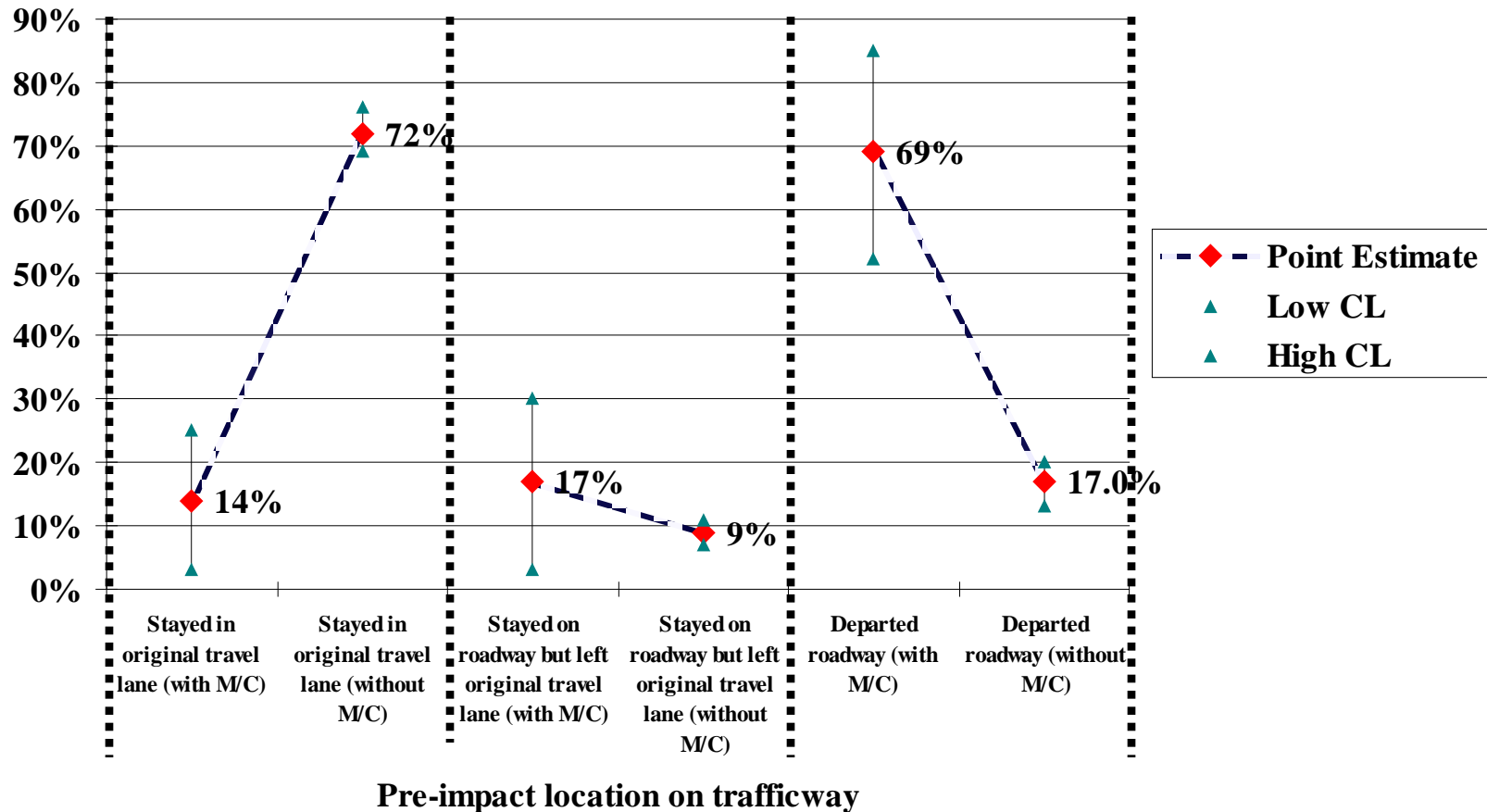
## *2- CRASH Characteristics*



# Estimated distribution of vehicles involved in crashes



# Estimated distribution of pre-impact location on trafficway



# CONCLUSION

Number of drivers in crashes precipitated by medical emergencies while driving is relatively small and accounts for only 1.3 percent of all drivers who have been included in NMVCCS.

Eighty-four percent of the drivers in crashes precipitated by medical emergencies experienced seizures, blackouts, or diabetic reactions prior to the crashes.

Older drivers age 65 and older had relatively a higher percentage of crashes precipitated by medical emergencies when compared to young and middle-age drivers.

Male drivers are overrepresented in crashes precipitated by medical emergencies when compared to other drivers without medical conditions.



# CONCLUSION

In most cases of the crashes that have been precipitated by medical emergencies, the drivers were involved in single-vehicle crashes, and departed the roadway before the collisions.

There is no data to suggest that crashes precipitated by drivers' medical emergencies are related to vehicle design or roadway integrity.

Patient education by health care providers on early warning signs of a health crisis, such as warning signs before seizure attacks, diabetic or hypoglycemic comas, and potential side effects of medications should be discussed between persons with these medical conditions and their health care providers