

# Retailers' Compliance with Federal Age of Cigarette Sales Policies – Pitt County, North Carolina, January–March 2022

Joseph G. L. Lee, Mahdi Sesay, Judy van de Venne, Amanda Y. Kong, Mary Hrywna, Shyanika W. Rose, Cristine D. Delnevo

**BACKGROUND** Tobacco use remains a leading cause of preventable morbidity and premature mortality. In December 2019, the federal age of sale for tobacco products increased from age 18 to age 21. This study aimed to evaluate the implementation of federal Tobacco 21 policies in Pitt County, North Carolina, by conducting multiple purchase attempts for cigarettes.

**METHODS** Stores in Pitt County that sold cigarettes were randomly sampled and visited by up to six different underage buyers (aged 18–20 years) who attempted to buy cigarettes from January to March 2022. Buyers made a total of 217 cigarette purchase attempts from 49 Pitt County retailers. Analyses were conducted using SPSS Complex Samples (v.28/Macintosh) to estimate retailer prevalence of requesting identification (ID) and selling to underage buyers across multiple purchase attempts.

**RESULTS** On average, retailers failed to request ID in 15.4% of purchase attempts (95% CI; 9.4%–21.3%) and sold to an underage buyer 34.2% of the time (95% CI; 27.0%–41.4%). Additionally, 75.5% (95% CI; 63.4%–84.6%) of retailers sold to an underage buyer at least once.

**LIMITATIONS** This study is limited to a single county in North Carolina and to underage buyers aged 18 to 20 years.

**CONCLUSIONS** There is widespread noncompliance with federal age-of-sale policies for tobacco products in Pitt County, North Carolina. State enforcement is warranted, and North Carolina's youth access law should be amended to match the federal age of sale. Changes to the law should allow research involving underage purchases.

Efforts to reduce young people's use of tobacco remain a high priority for tobacco control. A 2015 Institute of Medicine (IOM) report concluded that raising the minimum tobacco sales age to 21 nationwide would reduce smoking initiation by 25% among 15- to 17-year-olds and by 15% among 18- to 20-year-olds [1]. In December 2019, a federal law increased the legal age of sale to 21. The Food and Drug Administration (FDA) is enforcing the federal age-of-sale requirements and a separate FDA requirement to check identification (IDs) of all purchasers under age 27. Not all states have updated their tobacco age-of-sale policies to 21 to reflect the federal age of sale. In North Carolina, state law prohibits sales to youth under age 18, requires checking IDs of anyone under age 18 if there is reason to believe they may be under 18, and bans research on underage sales that uses youth under age 18 [2]. Neither North Carolina nor the FDA require electronic verification of IDs.

Enforcement of such policies as part of a comprehensive intervention is evidence based [3], and an older body of literature shows that enforcement is critical to addressing access to tobacco products for youth [4]. Before the law was changed to age 21 federally, researchers had identified as a problem underestimation of noncompliance in federally required underage buy attempts conducted by states [5]. Researchers have made suggestions for improving enforcement protocols to reflect real-world youth behaviors [6].

In North Carolina, state and federal policies are enforced separately and through different mechanisms. Alcohol Law Enforcement (ALE) is the main agency with responsibility for underage tobacco sales in North Carolina [7], and ALE cites clerks for under-age-18 sales. Judges can impose fines and community service penalties on clerks. The FDA enforces the minimum federal age of sale with warning letters, escalating civil money penalties, and No-Tobacco-Sale Orders to retailers [8]. Retailers are thus subject to the more restrictive federal age of sale. However, in North Carolina, enforcement of the higher age of sale is done by the FDA while ALE enforces only to age 18. This limits the available resources to promote compliance in North Carolina.

Prior research has assessed compliance with age 21 policies in Ohio [9, 10] and New York City [11] by using legal-age buyers to assess if retailers checked IDs. Few studies have examined purchase rates by young adult underage buyers (aged 18–20 years) who were impacted by the increase in the federal age of sale from 18 to 21, and none have done so in tobacco growing states or in the US South. One California study found a violation rate of 14.2% for buyers aged 18–19

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Address correspondence to Joseph G. L. Lee, 1000 E 5th St, Stop 529, Greenville, NC 27858, (leejose14@ecu.edu).

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in 2017 [12], and a more recent study in New Jersey found 42.5% of attempts by age 18–20 buyers resulted in the sale of cigarettes [13].

This study sought to add to the literature by providing insight on tobacco sale compliance in a tobacco growing state in the context of an increased age of legal sale. Specifically, this project sought to assess compliance with ID checks and underage sale policies in Pitt County, North Carolina, for buyers aged 18–20 years.

## Methods

This project used an underage purchasing protocol from a New Jersey study [13, 14]. As North Carolina does not have tobacco retailer licensing, commercially available store lists from Data Axle (previously called ReferenceUSA) were aggregated and de-duplicated with off-premises alcohol permits. This approach has been previously validated in North Carolina [15]. We randomly sampled 49 stores in Pitt County that sold cigarettes using SPSS Complex Samples and conducted visits by underage buyers who attempted to buy cigarettes from January through March 2022. We employed 10 different buyers aged 18–20 to better estimate cigarette ID and sale compliance rates. Multiple purchase attempts were used, as this has been shown to better measure store-level noncompliance than a single purchase attempt [5, 16]. The buyers were college students who made between 2 and 49 purchase attempts. The 217 attempts were split almost equally by design between male and female buyers. Buyers visited each store once to attempt a cigarette purchase. On average, 4.4 buyers visited each store to attempt a cigarette purchase with a range from 2 (due to store closing permanently or temporarily for renovation) to 6 buyer visits.

The training and research protocol were developed to incorporate real-world behaviors without lying. Buyers carried and, if asked by the clerk, showed their actual ID and were instructed not to lie about their age. Buyers were instructed not to buy other items such as drinks or chips. A staff member audited each store for safety and the availability of products [17]. Training included detailed descriptions of common cigarette brands and how to ask for them; however, data collectors were not required to buy a particular brand to complete the purchase attempt. Additionally, data collectors were also trained in safety procedures, cash handling procedures, and the use of a Qualtrics-based data reporting tool. Training included visits to a retail store and practice purchases at retailers not included in the study.

To assess compliance, we calculated the proportion of buy attempts that resulted in an underage cigarette sale at each retailer. We also calculated the proportions of times each retailer asked for ID and electronically scanned IDs. Unless otherwise noted, analyses were weighted using SPSS Complex Samples (version 28; IBM) and generalized to Pitt County retailers that sell cigarettes. As the sampling weights were designed for generalizing retail locations and not individual purchase attempts, we report behaviors averaged to each location across multiple buys. Weights include a finite population correction [18]. As retailer locations are not human subjects, this study was deemed Not Human Subjects Research by the Rutgers University Institutional Review Board (study ID: #Pro2019001494).

## Results

As shown in Table 1, over three-quarters of retailers sold cigarettes to an underage buyer (75.5% [95% CI: 63.4%–

**TABLE 1.**  
**Compliance with Federal Tobacco 21 Sale Requirements in Underage<sup>a</sup> Cigarette Purchase Attempts (N = 217) in Retailers (N = 49), Pitt County, North Carolina, January – March 2022**

| Retailer behavior                                                              | Estimate <sup>b</sup> | 95% CI <sup>c</sup> |
|--------------------------------------------------------------------------------|-----------------------|---------------------|
| Requesting and scanning IDs                                                    |                       |                     |
| Requests for IDs <sup>d</sup>                                                  |                       |                     |
| Retailers' mean proportion of purchase attempts requesting ID                  | 84.6%                 | (78.7%–90.6%)       |
| Retailers' mean proportion of purchase attempts not requesting ID              | 15.4%                 | (9.4%–21.3%)        |
| Electronic scanning of IDs                                                     |                       |                     |
| Retailers' mean proportion of purchase attempts electronically scanning ID     | 40.8%                 | (32.2%–49.4%)       |
| Retailers' mean proportion of purchase attempts not electronically scanning ID | 59.2%                 | (50.6%–67.8%)       |
| Sales of cigarettes to underage buyers                                         |                       |                     |
| Retailers with no underage sales                                               | 24.5%                 | (15.4%–36.6%)       |
| Retailers with one or more underage sales                                      | 75.5%                 | (63.4%–84.6%)       |
| Retailers with a 50% or higher rate of underage sales                          | 36.7%                 | (25.8%–49.3%)       |
| Retailers with a 100% rate of underage sales                                   | 4.1%                  | (1.2%–13.0%)        |
| Retailers' mean proportion of purchase attempts resulting in an underage sale  | 34.2%                 | (27.0%–41.4%)       |

<sup>a</sup>Underage buyers were aged 18, 19, or 20.

<sup>b</sup>Retailer proportion statistics can be interpreted as the estimated proportion of buy attempts resulting in the characteristic of interest at an individual retailer in Pitt County, North Carolina. That is, retail location proportions were calculated for each retail location by dividing the number of purchase attempts with the given characteristic into the total number of purchase attempts at that retail location.

<sup>c</sup>Data are weighted to account for the sampling. Confidence intervals are calculated using a finite population correction.

<sup>d</sup>Two purchase attempts were missing data on if the clerk asked for identification (ID).

84.6%]) from January to March 2022. Over a third of retailers sold 50% or more of the time to underage buyers (36.7% [95% CI; 25.8%–49.3%]), which when extrapolated to the population of retailers in Pitt County indicated that there were approximately 67 (95% CI; 46–88) retailers in the county that sold to underage buyers 50% of the time or more. Just over 4% of retailers sold to underage buyers in every attempt (4.1% [95% CI; 1.2%–13.0%]). This indicated there were approximately seven retailers in Pitt County that consistently sold to underage buyers in every attempt (95% CI; 0–16.3).

The average retailer proportion of attempts where an ID was requested was 84.6% (95% CI; 78.7%–90.6%). Retail locations that had no sales to minors uniformly asked for ID at every visit. Excluding a buyer with just two attempts, all buyers were able to purchase cigarettes at least once; the percentage of attempts per buyer that resulted in a sale ranged from 11.1% to 48.0%, with a median of 30.0%. Retailers sold to three buyers over 40% of the time.

Of the 74 completed sales of cigarettes, 72 had data on whether the cashier asked to see ID. The cashier asked to see ID in 45 (24.5%) of those attempts but sold nonetheless. Of the 45 sales of cigarettes where ID was requested, the cashier sold the product after electronically scanning IDs in 3 (7.0%) of them.

## Discussion

### Principal Findings

There were substantial rates of noncompliance in Pitt County, North Carolina. Over three-quarters of the stores sold cigarettes to an underage buyer at least once. On average, buyers were able to purchase cigarettes at least once for every three purchase attempts. In addition to noncompliance with sales, there was substantial noncompliance with requirements for requesting identification for all buyers under age 27. These two rates of noncompliance were different. Measuring compliance based solely on ID requests would result in a lower estimate of noncompliance (15.4%) than measuring compliance using the retailer proportion of completed sales to underage buyers (34.2%). Moreover, it is important to note that sales were still made even after ID was checked, as also was observed in New Jersey [13].

### Results in Context

Because North Carolina's youth access law prohibits research using buyers under age 18, the last published research report of underage cigarette sales in North Carolina that we are aware of is from 1995 [19]. The report assessed sales at eight sites across North Carolina, finding that 34.8% of retailers in Craven County and Pamlico County, which were the closest sites to Pitt County, sold to buyers aged 16–17 [19]. Twenty-seven years later, our estimate in 2022 for Pitt County of 34.2% is not directly comparable because of different-age buyers and protocols; however, both point to stubbornly high rates of noncompliance. Another point

of comparison is state estimates of underage sales required by the Synar Amendment. The Synar Amendment requires states to estimate noncompliance with underage tobacco sale policies and keep noncompliance under 20% to maintain federal substance use block grant funding [20]. Our average rate of sale contrasts with the state's Synar report, which reports a weighted violation rate of 11.8% (95% CI; 9.0%–14.5%) for purchase attempts from March to May 2022 [21, 22]. Synar inspections and FDA inspections in North Carolina are also not directly comparable to our data, as they do not include buyers aged 18–20 and involve the presence of a law enforcement officer with the underage buyer [21].

Our findings share similarities with studies in other areas of the country. In a national school-based survey, just 17% of students who reported trying to buy cigarettes indicated that they experienced a refusal to sell because of their age in 2020 [23]. In a six-state 2020 survey, 57.6% of young adults self-reported they were only carded sometimes, rarely, or never for cigarettes [24]. Noncompliance with the age 21 tobacco sales requirement remains high. In New Jersey in 2019–2020, sales to underage buyers aged 18–20 were completed 42.5% of the time [13].

Even assessing compliance by measuring requests for ID shows high levels of noncompliance. Prior to implementation in New York City, the proportion of attempts where the retailer failed to conduct ID checks was 29% [11]. In a 2018 study conducted in Columbus, Ohio, failure to request ID was documented in 22% of purchase attempts [10]. Nonetheless, our results call into question estimates of noncompliance based solely on ID checks. While legal requirements for research often make such studies the only option, it is clear from our results that judging compliance based on ID requests can overestimate compliance, and researchers and policymakers should use caution with compliance estimates based on ID requests.

This study contrasts with other research where, with few exceptions [16], researchers have not generally reported on the proportion of stores that sell during repeated purchase attempts by different buyers. As previously suggested by other research teams, inspections programs should consider different ways of measuring retailer compliance like those used in this study, such as assessing purchase attempts with multiple buyers and repeated attempts [5, 16]. Prior research has also shown that noncompliance was more likely to be identified when underage purchasers carried and showed their real ID [25, 26].

Enforcement in North Carolina is largely carried out in a collaboration between Alcohol Law Enforcement and the Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Prior research has shown that some North Carolina counties have gone years without a single FDA-sponsored underage purchase compliance check [27]. One barrier is a state requirement that underage purchases happen in the presence of a law enforcement offi-

cer [2]. Enforcement is thus limited to the availability and interest of law enforcement officers, which is something shown in prior research from North Carolina [28]. The FDA's enforcement, which is civil rather than criminal [6], could be a model for enforcement in North Carolina that uses civil enforcement similar to the way the state's smokefree restaurant protections are enforced by county health departments. Pairing enforcement with retailer licensing may also help reduce smoking among young people [29].

### Strengths and Limitations

This study's strengths include its use of random sampling and survey weights, its use of a repeated testing protocol, the training for buyers that was designed to promote ecological validity, and the use of buyers' real IDs. However, the study also has limitations. The main limitation is that the travel, cash handling, and purchasing protocol required the study to be within a single county. Our estimates may thus not generalize outside of Pitt County, North Carolina. However, given that North Carolina's policies are largely enforced at the state level, we are not aware of reasons why Pitt County would be substantially different from other North Carolina counties, particularly in Eastern North Carolina.

### Conclusions

These findings suggest the need for stronger legislation in North Carolina, such as a state tobacco retailer licensing system, a strong civil enforcement program that does not require law enforcement presence, and an increase in the state legal age of sale from 18 to 21. Research on compliance rates with minors under age 18 is currently illegal in North Carolina [2]; changes to the legal age of sale should have exemptions for research like what is presented in this report so that compliance may be better tracked over time. Federally, the FDA should consider maximizing its enforcement of No-Tobacco-Sale Orders for retailers that routinely sell to underage buyers; research has shown that the FDA is not fully leveraging its power to issue such orders when retailers routinely fail inspections [8].

Even though sales to buyers under age 21 are prohibited nationally and state age-of-sale policies have made headway across the nation, compliance rates in Pitt County, North Carolina, are low, as indicated by the results of this study. More than 1 in every 3 attempts in Pitt County resulted in a sale to an underage buyer, and the majority of retail locations sold to an underage buyer at least once in this study. Additionally, a substantial number of sales occurred after requesting an ID that showed the buyer was under the legal age to purchase. Increased retailer education on the Tobacco 21 requirements may be warranted, and a match between state and federal requirements would likely strengthen both education and enforcement. Greater attention to compliance and enforcement is needed to ensure that the implementation of Tobacco 21 policies results in improvements to population health in North Carolina. NCMJ

**Joseph G. L. Lee, PhD, MPH** Professor and Associate Dean for Research, Department of Health Education and Promotion, College of Health and Human Performance, East Carolina University, Greenville, North Carolina; Affiliate Member, Cancer Prevention and Control, UNC Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

**Mahdi Sesay, BS** Research Assistant, Department of Health Education and Promotion, College of Health and Human Performance, East Carolina University, Greenville, North Carolina.

**Judy van de Venne, PhD** Research Program Manager, Center for Health Equity Transformation, University of Kentucky, Lexington, Kentucky.

**Amanda Y. Kong, PhD, MPH** Assistant Professor, Department of Family and Preventive Medicine, The University of Oklahoma Health Sciences Center, The University of Oklahoma; Faculty, TSET Health Promotion Research Center, Stephenson Cancer Center, The University of Oklahoma Health Sciences Center, The University of Oklahoma, Oklahoma City, Oklahoma.

**Mary Hrywna, PhD, MPH** Assistant Professor, Rutgers Institute for Nicotine & Tobacco Studies, Rutgers University, New Brunswick, New Jersey.

**Shyanika W. Rose, PhD, MA** Assistant Professor, Center for Health Equity Transformation, University of Kentucky, Lexington, Kentucky.

**Cristine D. Delnevo, PhD, MPH** Professor and Director, Rutgers Institute for Nicotine & Tobacco Studies, Rutgers University, New Brunswick, New Jersey.

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### Disclosures

Joseph G. L. Lee has a royalty interest in a retailer mapping and audit software licensed by the University of North Carolina at Chapel Hill. The software was not used in this project. Amanda Y. Kong serves as a paid expert consultant in litigation against the tobacco industry.

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