

Young Driver Crashes in the US: Matching a Solution to the Nature of the Problem

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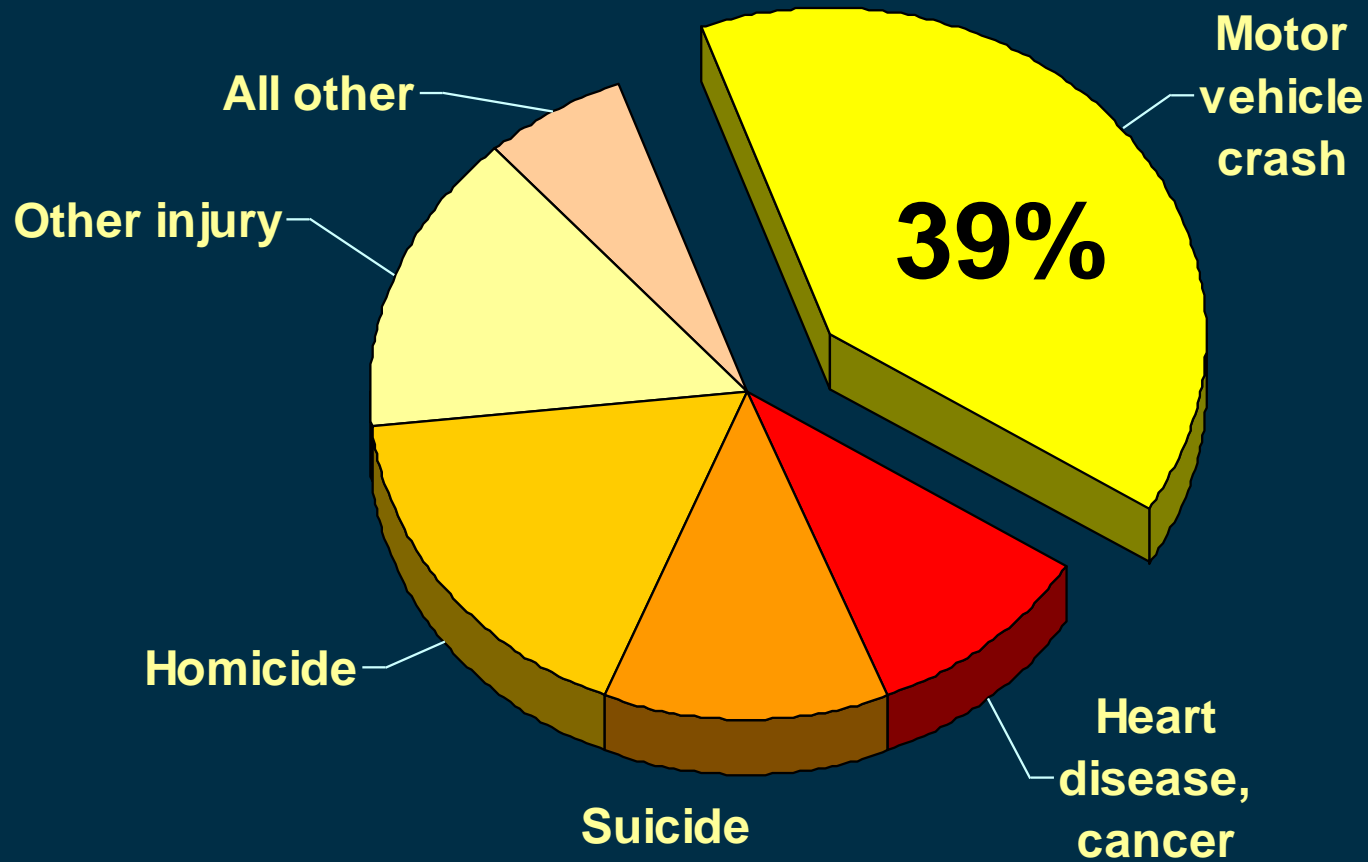
Young Drivers: The Road Ahead
Tel Aviv, Israel
November 15, 2011

Preview

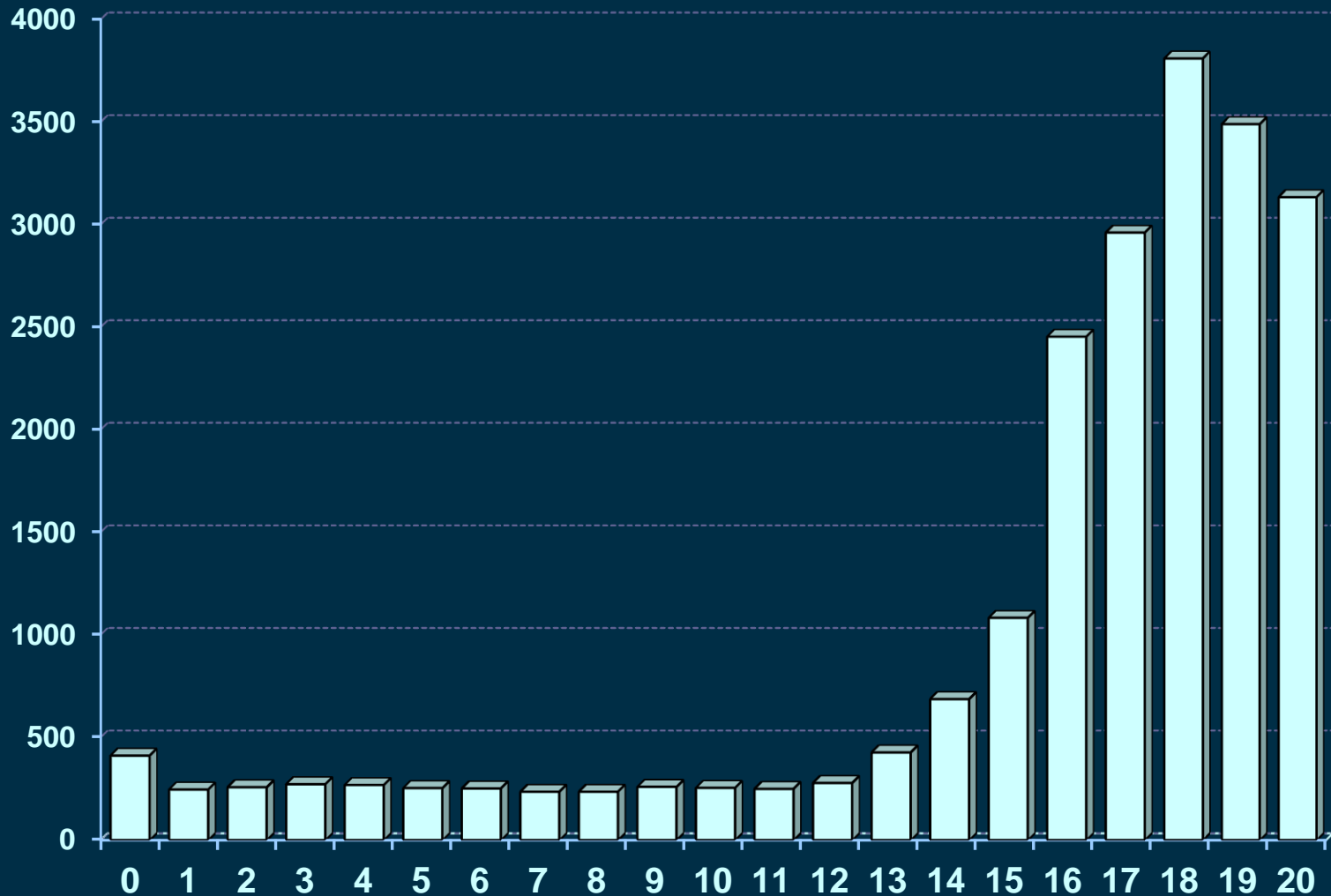
- Size & nature of YD crash problem
- A matched solution - GDL
- Effect on crashes
- Parent & teen reactions
- Talking/thinking about GDL clearly

Cause of Death

United States, Ages 15 - 17



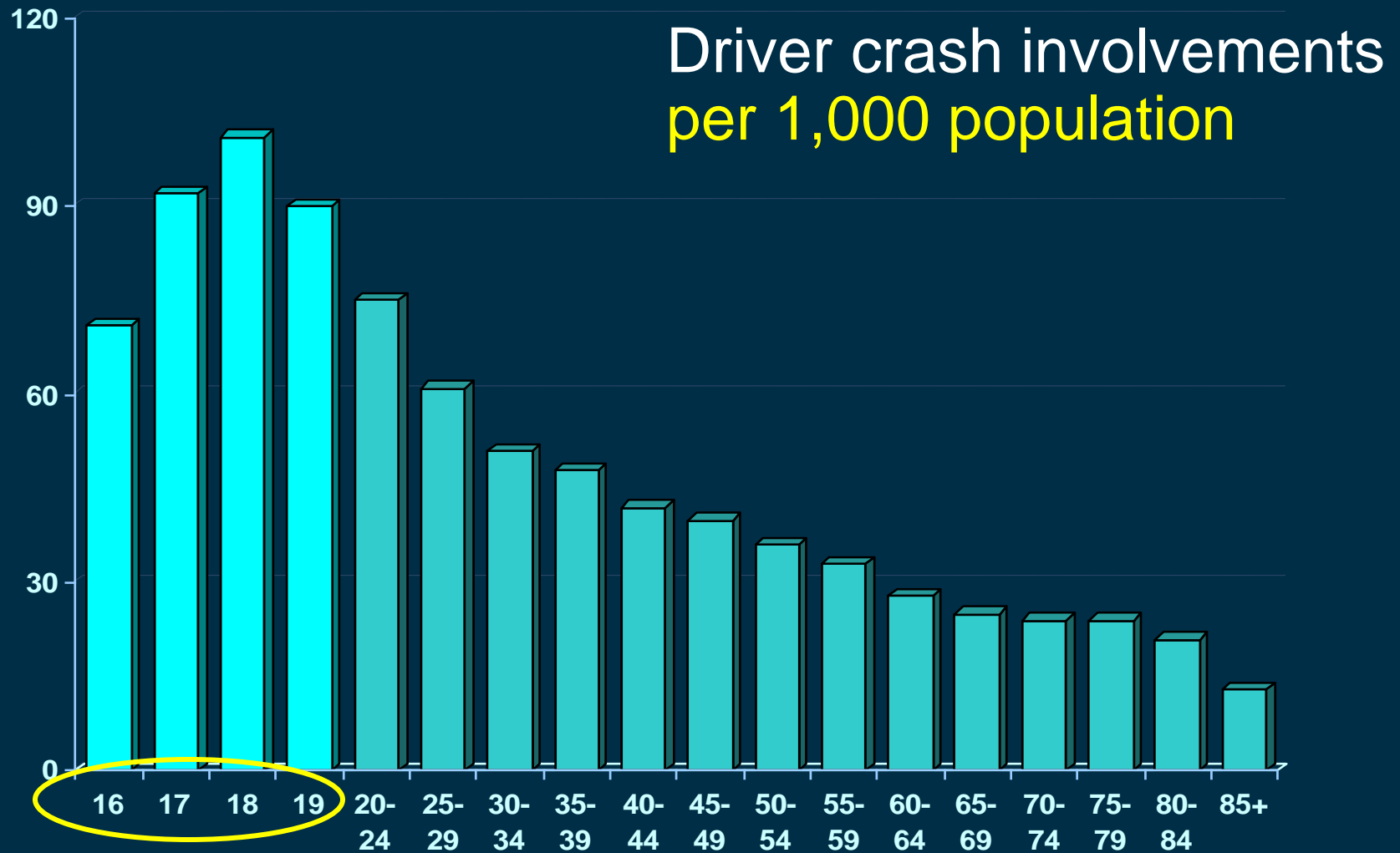
Child MV Occupant Fatalities by Age – U.S.



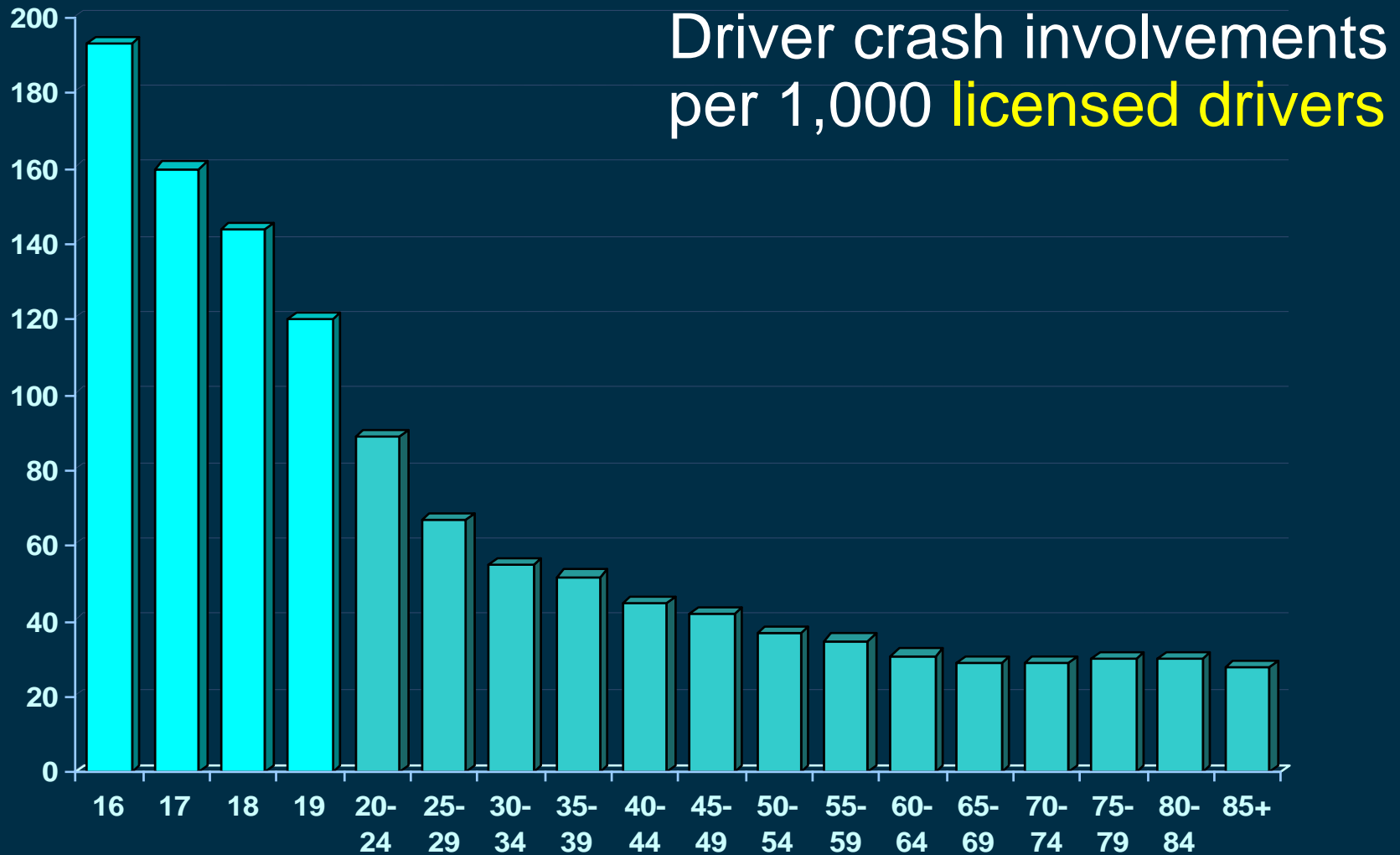
Age

CDC WISQARS: 2002-06

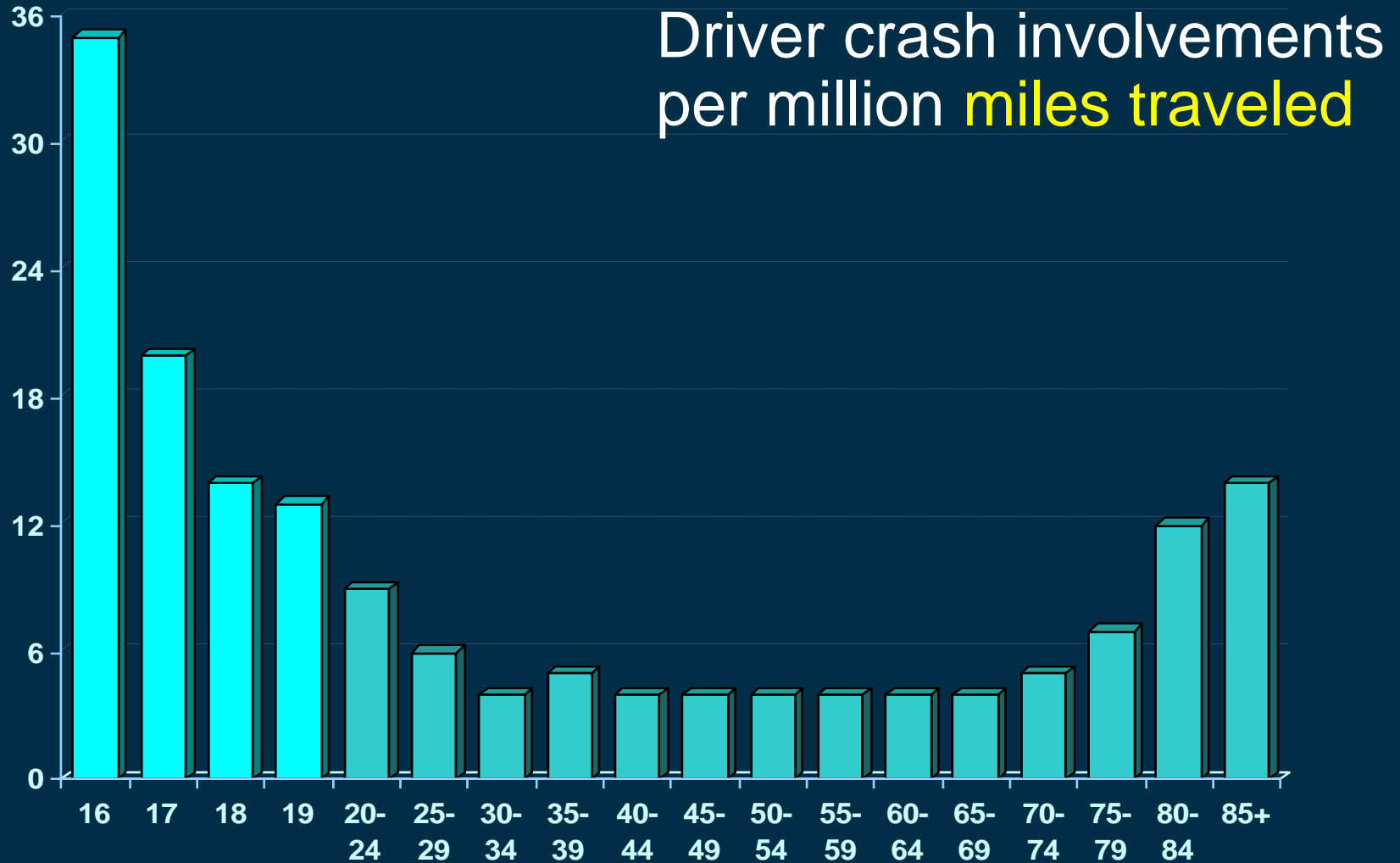
U.S. Crash Rates by Driver Age



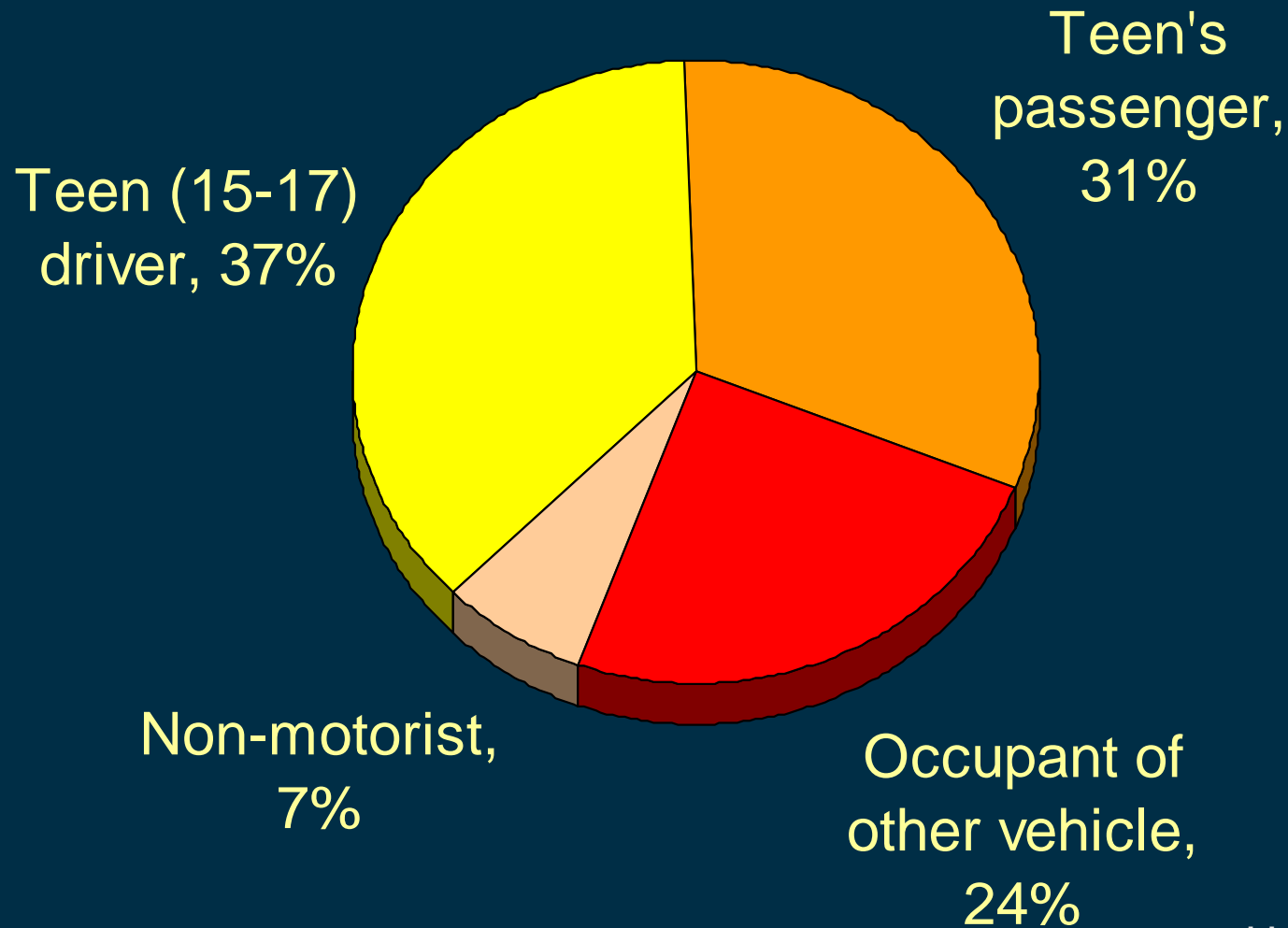
U.S. Crash Rates by Driver Age



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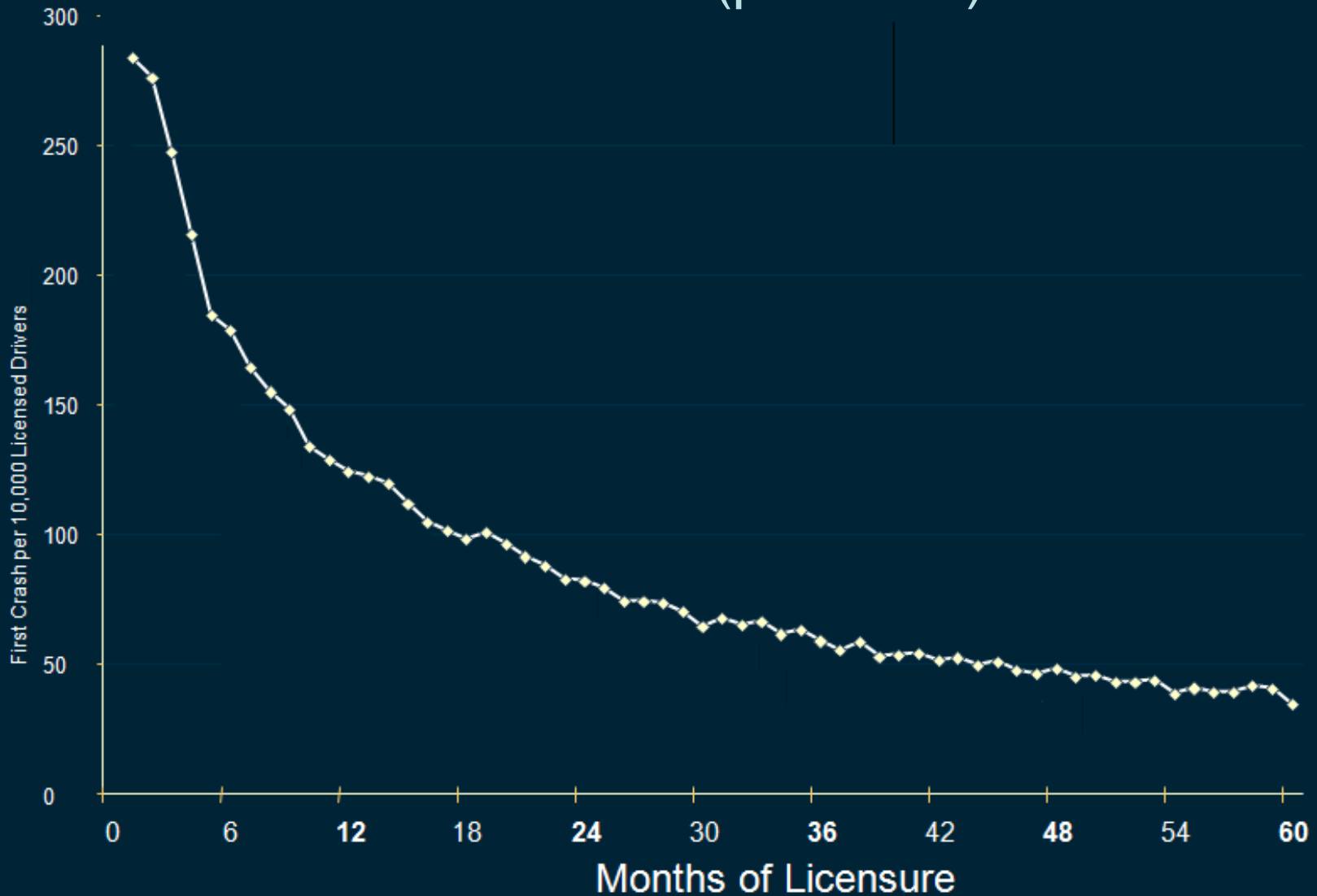


Victim role in teen driver (15-17) fatal crashes - U.S., 1998 - 2007

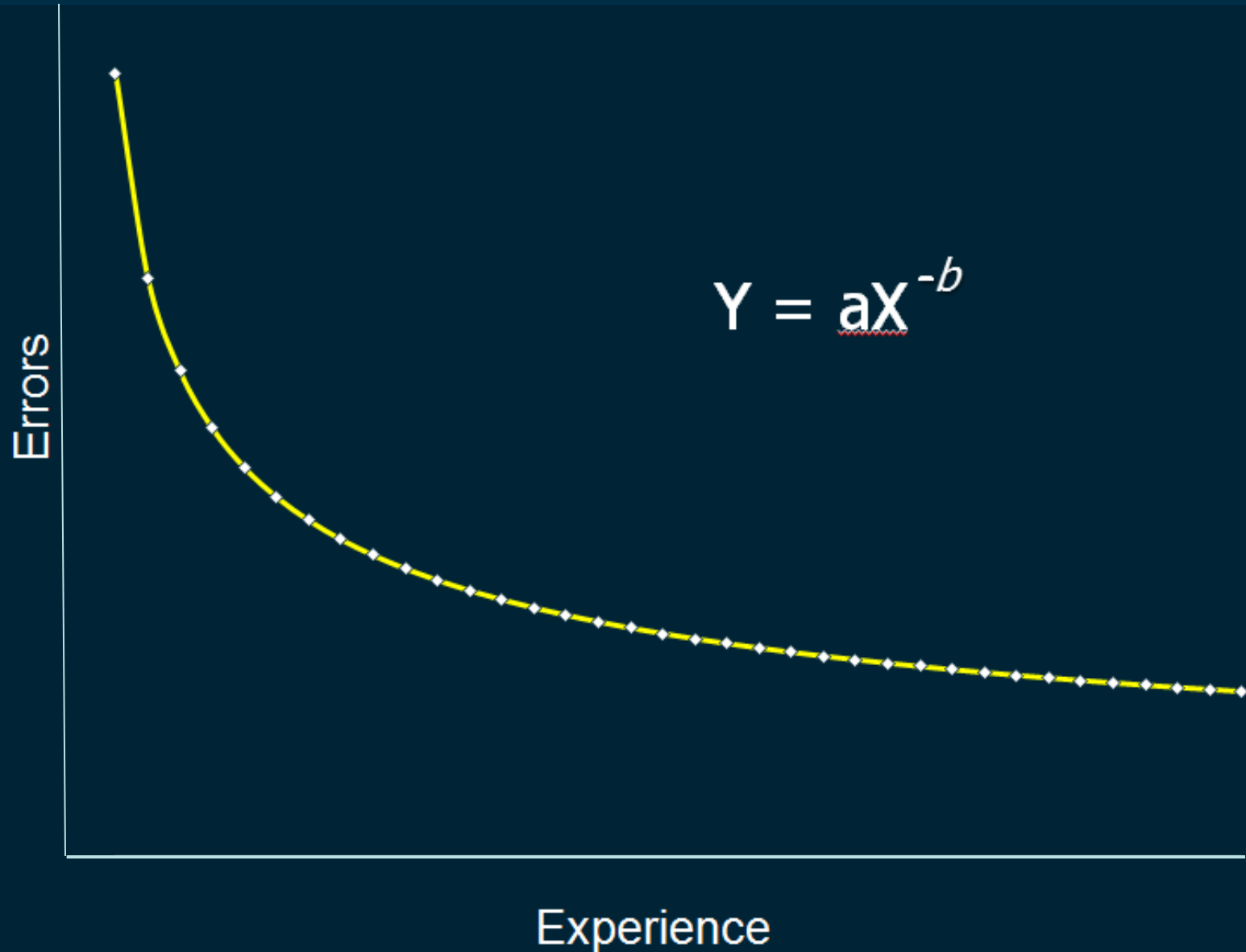


First crash rate, by months licensed

North Carolina (pre-GDL)

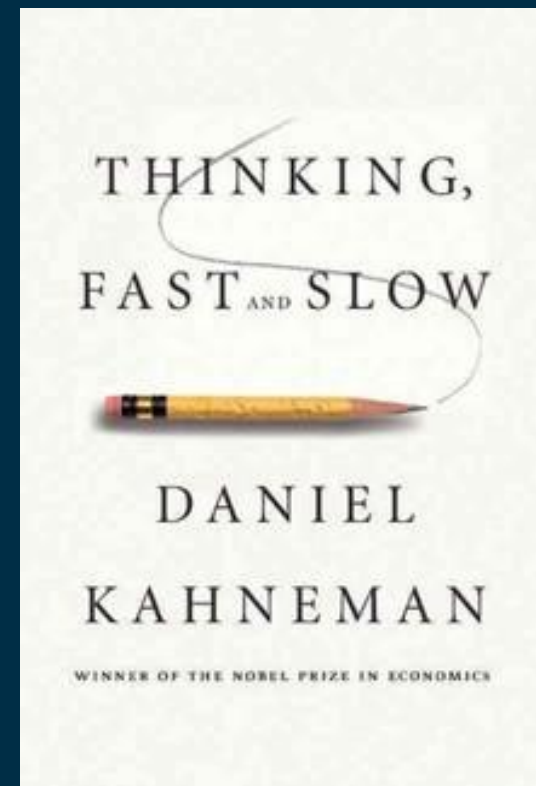


Learning Curve



Nature of Human Behavior

Kahneman (2011)



“Dual process” functioning

- System 1 (Intuitive)
 - Fast, automatic, effortless
 - Difficult to control or modify
- System 2 (Deliberate reasoning)
 - Slower, controlled, effortful
- 2 monitors 1
 - But poorly – allowing many incorrect intuitions to be expressed
 - Experience → correct intuitive action
- Driving largely intuitive

Graduated Driver Licensing

The Principle:

Maximize Experience

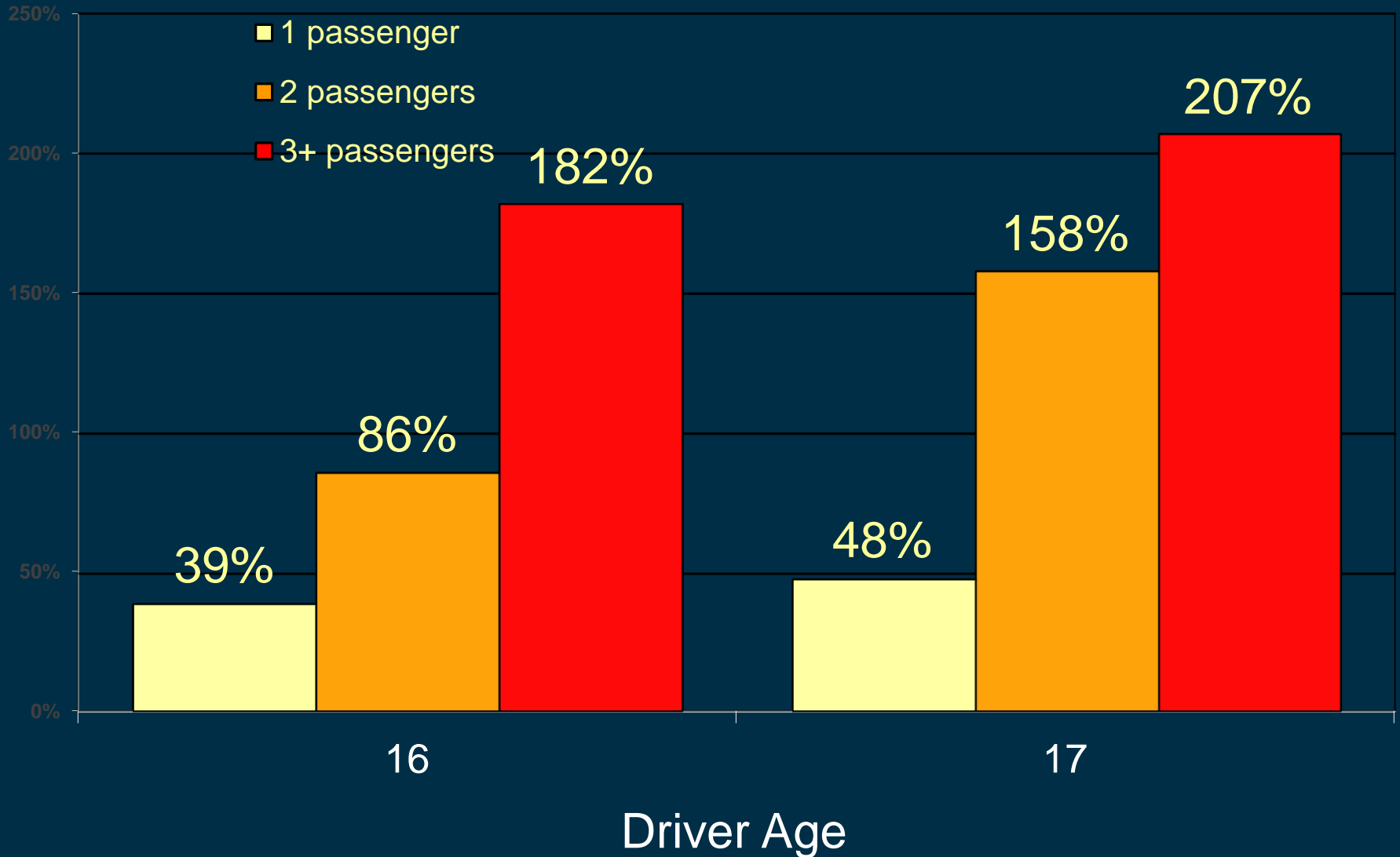
Minimize Risks

Among all novice drivers

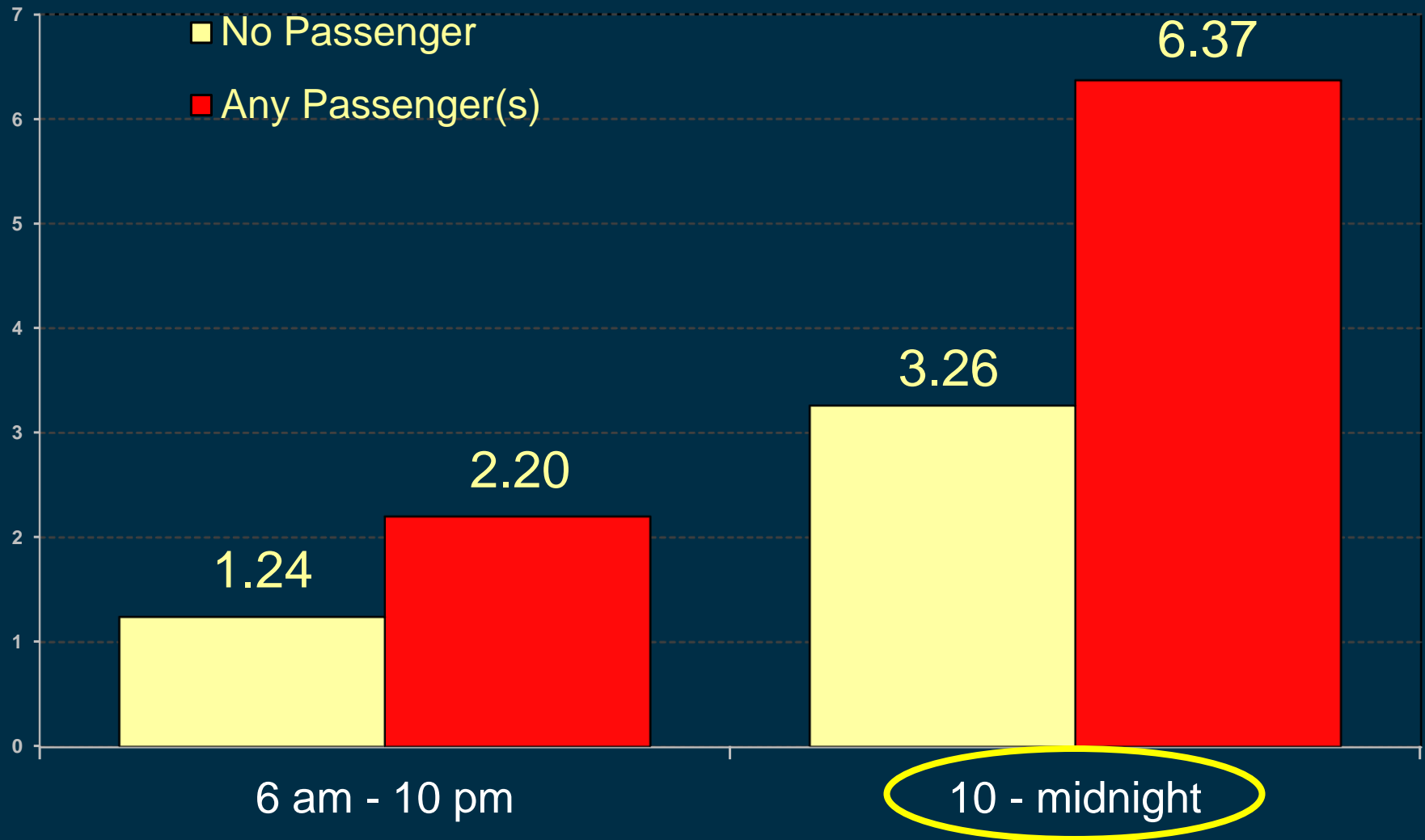
To implement GDL principle:

- **1st Stage - Learner**
 - Supervised driving only (preferably 12 mo.)
 - Appropriate variety & amount for learning
- **2nd Stage - Intermediate (~ 6 months)**
 - Night driving restriction (9 p.m. – 5 a.m.)
 - Passenger restriction (≤ 1 teen passenger)
- **3rd Stage - Full License**
 - Age-based limits continue (e.g., 0% BAC)

Increased Risk of Driver Death by Number of Passengers and Driver Age



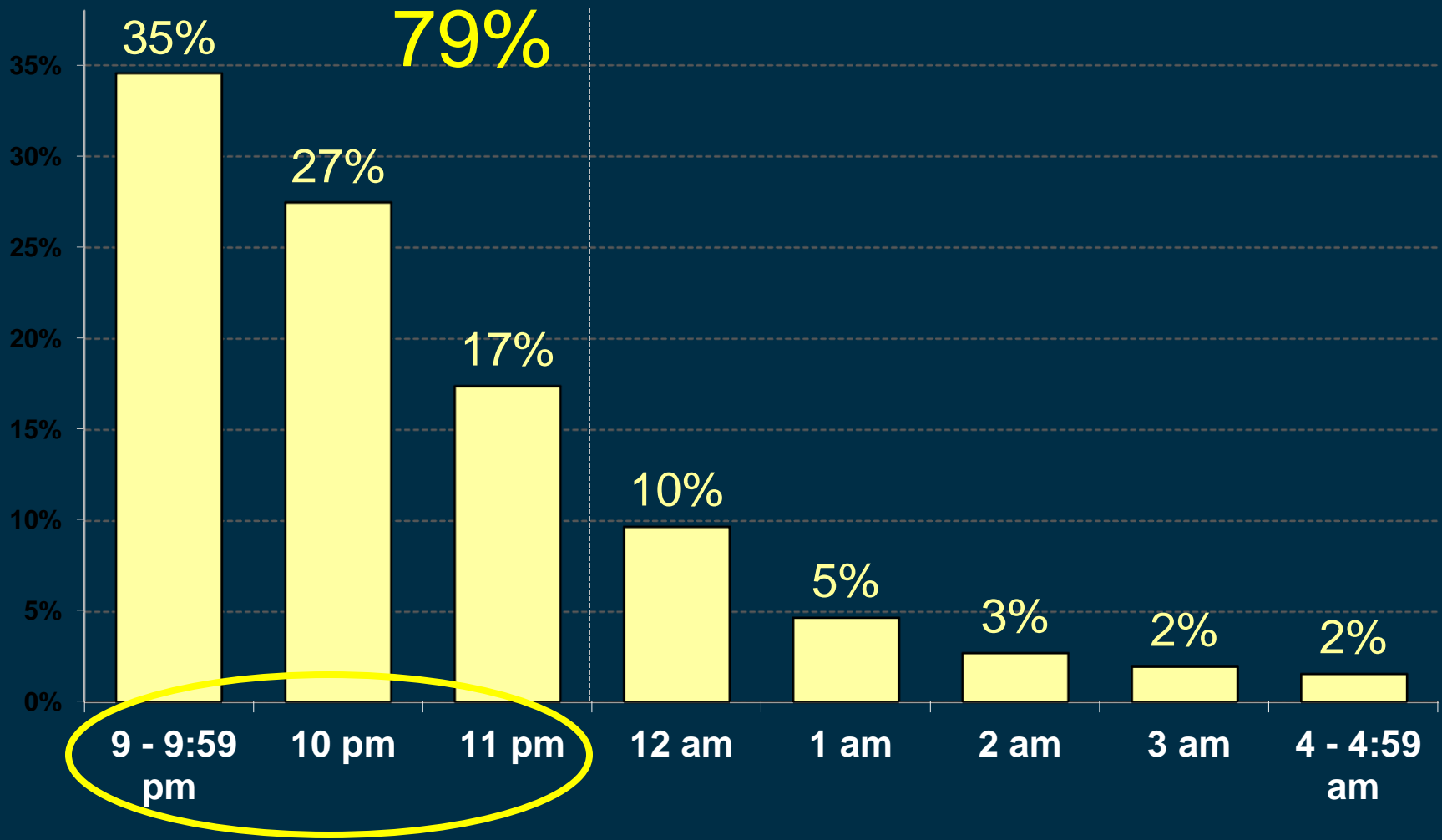
16 & 17 year-old driver death rate* by time and presence of passengers



*per 10 million trips

Source: Chen et al., *JAMA*, 2000

Temporal distribution of 16-year-old driver nighttime crashes, NC (Pre-GDL)



GDL: Maximize experience, minimize risk

- Mandatory supervision period (6-12 mos.)
- Protective restrictions during intermediate
 - Night limit
 - Young passenger limit

Benefits of accompanied driving

- Extremely safe learning environment
 - Co-driver
 - Controls adolescent impulsiveness
 - Parents observe slow learning
- Experiential learning
 - Vehicle
 - Roadway environment
 - Other drivers

Need for restricted driving period

- Shortcomings of accompanied driving
 - Co-driver
 - Controls adolescent impulsiveness
- Much yet to learn
 - Continue GDL principle
 - Limit high risk exposure while learning
 - Nighttime
 - Multiple passengers
 - Others? (e.g., cell phone restriction)

GDL Effectiveness

27 Studies (2002-2007)

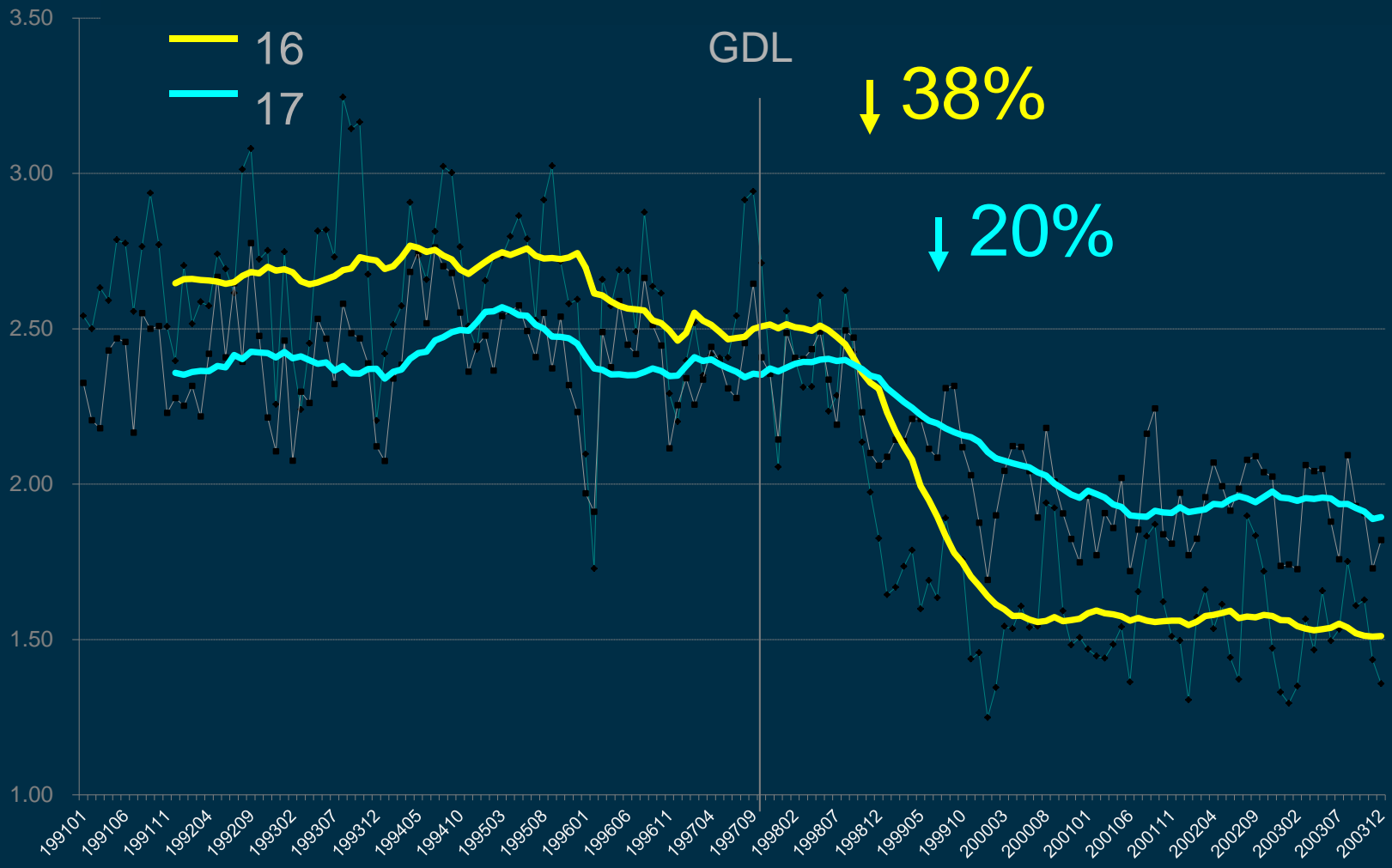
- 21 single-state studies
 - 20 found crash reductions
 - Generally from 19-39%
 - Varied methods & target age groups
 - Effects larger for 16 yr-olds
 - More comprehensive = greater effects
- 6 multi-state studies
 - All show decrease in teen crashes
 - Many focused only on 16-yr-olds
 - More comprehensive = greater effects

Effects of GDL in North Carolina

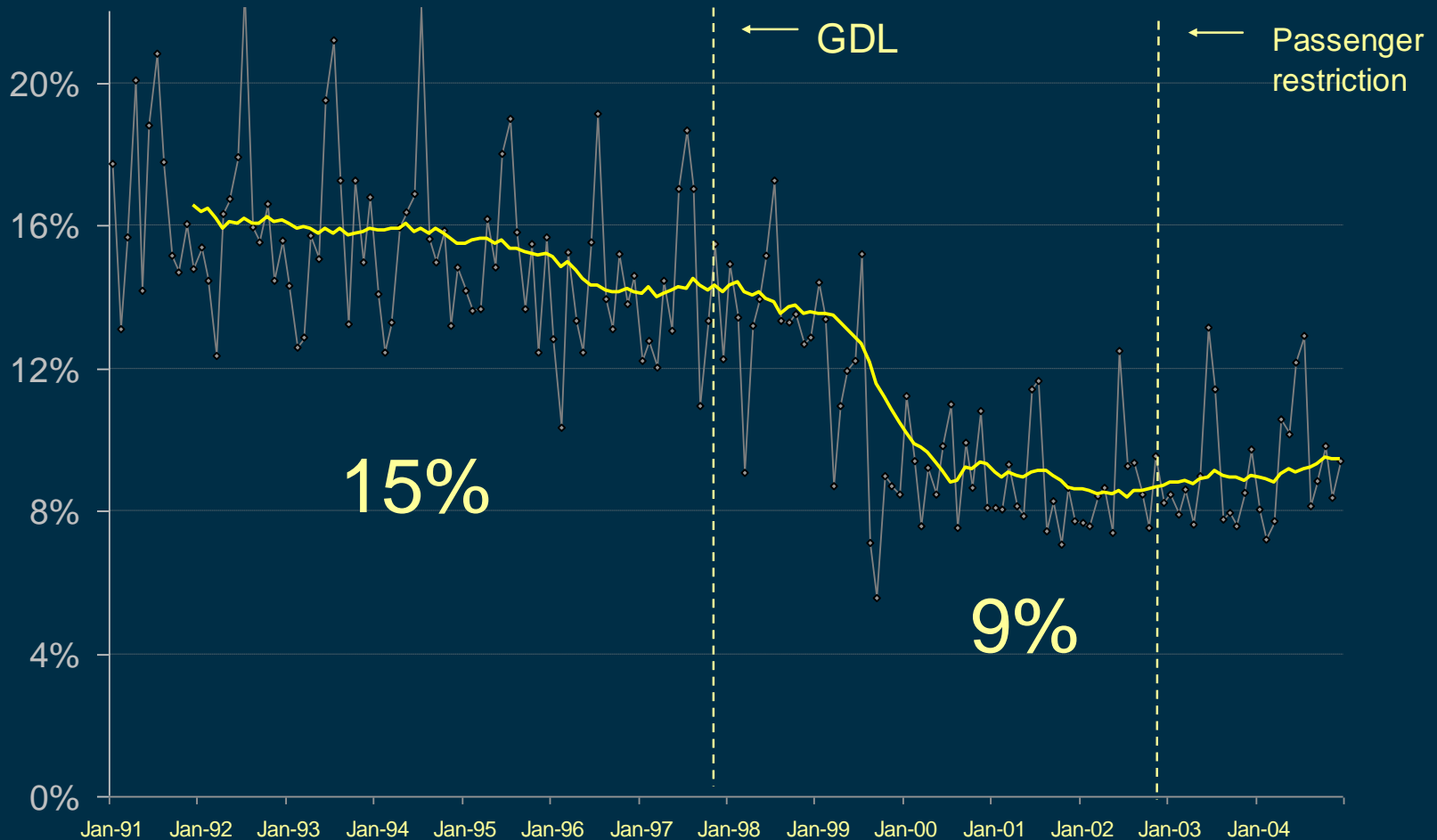
North Carolina GDL System

- Level 1: 12 months supervised driving
 - Begin \geq age 15 (after passing Driver Ed.)
 - No specified # of practice hours
- Level 2: 6 months restricted
 - Only supervised driving from 9 p.m. - 5 a.m.
 - \leq 1 passenger under 21
- Level 3: Until age 18
 - Zero BAC
 - All occupants wear seatbelt

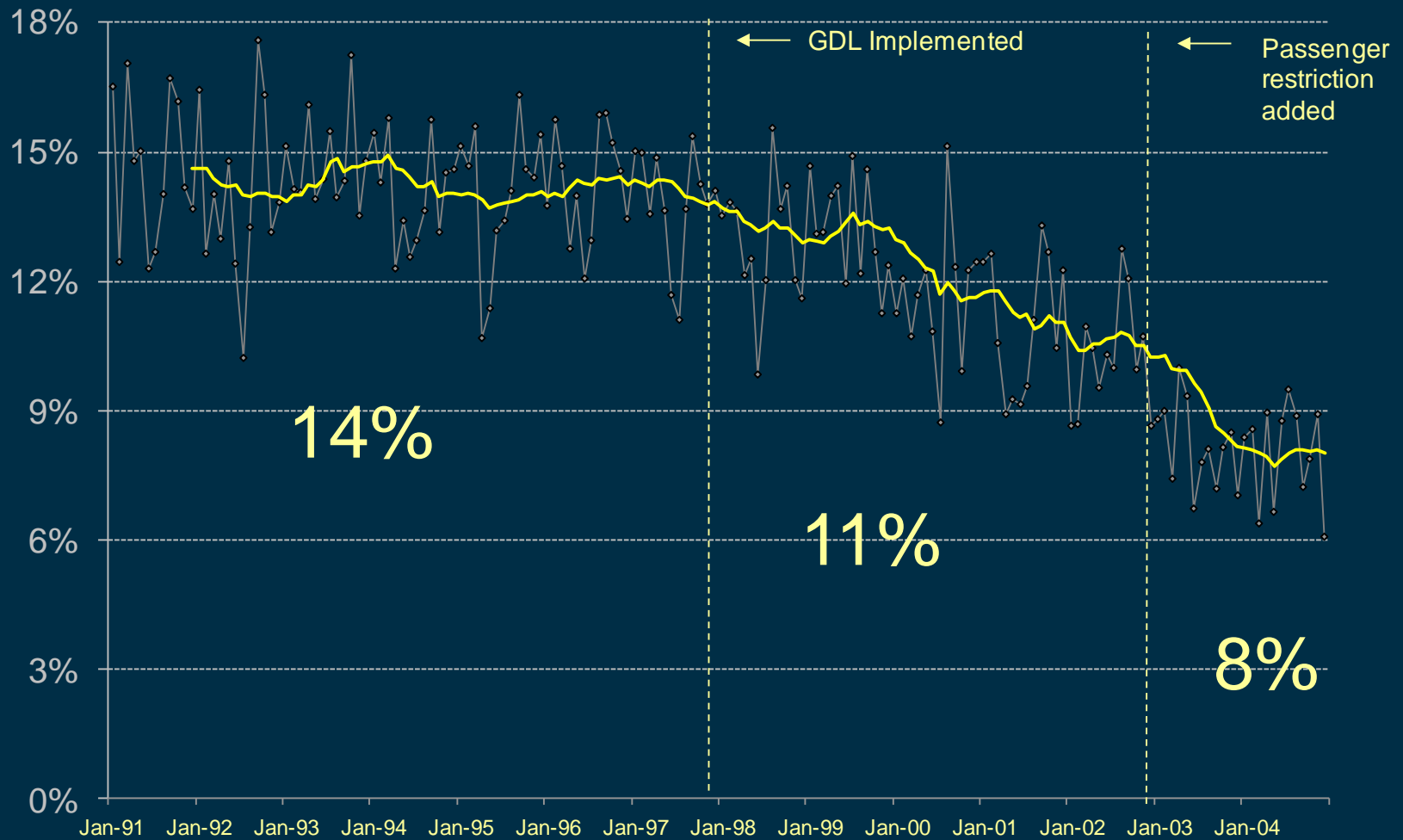
Crash Rate Ratios for 16 & 17 year-olds vs. 25-54 year-old, NC 1991-2003



16 year-old nighttime (9 pm – 5 am) crashes NC, 1991-2004



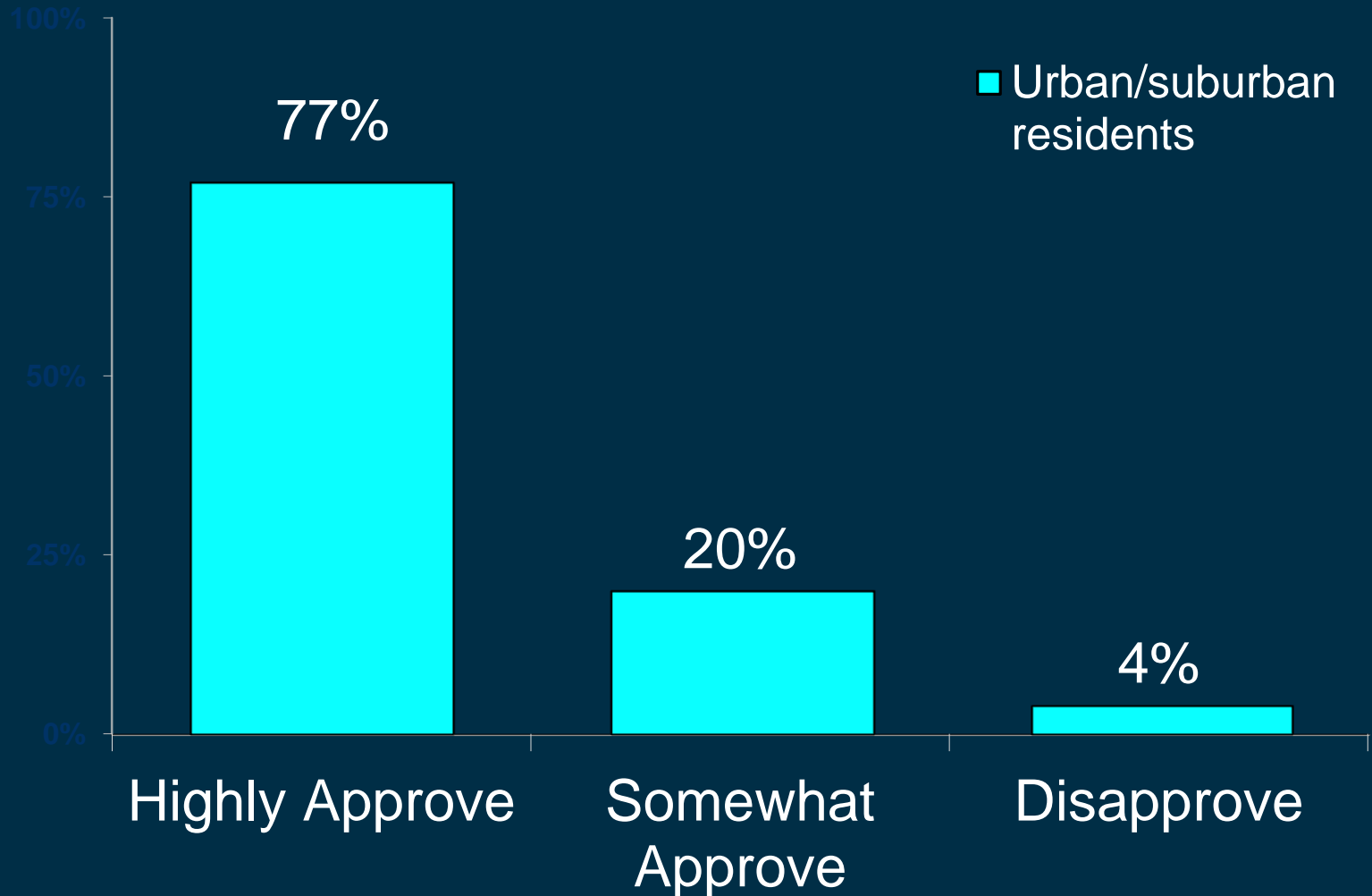
Percent of 16 year-old crashes involving multiple passengers - NC, 1991-2004



Parent & Teen opinions

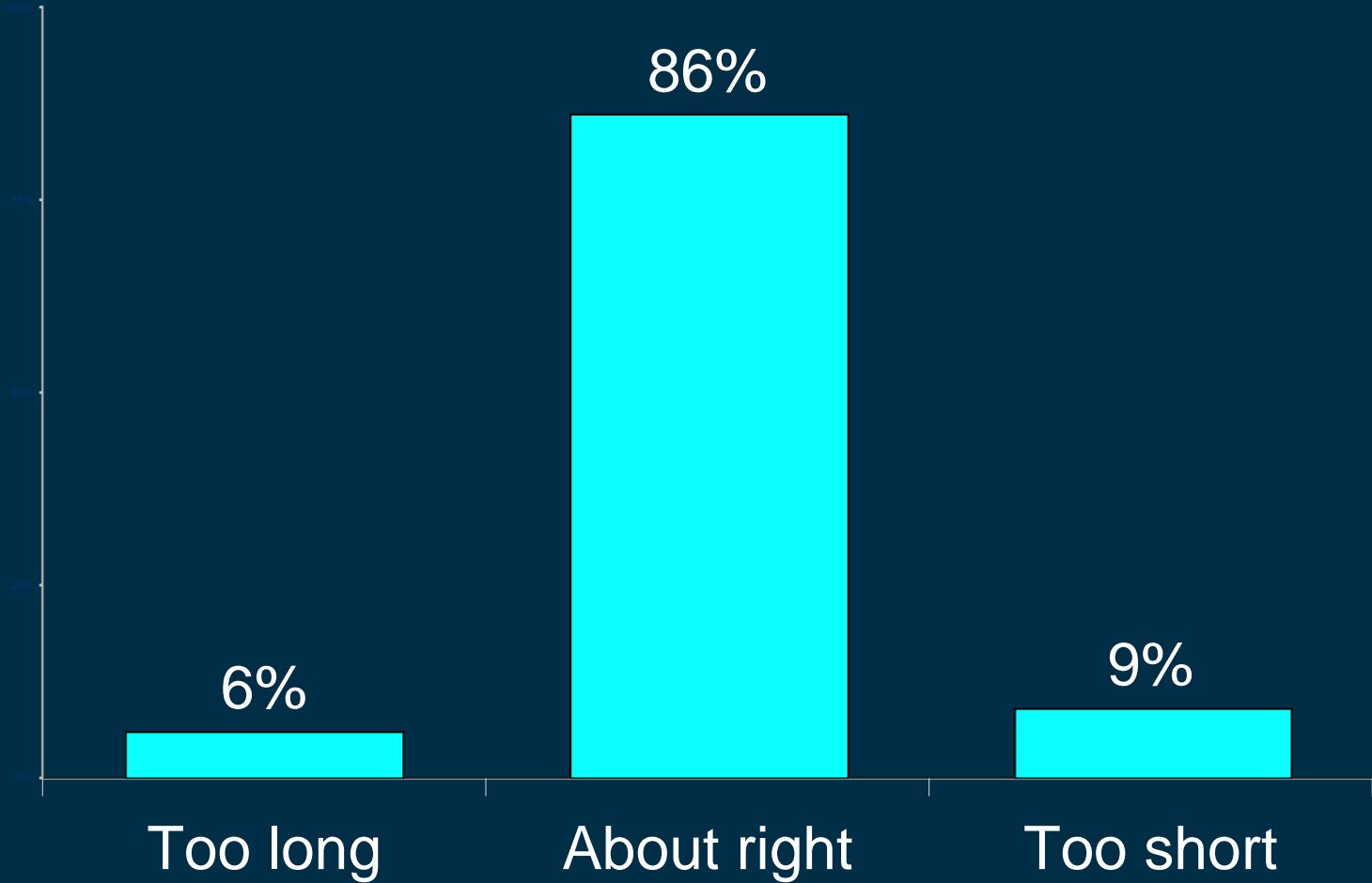
Parents' overall opinion of GDL

North Carolina



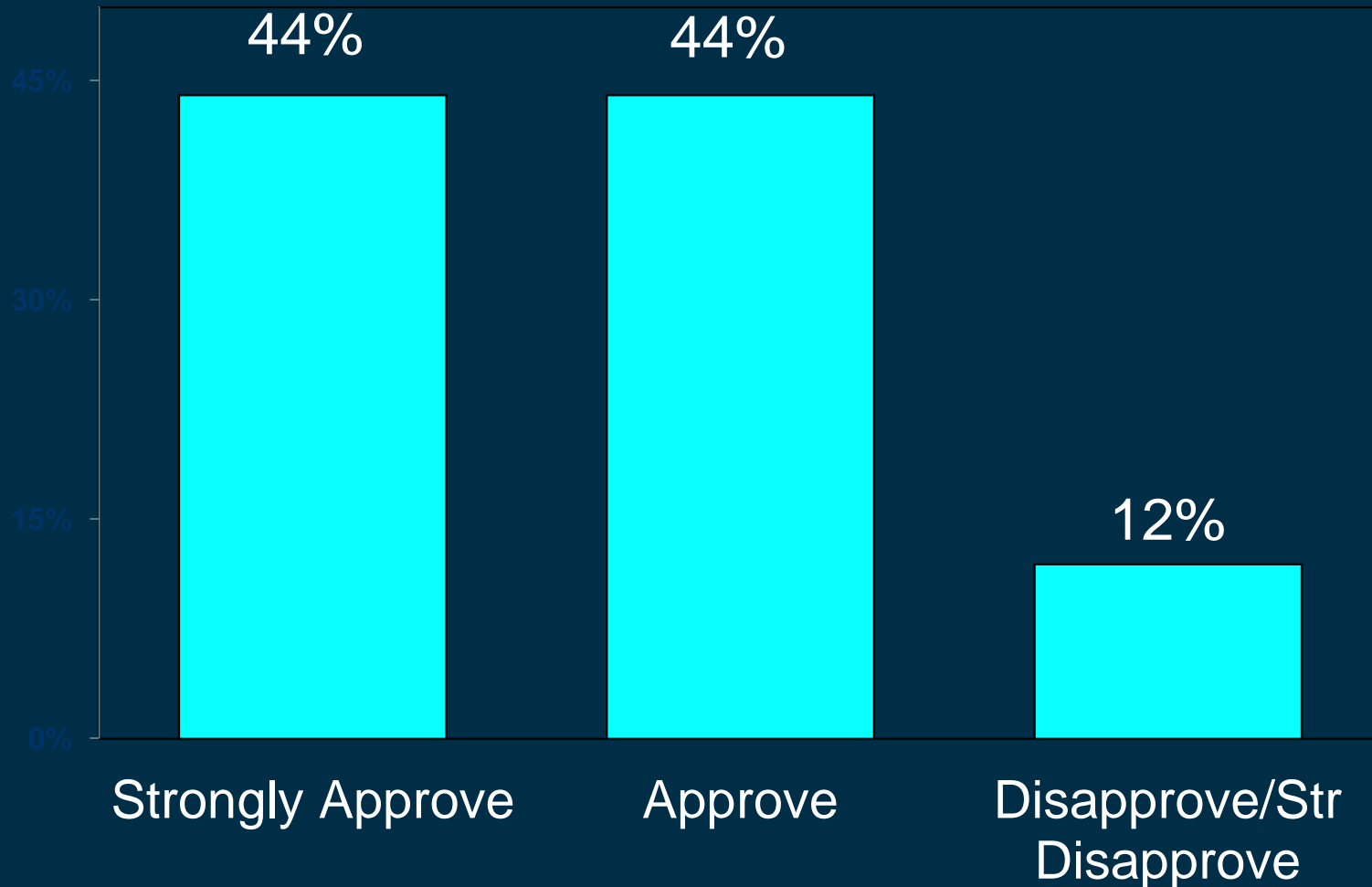
Parent opinions of 12 month learner period

North Carolina



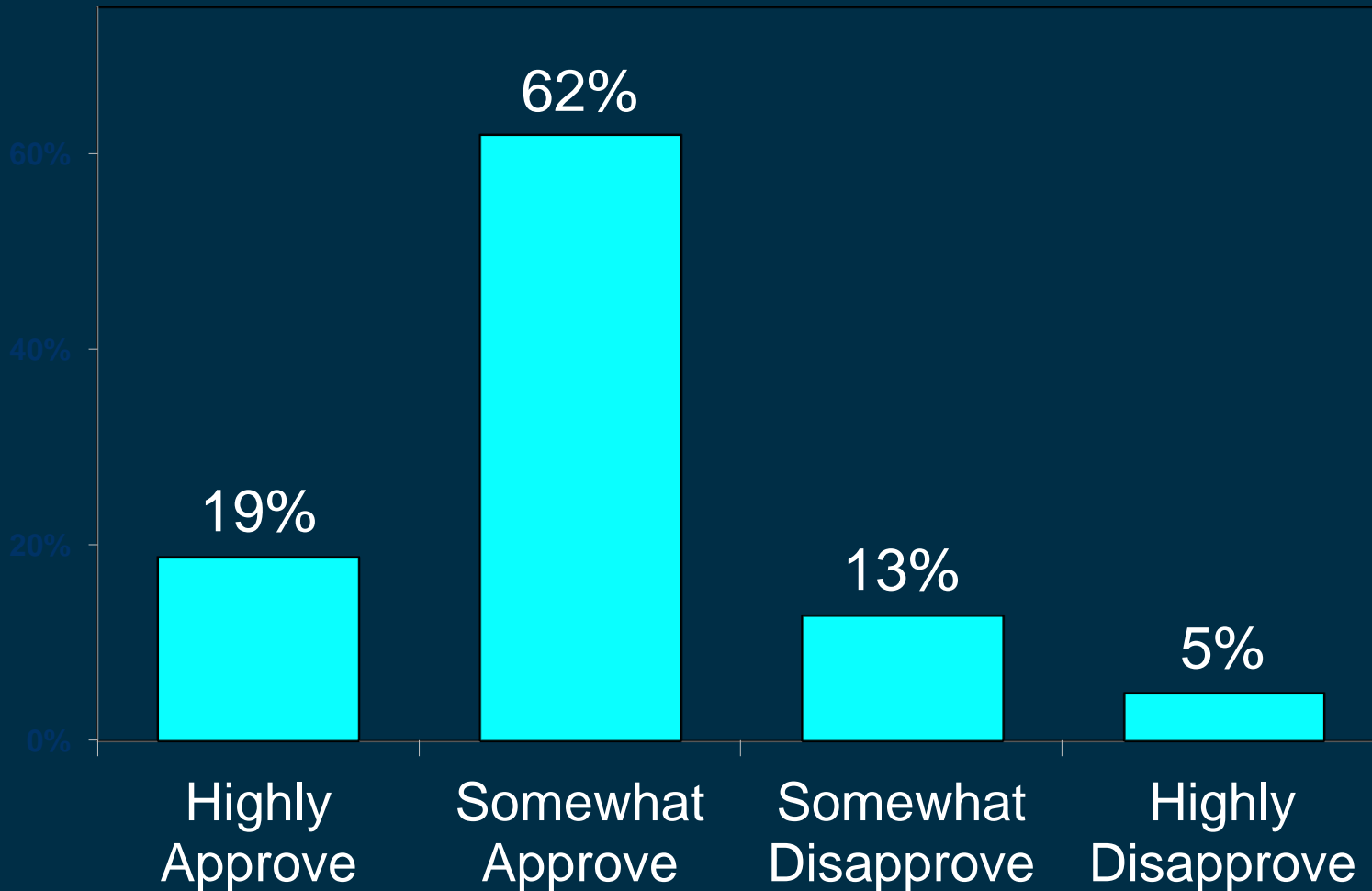
Parents opinion of 6 month, 9 p.m. night driving restriction

North Carolina



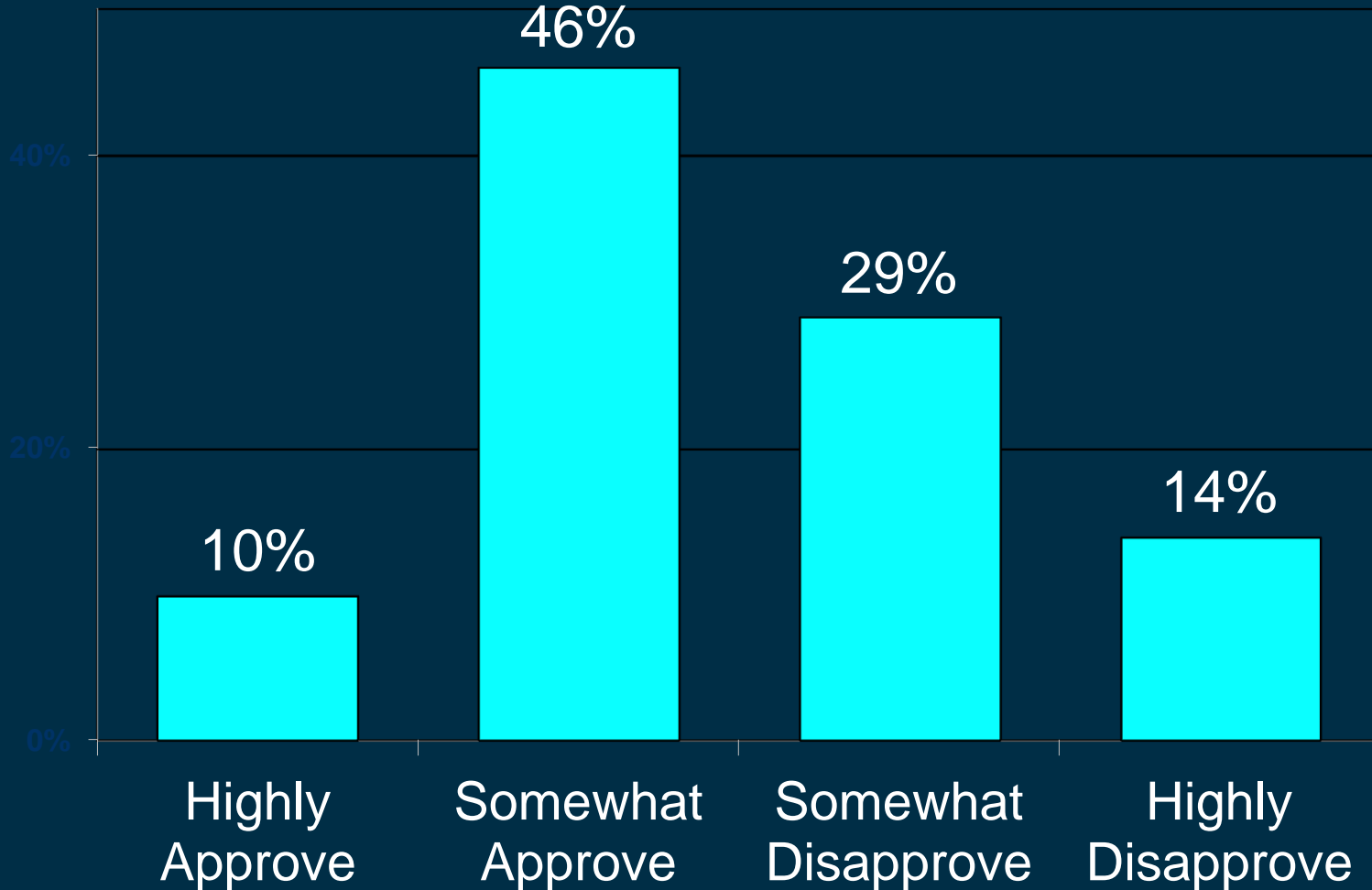
Teens' opinion of 6 month, 9 p.m. night driving restriction

North Carolina



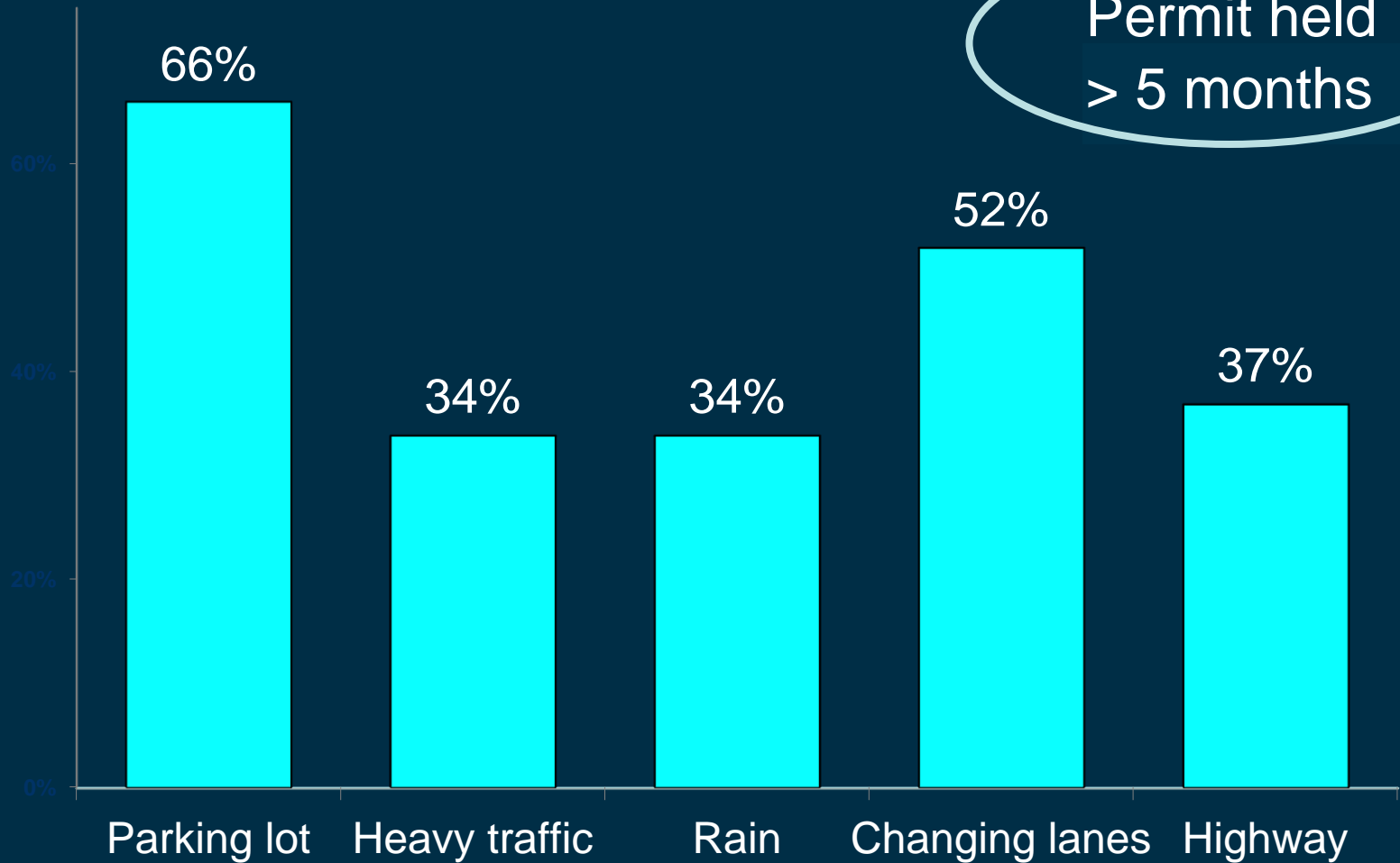
Teens' overall opinion of GDL

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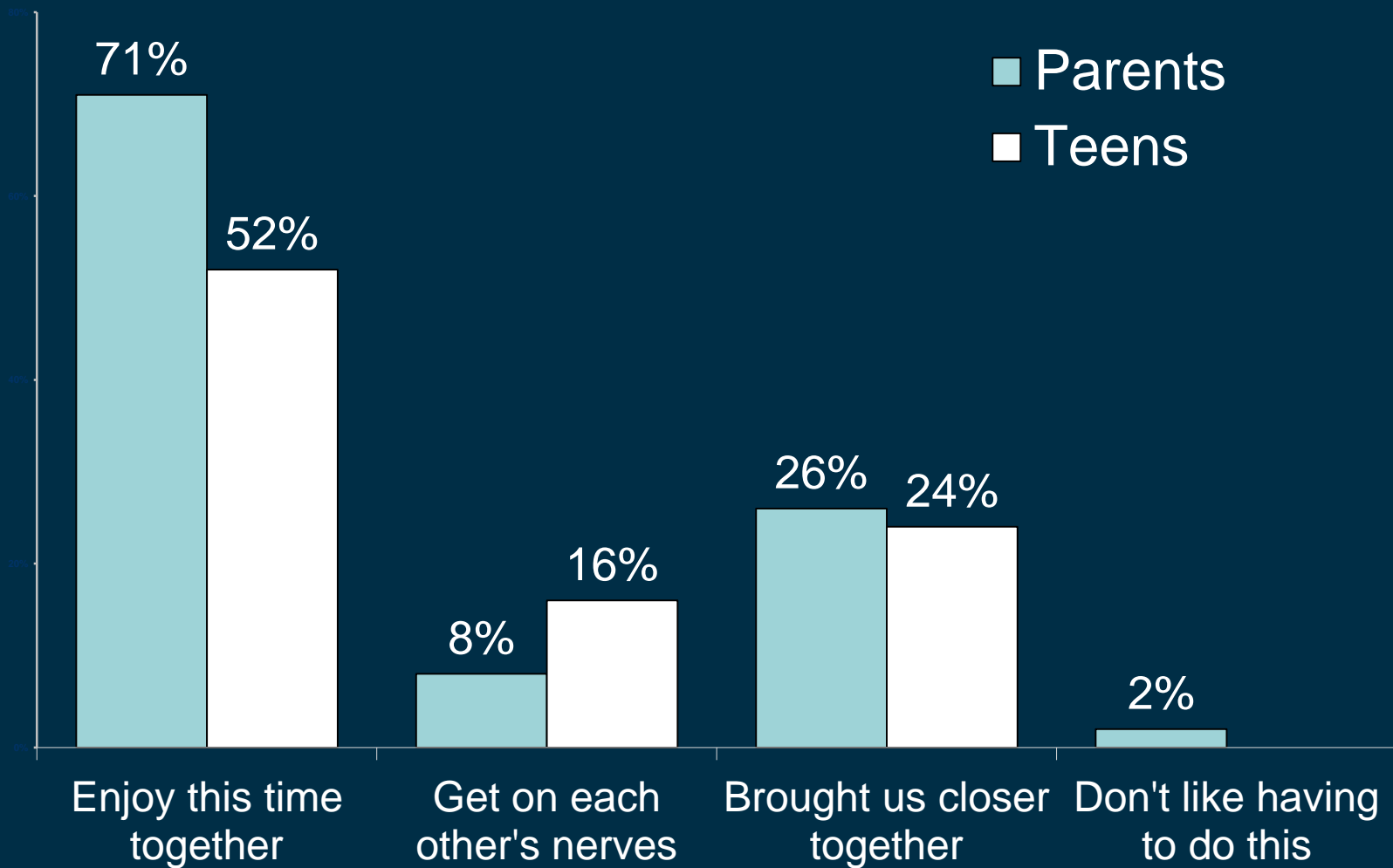


Do you feel comfortable that your teen has had enough practice doing the following?

Permit held
> 5 months



Has helping your teen learn to drive had any of the following effects?



Similar support in most jurisdictions

- Highly positive before adoption
- More supportive after
- Passenger limits extremely popular
- Night limits widely supported
- Somewhat less in highly rural states

Economic Considerations

In 2006, U.S. teenage (15-17) driver crashes cost:

\$34,413,000,000

Conclusions

- Lack of experience is the culprit
- GDL works (as well as it's structured)
- Parents highly approve GDL (elements)
- Teens generally approve GDL
- Compliance quite good (with little enf.)

Appropriate Framing

- GDL is a licensing system, not a law
- Addresses *the* major health issue
- Protects teenagers ...
and others on road
- Supports parents, they like it

Mistaken notions, misleading words

Avoid saying or thinking these!

- Curfew
- Getting tough, cracking down
- Punishment
- Irresponsible teens
- Teens think they're invincible



Thank you!