

GDL: The Young Driver Licensing System in North Carolina

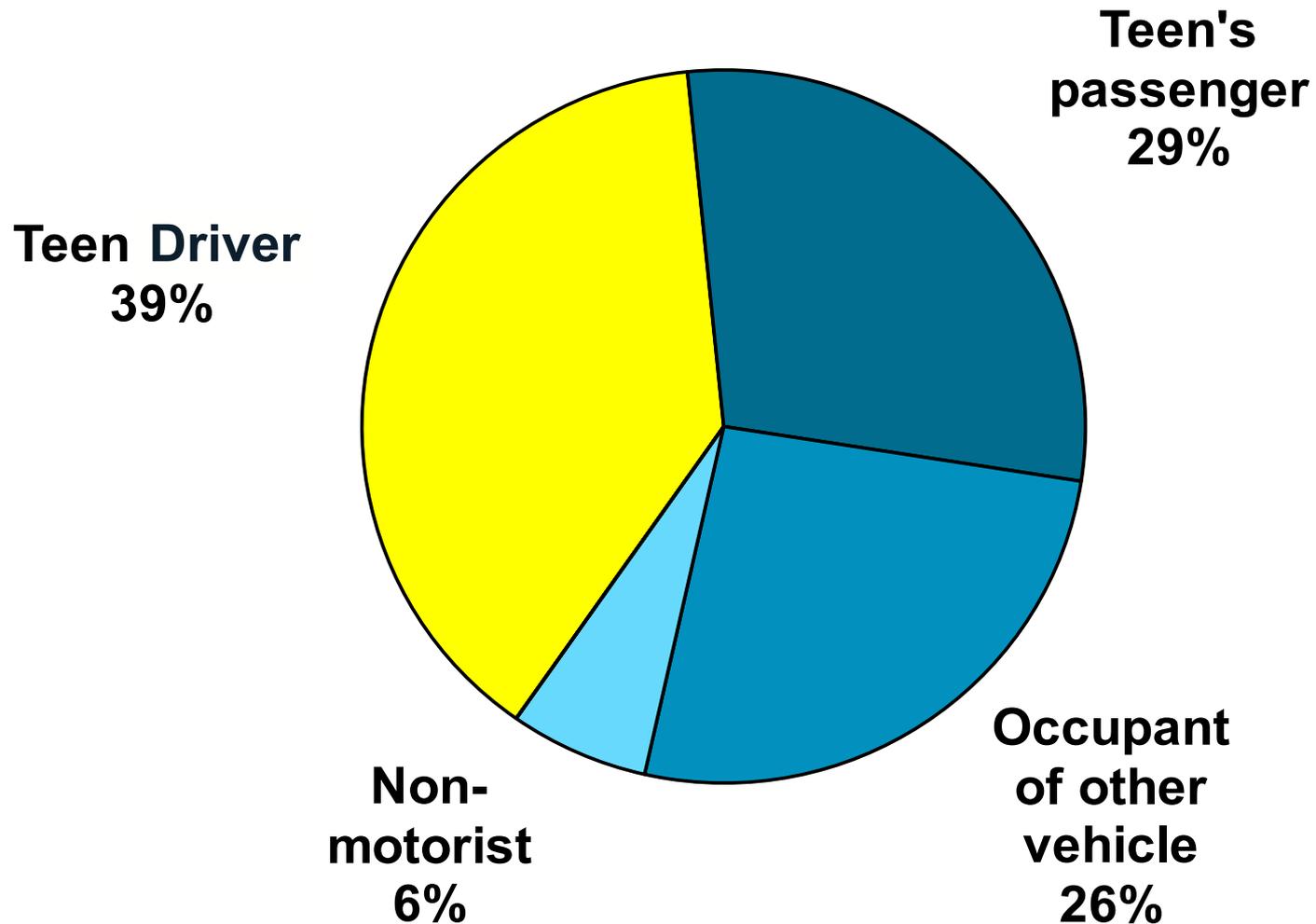
Robert Foss, Ph.D.
School of Public Health &
Highway Safety Research Center
University of North Carolina at Chapel Hill

Raleigh, NC
May 23, 2025
Rob.Foss@unc.edu

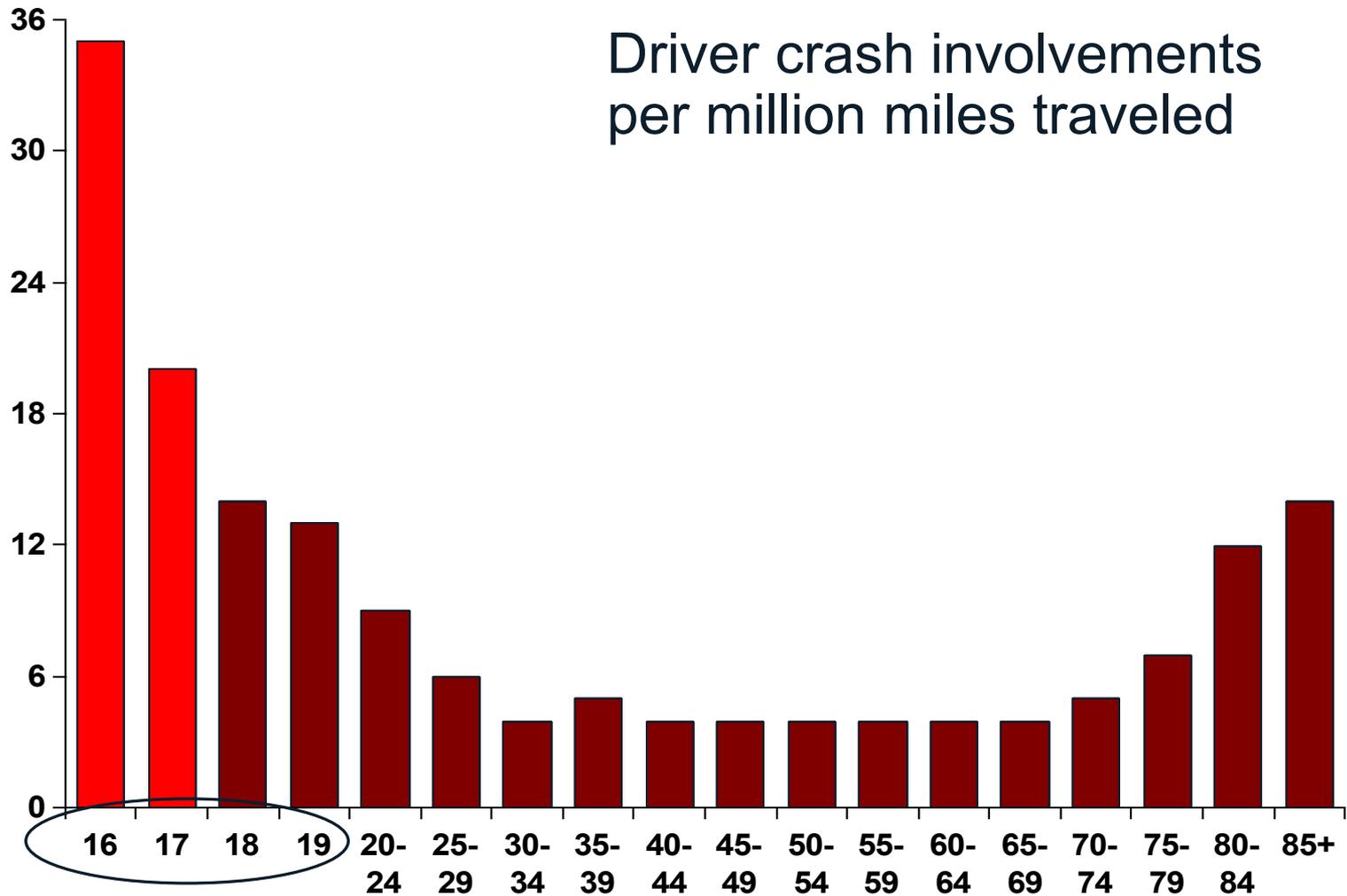
Overview

- ❑ Why we have the current Licensing System
- ❑ Effects of the current Licensing System

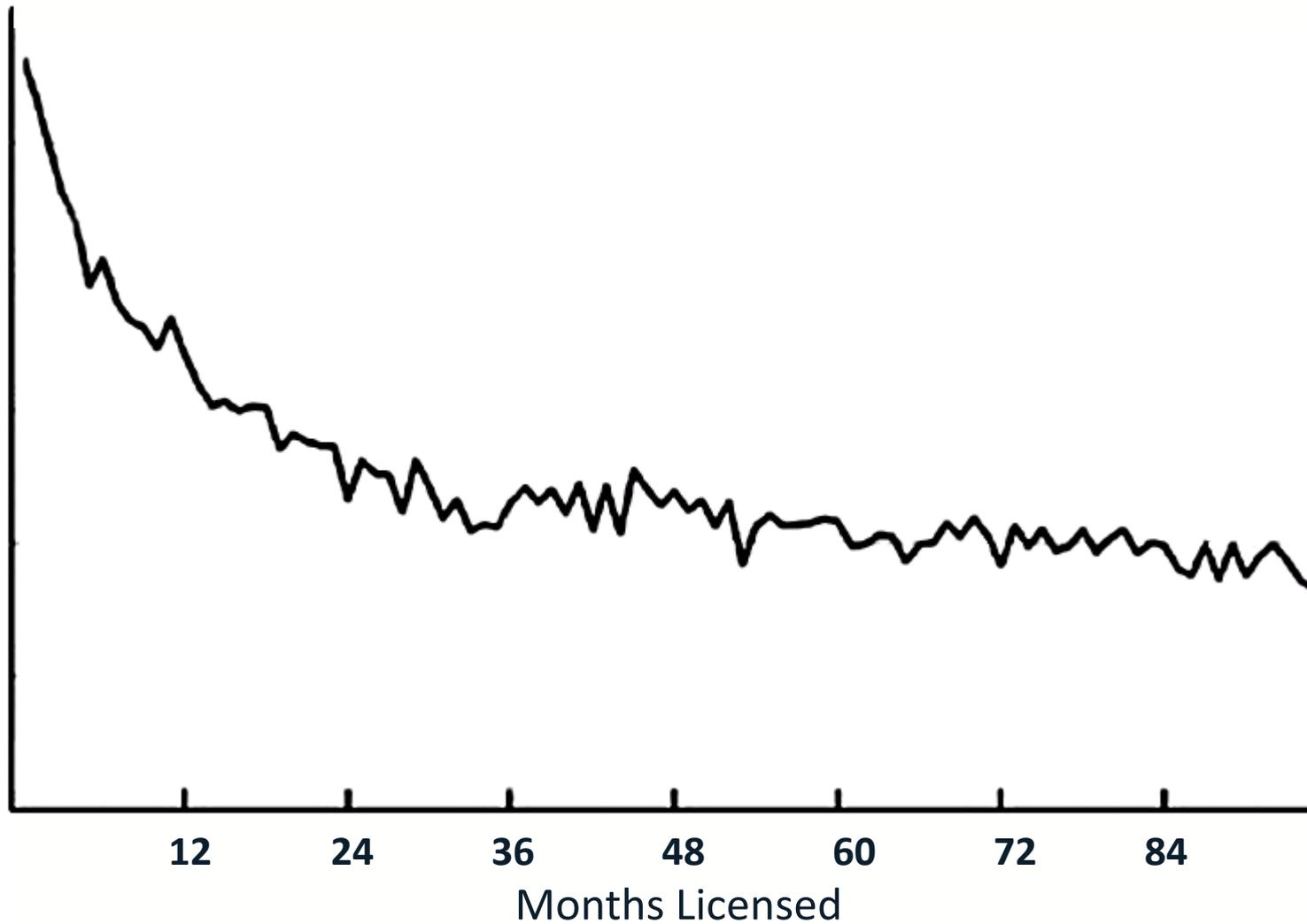
Victims in teen driver fatal crashes, NC



Crash Rates (U.S.) by Driver Age



Young Driver Crashes by Months Licensed



Young Driver Crashes by Months Licensed



And a great deal of real-world practice ...





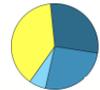
Graduated Driver Licensing

The Principle:

Maximize Experience

Minimize Risks

For all young novice drivers



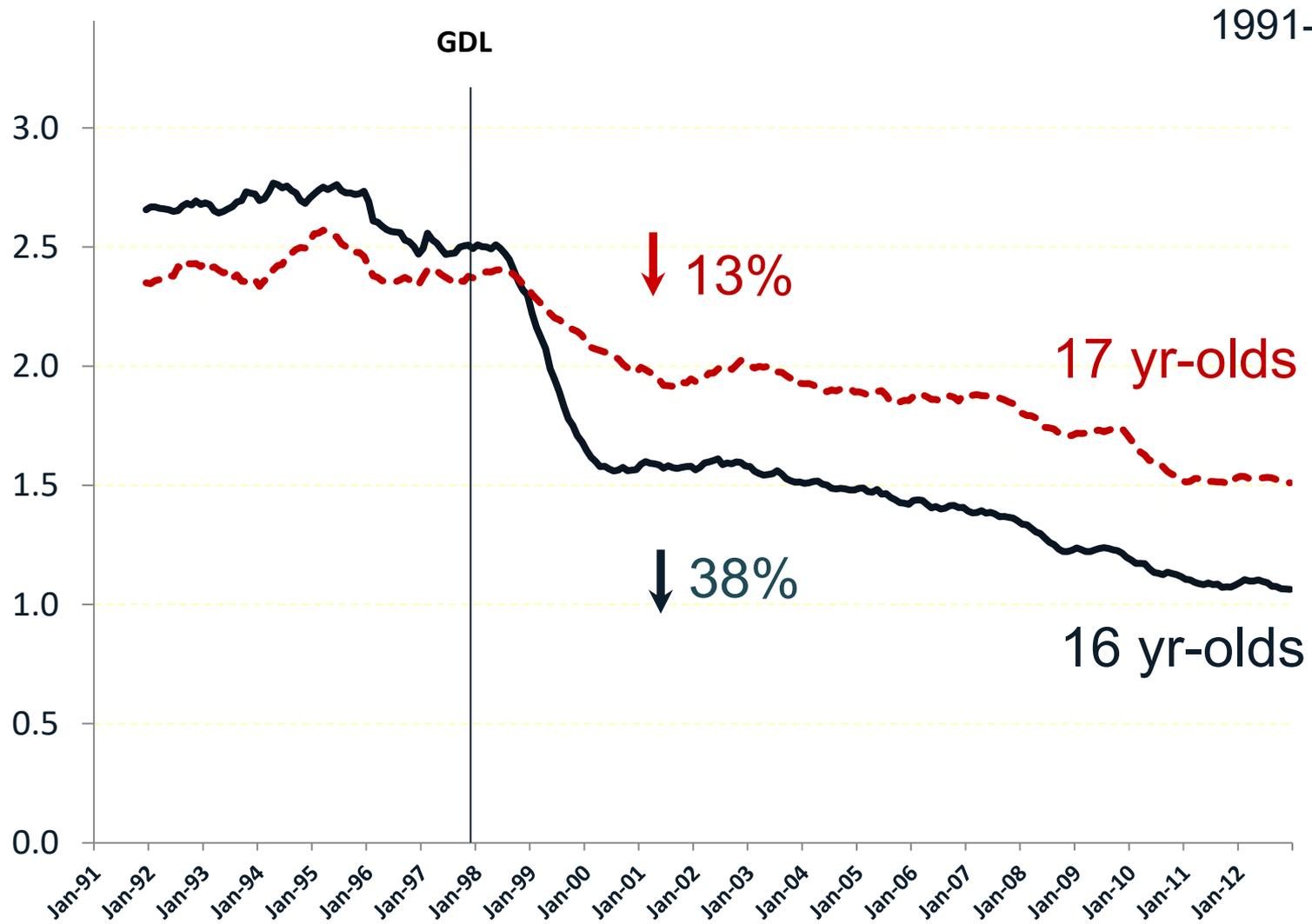
1997 NC Legislature Installed a GDL System

Learner license – 12 months

Adult Supervised driving only



NC Teen vs. adult crash rate declines due to GDL



Longer learner periods mean safer roads

State-specific change in 16-17-yr-old driver fatal crashes

| Learner period duration | State-specific rate decline | Average decline by learner duration |
|-------------------------|-----------------------------|-------------------------------------|
| 12 Months | | - 30% |
| North Carolina | - 30% | |
| 6 Months | | - 12% |
| Minnesota | - 19% | |
| Connecticut | - 17% | |
| Kentucky | - 9% | |
| Virginia | - 6% | |
| 3 Months | | - 4% |
| Hawaii | - 11% | |
| South Carolina | - 3% | |
| Tennessee | - 0.8% | |

NC Parents Strongly Approve Key Elements of the Original NC GDL Licensing System

| | 1999 | 2013 |
|----------------------------|------------|------------|
| 12 mo. learner period | 95% | 97% |
| 9 p.m. night driving limit | 87% | 90% |

Changes since 2002

- ❑ Substantial tinkering over the years has degraded the quality of the licensing system
- ❑ Unnecessary, burdensome, complications have been added, producing no benefit.
- ❑ Critical element (Learner period) altered repeatedly from 2021 to 2023.
 - Currently 9 months
 - 16-yr-old crashes have increased ~13%

Questions?

Contact:

Robert Foss (rob.foss@unc.edu)

Notes on slide 3

1. Motor vehicle crashes are the number one killer of teenagers in NC (and the US). Accordingly, the driver licensing system provides the opportunity—and carries the obligation—to ensure teen drivers are well-prepared when they begin driving on their own.
2. Despite the above it is important to understand that ***the majority of those killed (or injured) in teen driver crashes are someone other than the teen driver.*** Poorly prepared teen drivers create increased risk of death and injury to all road users, not merely themselves.
3. Ensuring that young beginning drivers are well-prepared is meant to protect all road users, just as much as laws prohibiting impaired driving, speeding, reckless driving and other dangerous behaviors.
4. Unlike most dangerous driving behaviors, the **risks created by young drivers are largely the result of what they do not yet know**, rather than knowingly doing something irresponsible like speeding. Threats of punishment can do nothing to address inexperience. Instead, a practical, workable system to ensure beginners are reasonably competent is needed. North Carolina embraced this challenge beginning in 1997.

Notes on slide 5

1. **Inexperience is by far the leading cause of young driver crashes.** The previous slide shows the sharp decline in crash risk as experience grows during the first few years driving.
2. This pattern occurs no matter what age individuals begin driving. It simply takes time to learn any task. Beginners make more mistakes in the early stages of doing anything. The dotted red line shows the shape of the human “learning curve,” indicating how improvement is rapid in the beginning and continues, at a decreasing rate for a long time.
3. ***Driving involves far more than simply handling a vehicle.*** That part is easy and can be mastered relatively quickly by most individuals. The difficult part is learning to recognize, anticipate and handle the innumerable complications drivers routinely face.
4. These involve (1) the behavior of other drivers, (2) the complexities of the roadway system (confusing designs, narrow roads with sharp curves, etc.), (3) the challenges created by environmental conditions (snow, rain, fog, blinding sun in the eyes near sunset, etc.).
5. New drivers must learn what other drivers, the roads, the environment usually do, but also that all 3 occasionally provide unexpected challenges. These unusual situations commonly lead to novice driver crashes.
6. The human brain is superbly equipped to handle complex tasks like this. But it is designed to learn from experience, not from being told about them, reading about them, memorizing driving laws, etc. ***In brief, to learn what is needed, beginners need to drive. A lot!***

Notes on slide 8

1. This is what graduated licensing systems are designed to do. The slide emphasizes that ***what GDL is meant to do is simple in principle***: Provide extensive practical driving experience while simultaneously keeping learners safe, and doing so for all new teen drivers. The final point is important, because the safety of all road users is at stake, not merely beginning drivers themselves.
2. Graduated Driver Licensing (GDL) is an approach originally designed by researchers at the UNC Highway Safety Research Center in the early 1970s.
3. It takes into account how humans learn, as well as the complicating characteristics of adolescent development that are at play during the teenage years. Numerous developmental issues are involved (neurocognitive, emotional & social maturation).
4. The human brain is not fully developed until about age 25. The latest brain system to mature is the “regulatory system.” So teens are particularly bad at “impulse control,” and that can be especially dangerous when driving.
5. Experts in adolescent development point out there is nothing that can be done to speed up developmental processes, including brain maturation. Teens simply have to go through them. So we can’t threaten, educate or reward new teen drivers into acting/driving like adults.
6. However, we can provide them with excellent opportunities to learn to drive safely while at the same time protecting them from the risks inherent in their youthfulness and their complete lack of driving experience.

Notes on slide 9

1. The initial GDL system contained 2 of what are now considered the 3 essential elements of a comprehensive system: A mandatory learner license that allows only adult-supervised driving and an intermediate license that allows unsupervised driving, but continues the protection of having an experienced adult in the vehicle during high risk nighttime driving.
2. A limit on passengers was included in 2002. By that time, clear evidence was available that young passengers increase crash risk for young drivers.
3. Teens need at least 12 months of supervised practice to learn how to handle the many challenges that driver routinely face. As mentioned earlier, this includes the behavior of other drivers, the complexity of the roads, and challenges created by environmental conditions.
4. GDL does not require active law enforcement to ensure compliance with license requirements. The huge majority of teens adhere to reasonable requirements and their parents are in the ideal position to enforce such requirements. Numerous studies indicate this is the case.

Notes on slide 10

1. Two particularly noteworthy facts are shown in the previous slide. First, is the magnitude of the beneficial effect on 16-year-old driver crashes. Second is the fact that the new system strongly influenced 17-year-old crashes as well. Both these findings indicate that ***the NC system has been a great deal more effective than the GDL systems introduced in nearly every other state.*** The next slide shows other state findings.
2. ***The particularly strong success of the NC system is due largely to the 12-month duration of the learner period.*** The starting time (9 pm) of the night driving protection of the Intermediate license adds slightly to the greater success in NC. Most states erred by (1) adopting only a 6-month learner period (which is simply not long enough for beginners to get the experience they need, and (2) beginning their night limits at 11 pm or later even though most beginning teen driver nighttime crashes occur between 9 and 11 pm.
3. The initial findings, showing a dramatic reduction in 16-year-old drivers crashes and fatal crashes during the first year the system was fully in effect, were published in 2001 in the prestigious *Journal of the American Medical Association*. These findings were instrumental in prompting other states to adopt a GDL system, or to upgrade one already in place to more closely resemble the NC system.

Foss, R. D., Feaganes, J. R., & Rodgman, E. A. (2001). Initial effects of graduated driver licensing on 16-year-old driver crashes in North Carolina. *JAMA*, 286(13), 1588-1592.
4. HSRC has conducted numerous studies to determine whether the new licensing system reduced crashes and injuries and, if so, how it did so.

Notes on slide 11

1. The preceding slide shows the effects that the learner periods introduced in several states had on 16-17-year-old driver crashes (combined). These analyses were done using the same statistical modeling analysis used to measure the long-term effects in North Carolina, so the results from different states are directly comparable
2. Almost every GDL licensing system in the U.S. has reduced teen driver crashes. But virtually none of them have produced the extensive safety benefits found in North Carolina. This is because other states based their GDL systems on general recommendations from various groups and organizations, rather than detailed scientific research on the many issues involved.
3. By contrast, the North Carolina GDL system was developed through an extensive collaboration of researchers, adolescent development experts, public health experts, law enforcement community and driver licensing officials. Consequently, North Carolina was able to design then implement a system that was more powerfully equipped to address the complex problem of high beginning teen driver crash rates.

References:

Ehsani, J. P., Bingham, C. R., & Shope, J. T. (2013). The effect of the learner license Graduated Driver Licensing components on teen drivers' crashes. *Accident Analysis & Prevention*, 59, 327-336.

Foss, R.D., Masten, S.V. & Martell, C.A. (2014) *Long-term Effect of Graduated Driver Licensing (GDL) Requirements in North Carolina*. Final Report. to U.S. Centers for Disease Control. July.

Notes on slide 12

1. In addition to multiple analyses of the crash-reducing effects of the revamped North Carolina licensing system, HSRC researchers have conducted numerous studies of how parents view the system, how they supervise their teens, and the kinds of assistance they find helpful as they undertake this task.
2. One particularly important issue was how parents viewed the new licensing system, which requires them to do far more than had ever been the case previously. The previous slide shows parents' responses when asked about the two key GDL elements introduced in 1997. Parents who had been through the new licensing system with their teen overwhelmingly approved of these elements a few years after the system took effect,. Approval remained identically strong 14 years later when parents were surveyed again. Numerous studies in other states also find parents strongly support this approach to teen driver licensing.
3. In early considerations of a potential shift to this new licensing approach, some were concerned that parents might object to this increased effort required of them. Focus group discussions with NC parents suggested that would not be the case, but those involved a small number of parents. These statewide surveys to interview hundreds of parents confirmed that **parents broadly approve and they view the shift to this (GDL) licensing approach as the state supporting them in keeping their teens safe, and not as an unwelcome intrusion.**