THE UNIVERSITY OF NORTH CAROLINA HIGHWAY SAFETY RESEARCH CENTER

Examining the Driver Licensing System and Practices for Teen Drivers in NC

LITERATURE AND POLICY REVIEW

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This report presents research conducted by the UNC Highway Safety Research Center, www.hsrc.unc.edu. This project is supported by the North Carolina Collaboratory at the University of North Carolina at Chapel Hill with funding appropriated by the North Carolina General Assembly.

Visit https://go.unc.edu/Fy47A for the associated Policy Brief

MARCH 2026

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Introduction

North Carolina's Graduated Driver Licensing (GDL) system was enacted in 1997 with overwhelming support from both the general public and state legislators, propelling the state into the spotlight as a national leader in teen driver safety. Supported by research from the UNC Highway Safety Research Center, North Carolina helped pioneer this innovative approach to reducing teen crashes, injuries, and fatalities, saving many lives on our state's roadways. The GDL system in North Carolina reduced overall crashes by 38 percent among 16-year-olds, and serious and fatal injuries by 46 percent.[1]

While GDL has improved safety for teen drivers, the North Carolina GDL process involves multiple visits to the state Division of Motor Vehicles (DMV) over at least 1.5 years and includes resource-heavy processes such as in-office knowledge (Level 1) and road skills (Level 2) testing. Combining COVID-related DMV office closures, increasing population in the state, and looming Real ID deadlines with GDL office visit requirements resulted in ongoing backlogs that have been difficult to clear. These backlogs have led to long and persistent walk-in lines, and few, if any, available appointments; often, people must travel long distances for available appointments.

To address recent concerns and voter frustrations, the North Carolina General Assembly modified GDL requirements, including shortening the length of the permit phase (Level 1). While done for important reasons, this rapid response resulted in changes before potential impacts on safety were investigated. A thorough examination of the current GDL system to identify opportunities to improve processes and reduce the number of DMV visits without negatively impacting safety is important and overdue. Results of this research can help North Carolina policymakers make updates to policies and procedures to reduce the stresses on both customers – in particular, teens and their caregivers – and the DMV system while keeping road user safety at the forefront.

We conducted an analysis to better understand the safety impacts of different approaches to both the written permit and the road skills license testing. We reviewed literature related to the safety of testing practices, collected information on states' practices and regulations, and evaluated crash data from different states. This report presents our methodology, results, and conclusions from these analyses.

[1] UNC Highway Safety Research Center. (n.d.). *Graduated driver licensing in North Carolina: Downloadable fact sheets*. NCTeenDriver. https://tinyurl.com/3n9tuenw

Literature Review

The team scanned peer-reviewed, technical, and government literature to find safety impacts of novel approaches to both the written and the road skills testing. In particular, the review focused on safety analyses of online and third-party written learner permit testing and third-party road skills driver license testing.

Method

The team worked with HSRC's in-house research librarian to conduct searches from a variety of sources and catalog identified articles in a LeanLibrary Workspace (a citation management tool) database. Search terms included, but were not limited to, the following:

- graduated licensing OR graduated driver licensing OR GDL
- road test* OR practical test* OR virtual driv* test*
- teen* driver* OR young driver* OR novice driver*
- driv* test* OR DMV test*
- graduated driver* licens*
- permit*

The literature search included results from peer-reviewed and scholarly literature; conference proceedings; state statutes, administrative reports, and other government publications; and news reports on changes to GDL policies. There was no time-based limit on the search. While our focus was on reviewing studies performed in the U.S., we also attempted to identify efforts in other countries that may have had applicable findings. The databases and websites listed below were included in the literature search:

- General abstracting and full-text databases for relevant articles in peer-reviewed research journals:
    - Scopus (covers most science, technology, and medical disciplines)
    - PubMed (run by the National Library of Medicine, this database thoroughly covers scholarly medical literature, from clinical trials to public health initiatives)
    - PsycINFO (citation and full-text database, developed by the American Psychological Association, covering all disciplines of psychology)
    - SafetyLit (database focusing on citations concerning injury prevention and safety promotion)
- U.S. government agency documents and databases:
    - TRID (Transportation Research Information Database)
    - TRB RiP (research in progress)

- Research reports published by U.S. institutions such as the University of Michigan Transportation Research Institute (UMTRI), Texas Transportation Institute (TTI), Pacific Institute for Research and Education (PIRE), and Insurance Institute for Highway Safety
- International research centers
    - SWOV Institute for Road Safety Research, The Netherlands
    - Monash University Accident Research Center, Australia
    - Swedish National Road and Transport Research Institute, Sweden
    - Toronto Metropolitan University, Canada (formerly Ryerson University)
- A cross-check internet search using Google Scholar

Findings

Research team members identified 20 relevant titles during the search. None of the identified papers provided evaluations or safety-related evidence of the impacts of online or third-party permit and license testing. From this, the team concluded that there are no publicly available systematic evaluations of the outcomes of states shifting to online learner permit testing or third-party driver license testing. Because of this, we cannot draw conclusions from the literature about the efficacy or safety implications of such policy shifts. This question is revisited in the crash data analysis where the team attempted to evaluate the outcomes across states with differing testing practices.

Synthesis of State Permit/License Testing Practices

To complement the literature review, the team also conducted a synthesis of publicly available state rules and regulations for online and third-party permit and license testing.

Method

1. The team developed a spreadsheet to categorize teen driver licensing practices. Each state website was searched for information on policy changes made to minimize DMV visits or streamline GDL practices. These topics included:
    a. written permit tests taken online (not at a DMV location);
    b. third-party administration of the written permit test;
    c. third-party administration of the on-road license test; and
    d. school enrollment requirements/waivers.
2. Another spreadsheet was created to identify which GDL changes were documented in each state and whether the change reduced DMV trips.
3. The team submitted official record requests to several states to gather information on the impacts of implementation of third-party testing for non-commercial driver licenses.

This included whether safety outcomes were being measured, as well as any evaluation of third-party administrators.

Written Learner Permit Tests

The written knowledge test often serves as the starting point of the GDL process. In most states, teens must pass a written exam before obtaining a learner permit, which allows them to begin supervised driving practice. The test typically covers traffic laws, road signs, and safe driving practices as outlined in each state's driver manual. The structure and length of the written knowledge test vary across states. For example, Hawaii and Oklahoma include 20 test questions, while Utah, New Jersey, and Florida include 50. Many states define a passing score as getting 80 percent of the questions correct.

Written knowledge tests can be taken at the state licensing agency in 47 states, but many states offer additional options (Table 1). Twenty-two states allow permit tests to be administered at driving schools, public high schools, or examination stations run by other state agencies. For example, Missouri's State Highway Patrol administers the written test; those who pass earn a certificate to submit with their permit application at the licensing agency.[2]

A growing number of states have begun to offer the written knowledge test in an online format that can be taken outside of the licensing agency. Software developed by KnowTo Drive, a privately owned company, is used by 13 states to offer online testing at home. This software uses automated proctoring measures including identity verification, webcam monitoring, and an enforced lockdown browser to ensure test takers do not receive help or reference material during the exam.[3]

States have different proctoring rules, which are described on the KnowTo Drive website. Typically, for test takers under 18, identity verification is handled through a parent or guardian, who confirms their teen's identity during registration by answering a series of questions. Prior to the test, applicants must upload a photo, then the webcam uses the photo to verify the person testing and that no additional people are present in the frame. To ensure no online materials are referenced during the test, test takers are disqualified if their mouse cursor leaves the test session. KnowTo Drive allows states to integrate its testing platform into their own websites, and states can layer additional proctoring measures on top of the standard, embedded measures.

[2] Missouri State Highway Patrol. (n.d.). *Driver examination division*. Missouri Department of Public Safety. https://www.mshp.dps.missouri.gov/MSHPWeb/PatrolDivisions/DED/

[3] KnowTo Drive. (n.d.) *Online driver testing at home!* https://knowtodrive.com/#faq

Iowa's Skip the Trip program allows applicants to take the test at home with parents proctoring or at participating high schools.[4] This process is different from the one utilized by KnowTo Drive states, because it requires parents to fill out an "Application to Proctor Knowledge Exam" form that can take up to two weeks to process. Once an application is approved, teens have 72 hours to take the test administered by their parent or guardian. Florida uses a similar approach: a parent or legal guardian must sign a proctoring form in front of a notary public or driver's licensing agent before administering the test online.

In total, 18 states offer some form of online testing outside the state licensing agency. Vermont is the only state that does not offer any in-person options for taking the written knowledge test; applicants must take the test online via KnowTo Drive.

Table 1 State-Level Permit Testing Options

Written Test (N = 51)	% Yes (Count)	States
DMV in-person	92% (47)	AK, AL, AZ, CA, CO, CT, DE, FL, GA, HI, IA, ID, IL, IN, KS, LA, MA, MD, ME, MI, MN, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WI, WV, WY, DC
Third-party in-person	43% (22)	AK, AR, AZ, CO, FL, IA, KY, LA, MN, MO, ND, NJ, NM, OH, OK, RI, SD, TX, VA, WA, WI, DC
Online	35% (18)	AK, AZ, CO, FL, HI, IA, KS, MA, MI, NV, NY, OH, OR, TN, VT, WI, WV, DC

Road Skills Tests

For most states, teen learners must pass a road skills test to earn an intermediate or full driver license, enabling them to drive independently. While the written test evaluates knowledge of rules and safe driving norms, the road test assesses a driver's ability to safely operate a vehicle in real driving conditions.

Road skills examinations vary by state, though there is often overlap in the abilities a driver is expected to demonstrate. Many states use a planned route test, where the examiner rides with the applicant and evaluates driving skills along a predetermined path on public roads. Some states include a closed course maneuvering portion in addition to the on-road test. Rhode Island

[4] Iowa Department of Transportation. 2026. *Online permit test (Skip the Trip)*. https://iowadot.gov/drivers-licenses-ids/driver-education/online-permit-test-skip-trip

administers an entirely closed course exam;[5,6] examiners in that state observe from outside of the car and evaluate a driver's performance across four basic control skills: maneuverability, parallel parking, three-point turnabout, and backing up.[7]

State licensing agencies administer the road skills test in 44 states (Table 2). Seven (7) states do not offer road skills testing at the DMV: Arkansas, Colorado, Kentucky, Michigan, Missouri, Idaho, and Mississippi. Like the written knowledge test, many states (24) allow road skills tests to be administered by third parties. Examples of third-party providers include driver education schools, independently contracted examiners, and states' highway patrol agencies.

Six (6) states offer waivers for the road skills test, with varying conditions. Some driver education schools integrate road skills tests into their courses. For example:

- In Kansas, teens who complete driver education can receive a certification that waives the DMV road test requirement. Road skills are not assessed in a one-time exam but rather broken into competencies that are assessed in behind-the-wheel evaluations as a part of the course.[8]
- In Nebraska, the road skills test may be waived upon completion of a driver education course, but a DMV-approved road test is conducted by the instructor within the course.[9]
- In Iowa, drivers under 18 must complete a state-approved driver education program, either through a public school or licensed private company, or they may complete an alternative Parent-Taught Driver Education program. Over 93 percent of students who take the state-approved course are exempt from taking the road skills test at the DMV, though a test may be requested at the discretion of an instructor, parent, or licensing personnel.[10] Teens who complete the parent-taught program are required to take the road skills at the DMV.[11]

[5] Virginia Department of Motor Vehicles. (2026). *Road skills test*. https://www.dmv.virginia.gov/licenses-ids/exams/road-skills-test
[6] State of Rhode Island Division of Motor Vehicles. (2024). *Road tests*. Department of Revenue. https://dmv.ri.gov/licenses-permits-ids/permits-tests/road-tests
[7] State of Rhode Island Division of Motor Vehicles. (2023, May). *Modified driver skills testing: A guide to non-commercial operator's license road test preparation*. https://dmv.ri.gov/media/436/download?language=en
[8] Johnson County Community College. (2026). *Driver education FAQs*. https://www.jccc.edu/academics/ce/driver-education-ce/driver-education-faqs.html
[9] National Safety Council Nebraska Chapter. (2026). *Driver education for teens*. https://www.safenebraska.org/safe-road/teen-driver-education
[10] Iowa Department of Transportation. (2026). *Driver education*. State of Iowa. https://iowadot.gov/drivers-licenses-ids/driver-education
[11] Iowa Department of Transportation. (2026). *Intermediate license*. State of Iowa. https://iowadot.gov/drivers-licenses-ids/get-or-renew-drivers-licenses-ids-permits/under-18-permit-license-or-id/intermediate-license

Idaho uses a distinctive model for third-party testing. Individually contracted skills test examiners are licensed by region throughout the state, and applicants contact them directly to schedule a test.[12]

Mississippi is the only state in which there is no required road skills test for teen drivers. Instead, a parent/guardian signs an affidavit to indicate that the teen has held their permit for at least one year and has successfully completed the required 50 hours of driving instruction.[13]

Table 2 State-Level On-Road License Testing Options

Road Test (N = 51)	% Yes (Count)	States
DMV	86% (44)	AK, AL, AZ*, CA, CT, DE, FL, GA, HI, IA*, IL, IN, KS*, LA, MA, MD, ME, MN, MT, NC, ND, NE*, NH, NJ, NM, NV, NY, OH, OK, OR*, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY*, DC
Third-party	47% (24)	AK, AR, CO, FL, ID, IA*, IN, KY, LA, MI, MO, NC, NE*, NM, OK, OR*, PA, SC, TN, TX, UT, VT, WA, DC

**State has a provision to waive the road test*

School Attendance/Driver Eligibility

Several states tie driving privileges to school enrollment or attendance as a means of incentivizing teens' commitment to their education (Table 3). These policies can be grouped into three broad categories: thirteen (13) require enrollment verification for permit applications, sixteen (16) may revoke privileges for truancy or not meeting attendance requirements, and several states suspend driving privileges in response to specific school disciplinary actions.

The application and breadth of these policies vary. For example:

- Tennessee requires school enrollment verification to obtain a license or permit and provides a statutory basis for suspending the driving privileges of any driver under 18 with more than 10 consecutive or 15 total unexcused absences in a single semester, unless the absences are deemed beyond the student's control.[14]
- Mississippi includes enrollment requirements[15], and if a student drops out or has too many absences, their license will be suspended. A school superintendent may request

[12] Idaho Transportation Department. (n.d.). *Taking the driver's test: Your guide to taking the knowledge and skills test for an Idaho driver's license*. https://itd.idaho.gov/guide/taking-the-drivers-test/
[13] Mississippi Department of Public Safety, Driver Service Bureau. (n.d.). *Driver license issuance*. https://www.driverservicebureau.dps.ms.gov/Drivers/ClassR
[14] Tennessee Code Annotated. *School attendance and driving privileges*. § 49-6-3017. (2024, January 2). https://tinyurl.com/63t43tu8
[15] Mississippi Code Annotated. *Motor vehicles and traffic regulations: Driver's license*. § 63-1-9(1)(f). (2025). https://tinyurl.com/3f7yr7dd

reinstatement after the student completes nine consecutive weeks of attendance without unlawful absence.[16]

- Virginia requires school enrollment and attendance compliance but includes provisions that allow a parent to override the requirement.[17,18]
- In Florida, enrollment is verified through an electronic data sharing system, rather than a physical form filled out by school administrators or parents.[19,20]

States also differ in whether these provisions operate through administrative processes or court processes. In most states with attendance-based requirements, schools report noncompliance directly to the DMV, which initiates license suspension or denial without court involvement. In contrast, California, Nevada, and Rhode Island send truancy-based driving sanctions through the juvenile or family court system.[21, 22, 23] Nevada's court-ordered sanctions are mandatory upon a truancy finding, whereas California's and Rhode Island's are discretionary.

Even though these requirements are relatively common, a relationship between school enrollment policies and driving safety has not been established. Several states have moved away from these requirements in recent years; for example, Ohio and Delaware repealed attendance statutes. Oklahoma similarly repealed its school enrollment verification and attendance requirements in 2021. (Note: A bill to reinstate these provisions [HB 4153] was introduced on February 2, 2026, and referred to the Oklahoma Senate as of March 5, 2026[24]). As a result of these changes, currently only thirteen (13) states, including North Carolina, still require certification of enrollment.

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[16] Mississippi Code Annotated. *Motor vehicles and traffic regulations: Driver's license; Duration and expiration of licenses.* § 63-1-47(3)(c). (2025). https://tinyurl.com/hpw57dew

[17] Code of Virginia. *Conditions and requirements for licensure of persons under 18.* § 46.2-334. (n.d.). https://law.lis.virginia.gov/vacode/title46.2/chapter3/section46.2-334/

[18] Code of Virginia. *Court to suspend driver's license issued to certain minors*. § 46.2-334.001. (n.d.). https://law.lis.virginia.gov/vacode/title46.2/chapter3/section46.2-334.001/

[19] The Florida Legislature. *Motor vehicles, Driver licenses, Attendance requirements*. § 322.091. (2025). https://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0322/Sections/0322.091.html

[20] The Florida Legislature. *K-20 Education Code, Public K-12 Education, Nonenrollment and nonattendance cases*. § 1003.27(2)(b). (2019). https://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=1000-1099/1003/Sections/1003.27.html

[21] California Legislature. *Vehicle code; Driver's licenses; Suspension or revocation of licenses*. § 13202.5. (2020). https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=VEH&division=6.&title=&part=&chapter=2.&article=2

[22] Nevada Legislature. *Nevada revised statute, Habitual truants: Fines; Suspension of or delay in issuance of driver's license; Community service*. § 62E.430. (n.d.). https://www.leg.state.nv.us/NRS/NRS-062E.html#NRS062ESec430

[23] Rhode Island Legislature. *Power of court to order disposition of child*. § 14-1-32(5). (n.d.) https://webserver.rilegislature.gov/Statutes/TITLE14/14-1/14-1-32.htm

[24] Oklahoma State Legislature. *Oklahoma House Bill 4153*. (2026). https://www.billtrack50.com/billdetail/1938546#

Table 3 State-Level School Certification Requirements

Required Certification (N = 51)	% Yes (Count)	States
Requires school enrollment	25% (13)	AL, FL, GA, ID, KY, MS, NC, NV, SC, TN, TX, WI, WV
Attendance-linked provisions	31% (16)	AL, AR, CA, FL, ID, IL, IN, KY, NV, RI, SC, TN, TX, VA, WV, WI

Findings

Notably, there is limited information on outcomes from states implementing online and/or third-party testing. Several key questions remain, including whether driving ability and roadway safety are impacted by online or third-party testing or school enrollment certification.

Beyond safety implications, another key consideration for further research is whether increasing available testing options has alleviated the burden on licensing agencies to a substantive degree. Many states offer third-party options *in addition to* the traditional state licensing agency option, and there is no publicly available data on how many teens use each option. Only three states do not offer any knowledge or road skills testing at the state licensing agency: Arkansas, Missouri, and Kentucky, where all testing is conducted by the state's highway patrol agencies. Under this structure, the licensing agency acts as the administrator of the GDL process, focusing on issuing permits and licenses rather than also being responsible for conducting evaluations of driving knowledge and skills.

Research on contracting out government services suggests that fragmenting service delivery across multiple third-party providers might introduce accountability and quality challenges.[25] Concerns that decentralizing the administration of permit and license testing could decrease uniformity of procedures and quality evaluation of driver knowledge and ability can be balanced with intentional and ongoing evaluation. In fact, several states that offer third-party testing have codified evaluation procedures in statutes to address such concerns. For example, South Carolina requires random retesting of driver license applicants who passed third-party examinations.[26] Florida has also codified evaluation criteria in statute, though the language suggests it functions more as an enabling statute rather than a mandate.[27]

[25] Lapuente, V., & Van de Walle, S. (2020). The effects of new public management on the quality of public services. *Governance. 33*: 461–475. https://doi.org/10.1111/gove.12502

[26] South Carolina Legislature. *Motor vehicles: Driver's license; Administration of driver's license examination*. § 56-1-15. (2024, May 20). https://www.scstatehouse.gov/code/t56c001.php

[27] The Florida Legislature. *Motor vehicles, Driver licenses, Contracts for administration of driver license examination*. § 322.56(3)(b) &(e). (2025). https://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0322/Sections/0322.56.html

Novel Practices

Several states are experimenting with advanced testing technologies to re-imagine driver testing. In Georgia, teens have the option of taking the Virtual Road Test (VRT) during which a remote examiner provides live instruction through a hands-free cell phone connection and evaluates the driver through a live-feed camera system. While not exhaustive, Georgia has provided some data to support the effectiveness of the VRT at evaluating novice driver performance;[28] however, questions remain including the potentially distracting effects of remote interaction with evaluators. Similarly, Virginia has conducted a pilot deployment of its Automated Road Test System (ARTS),[29,30] which uses artificial intelligence (AI) to analyze drivers' eye movements while evaluating their performance for licensing. While the Virginia DMV Commissioner has stated that the ARTS program was going to expand in 2025,[31] the state has not publicly presented data on the system's effectiveness. Further, factors like the effects of requiring test-takers to follow a phone-displayed navigation system for guidance, as well as the validity and reliability of AI analyses, leave additional questions unanswered.

Crash Data Analysis

Because the literature review did not result in the identification of any evidence regarding the safety implications of online or third-party permit and license testing, the research team conduced a direct, high-level analysis of whether there is an observable difference in teen fatal crash rates between states with different permit or licensing options.

Method

This analysis drew on two data sources. Crash data were obtained from the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS), using the online Fatality and Injury Reporting System Tool (FIRST).[32] The number of driver licenses by age in each state was obtained from the U.S. Department of Transportation's *Licensed Drivers by*

[28] Georgia Department of Driver Services. (n.d.). *Virtual road test: Quick facts.* https://dds.georgia.gov/document/document/vrt-facts-sheet/download

[29] Virginia Department of Motor Vehicles. (2025). *Meet ARTS, Virginia's Automated Road Test System!* https://www.linkedin.com/posts/vadmv_meet-arts-virginias-automated-road-test-activity-7344001542129152000-QCP1

[30] QTPIE. (n.d.). *QTPIE: Automatic real world driving evaluations*. https://qtpie.eu/

[31] American Association of Motor Vehicle Administrators. (2025, December 15). *Episode 290: Virginia DMV's automated road test system.* Podbean. https://aamvacast.podbean.com/e/episode-290-virginia-dmv-s-automated-road-test-system/

[32] National Highway Traffic Safety Administration. (2025). *Fatality and Injury Reporting System Tool (FIRST)*. United States Department of Transportation. https://cdan.dot.gov/query

State, Sex, and Age Group, 1994–2023 (DL-22).[33] Using these databases, the following steps were conducted:

1. Use *FARS FIRST* to document the number of fatal crashes for each state for teen drivers aged 16-19, averaged between 2022/2023 to smooth outliers, and export these as NumCrashes to a Microsoft Excel workbook.
2. Use *DL-22* to identify the number of licensed drivers aged 16-19 in each state, averaged 2022/2023, and export these as NumDrivers to the same workbook.
3. Using the results of the Synthesis of State Permit/License Testing Practices, create two spreadsheet pages categorizing states by whether learner permit and/or driver license testing may be conducted online and/or by third parties and whether a school attendance/driver eligibility certification is required.
4. For each set of state/testing categories, calculate the fatal crash rate for drivers aged 16-19 per 10,000 drivers of that same age group. This rate was calculated as:

   $$\text{Crash Rate} = (\text{NumCrashes}/\text{NumDrivers}) * 10{,}000$$

5. Compare crash rates across state testing categories.

Findings

It is important to acknowledge and consider two limitations to the data available for this analysis:

1) Only fatal crashes were considered; NHTSA does not publish crash data for non-fatal or minor crashes.
2) Driver licensure data from DL-22 were determined to be unreliable for several reasons. First, several states including Alabama and Arkansas reported identical licensure numbers across age categories for 2022 and 2023, suggesting these data may not be updated regularly in all states. Second, Kentucky reported substantially lower numbers of licensed teen drivers than other states, including substantially smaller states (Table 4 & Table 5), suggesting that data are either mis-reported or reported differently across states. This lower baseline licensure value resulted in Kentucky having a crash rate 3 times that of most other states, which is almost certainly spurious.

[33] U. S. Department of Transportation. (2025). *Licensed drivers by state, sex, and age group, 1994 – 2023 (DL-22).* https://data.transportation.gov/Roadways-and-Bridges/Licensed-Drivers-by-State-Sex-and-Age-Group-1994-2/xfkb-3bxx/data_preview

Table 4 2023 Counts of Reported Licenses by Age

State (Population)	16	17	18	19	Total
WV (1.8M)	17,508	11,379	12,691	12,787	54,365
KS (3.0M)	20,065	27,477	32,023	33,619	113,184
KY (4.6M)	15	1,955	10,317	23,598	35,885

Table 5 2022 Counts of Reported Licenses by Age

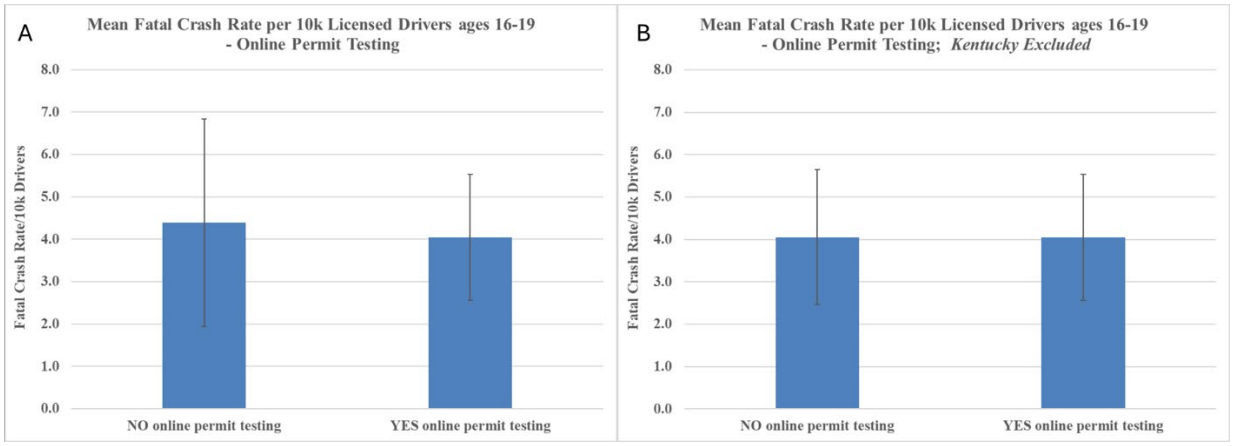
State (Population)	16	17	18	19	Total
WV (1.8M)	17,121	11,001	12,390	12,393	52,905
KS (3.0M)	19,033	26,714	31,124	33,653	110,524
KY (4.6M)	38	5,421	15,592	29,352	50,403

With these limitations in mind, Figures 1-3 present fatal crash rates by state practice for online knowledge testing, third-party road skills, and education verification respectively.

Online Knowledge Testing

Figure 1 presents fatal crash rates for states with and without online permit testing. There is a slight difference, with states allowing online permit testing having 0.4 fewer fatal crashes per 10,000 drivers (Figure 1A). However, this difference disappears when Kentucky, which is an outlier in crash rate and does not have online permit testing, is removed (Figure 1B). The error bars on each column represent standard deviations, which are a measure of how much variability there is within a group. Since these error bars are tall, this suggests that there is a wide range of crash rates across states regardless of permit testing rules, which further suggests that the average difference between groups is not meaningful.

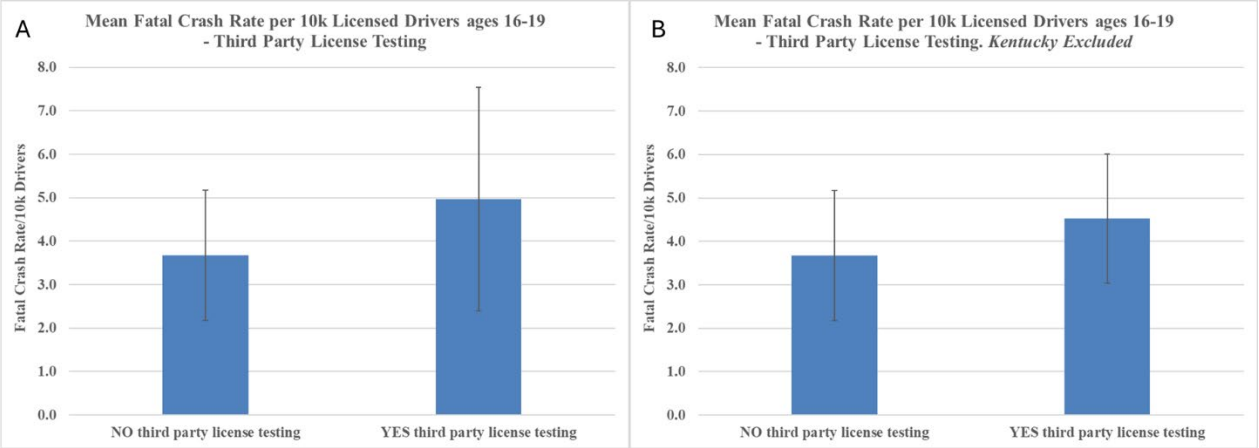
Figure 1. Mean Fatal Crash Rate for States With and Without Online Permit Testing.



Third-Party Road Skills Testing

Figure 2 presents fatal crash rates for states with and without third-party license testing. Here, states with third-party license testing have an average of about 1.3 more fatal crashes per 10,000 drivers (Figure 2A). However, this difference again decreases when Kentucky is removed, as it allows third-party license testing (Figure 2B). As in Figure 1, the tall error bars indicate substantial variation in crash rates among states within licensing categories, suggesting that the difference between states with and without third-party licensing may not be that meaningful.

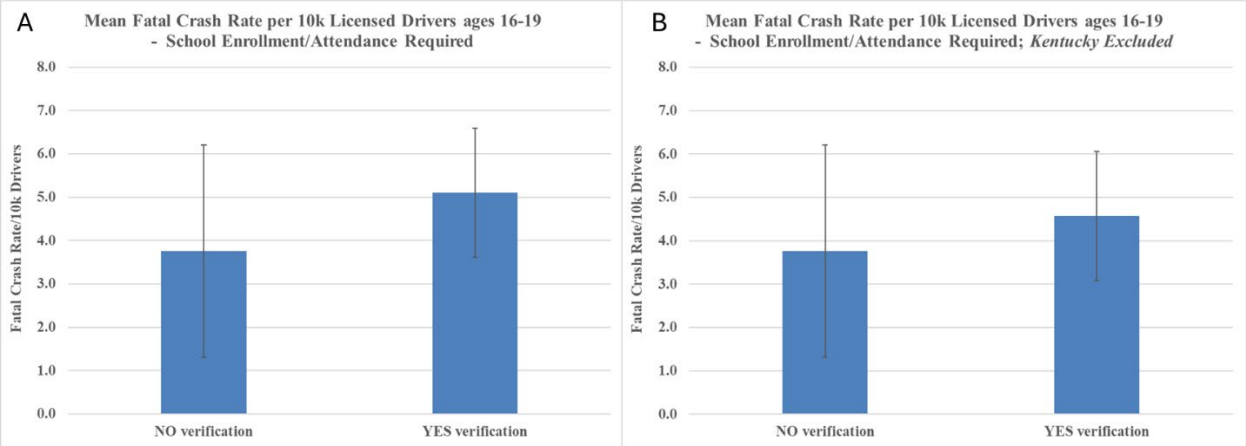
Figure 2. Mean Fatal Crash Rate for States With and Without Third-Party License Testing.



Education Verification Requirements

Figure 3 presents fatal crash rates across states depending upon whether or not they require a school enrollment and/or attendance verification. In this case, states that *require* verification have, on average, about 1.3 more fatal crashes per 10,000 drivers (Figure 3A). Again, this difference decreases when Kentucky (which does require an education verification) is removed (Figure 3B), and standard deviations are large, suggesting no meaningful difference in crash rates among states with and without education verification requirements. An analysis of the difference between the 13 states that solely require enrollment verification (as opposed to ongoing attendance requirements or a combination of both requirements) and those that do not require any education verification indicates similar results to the more inclusive analysis.

Figure 3. Mean Fatal Crash Rate for States With and Without Required School Enrollment/Attendance Verification.



Summary

Overall, while crash rates tended to vary slightly across testing and education verification state categories, the team does not consider any of these to represent a meaningful difference for several reasons:

1) Licensure data were unreliable, as discussed above.
2) States that offer online permit testing and/or third-party license testing often also allow these to be taken at the DMV, and no data were available to indicate the number of teens who selected each option in any state.
3) Mean differences in crash rates were relatively small; including the outlier of Kentucky, there were fewer than two crashes per 10,000 drivers, and this difference was even smaller in all cases when the outlier was excluded.
4) Grouping states by testing category is necessarily a coarse metric that does not account for state differences in factors like GDL progression, geography, weather, and demographics. Longitudinal within-state data would be more appropriate for analyses to account for this between-state variance, but most states did not provide clear dates for when their testing policies took effect. Furthermore, the Covid-19 pandemic was associated with both direct and indirect effects on crash rates and policy decisions such as GDL implementation, which would interfere with longitudinal analyses before and after the pandemic.
5) Related to #4, there was a lot of variability in crash rates within licensing categories, suggesting that differences between states might be more important than differences between licensing groups.

Because of the combination of these factors, we did not identify a reliable or meaningful difference in fatal crash rates for states with and without online permit and/or third-party license testing.

Conclusion

This report presents methods and findings as part of the Examining the Driver Licensing System and Practices for Teen Drivers in NC project. First, the team conducted a literature review of domestic and international safety evaluations of alternative GDL testing methodologies. Second, the team identified and synthesized state rules and regulations concerning written permit testing, road skills license testing, and required certifications for school enrollment and/or attendance. Finally, the team conducted a high-level analysis of fatal crashes to determine whether there were substantial differences in crash rates between states that did and did not have online permit testing, third-party license testing, and required school enrollment certification.

In the literature review the team did not identify any research about the safety implications of alternative permit or license testing, nor any publicly available datasets that would support such analyses by third parties. Using the categorization of states based on rules and regulations identified in the state scan, the team did not find substantial differences in crash rates between state groups for any of the three categories. In total, these findings suggest that any safety differences that may be attributed to online and/or third-party testing are likely to be small, if they exist at all. Further, education verification was not found to be associated with a reduction in crash risk. **Because of this, North Carolina could consider removing its Driving Eligibility Certificate requirement to help alleviate administrative burdens on parents and the GDL system.**

However, due to a lack of data, the research team could not identify or conduct rigorous analyses. **If North Carolina decides to implement any alternative methods to permit or license testing, we therefore recommend that it maintains and provides access to safety outcome data to support detailed analyses.** Such safety data would ideally include linkages between crash data and permit/license testing modality; for example, identifying whether a license test was administered by the DMV or a third party. These linkages would facilitate direct analyses of crash rates between different testing options and more conclusive research-based recommendations, allowing North Carolina's tradition of leading the country in teen driver safety to continue.