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Development of a tobacco 21 policy assessment tool and state-level analysis in the USA, 2015–2019

Page D Dobbs ,¹ Ginny Chadwick,^{2,3} Katherine W Ungar,³ Chris M Dunlap,¹ Katherine A White,¹ Michael CT Kelly,² Marshall K Cheney¹

¹Department of Health and Exercise Science, University of Oklahoma, Norman, Oklahoma, USA

²Family and Community Medicine, University of Missouri, Columbia, Missouri, USA

³Preventing Tobacco Addiction Foundation, Columbus, Ohio, USA

Correspondence to

Dr Page D Dobbs, Health and Exercise Science, University of Oklahoma, Norman, OK 73019, USA; page.dobbs@ou.edu

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ABSTRACT

Objective Policies raising the minimum legal sales age (MLSA) of tobacco products to 21 are commonly referred to as tobacco 21. This study sought to identify components of tobacco 21 policies and develop an instrument to examine policy language within 16 state laws adopted by July 2019.

Methods The multistage tool development process began with a review of established literature and existing tobacco 21 policies. In a series of meetings, tobacco control experts identified key policy components used to develop an initial tool. After testing and revisions, the instrument was used to code the existing tobacco 21 state-level policies. Inter-rater reliability ($\kappa=0.70$) was measured and discrepancies were discussed until consensus was met. Policy component frequencies were reported by state.

Results While all 16 states raised the MLSA to 21, the laws varied widely. Two laws omitted purchaser identification requirements. Fifteen laws mentioned enforcement would include inspections, but only three provided justification for conducting inspections. All 16 states provided a penalty structure for retailer/clerk violations, but penalties ranged considerably. Fourteen states required a tobacco retail licence, nine renewed annually. Six laws contained a military exemption, five were phased-in and 10 contained purchase, use or possession laws, which penalised youth. Four states introduced or expanded pre-emption of local tobacco control.

Conclusions The instrument developed is the first to examine policy components within state-level tobacco 21 laws. Policies that include negative components or omit positive components may not effectively prevent retailers from selling to youth, which could result in less effective laws.

INTRODUCTION

US residents broadly support laws raising the minimum legal sales age (MLSA) of tobacco products to 21 (tobacco 21). Studies suggest that 50%–70% of current smokers approve of these policies, and African-Americans, former smokers and current hookah users also support tobacco 21 policies.^{1–5} More people support raising the MLSA to 21 years than to ages 19 or 20 years.¹ Initial research suggests that tobacco 21 policies may help to reduce high school smoking rates,⁶ decrease tobacco initiation among those 15–17 years old by 25% and decrease adult smoking by 12%.⁷ However, these estimates of delayed initiation and decreased tobacco use derive from modelling studies rather than postimplementation evaluations. Additionally, literature

suggests that enforcement of and compliance with tobacco 21 policies may vary between cities and states, reducing the policies' effectiveness.⁸ A lack of enforcement could be attributed to multiple factors, including retailers disregarding the law, lack of retailer education or language within these policies could lack components proven to support enforcement and regulation (eg, monitoring retailer compliance).^{9 10}

To date, no study has examined language of existing tobacco 21 policies. Evaluation of policy effectiveness is a series of steps. The foundational step should determine recommended policy language and if these components exist within current policies. Beginning this process for tobacco 21 allows for evaluation of policy language beyond simply raising the MLSA to 21 years.

Tools have been developed and validated to measure substance use prevention strategies, such as tobacco retail training (Standardized Tobacco Assessment for Retail Settings),¹¹ tobacco control policies,^{12 13} legalised marijuana control policies¹⁴ and strength of public school tobacco policies.¹⁵ Several of these tools serve as standardised measures to assess consistencies and discrepancies between local, state and national policies and inform recommendations for policy revisions, such as a recent study regarding state-level recreational marijuana laws in the USA.¹⁶ What some may believe to be similar policy language (ie, e-cigarette definition) could undermine tobacco prevention (eg, preempting local government from passing stricter measures than state law).¹⁷

Recommendations for MLSA policies found to effectively reduce youth access and exposure to tobacco products include: an enforcement plan that includes compliance checks (using decoys aged 18–20 years); ensuring selection of retailers for compliance checks includes sampling locations where epidemiological data suggest higher tobacco usage rates; pursuing monetary penalties for violators and funding enforcement with these gains; suspending and revoking tobacco retail licences (TRLs) following repeated violations; and educating both retailers and the public about the law through education and signage.^{9 10 18–21} MLSA policies that include all electronic nicotine delivery systems (ENDS) are believed to foster greater support for tobacco 21 policies and to protect youth from nicotine initiation and addiction.²² While these recommendations propose key policy components, it is unclear if existing state laws employ these elements and if further policy recommendations are needed. The purpose of this study was to (1) develop a tool



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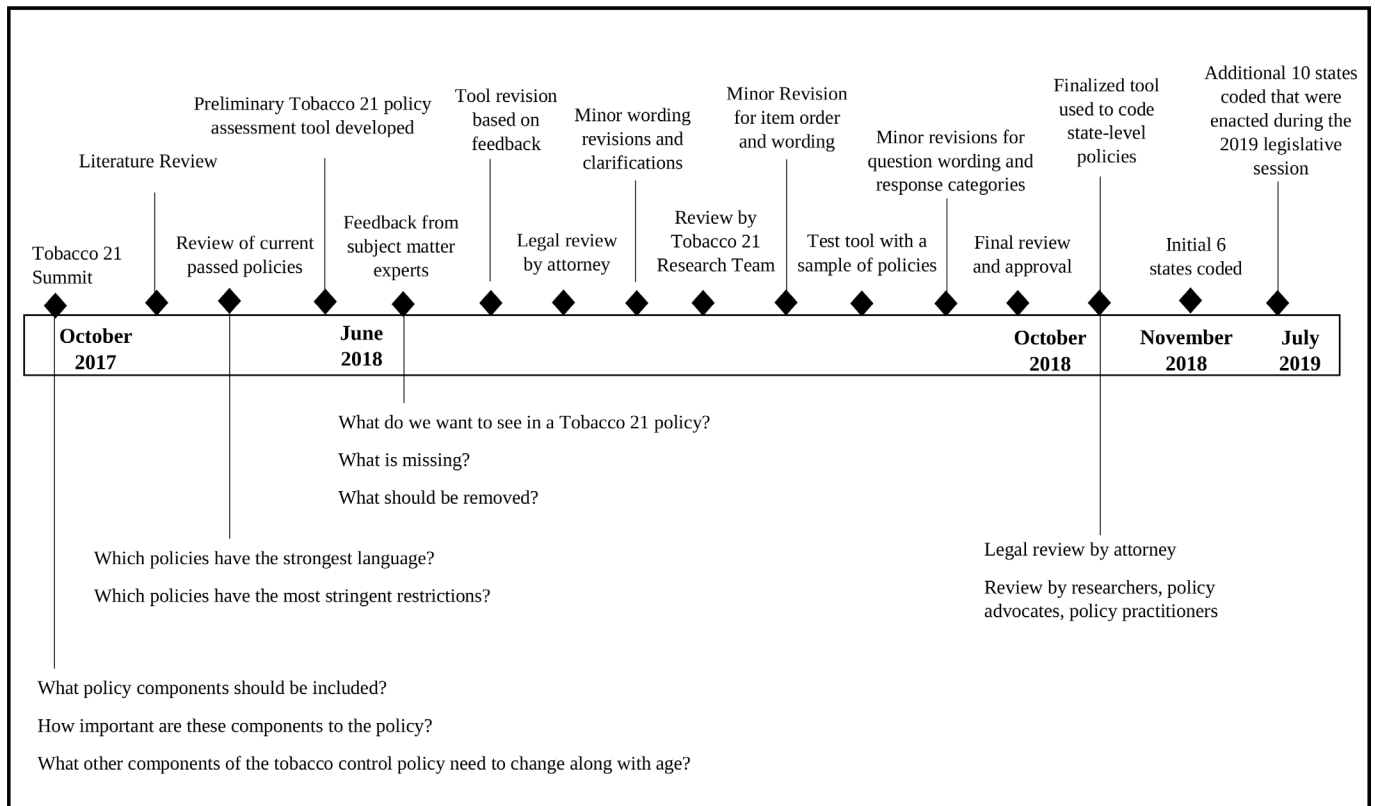


Figure 1 Policy assessment tool development process.

to assess recommended components of tobacco 21 policies and (2) examine current policy language within the 16 state laws that raised the MLSA to 21 by July 2019.

METHODS

Document review is a structured qualitative research methodology used to examine print documents.²³ Documents, such as policies, are ‘social products.’^{24 25} They are a public representation of state and local processes, decisions, priorities and societal values, and as such, they are rich sources of information that can be systematically examined.²⁶

Assessment tool development

The process for developing the tobacco 21 policy assessment tool is outlined in [figure 1](#). It included:

Tobacco 21 summit

In October 2017, an expert group convened to discuss local and state tobacco 21 policies. Attendees represented academic, legal, policy development, government, national non-profit, healthcare and advocacy organisations who had developed, implemented or analysed tobacco 21 policies. Summit attendees discussed implications of current local-level and state-level tobacco 21 policies and identified essential components of strong policy language beyond simply raising the MLSA.

Review of literature and established policies

Tobacco control, public health policy, legal literature, reports regarding tobacco 21 policies,^{7 18 20 27–31} tobacco control policies^{11–13 15 32–38} and similar public health policy development processes^{16 39} were reviewed by the research team to identify

policy recommendations for MLSA tobacco control policy language and enforcement.

Policy experts identified and reviewed local-level and state-level tobacco 21 policies to review varying terminology. Components from existing policies were compared with guidance from subject matter experts and recommendations for the best practices.

Working document

A draft policy assessment tool was created and distributed to a working group of subject matter experts for review in June 2018. Two conference calls (n=6 and n=6) and an additional review from a panel discussion of tobacco control experts (n=14) were conducted. Panel members included tobacco control law and policy experts from academia, national, state and local non-profit organisations, public health departments and advocacy organisations. Half of the conference call attendees had also been a part of the 2017 tobacco 21 summit. The panel discussed priority of items for the tobacco 21 policy assessment tool by providing suggestions for addition/omission of items, response options within items and item phrasing.

Assessment tool revision and testing

The assessment tool was revised based on subject matter experts’ discussion. For each item, an operational definition was created (see [table 1](#)). The revised instrument and operational definitions were reviewed by an attorney with expertise in tobacco 21 policy development. Following minor revisions and wording clarifications, the tool was reviewed by the research team. Five local-level tobacco 21 policies were randomly selected to pilot test the assessment tool. Local policies were employed to prevent bias towards language found in any one state law. The seven members of the research team included two tobacco researchers

Table 1 Operational definitions of tobacco 21 component indicators

Policy indicator	Operational definition
Policy prohibition	Includes the terms sale/sell, give, distribute and/or barter
Comprehensive tobacco product definition	Regulates products that 'contain', 'made', 'derived' from 'tobacco' and/or 'nicotine'
	Regulates ENDS. 'ENDS'; 'electronic nicotine delivery device'; 'electronic device that delivers nicotine or other substances'; 'electronic delivery systems' or 'electronic smoking devices'
	Regulates tobacco product 'component', 'part' or 'accessory'
	Exempts products authorised for sale as a cessation product, as defined in the Federal Food, Drug and Cosmetic Act
Age verification	Requires seller to obtain age verification
	ID request based on appearance age
	Appearance age to request for photo identification
Signage	Sign stating legal age of sale for tobacco products is 21 years
Enforcement	Policy states that enforcement (compliance/inspection) checks will be done
	Enforcement agency identified in the law
	Identifies no of inspections per retailer
	Identifies minimum no of under-age compliance checks/stings per retailer
	States age in which under-age compliance check decoy will be
	Provides justification for retail inspections/compliance (eg, smoking rates, access rates, location, density, demographics)
	Requires reinspection on violation
	Compliance reporting required (eg, post in newspaper or on department website)
	Includes a tobacco retail licence (TRL) for vendors
	Identifies fee for licence
	Requires annual renewal of the licence by retailer
	Grants authority to enforcement agency/licensing authority to set the licence fee
Violations and penalties	Monetary non-compliance fine for retailers
	Enforces civil or criminal penalty for retailer
	Retail penalty/fine structure identified
	Sets a minimum fine amount for retailer noncompliance
	States penalty fine amount for first, second, third and subsequent violations
	States time period for penalty accrual
	TRL suspension or revocation
	States licence may be suspended due to repeated violations
	States licence may be revoked due to repeated violations
	Enforces a monetary non-compliance penalty for the clerk
Education	Education/training mentioned in the policy for retailer/clerk/employees
	Education/training/communication mentioned in the policy for the general public
Additional restriction measures	State statute includes additional measures, such as: flavour restrictions
	Distance restrictions (eg, from schools)
	Vending machine restrictions to age 21
	Restriction of tobacco sales from pharmacies
Military exemption	Exempting military members or those with an active duty military ID

Continued

Table 1 Continued

Policy indicator	Operational definition
Grandfathering or phasing-in	Phasing-in enforcement or grandfathering individuals based on age or birthdate
Purchase, use, or possession (PUP) laws	Includes PUP restriction for under 21 years of age
Pre-emption	Creation of new or expansion of existing restrictions on lower government action
Adoption date	Date policy was signed into law
Effective date	Date when policy did/will go into effect

ENDS, electronic nicotine delivery systems.

with qualitative and quantitative expertise, a public health attorney, a tobacco control policy advocate and three graduate students. The research team pilot tested the assessment tool and considered variations between state-level and local-level policy language (eg, pre-emption language not included in local-level policies). After coding the pilot policies, the tool was revised to clarify item wording, operational definitions and coding categories. To further test the instrument and train all coders, three teams (two members to a team) independently coded 18 local policies. These codes were then reviewed by the full team and consensus was reached on discrepancies/disagreements. The revised tool was then given a final review by the public health attorney, researchers and policy advocate.

Application of the assessment tool

The tool was used to code the 16 state-level tobacco 21 policies adopted prior to July 2019. State policies were identified through a multistage process of searching state general assembly online databases, identifying bills pertaining to tobacco 21, a method employed in prior research.^{33 38} Bills passed into law were verified with the governor's signature (except in Maine, where the legislature overrode the governor's veto).⁴⁰ The policy was analysed if it established the MLSA of tobacco to 21 years and was enacted prior to July 2019. Six state laws (California, Hawaii, Maine, Massachusetts, New Jersey and Oregon) were identified and coded in November of 2018. Policy components not found within the bill/law were examined within existing state statute found online. The 10 state bills (Arkansas, Connecticut, Delaware, Illinois, Maryland, Vermont, Texas, Virginia, Utah and Washington) enacted into law during the 2019 legislative session before 1 July 2019 were coded between May and July 2019.

Data analysis

The assessment tool was entered into Qualtrics and used to code each policy. Coding teams independently coded each state policy. The 16 coded policies were then reviewed for discrepancies and consistency using Light's kappa coefficient⁴¹ ($\kappa=0.70$). Coding discrepancies were discussed until consensus was reached. Frequencies of policy components among the state laws were then analysed using IBM SPSS.⁴²

RESULTS

While all 16 states raised the MLSA from 18 or 19 (New Jersey and Utah) to 21 years, the inclusion of recommended components varied (see table 2). All prohibited the sale of tobacco products to those under 21; however, only nine states (Arkansas, California, Connecticut, Illinois, Maryland, Massachusetts, Texas, Utah and Washington) restricted tobacco retail employees from 'giving' tobacco products to persons under age 21. Prior to their statewide law, 11 states (Arkansas, California, Connecticut,

Table 2 State-level tobacco 21 policy components passed before 1 July 2019

State	Hawaii	California	New Jersey	Oregon	Maine	Massachusetts	Virginia	Illinois	Delaware	Arkansas	Vermont	Texas	Maryland	Connecticut	Washington	Utah
Prior local policies in effect	1	4	28	1	1	237	0	37	0	3	0	3	0	8	0	2
Policy prohibition	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Comprehensive tobacco definition																
Regulates tobacco products	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Regulates ENDS	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Regulates accessories	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Exempts FDA Cessation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Age verification																
Requires age verification	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ID appearance age	27	21		30	27	27	21	30	30		30	30	30			
Signage	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Enforcement																
Compliance/inspection	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
EA identified																
Age of underage decay		<21							<21		17–20	<21	<21	16–20		<21
Justification for inspections																
TRL	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TRL fee*	US\$20	US\$265	US\$50	*	US\$50	US\$50	US\$75	US\$50	US\$50	US\$100*	US\$110	US\$180	US\$30*	US\$200*	US\$175*	US\$20*
TRL renewal (years)	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	2
EA sets fee																
Violation and penalties																
Retailer monetary fine† ‡	x †	x	x †	x	x †	x †	x †	x †	x †	x †	x †	x †	x	x	x	x †
Civil, criminal, or either penalty for retailer		Either	Either	Civil	Civil	Either	Civil	Criminal	Civil	Civil	Civil	Either	Either	Civil	Criminal	Civil
Sets a minimum fine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
First penalty fine	US\$500	US\$400–US\$600	US\$250	US\$500	US\$300	US\$100	US\$100	US\$200	US\$250	US\$250	US\$100	< US\$500	US\$300	US\$200	US\$200	US\$500
Second penalty fine	US\$500–US\$2k	US\$900–US\$1k	US\$500	US\$500	US\$600	US\$200	US\$200	US\$400	US\$500	US\$500	US\$500	> US\$750	US\$1k	US\$750	US\$600	US\$750
Third penalty fine	US\$500–US\$2k	US\$1200–US\$1800	US\$1k	US\$1k	US\$300	US\$500	US\$600	US\$600	US\$1k	US\$1k	US\$500	> US\$1k	US\$3k	US\$1000	US\$2k	US\$1k
Fourth+penalties	US\$500–US\$2k	Fourth: US\$3–US\$4k Fifth: US\$5–US\$6k	US\$1k	US\$1k	US\$300	US\$500	US\$800	US\$800	US\$1k	US\$2k	US\$500	US\$1k	US\$3k	US\$1000	US\$3k	US\$1k
Penalty accrual (months)		60					24	24	12	6	6	12	24	24	36	24
TRL suspension/revocation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
# Offences for TRL suspension§		Third	First				Fourth§	Second	Second	Second	Second	Third ** §	Third	Third	Third	Third
# Offences for TRL revocation		Fifth	Second					Fifth				Fourth	Fourth	Fifth	Fourth	Fourth
Clerk monetary penalty†	x †	x	x †	x	x †	x †	x	x	x †	x †	x †	x	x	x	x	x †
Education																
For retailer (R) or public (P)							R	R	R	R	R	R	P			P
Additional restriction measures																
Strengthened tobacco definition			x				x						x			
Flavours (excluding mint, tobacco, menthol)																
Distance restriction	x	x														
Vending machine access																

Continued

Table 2 Continued

State	Hawaii	California	New Jersey	Oregon	Maine	Massachusetts	Virginia	Illinois	Delaware	Arkansas	Vermont	Texas	Maryland	Connecticut	Washington	Utah
Pharmacy sales						x										
Negative components																
Military exemption		x			x		x					x	x			x
Grandfathering/phase-in					x											x
PUP penalty	x			x	x											x
New or expanded pre-emption						x										x
Adoption date	19 June 2015	4 May 2016	21 July 2017	9 August 2017	2 August 2017	27 July 2018	21 February 2019	8 April 2019	17 April 2019	16 April 2019	16 May 2019	7 June 2019	13 May 2019	18 June 2019	5 April 2019	25 March 2019
Effective date	1 January 2016	9 June 2016	1 November 2017	1 January 2018	1 July 2018	31 December 2018	1 July 2019	1 July 2019	16 July 2019	1 September 2019	1 September 2019	1 September 2019	1 October 2019	1 October 2019	1 January 2020	1 July 2020

*TRL fee varies per product (eg, tobacco, vapour) or by year (eg, new TRL, renewal); table reports renewal fee for tobacco products.

†Law did not clearly identify if the monetary penalties would be placed on the retailer or the clerk/employee who sold tobacco products to a minor.

‡Retailer may not be held liable if they provide proof that employee was trained about the law.

§Suspension varies if training program exists.

EA, enforcement agency; ENDS, electronic nicotine delivery systems; FDA, Food and Drug Administration; PUP, purchase use or possession; TRL, tobacco retail licence.

Hawaii, Illinois, Maine, Massachusetts, New Jersey, Oregon, Texas and Utah) had at least one local tobacco 21 policy in effect. In contrast, no municipality in Delaware, Maryland, Virginia, Vermont or Washington had passed a tobacco 21 policy before the state bill was enacted into law (possibly due to limited local authority/pre-emption).

Rationale

Several states included a purpose, justification or rationale for the policy. This section ranged from 'An Act protecting youth from the health risks of tobacco and nicotine addiction' (Massachusetts), to longer descriptions that included the purpose (California, Delaware, Vermont and Washington) and prevalence of e-cigarette use among high school students (Hawaii).

Comprehensive tobacco definition

The instrument assessed the inclusion of a comprehensive tobacco definition, based on inclusion of four criteria: (1) terms 'contained', 'made from' and/or 'derived from' 'tobacco' and/or 'nicotine'; (2) terms, such as 'ENDS', 'electronic smoking device' or alternative nicotine product; (3) tobacco product components, parts and accessories and (4) exception of products approved by the US Food and Drug Administration (FDA) for sale as a cessation device, as defined in the Federal Food, Drug and Cosmetic Act. All 16 states included at least one criterion that met a comprehensive tobacco definition; however, Oregon's law did not use search terms employed (eg, contained nicotine). Notably, Oregon's law regulated 'inhalant delivery systems' defined as 'a device that can be used to deliver nicotine or cannabis in the form of a vapour or aerosol to a person inhaling from the device.' Based on state statute, this met the definition of ENDS (see table 2). Connecticut exempted 'any drug or device, as defined in the federal Food, Drug and Cosmetic Act' from the definition of 'vapour product' definition but not 'tobacco product'.

Age verification

While federal statute requires retailers to request a photo ID if the purchaser appears to be 27 years of age or younger (appearance age), Oregon's and Utah's laws did not require verification of purchaser age, and the laws in Arkansas, Maryland, New Jersey, Vermont and Washington did not clearly state an appearance age. For example, New Jersey's law stated a person purchasing tobacco does not have to verify their age with an ID when 'an ordinary prudent person would believe the purchaser or recipient to be of legal age to make the purchase or receive the sample.' Connecticut, Delaware, Illinois, Maine and Texas exceeded the federal requirement, with a minimum appearance age of 30 years. For delivery sales (eg, online sales), Oregon's law required validation of a government-issued identification where a person appeared to be less than 30 years of age; however, the law did not indicate an appearance age for tobacco sold in-person by retailers.

Enforcement

Enforcement measures included identifying: an agency to oversee enforcement activities, a framework for inspections or compliance checks, a penalty structure including monetary penalties for retailers and/or employees and suspension/revocation of the TRL. Fifteen states mentioned enforcement would be conducted within the policy; however, only California, New Jersey and Utah provided justification for conducting compliance checks (eg, high smoking rates). Fourteen states (all except

Oregon and Virginia) required the tobacco retailer to obtain a TRL. Nine states required annual TRL renewal, and three states (Massachusetts, Utah and Texas) required renewal every 2 years. Tobacco retail licence fees ranged from US\$20 (Hawaii and Utah) to US\$265 (California). The TRL fee varied per type of product (tobacco, cigarette or vapour products only) in Arkansas, Connecticut, Maine, Maryland, Utah and Washington. In Connecticut, the annual licence fee for dealers was US\$200, and the annual registration fee for e-cigarette dealers was US\$800 (US\$400 where the dealer had multiple registrations).

All state policies included monetary penalties for the retailer if tobacco products were sold to a person under 21 years of age, based on the number of violations. Retailer violation penalties ranged widely between states for the first, second and third violations. Only California, Hawaii, Maine and New Jersey included a minimum fine amount; however, several laws stated that penalties 'could not exceed' the listed penalty per violation. Thirteen states suspended or revoked the TRL of repeated violations (ie, the second, third, fourth, etc). In seven states, the law did not clearly identify whether the monetary penalties would be placed on the retailer or the clerk/employee who sold tobacco products to a minor (see table 2). Thus, the monetary penalties in these states were considered equal for the retailer and the clerk. State laws in Illinois and Virginia penalise the clerk with the fine listed for the retailer if the retailer can prove the

clerk/employee was trained about the tobacco 21 law, and in the Texas, the retailer may not be penalised if the clerk/employee was trained. In Connecticut, Oregon, Texas and Washington, the policy established a monetary penalty for the retailer, and an additional penalty was assessed for the clerk/employee. In Connecticut, the clerk/employee may be assessed US\$200 if they fail to complete an online tobacco education programme. California's, Maine's and Maryland's law places a monetary penalty on the retailer only.

Signage and education

All states, except Utah, required a sign be posted in the retailer's location indicating the MLSA is 21 years of age (see table 3 for an example of policy language). However, only five states required education or training for retailers (Arkansas, Delaware, Illinois, Texas and Vermont) and two required education for the general public (Maryland and Utah). Retail employees/clerks in Virginia can be penalised for an MLSA violation if trained by their employer, but the law did not require such training.

Additional restrictions

Some states included additional tobacco control measures, either within their tobacco 21 policy or greater state statute that took further action to prohibit retailers from selling tobacco products

Table 3 Positive tobacco 21 policy language, 2015–2019

Policy components	Example policy component language
Prohibition	No person shall sell a tobacco product or a vapour product to a person under the age of 21 or give a tobacco product or vapour product to a person under the age of 21—Massachusetts
Comprehensive tobacco product definition	'Tobacco product' means any product that is made from or derived from tobacco, or that contains nicotine, that is intended for human consumption or is likely to be consumed, whether smoked, heated, chewed, absorbed, dissolved, inhaled or ingested by any other means, including, but not limited to, a cigarette, a cigar, a hookah, pipe tobacco, chewing tobacco, snuff or snus. 'Tobacco product' also means an electronic smoking device and any component or accessory used in the consumption of a tobacco product, such as filters, rolling papers, pipes and liquids used in electronic smoking devices, whether or not they contain nicotine. 'Tobacco product' does not include drugs, devices or combination products authorised for sale by the United States Food and Drug Administration, as those terms are defined in the Federal Food, Drug and Cosmetic Act—Maine
Age verification	Before selling, offering for sale, giving or furnishing a tobacco product, electronic cigarette or alternative nicotine product to another person, the person selling, offering for sale, giving or furnishing the tobacco product, electronic cigarette or alternative nicotine product shall verify that the person is at least 21 years of age by: (1) examining from any person that appears to be under 30 years of age a government-issued photographic identification that establishes the person to be 21 years of age or older—Illinois
Signage	... signs using the statement, 'The sale of tobacco products or electronic smoking devices to persons under 21 is prohibited', shall be posted on or near any vending machine in letters at least one-half inch high and at or near the point of sale of any other location where tobacco products or electronic smoking devices are sold in letters at least one-half inch high—Hawaii
Enforcement	Grants from the special projects and development fund shall be made on an annual basis to local health agencies for local enforcement efforts concerning the sale and commercial distribution of tobacco products to persons under the age of 21 years, in an amount determined by the commissioner. The grants shall be distributed based on the number of cigarette retail dealer and vending machine licences issued within a local health agency's jurisdictional authority in order to ensure Statewide coverage and Statewide consistency of enforcement efforts—New Jersey The Division of Liquor Control shall conduct or contract for compliance tests of tobacco licencees as frequently and as comprehensively as necessary to ensure consistent statewide compliance with the prohibition on sales to persons under 21 years of age of at least 90 percent for buyers who are 16 or between 17 and 20 years of age—Vermont The Maryland department of health may conduct unannounced inspections of a licensed retailer to ensure the licencees compliance with the provisions of this title and §10–107 of the criminal law article. (2) The Maryland department of health may use an individual under the age of 21 years to assist in conducting an inspection under this section—Maryland
Violations and penalties	An enforcing agency may assess civil penalties against any person, firm or corporation that sells, gives or in any way furnishes to another person who is under 21 years of age, any tobacco, cigarette, cigarette papers, any other instrument or paraphernalia that is designed for the smoking or ingestion of tobacco, products prepared from tobacco, or any controlled substance, according to the following schedule: (1) a civil penalty of from US\$400 to US\$600 for the first violation, (2) a civil penalty of from US\$900 to US\$1000 for the second violation within a 5-year period, (3) a civil penalty of from US\$1200 to US\$1800 for a third violation within a 5-year period, (4) a civil penalty of from US\$3000 to US\$4000 for a fourth violation within a 5-year period, or (5) a civil penalty of from US\$5000 to US\$6000 for a fifth violation within a 5-year period. In addition to the civil penalties... the assessment of a civil penalty for the third, fourth or fifth violation, the department, within 60 days of the date of service of the final administrative adjudication on the parties or payment of the civil penalty for an uncontested violation, shall notify the State Board of Equalization of the violation. The State Board of Equalization shall then assess a civil penalty of US\$250 and suspend or revoke a licence issued pursuant ... accordance with the following schedule: 1. A 45-day suspension of the licence for a third violation at the same location within a 5-year period. 2. A 90-day suspension of the licence for a fourth violation at the same location within a 5-year period. 3. Revocation of the licence for a fifth violation at the same location within a 5-year period—California

to youth. New Jersey prohibited the sale of flavoured cigarettes, excluding menthol and clove flavours. Maine restricted flavoured 'non-premium cigars,' excluding menthol, clove, coffee, nut and pepper flavours, and Illinois restricted the sale of 'flavoured wrapping paper and wrapping leaf, other than tobacco or menthol flavour.' California, Connecticut, Hawaii, Maryland, Utah and Texas restricted the sale of tobacco products within specified distances from certain locations, such as schools. All states (except Hawaii and New Jersey) restricted tobacco product sales via vending machines by either banning or restricting access for those under 21 years. Massachusetts prohibited the sale of tobacco products from healthcare institutions (eg, pharmacies) at the same time the statewide tobacco 21 policy was adopted.

Negative policy language

Negative policy components included: (1) a military exemption; (2) grandfathering/phasing-in the policy over time (excluding purchasers who were already between 18 and 20 years of age); (3) purchase, use or possession (PUP) laws that penalise the youth purchaser and (4) introduction or expansion of pre-emption language. Before 2019, California was the only state with a military exemption for active duty military personnel younger than 21 years; however, during the 2019 legislative session, five additional states (Arkansas, Virginia, Maryland, Texas and Utah) included military exemptions within their tobacco 21 law. Utah's military exemption also included underage spouses of active duty members. The tobacco 21 policy in Arkansas, Maine, Massachusetts, Utah and Texas included grandfathering/phasing-in over time. Ten state laws contained PUP laws. The penalties for a PUP violation ranged in severity. California, Connecticut, Delaware and Maryland removed PUP provisions from their statute when adopting tobacco 21. Four states (Arkansas, Massachusetts Utah and Texas) introduced new or expanded pre-emption language in their tobacco 21 laws. Arkansas' pre-emption language states 'the rules and other actions of the board or Arkansas Tobacco Control shall preempt the enactment and enforcement of any county, municipal or other local regulation of the manufacture, sale, storage or distribution of tobacco products that is more restrictive than this subchapter or the rules promulgated by Arkansas Tobacco Control.' Delaware's and Washington's laws did not introduce new or expand pre-emption (thus not reported in table 2); however, both of these laws failed to remove existing pre-emption language that restricts lower levels of government from passing stronger tobacco 21 policies.

DISCUSSION

This study developed a tool to assess for recommended components of effective tobacco 21 policies. This instrument examined existing policy language in the 16 state-level tobacco 21 policies enacted in the USA by July 2019. Currently, the American Lung Association (ALA) grades tobacco 21 policies using an A–F scale.⁴³ The ALA's state-level measure of tobacco 21 policies deducts value from policies that exempt active duty military (receiving a letter grade of a 'B') or MLSA policies with an age limit below 21 years (ie, 19 or 20 years receive a 'D').⁴³ The tobacco 21 policy assessment tool provides a more comprehensive analysis and could add value to preexisting measures, as it includes both positive and negative factors. Our findings suggest no state provided a model policy; however, each state law included positive and/or negative factors. Three states (Arkansas, Utah and Texas) include all four negative policy components within their tobacco 21 policies, and three states (Connecticut,

Delaware and New Jersey) did not include any negative policy components.

While all states, except Arkansas, explicitly state compliance checks/inspections are a part of their MLSA enforcement strategy, only Connecticut required a minimum number of compliance checks per retailer per year. Connecticut's law required the Commissioner of Mental Health and Addiction Services to conduct unannounced compliance checks for businesses where ENDS were sold and to conduct follow-up checks for non-compliant entities. The 1992 Alcohol, Drug Abuse and Mental Health Administration Reorganization Act (commonly referred to as the Synar Amendment)⁴⁴ mandated states to pass an MLSA at 18 and achieve a retailer compliance rate of 80% through the use of unannounced compliance checks. States that failed to meet this standard risked losing their substance abuse block grant funding. In 2009, the Family Smoking Prevention and Tobacco Control Act (FSPTCA) gave the FDA the authority to regulate tobacco products.⁴⁵ Subsequently, some states entered into contracts with the FDA to conduct inspections of their tobacco retailers. Other states commissioned inspections to third party agencies. Previous evaluation of US state-level tobacco control best practices strongly recommends that enforcement of tobacco control policies be assigned to a single state enforcement agency to reduce ambiguity of responsibility.^{10 18} This agency (eg, Department of Health) would then decide if the state inspections were conducted by the FDA or with another agency. All states, except Hawaii, identified an enforcement agency responsible for inspections of retailers and penalty enforcement for violators in policy or statute. Illinois and Connecticut assigned enforcement to several agencies (eg, Department of State Police, the county sheriff, Department of Public Health, local health department) that may cause confusion as to who is responsible for policy enforcement.¹⁰ Language outlining the inspection process (eg, the number of checks required) or providing a rationale for where compliance checks should be conducted (eg, areas with high retail density or high rates of tobacco use) could provide a transparent expectation for both state agencies and the tobacco retailers.¹⁰ In addition, Connecticut and Vermont provided an age range for the underage decoys. States that do not raise the age for the underage decoy could be using outdated procedures within the current Synar inspection protocol.

Although all 16 states included a penalty structure for tobacco MLSA violations, these penalties ranged between states. In some states, criminal penalties could result in only a monetary fine, where others may impose a criminal charge (eg, misdemeanor). For example, Illinois' law found violators of the MLSA 'guilty of a petty offence,' which is a criminal offence in Illinois, akin to a minor traffic violation, resulting in a monetary fine. Monetary gains from fines should be appropriated to retailer education, enforcement, and youth prevention efforts. Previous research suggests that severity of fines do not improve policy compliance¹⁰; thus, beyond monetary fines, tobacco 21 policies should include licence suspension, revocation or provide the courts a mechanism to impose a no sale order on tobacco retailers who violate the MLSA.^{10 46} The policy should also identify a clear number of violations at which the retailer's TRL shall be suspended or revoked. Prior research has demonstrated that requiring businesses to obtain a TRL reduces the number of businesses that sell tobacco products⁴⁷ and reduces daily smoking rates by 2% for each 1% increase in retailer compliance.^{19 48} Requiring an annual renewal of the TRL could allow states to restrict the number of TRLs distributed within a given area (density restriction) and prohibit repeat violators from future renewal. Given such measures, retailers should assume

responsibility for preventing sales of tobacco products to youth, rather than penalising youth. While penalties for PUP laws vary widely among states, such provisions divert responsibility away from the tobacco industry.⁴⁹ Thus, policy language should use MLSA rather than ‘minimum legal purchase age’.

Introduction or expansion of pre-emption language was measured to assess potential influence from the tobacco industry in MLSA legislation. Tobacco industries have historically endorsed pre-emption laws that prevent municipalities from passing effective tobacco control policies.^{17–50} Several of the tobacco 21 policies passed during the 2019 legislative session were endorsed by JUUL, the most popular ENDS brand among those under 21 years of age.⁵¹ In 2018, Altria, one of the largest tobacco companies in the world, purchased a 35% stake of JUUL for US\$12.8 billion.⁵² Tobacco control advocates are cautioned to consider negative policy components, such as pre-emption, when evaluating the strength of a tobacco 21 bill.

Several states included additional tobacco control restrictions (eg, flavour restrictions) within their state statute. Future researchers should examine support for these additional restrictions that could be added to a tobacco 21 bill. Assessing community readiness for each additional restriction may help policy-makers to develop more comprehensive tobacco control policies to protect minors.

The study has limitations. While the tool development underwent several levels of validity and reliability analysis, it is possible that enforcement practices were not fully identified by tobacco control experts at the time of coding or will be changed in the future. As research identifies important elements of policy language, this tool may require revision. Also, some measured policy components differ between state-level and local-level policies. The study used local-level policies to help train coders, but the current study did not assess these policies. Local-level policies are often believed to include stronger language; thus, limiting the current study to only state-level laws may have reduced the likelihood of capturing stronger components. Future researchers are encouraged to adapt and employ the current tool for local-level policies. Coders examined the language included in tobacco 21 legislation and broader state statute; however, agency rules and regulations were not examined. Thus, states may enforce additional measures (eg, education, compliance checks) in practice. It is also possible that obligations written into practice are not practised.

With social sources reported as the most common method of underage access to tobacco products,⁵³ laws raising the MLSA are believed to prevent early initiation of tobacco and nicotine addiction.⁷ However, as we found, not all tobacco 21

state policies include consistent language. While the FSPTCA provided for the FDA regulation of tobacco products, it limited the FDA from raising the federal MLSA above 18 years.^{7,54} Thus, a federal increase of the MLSA in the USA can only pass via Congress. In 2019, several congressional proposals were introduced to raise the federal MLSA to 21. Public health advocates and policy-makers are encouraged to use the tobacco 21 policy assessment tool to consider the inclusion of all essential components at a federal, state and local level. Given the strong momentum of tobacco 21 policies, it is likely additional jurisdictions will soon adopt a tobacco 21 policy. Ongoing surveillance of new and amended policy language, using the tobacco 21 policy assessment tool is needed.

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ORCID iD

Page D Dobbs <http://orcid.org/0000-0003-1913-6488>

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What this paper adds

- ▶ Tobacco 21 policies are legislation that have raised the minimum legal sales age of tobacco products to 21 years of age.
- ▶ Sixteen states in the USA passed a tobacco 21 policy prior to July 2019.
- ▶ Previous evaluations of tobacco 21 policies have not examined different policy components written within the law.
- ▶ A state-level analysis of tobacco 21 policies found positive and negative components within each state law.
- ▶ The tobacco 21 policy assessment tool is the first instrument to establish policy language needed to ensure adoption of policies that can be implemented and enforced effectively.

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