

# Classifying the comprehensiveness of flavoured tobacco sales restrictions: development and application of a tool to examine US state and local tobacco policies

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## ABSTRACT

**Objectives** Comprehensive tobacco control policies with minimal exemptions can reduce tobacco use and sales. Many states and localities have adopted flavoured tobacco product (FTP) sales restrictions. This study describes the development and application of a schema to characterise the comprehensiveness of these FTP sales restrictions.

**Design** We coded state and local FTP sales restrictions enacted June 2007–March 2021 for retailer, tobacco product, and flavour inclusions and exemptions. Guided by FTP literature, legal resources and meetings with FTP policy experts, we developed a six-level classification scheme to characterise coded FTP policies from least to most comprehensive. We present descriptive statistics of FTP policy features and comprehensiveness.

**Results** As of 31 March 2021, 7 state-level and 327 local-level FTP sales restrictions were enacted in the USA. Most state-level policies (71.4%) were categorised in the second lowest comprehensiveness category; local policies most commonly fell within the lowest (48.9%) or highest (26.0%) comprehensiveness categories. Across jurisdictions, adult-only retailers were most frequently exempted from the FTP sales restrictions (state: n=1, 14.3%; local: n=184, 56.3%); and most jurisdictions included electronic cigarettes (e-cigarettes) as a banned product (state: n=6, 87.5%; local: n=327, 100%). While just over half of state (n=4, 57.1%) and local (n=169, 51.7%) sales restrictions included menthol e-cigarettes, most excluded menthol cigarettes and/or menthol smokeless tobacco.

**Conclusions** Comprehensiveness of FTP sales restrictions in the USA varies widely. Current and future FTP policies would be strengthened by including all flavours and all tobacco products—particularly menthol cigarettes—and by avoiding exemptions for certain retailers, particularly adult-only retailers.

## INTRODUCTION

Flavours play an influential role in youth initiation and use of tobacco products.<sup>1–6</sup> Although the 2009 Family Smoking Prevention and Tobacco Control Act (TCA) banned the sale of non-menthol-flavoured cigarettes,<sup>7</sup> the flavoured tobacco product (FTP) market has dramatically expanded over the past decade, and youth use of other FTPs, such as menthol cigarettes, flavoured little cigars and flavoured electronic cigarettes (e-cigarettes) has greatly increased.<sup>8,9</sup> Over 15 500 e-cigarette flavours were estimated to be available online in

2017,<sup>10</sup> and e-cigarettes have been the most used tobacco product among youth since 2014.<sup>2,11</sup> In 2020, 19.6% of US high school students reported past 30-day e-cigarette use, with 85.0% reporting flavoured e-cigarette use.<sup>12</sup> Research demonstrates that youth prefer tobacco products that come in flavours such as fruit and candy,<sup>3,5</sup> and most young people report that the first tobacco product they used was flavoured.<sup>1,13</sup> FTPs are also disproportionately marketed toward youth, racial and ethnic minorities, women and low-income communities.<sup>14–18</sup>

The long-term adverse health effects of tobacco use and nicotine exposure among youth are well documented and evidence on the long-term effects of e-cigarette use continues to grow.<sup>19</sup> However, aggressive marketing of FTPs toward youth by tobacco companies remains pervasive.<sup>20–22</sup> Policies to restrict youth access to FTPs are increasingly being proposed and passed—particularly following the 2019 e-cigarette or vaping product use-associated lung injury outbreak—in an attempt to curb youth use.<sup>21,23–25</sup> Local and state jurisdictions first took action to restrict FTP sales beginning in 2009. While these early policies applied to fewer products and retailers than more recent policies, they included more products and flavours than those included in the TCA and were followed by declines in FTP sales and youth tobacco use.<sup>10,26–29</sup> FTP sales restrictions like these have also been shown to be associated with increased quit attempts.<sup>30,31</sup> However, following policy implementation, some evaluation studies identified sales of concept flavour-named products, or FTPs with ambiguous descriptors that denote a taste, aroma or sensation (eg, Blue, Purple Haze, Summer Fusion, etc).<sup>27,29,32</sup> With growing reports of these concept flavour-named products, recent research has highlighted the importance of anticipating this industry workaround by addressing ambiguous flavour descriptions in policy language.<sup>32–35</sup>

More recent FTP sales restrictions have included additional policy language to address and counteract other issues of retailer non-compliance. For instance, San Francisco's 2018 policy, which prohibited all tobacco retailers from selling FTPs, included a clear compliance deadline that led to high compliance rates due to advanced notice that provided adequate time for retailers to remove prohibited products from inventory.<sup>28</sup> In Minneapolis and St Paul, FTP policies were updated to



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strengthen existing definitions for ‘adult-only tobacco shops’ and revise zoning regulations (eg, caps on the number of tobacco retail licenses).<sup>36 37</sup>

Today, with over 300 state and local FTP policies, advocates and policymakers continue to push for comprehensive policies to further address FTP use. Local and state policies are critical given limited federal efforts to date to address the proliferation of FTPs across the country.<sup>10</sup> In January 2020, the US Food and Drug Administration (FDA) issued a new policy, which gave a higher enforcement priority to prohibit the manufacturing, distribution, and sale of cartridge-based e-cigarettes with any flavour other than menthol or tobacco.<sup>38</sup> However, the e-cigarette market remains largely unregulated,<sup>29 39 40</sup> and the enforcement policy does not apply to menthol-flavoured or disposable e-cigarettes—a critical product exemption that has been attributed to a recent surge in sales and youth use of these products.<sup>41–43</sup> In April 2021, the FDA stated its intent to develop product standards that would ban menthol cigarette and flavoured cigar sales in the USA to address the disproportionate use of these products among young people and communities of colour; however, experts in tobacco control law suggest that it may take several years for a proposed rule to be enacted.<sup>44</sup>

Given the growing momentum to restrict FTP sales at the local and state level, there is a need to examine current policies to identify elements that may differentially impact sales, product use and the extent to which the policy addresses gaps in federal flavour policies. There are several classification systems for other tobacco control policies, including Tobacco 21, smoke-free indoor laws and tobacco retail licensing.<sup>45–47</sup> These classification systems have been used in tobacco control research to characterise the comprehensiveness of existing laws, identify inequities in exposure to strong policies, identify regulatory exemptions and measure the impact of policy comprehensiveness on youth tobacco use.<sup>45 48 49</sup> There is a similar need to develop a classification scheme and characterise FTP sales restrictions to help shape and inform future policy development, implementation and evaluation. To our knowledge, only one peer-reviewed study has categorised the comprehensiveness of local and state FTP sales restrictions. This study characterised e-cigarette-only policies enacted by October 2017 across three dimensions: whether the law applied to: the entire jurisdiction, menthol e-cigarettes and adult-only retailers.<sup>50</sup> Our study builds on this work and other existing FTP policy resources to develop a classification schema of FTP policy comprehensiveness across all product types.

## METHODS

### Policy database

The FTP policies reviewed in this study were retrieved from an internal database used to track all state and local US FTP sales restrictions. The database is maintained by Truth Initiative and FTP policies are identified and compiled by public policy experts through regular news and media searches, ongoing communication with tobacco control advocates, publicly available information from tobacco industry sources, resources from other tobacco control organisations, and information shared by state and local health departments. Each policy is coded on a variety of policy attributes based on information provided from state statutes or local ordinances retrieved from online sources, such as city council meeting notes or municipal codes. An earlier iteration of this database has been described elsewhere.<sup>51</sup> In this study, we examined a sample of 334 current FTP policies from US jurisdictions and Native American tribes that were enacted as of 31 March 2021 with confirmed implementation dates.

## Measures

### Policy characteristics

We coded each policy for: locality (town, city, village, tribe, incorporated county, unincorporated county, state); implementation date—when the enacted policy enters into force; types of tobacco products included in the sales restriction (menthol cigarettes, e-cigarettes, premium cigars, cigars, little cigars, cigarillos, hookah, smokeless tobacco (SLT), roll-your-own tobacco); whether menthol-flavoured, mint-flavoured or wintergreen-flavoured products were restricted; whether tobacco-flavoured products were restricted; whether e-cigarettes were restricted regardless of flavour; the presence of any buffer zone near schools, libraries, parks or playgrounds, which would limit the number of affected retailers; and exemptions for any retailer types where the sale restriction does not apply, such as adult-only, liquor, tobacco-only, e-cigarette specialty or existing tobacco retailers. We excluded 65 policies from the analysis that: (1) were terminated, expired, under active litigation or had an unknown policy status; (2) were implemented prior to the jurisdiction’s most current policy; (3) had an unknown implementation date and (4) were temporary.

### Definitions

For each policy, we captured product definitions for ‘tobacco product’, ‘characterising flavour’ and ‘FTP’. For policies that had a sales restriction for only e-cigarettes, we captured definitions that described a conventional e-cigarette (terms included, but were not limited to, ‘vapour product’, ‘electronic nicotine delivery system’ or ‘electronic smoking device’). We coded these definitions to determine whether the FTP policy: applies to all product components associated with prohibited tobacco product(s) (eg, cartridges, liquids and wrapping papers); applies to FTPs with synthetic nicotine (ie, products with nicotine *not derived* from tobacco); and contains exemptions for products with premarket authorisation from the FDA, products with modified risk product authorisation from the FDA, and/or FDA-approved cessation products. For e-cigarette-only sales restrictions, we coded for whether the policy applies to non-nicotine products and to all types of e-cigarettes (eg, pod-based, disposable and refillable).

All policies were coded independently by three trained coders (two research staff members and one legal expert). Coders compared their results, resolved discrepancies by consensus and imputed final coding into the database.

### Classification scheme development

To develop an initial classification scheme, we identified key variables using existing FTP research and policy resources (online supplemental table A).<sup>50 52–56</sup> We shared our initial scheme with six groups of experts—including public health lawyers, researchers, evaluators and advocates—and solicited feedback between December 2020 and May 2021. During this time, the American Lung Association (ALA) released its grading system for state-level flavoured tobacco policies (online supplemental table B). We identified convergent feedback from expert groups and revised the classification scheme using the ALA grading system as a framework (online supplemental table B).

Because the ALA grading system was developed for state-level policies, we adapted the framework to examine additional exemptions that are more common at the local level (eg, policies that only apply to buffer zones near schools). We also relied on expert feedback to define ‘narrow’ and ‘major’ retailer and product exemptions, as the ALA did not provide these definitions.

**All FTP Sales Restrictions**

All flavors restricted / all products restricted / all retailers restricted, and endgame policies<sup>a</sup>

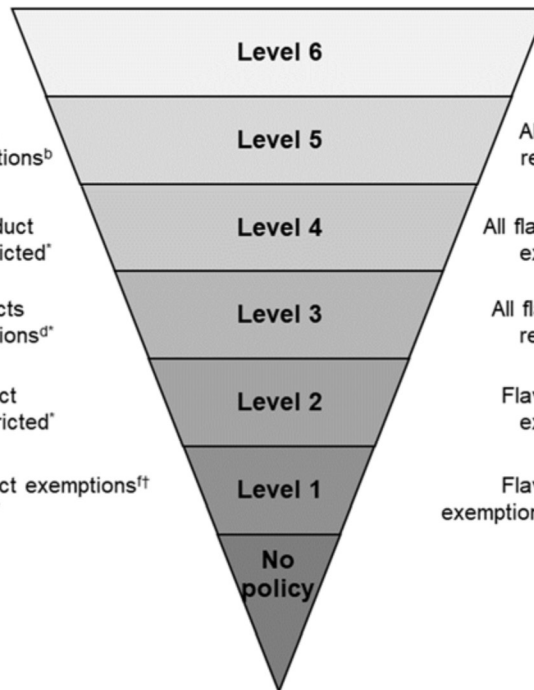
All flavors restricted / all products restricted / narrow retailer exemptions<sup>b</sup>

All flavors restricted / narrow product exemptions<sup>c</sup> / most retailers restricted<sup>\*</sup>

All flavors restricted / most products restricted<sup>†</sup> / major retailer exemptions<sup>d\*</sup>

Flavor exemptions<sup>e</sup> / major product exemptions<sup>††</sup> / most retailers restricted<sup>\*</sup>

Flavor exemptions<sup>e</sup> / major product exemptions<sup>††</sup> **AND** major retailer exemptions<sup>d,9\*</sup>

**E-cigarette only FTP Sales Restrictions**

All flavors restricted / all e-cigarette (e-cig) products restricted / all retailers restricted

All flavors restricted / all e-cig products restricted / narrow retailer exemptions<sup>b</sup>

All flavors restricted / narrow e-cig product exemptions<sup>h</sup> / most retailers restricted<sup>\*</sup>

All flavors restricted / most e-cig products restricted<sup>†</sup> / major retailer exemptions<sup>d\*</sup>

Flavor exemptions<sup>e</sup> / major e-cig product exemptions<sup>††</sup> / most retailers restricted<sup>\*</sup>

Flavor exemptions<sup>e</sup> / major e-cig product exemptions<sup>††</sup> **AND** major retailer exemptions<sup>d,9\*</sup>

**Figure 1** Final classification scheme for all FTP sales restrictions (including e-cigarette-only restrictions) and e-cigarette-only sales restrictions. <sup>a</sup>Endgame policies refer to restrictions on the sale of all tobacco products. <sup>b</sup>Narrow retail exemptions allow for the sale of FTPs in on-site consumption tobacco or smoking bars (ie, retailers exclusively occupying an enclosed indoor space and are primarily selling tobacco products for consumption by customers on the premises). <sup>c</sup>Narrow product exemptions allow for the sale of flavoured: hookah, pipe, premium cigars, FDA premarket approval products, and/or FDA modified risk approval products. <sup>d</sup>Major retailer exemptions allow for the sale of FTPs in: adult-only retailers, liquor stores, vape shops, specialty stores (ie, establishments in which the primary purpose is the sale of tobacco and tobacco-related products and/or a specified percentage of its revenues is derived from the sale of tobacco and tobacco-related products), and/or policies that apply only to buffer zones (ie, policies that apply only to retailers within a certain distance of youth-oriented areas, such as schools, parks, playgrounds and libraries). <sup>e</sup>Flavour exemptions allow for the sale of FTPs with menthol flavour or characterising flavors. <sup>f</sup>Major product exemptions allow for the sale of flavoured: e-cigarettes, cigars, LCCs, SLT, and/or roll-your-own tobacco. <sup>g</sup>Includes FTP policies with missing data for any flavour, product, or retailer exemption and/or FTP policies that exempt existing retailers. <sup>h</sup>Narrow e-cigarette product exemptions allow for the sale of flavoured e-cigarettes with FDA premarket and/or modified risk approval. <sup>i</sup>Major e-cigarette product exemptions allow for the sale of flavoured: e-cigarette components, e-cigarettes with synthetic nicotine, and/or e-cigarettes that do not contain nicotine. <sup>\*</sup>Narrow retailer exemptions may also be present. <sup>†</sup>Narrow product exemptions may also be present. <sup>††</sup>Narrow e-cigarette product exemptions may also be present. e-cigarettes, electronic cigarettes; FDA, Food and Drug Administration; FTPs, flavoured tobacco products; LCCs, little cigars and cigarillos; SLT, smokeless tobacco.

In this process, there was lack of expert consensus as to whether hookah exemptions constituted a major or a narrow exemption. Because youth hookah use is lower (<3%) than other products of concern (eg, e-cigarettes, cigarettes, little cigars and cigarillos, SLT), and hookah exemptions are typically grouped with pipe tobacco and premium cigar exemptions, we considered hookah to be a narrow product exemption.<sup>57</sup> There was also lack of consensus about the extent to which product exemptions weakened FTP sales restrictions—particularly because many restrictions are exclusive to e-cigarettes. Given that e-cigarette-only FTP restrictions exclude many popular FTPs but target the most used tobacco product among youth, we developed two classification schemes: one for all FTP restrictions (including those that apply to e-cigarettes only) and one for e-cigarette-only FTP restrictions.

Figure 1 presents the final comprehensiveness scheme for all FTP restrictions and e-cigarette-only FTP restrictions. Each scheme includes six levels of comprehensiveness, with level 1 being the least comprehensive, and comprehensiveness increasing at a non-proportionate rate up to level 6—the most comprehensive level.

**Data analysis**

We applied our final classification schemes to all FTP restrictions (n=334) and e-cigarette-only FTP restrictions (n=33). We present descriptive statistics of FTP restriction features and comprehensiveness. We also determined the proportion of the US population covered by state and local FTP policies of each comprehensiveness level. For individuals covered by both a state and a local policy, we counted these individuals as being covered by the more comprehensive policy. If the state and local policies were equal in strength, individuals were counted at the local level.

**RESULTS****Distribution of all FTP sales restrictions**

Table 1 presents the distribution of all local and state FTP sales restrictions over time by region and comprehensiveness level. As of 31 March 2021, 7 state-level and 327 local-level FTP sales restrictions have been enacted in the USA. While the first state and local policies went into effect in 2007 and 2012, respectively, most state and about half of current local restrictions went

**Table 1** Current landscape of flavoured tobacco product sales restrictions enacted as of 31 March 2021 with a confirmed implementation date (n=334)

State policies										
Year*	2007–2010	2011–2014	2015	2016	2017	2018	2019	2020	2021 (Q1)	Total n (%)
Total state policies										
	1	0	0	0	0	0	1	4	1	7
Census region*										
Northeast	1	0	0	0	0	0	1	3	0	5 (71.4)
South	0	0	0	0	0	0	0	1	0	1 (14.3)
Midwest	0	0	0	0	0	0	0	0	0	0 (0.0)
West	0	0	0	0	0	0	0	0	1	1 (14.3)
Comprehensiveness level										
Level 6	0	0	0	0	0	0	0	0	0	0 (0.0)
Level 5	0	0	0	0	0	0	1	0	0	1 (14.3)
Level 4	0	0	0	0	0	0	0	0	0	0 (0.0)
Level 3	0	0	0	0	0	0	0	0	0	0 (0.0)
Level 2	1	0	0	0	0	0	0	4	0	5 (71.4)
Level 1	0	0	0	0	0	0	0	1	0	1 (14.3)
Local policies										
Year*	2007–2010	2011–2014	2015	2016	2017	2018	2019	2020	2021 (Q1)	Total n (%)
Total local policies										
	0	12	25	43	29	52	107	56	3	327
Locality type										
County	0	0	0	1	1	2	9	6	0	19 (5.8)
City/town	0	12	25	41	28	50	95	51	3	305 (93.3)
Tribes	0	0	0	0	0	0	2	0	0	2 (0.6)
Village	0	0	0	0	0	0	1	0	0	1 (0.3)
Census region*†										
Northeast	0	12	23	40	22	35	48	9	1	190 (58.1)
South	0	0	0	0	0	0	1	1	0	2 (0.6)
Midwest	0	0	0	2	3	4	5	9	1	24 (7.34)
West	0	0	2	1	4	13	51	37	1	109 (33.3)
Comprehensiveness level										
Level 6	0	0	0	1	2	12	41	29	0	85 (26.0)
Level 5	0	0	0	0	0	0	1	1	0	2 (0.6)
Level 4	0	0	0	0	0	0	2	3	1	6 (1.8)
Level 3	0	0	0	1	2	4	22	7	1	37 (11.3)
Level 2	0	1	2	1	3	2	18	10	0	37 (11.3)
Level 1	0	11	23	39	22	34	23	7	1	160 (48.9)

Q1=quarter 1 of 2021 which includes the period from 1 January 2021 to 31 March 2021.

\*Year the law/most recent amendment was implemented.

†Tribes are not included in census region estimates, as they are sovereign nations.

into effect in 2019 or later. Initial FTP sales restrictions were primarily adopted in the Northeast Census region, followed by increased adoption in the West; the South and Midwest have relatively few FTP sales restrictions. Policy comprehensiveness is variable; no states have adopted FTP sales restrictions above a level 5 comprehensiveness, but comprehensiveness has increased over time among local jurisdictions, where around 40% of local FTP sales restrictions enacted in 2019–2020 were categorised at the highest comprehensiveness level (level 6).

### Retailer inclusions and exemptions

Characteristics of all FTP and e-cigarette-only FTP sales restrictions are presented in table 2. All state, and nearly all local-level restrictions applied to existing and new retailers, although a slightly lower proportion of e-cigarette-only FTP sales restrictions

applied to existing retailers. Few local sales restrictions applied to buffer zones near schools, parks, playgrounds or libraries only. Utah and over half of localities exempted adult-only retailers. Additionally, over half of localities exempt smoking or tobacco bars. The high prevalence of smoking or tobacco bar exemptions is largely due to local policies in Massachusetts, which represent 53.6% (n=179) of the sample of local policies. Local policies commonly pair adult-only retailer exemptions with smoking or tobacco bar exemptions, with 47.6% (n=159) of policies having both retailer exemptions; these exemptions are less common at the state level. Less common retailer exemptions among all local-level FTP sales restrictions included liquor, specialty and e-cigarette stores. Among state-level restrictions, only Utah exempted specialty stores.



**Table 2** Policy-level characteristic of flavoured tobacco product (FTP) sales restrictions enacted as of 31 March 2021 with a confirmed implementation date (n=334)

	All FTP restrictions		E-cigarette-only restrictions	
	State level (%) (n=7)	Local level (%) (n=327)	State level (%) (n=5)	Local level (%) (n=28)
Applies to all retailers				
Applies to existing tobacco retailers	7 (100.00)	324 (99.08)	5 (100.00)	26 (92.86)
Applies to new tobacco retailers	7 (100.00)	326 (99.69)	5 (100.00)	28 (100.00)
Applies only to area buffers—schools	0 (0.00)	4 (1.22)	0 (0.00)	3 (10.71)
Applies only to area buffers—parks	0 (0.00)	2 (0.61)	0 (0.00)	2 (7.14)
Applies only to area buffers—playgrounds	0 (0.00)	1 (0.31)	0 (0.00)	1 (3.57)
Applies only to area buffers—libraries	0 (0.00)	1 (0.31)	0 (0.00)	1 (3.57)
Exemption for adult-only retailers (18+)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Exemption for adult-only retailers (21+)	1 (14.29)	185 (56.58)	1 (20.00)	2 (7.14)
Exemption for liquor stores	0 (0.00)	2 (0.61)	0 (0.00)	0 (0.00)
Exemption for specialty stores	1 (14.29)	15 (4.59)	1 (20.00)	1 (3.57)
Exemption for e-cigarette establishments	0 (0.00)	3 (0.92)	0 (0.00)	2 (7.14)
Exemption for smoking bar/tobacco bars	1 (14.29)	167 (51.07)	0 (0.00)	0 (0.00)
Prohibits all characterising flavours, aromas and concept flavours except tobacco				
Menthol cigarettes included	1 (14.29)	133 (40.67)	–	–
Menthol e-cigarettes included	4 (57.14)	169 (51.68)	3 (60.00)	27 (96.43)
Menthol smokeless included	1 (14.29)	137 (41.90)	–	–
Characterising flavours (except menthol) included	3 (42.86)	162 (49.54)	2 (40.00)	1 (3.57)
Characterising flavours (including menthol) included	4 (57.14)	165 (50.46)	3 (60.00)	27 (96.43)
Applies to all tobacco product categories				
Applies to e-cigarettes	6 (85.71)	327 (100.00)	–	–
Applies to cigarettes	1 (14.29)	133 (40.67)	–	–
Applies to premium cigars	1 (14.29)	292 (89.30)	–	–
Applies to cigars	2 (28.57)	296 (90.52)	–	–
Applies to little cigars	2 (28.57)	296 (90.52)	–	–
Applies to cigarillos	2 (28.57)	297 (90.83)	–	–
Applies to pipe tobacco	1 (14.29)	294 (89.91)	–	–
Applies to hookah	1 (14.29)	294 (89.91)	–	–
Applies to smokeless tobacco	1 (14.29)	294 (89.91)	–	–
FTP policy applies to all product components associated with prohibited tobacco product(s)	7 (100.00)	304 (92.97)	–	–
FTP policy applies to all prohibited tobacco product(s) whether or not nicotine is derived from tobacco (eg, synthetic nicotine)	7 (100.00)	295 (90.21)	–	–
Applies to all e-cigarette products				
Applies to non-nicotine e-cigarettes	–	–	5 (100.00)	21 (75.00)
Applies to e-cigarettes not derived from tobacco	–	–	5 (100.00)	26 (92.86)
Applies to all e-cigarette device types	–	–	4 (80.00)	28 (100.00)
Applies to e-cigarette components	–	–	5 (100.00)	22 (78.57)
Exemptions for FDA Special Classifications of Tobacco Products				
FTP policy exempts any tobacco products with FDA premarket authorisation	2 (28.57)	7 (2.14)	2 (40.00)	4 (14.29)
FTP policy exempts any tobacco products with FDA modified risk product authorisation	0 (0.00)	2 (0.61)	0 (0.00)	1 (3.57)
FTP policy exempts any tobacco products approved for cessation by FDA	5 (71.43)	312 (95.41)	3 (60.00)	20 (71.43)

e-cigarettes, electronic cigarettes; FDA, Food and Drug Administration.

### Flavour inclusions and exemptions

The inclusion of flavours varied across FTP sales restrictions (table 2). Among all state FTP sales restrictions, about half of states restrict at least one menthol product, with four states prohibiting menthol e-cigarette sales, but only Massachusetts restricts menthol cigarettes and menthol SLT. Similarly, about half of localities restrict at least one menthol product; about half restrict menthol

e-cigarettes and about two-fifths restrict menthol cigarettes and/or menthol SLT. In contrast, all but one locality with e-cigarette-only FTP sales restrictions prohibits menthol e-cigarette sales.

### Product inclusions and exemptions

All state FTP sales restrictions except Maine and all local restrictions applied to e-cigarettes (table 2). Few states restricted the sale

**Table 3** Distribution of all FTP sales restrictions enacted as of 31 March 2021 with a confirmed implementation date (n=334) by level of comprehensiveness and corresponding proportion of US population covered

Comprehensiveness level	State level (%) n=7		Local level (%) n=327		All policies
	Number of state-level policies (%)	Per cent of US population covered by each strength level	Number of local-level policies (%)	Per cent of US population covered by each strength level	Per cent of US population covered by any FTP policy, by strength level
Level 6: all flavoured products/all flavours/all retailers and endgame policies	0 (0.00)	0.00	85 (25.99)	2.09	2.09
Level 5: all flavoured products/all flavours/most retailers with narrow exemptions ▶ Narrow retailer exemptions (not adult-only stores)	1 (14.29)	2.06	2 (0.61)	0.05	2.11
Level 4: most flavoured products/all flavours/all retailers with narrow exemptions ▶ Narrow product exemptions (not menthol cigarettes)*	0 (0.00)	0.00	6 (1.83)	0.26	0.26
Level 3: exemption for adult-only, liquor and specialty stores*	0 (0.00)	0.00	37 (11.31)	1.57	1.57
Level 2: flavour exemptions and/or major product exemptions but all retailers included*	5 (71.43)	8.12	37 (11.31)	3.59	11.71
Level 1: major flavour and/or product exemptions AND exemption for adult-only, liquor, and specialty stores*	1 (14.29)	0.95	160 (48.93)	0.14	1.10

\*Narrow retailer and narrow product exemptions may be present at this level.  
FTP, flavoured tobacco product.

of FTPs other than e-cigarettes. Most localities included other tobacco products like cigars, pipe tobacco, SLT and hookah, but fewer than half included cigarettes, thus allowing for the sale of menthol cigarettes, which are exempted from the FDA's flavour ban. All state and most local FTP sales restrictions applied to all product components associated with the specified prohibited tobacco product(s) and/or applied to products not derived from tobacco (ie, synthetic nicotine products). Although no FTPs have been approved for tobacco cessation, most state-level and local-level FTP sales restrictions excluded FTPs approved for cessation, should any products—such as e-cigarettes—be approved for this purpose in the future.

Examining e-cigarette-only FTP sales restrictions, most policies applied to all e-cigarette device types, except for Maryland's policy, which only applies to non-menthol-flavoured cartridge-based e-cigarettes. All states and most localities applied to nicotine and non-nicotine e-cigarettes, e-cigarettes with nicotine not derived from tobacco and e-cigarette components. Two states and four localities excluded flavoured e-cigarettes with FDA premarket authorisation, one locality exempted e-cigarettes with FDA modified risk product authorisation, and over half of states and localities exempted flavoured e-cigarettes approved by the FDA for cessation.

### FTP sales restrictions' comprehensiveness and policy coverage

The comprehensiveness of all FTP sales restrictions is presented in table 3. Nearly 19% of the US population was covered by at least one state or local FTP sales restriction, with just over 11% of this coverage attributable to state-level restrictions. No states but approximately a quarter of localities—covering just over 2% of the US population—had level 6 restrictions, which included all flavours, all tobacco products and all retailers; this included endgame policies (eg, Manhattan Beach, California, USA), which restrict the sale of all tobacco products, regardless of flavour. Level 5 similarly covered just over 2% of the US population, including Massachusetts' policy and two localities (0.61%).

Six localities (1.83%), which covered less than 1% of the US population, were considered level 4. About one-tenth of localities—covering 1.6% of the US population—were categorised as level 3 due to narrow flavour and product exemptions and major retailer exemptions. Most state-level FTP sales restrictions were classified as level 2 given that they only applied to e-cigarettes. About one-tenth of localities also were considered level 2, as they exempted menthol flavour and/or exempted major products such as cigarettes. In total, 11.7% of the US population was covered by a level 2 policy. Utah's FTP sales restriction was categorised as a level 1, as it exempted menthol and only applied to non-retail tobacco specialty businesses—a major retailer exemption. Almost half of local restrictions were also categorised as level 1, largely due to exemptions for cigarettes and adult-only retailers (see table 2). Overall, just over 1% of the US population was covered by a level 1 FTP sales restriction.

### E-cigarette-only FTP sales restrictions' comprehensiveness and policy coverage

Table 4 classifies e-cigarette-only FTP sales restrictions by comprehensiveness level. About 13% of the US population is covered by a state or local e-cigarette-only FTP sales restriction, with most of this coverage attributable to state-level restrictions. Just over 3% of the US population was covered by level 6 state and local e-cigarette restrictions, which included all retailers, all e-cigarette products and components, and all flavours. New York and four localities—covering about 6% of the US population—were classified as level 4 as they included all flavours and retailers but exempted e-cigarettes with FDA premarket authorisation or FDA modified risk designation. No states and three local flavoured e-cigarette restrictions (10.7%)—covering less than 1% of the US population—were categorised as level 3 due to adult-only, specialty, liquor or e-cigarette retailer exemptions. Level 2 was the second most common category for e-cigarette-only restrictions, covering 2.7% of the US population. This includes Maryland, which exempts menthol and only applies to cartridge-based and disposable e-cigarettes, and eight (28.6%)

**Table 4** Distribution of e-cigarette-only FTP sales restrictions enacted as of 31 March 2021 with a confirmed implementation date (n=33) by level of comprehensiveness and corresponding proportion of US population covered

Comprehensiveness level	State level (%) (n=5)		Local level (%) (n=28)		All policies
	Number of state-level policies (%)	Per cent of US population covered by each strength level	Number of local-level policies (%)	Per cent of US population covered by each strength level	Per cent of US population covered by any FTP policy, by strength level
Level 6: all e-cig products/all flavours/all retailers	2 (40.00)	2.95	9 (32.14)	0.25	3.21
Level 5: all e-cig products/all flavours/most retailers with narrow retailer exemptions	0 (0.00)	0.00	0 (0.00)	0.00	0.00
Level 4: some e-cig products, all flavours and all retailers with ▶ Narrow product exemptions*	1 (20.00)	5.97	4 (14.29)	0.07	6.04
Level 3: some e-cig products, all flavours and major retailer exemptions*	0 (0.00)	0.00	3 (10.71)	0.14	0.14
Level 2: flavour exemption and/or major e-cig product exemptions but no major retailer exemptions*	1 (20.00)	1.80	8 (28.57)	0.91	2.71
Level 1: flavour and/or major e-cig product exemptions AND exemption for adult-only, liquor, and specialty stores*	1 (20.00)	0.95	4 (14.29)	0.00	0.95

\*Narrow product or retailer exemptions may also be present at this level.  
e-cig, electronic cigarette; FTP, flavoured tobacco product.

localities. Finally, Utah and four localities—covering less than 1% of the US population—were categorised as level 1, as they included either an exemption for menthol e-cigarettes or major e-cigarette product exemptions, in addition to exempting adult-only, liquor, specialty or e-cigarette stores from the flavoured e-cigarette restrictions. Like in the overall FTP classification scheme, Utah is the only state in level 1 due to its menthol exemption and application to only non-retail tobacco specialty businesses.

## DISCUSSION

Enactment of FTP sales restrictions is increasing, particularly among local jurisdictions. There was a slight decrease in policy enactment in 2020, likely due to jurisdictions and public health departments pivoting attention to the COVID-19 pandemic. While the number of FTP sales restrictions in the USA has generally grown, only about one-fifth of the US population is covered by these restrictions, and to date there are relatively few FTP sales restrictions in the South and Midwest.

While few FTP sales restrictions reached the most comprehensive category, a higher proportion of local policies met the criteria for this category, with local policies having increased in comprehensiveness over time due to an increase in policies including menthol-flavoured products. However, given the narrower reach of local policies, there is still limited population coverage for these most comprehensive policies and further policy action at the state level will be key in expanding population coverage. At both the state and local levels, lack of policy comprehensiveness is most often due to policies prohibiting the sale of only one type of FTP, permitting the sale of menthol cigarettes, and/or permitting the sale of other menthol FTPs. Local policy comprehensiveness is additionally often hindered by exemptions for adult-only retailers and smoking or tobacco bars. These findings provide a framework for researchers, advocates, and policymakers to evaluate and advance the most comprehensive FTP policies, which may have the greatest potential to reduce tobacco use among youth and other vulnerable populations.<sup>8 17 18 26–29</sup>

State and local FTP sales restrictions are important tools that can restrict the sale of menthol products that are currently exempted in federal FTP policies. Closing the gap in FTP policy

coverage of menthol cigarettes is widely regarded as a priority tobacco control policy.<sup>37 58</sup> Menthol cigarettes are disproportionately targeted toward black communities and are more difficult to quit compared with non-flavoured cigarettes, raising concerns about racial disparities in health consequences of tobacco use.<sup>59 60</sup> Recent research demonstrates that FTP policies exempting menthol products are insufficient; when JUUL ceased sales of mint-flavoured products, menthol-flavoured e-cigarette sales surged.<sup>61</sup> Similarly, research on the TCA, which banned non-menthol-flavoured cigarettes, documented a shift from flavoured cigarettes to menthol cigarettes.<sup>8</sup> For FTP policies to have the greatest impact on reducing tobacco-related health disparities and youth initiation, menthol products must be included.

State and local FTP policies can similarly close gaps in access to e-cigarette and other tobacco products that are not currently under federal policy. Currently, the FDA's 2020 enforcement policy prohibits the sale of a small subset of e-cigarettes—non-menthol-flavoured cartridge-based e-cigarettes—allowing for the sale of menthol-flavoured cartridge-based e-cigarettes and all flavoured disposable and refillable e-cigarettes. Additionally, many tobacco products are not subject to federal flavour restrictions, such as cigars, SLT and products containing synthetic nicotine. Research demonstrates that FTP policies that exempt certain product categories (eg, cigars) or subcategories (eg, disposable e-cigarettes) may lead to regulatory gaps and product switching.<sup>41–43 61–64</sup> Following the FDA's 2020 enforcement policy prohibiting the sale of non-menthol-flavoured cartridge-based e-cigarettes, sales of menthol e-cigarettes and flavoured disposable e-cigarettes surged.<sup>41–43 63</sup> We have also seen an increase in use of products containing synthetic nicotine.<sup>41</sup> Further, research suggests that flavoured cigar sales increased following the 2009 flavoured cigarette restrictions—a shift largely attributed to industry marketing pivoting toward flavoured cigarillos.<sup>64</sup> Another emerging concern is flavoured oral nicotine products, as sales of flavoured synthetic nicotine pouches have dramatically increased over the last year, possibly driven by increased marketing toward youth.<sup>65</sup> FTP policies that include all tobacco products and components therefore have the potential to reduce product shifting, increase quit attempts and make the greatest impact on youth tobacco use.

Another key concern highlighted from this study is the prevalence of exemptions for adult-only retailers—particularly in local laws. In some localities where FTP sales restrictions exempt adult-only retailers, retail outlets such as convenience stores have developed separate areas of the store ('store within a store') that are considered to be adult only; however, this approach allows for continued tobacco product advertising space and poses enforcement challenges, highlighting the importance of avoiding this major exemption in FTP policies.<sup>66 67</sup>

While this study provides a framework for examining the comprehensiveness of FTP sales restrictions, there are limitations. First, our classification scheme does not examine policy enforcement. Although some experts suggested including enforcement in determining the strength of policies, we determined that it was not feasible as FTP policy enforcement provisions may exist in other sections of state and local laws even if they are not contained within the FTP restriction ordinance. We also did not examine pre-emption in our comprehensiveness scheme, as no state-level FTP policies contain pre-emption clauses to date. Should future FTP policies include pre-emption, the classification scheme may be adapted to include this variable. The cross-sectional nature of the study leads to two additional limitations. First, we report the number and strength of FTP policies as they existed in March 2021. Therefore, our study does not capture changes or amendments in these policies over time. Future research should examine how amendments of FTP policies have strengthened or weakened them over time. Finally, we categorised narrow and major product exemptions with respect to the most recently available data on youth tobacco use patterns; therefore, future studies involving FTP classification may need to consider whether changes in youth tobacco product use warrant changes in the classification scheme.

This study demonstrates increasing momentum to enact FTP sales restrictions, particularly driven by local-level restrictions which have increased in comprehensiveness over time. Findings also suggest that current and future FTP sales restrictions can be improved by restricting sales of all FTPs, including menthol, and by avoiding adult-only retailer exemptions. It is particularly

important for jurisdictions to adopt comprehensive FTP sales restrictions, as it may be challenging for a legislature to revisit and amend a less comprehensive law. Furthermore, comprehensive laws stand the greatest chance at reducing industry attempts to promote other FTPs not covered by the FTP policy.<sup>8 39 61</sup> Results from this study may be used to inform tobacco control research and advocacy. To build the evidence base for the most impactful FTP sales restrictions, future studies should examine the impacts of FTP sales restriction comprehensiveness on tobacco use outcomes. Finally, although the FDA has announced plans to propose rules that will prohibit menthol cigarettes and flavoured little cigars, we have seen delays in implementation of federal tobacco regulations; for example, the FDA has been slow to complete its review of e-cigarette products, leaving many products to remain on the market unreviewed—especially those with the highest market share and appeal to youth. Therefore, closing gaps in FTP sales restrictions at the state and local level remains urgent and the most likely course of action for restricting the sale of FTPs in the USA.

**Correction notice** The article has been corrected since it was published online first. In the results section of the abstract, the data count of the localities including flavoured e-cigarettes as banned products has been updated from n=227 to n=327.

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**Contributors** ED, SF and BS designed the study, developed drafts of the classification scheme and conducted expert interviews. SF, MA and ED coded the laws. ED, SF, MA and BS finalised the classification scheme and interpreted study results. ED and SF drafted the manuscript with oversight and editing from BS and MA. BS is the guarantor.

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#### What this paper adds

- ⇒ Policies restricting the sale of flavoured tobacco products have been found to reduce youth tobacco use and health disparities.
- ⇒ Research suggests that the most comprehensive flavoured tobacco policies restrict the sale of all flavours in all tobacco products and apply to all retailers; policies with loopholes in these criteria have been found to potentially lead to reduced impact.
- ⇒ While over 300 jurisdictions have enacted flavoured tobacco policies, little is known about the characteristics and comprehensiveness of these policies—particularly at the local level.
- ⇒ Results from this study highlight that action on flavoured tobacco has primarily been driven by local policies, and these policies have become more comprehensive over time.
- ⇒ Findings also suggest that current and future flavoured tobacco policies may be strengthened by including all tobacco products—particularly menthol cigarettes—in the sales restriction and by avoiding exemptions for certain retailers, such as adult-only, specialty and e-cigarette retailers.

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Supplemental table A. Literature review and initial proposed classification scheme

<i>Variable category</i>	Chen, et al. (2018) Restricting the Sale of Flavored E-cigarettes in the US: An Examination of Local Regulations.[50]	Public Health Law Center US sales restrictions on Flavored Tobacco Products[52]	Tobacco Control Legal Consortium Sample language to restrict the sale of Flavored Tobacco Products, including menthol[53]	ChangeLab Solutions Policy options for restricting the sale of menthol cigarettes and other FTPs[54]	ChangeLab Solutions Model ordinance[55]	CounterTobacco: Flavored Tobacco Products[56]	Proposed variable (policies are awarded one point for each variable with a maximum of 4 points)
<i>Area covered</i>	<b>Jurisdiction-wide ban</b>	<b>Jurisdiction-wide ban</b>	Clearly state to whom the policy applies	“All retailers” (implying no buffer zones)	Policies with <b>buffer zones are not considered comprehensive</b>	Comprehensive restrictions have <b>no exemptions for any places</b> (e.g. within a certain distance of schools)	Jurisdiction-wide ban (e.g. not limited to buffer-zones)
<i>Flavors included</i>	<b>Menthol prohibited</b>	<b>Menthol prohibited</b>	“Because descriptions such as “mellow” or “arctic” can imply a flavor, and because testing for actual flavoring may be difficult or expensive, consider regulating not only products that are <b>flavored</b> , but also <b>all products that are marketed as having a distinguishable, distinctive or characterizing flavor (or aroma).</b> ”	“Any tobacco product that has the <b>taste or aroma other than tobacco</b> ” (implies menthol is included)	Flavored tobacco products: “any tobacco product that imparts a characterizing flavor.” “Characterizing flavor” means “Characterizing Flavor” means a <b>taste or aroma, other than the taste or aroma of tobacco</b> , imparted either prior to or during consumption of a Tobacco Product or any byproduct produced by the Tobacco Product, including, but not limited to, tastes or aromas relating to menthol, mint, wintergreen, fruit, chocolate, vanilla, honey, candy, cocoa, dessert, alcoholic beverage, herb, or spice; provided, however, that a Tobacco Product shall not be determined to have a Characterizing Flavor solely because of the use of additives or flavorings or the provision of ingredient information.”	Comprehensive restrictions have <b>no exemptions for any flavor types</b>	All characterizing flavors except tobacco are prohibited (including menthol)
<i>Products included</i>	<b>E-cigarettes included</b>	<b>E-cigarettes included</b>	“Draft the definition of “tobacco product” broadly so it encompasses products such as <b>electronic cigarettes, flavored cigars, little cigars and spit/chewing tobacco, as well as dissolvable tobacco products, flavored tobacco lozenges, and other emerging smokeless products, along with their components and related accessories.</b> ”	“ <b>Any tobacco product</b> that has the taste or aroma other than tobacco” (implies e-cigarettes are included)	<b>All tobacco products, including e-cigarettes (with and without nicotine) and components, parts, or accessories normally used with a tobacco product (e.g. rolling papers, e-liquid, etc)</b>	Comprehensive restrictions have <b>no exemptions for any product type</b>	Applies to all tobacco products, including e-cigarettes, and components/accessories
<i>Retailers included</i>	<b>Applies to adult-only retailers</b>	<b>No retailer exemption</b>	Clearly state to whom the policy applies	“ <b>All retailers</b> ” (implying no exemptions)	““Tobacco Retailer” means <b>any Person who sells, offers for sale, or does or offers to exchange for any form of consideration, tobacco, Tobacco Products or Tobacco Paraphernalia.</b> ”	Comprehensive restrictions have <b>no exemptions for any places (e.g. tobacco bars, adult-only stores)</b>	Applies to all retailers

Supplemental table B. Expert feedback and revision process

<i>Theme</i>	<i>Incorporated expert feedback</i>	<i>American Lung Association State Flavored Tobacco Product Laws Methodology</i>
<b><i>Relative importance of proposed variables</i></b>	<p>Experts had varying opinions on the relative importance of “jurisdiction-wide,” “all products,” “all flavors,” and “all retailers.” However, most agreed that some exemptions were more impactful than others. This led us to combine the “jurisdiction-wide” and “all retailers” categories for a total of three variable categories. Experts also felt it was important to disaggregate these variable categories; therefore, we identified narrow and major exemptions within the categories.</p> <p>Experts also had varying feedback about whether policies that only apply to e-cigarettes (rather than multiple or all tobacco products) should be considered highly comprehensive, given the high prevalence of youth e-cigarette use contrasted with concerns about the evolving product market and shifting use patterns. Therefore, we created a scheme for all policies and a separate scheme for e-cigarette-only policies as a subset analysis.</p> <p>Specialty stores are like adult only stores. These should be grouped with adult only stores as major exemptions.</p> <p>Experts had differing opinions on whether hookah exemptions should be considered major or minor product exemptions. Given that youth hookah use is lower than other products of concern (e.g. e-cigarettes, cigarettes, LCCs, smokeless – all &gt;3%) and hookah is usually grouped with pipe tobacco and premium cigars and an exemption in these policies, hookah will be considered a narrow exemption.</p>	<p>A The sale of all flavored tobacco products is prohibited;</p> <p>B The sale of most flavored tobacco products, including menthol cigarettes, is prohibited with some narrow exemptions;</p> <p>C The sale of all flavored tobacco products, including menthol cigarettes, is limited to over age 21 stores/locations;</p> <p>D The sale of one type of flavored tobacco product is completely prohibited (i.e. flavored e-cigarettes or flavored tobacco product restrictions that completely exempt menthol cigarettes);</p> <p>F No state law on flavored tobacco products or the sale of one type of flavored tobacco product restriction that exempts menthol.</p>
<b><i>Additional variables to consider</i></b>	<p>Experts indicated that it is important to determine whether FTP policies applied to 1) product components (e.g. e-cigarette cartridges, wrapping papers, etc, 2) products with synthetic nicotine or nicotine not derived from tobacco, and 3) nicotine-free e-cigarettes, given loopholes created by and challenges with enforcing FTP laws that do not apply to these products. Additionally, experts suggested coding whether product sub-categories may be exempted from FTP policies (e.g. flavored products with FDA premarket approval, flavored products containing synthetic nicotine, flavored product components). Therefore, we revisited all ordinances and double-coded sub-categories of products included in the flavor restrictions.</p> <p>Note endgame policies in level 6</p>	





Supplemental table A. Literature review and initial proposed classification scheme

<i>Variable category</i>	Chen, et al. (2018) Restricting the Sale of Flavored E-cigarettes in the US: An Examination of Local Regulations.[50]	Public Health Law Center US sales restrictions on Flavored Tobacco Products[52]	Tobacco Control Legal Consortium Sample language to restrict the sale of Flavored Tobacco Products, including menthol[53]	ChangeLab Solutions Policy options for restricting the sale of menthol cigarettes and other FTPs[54]	ChangeLab Solutions Model ordinance[55]	CounterTobacco: Flavored Tobacco Products[56]	Proposed variable (policies are awarded one point for each variable with a maximum of 4 points)
<i>Area covered</i>	<b>Jurisdiction-wide ban</b>	<b>Jurisdiction-wide ban</b>	Clearly state to whom the policy applies	“All retailers” (implying no buffer zones)	Policies with <b>buffer zones are not considered comprehensive</b>	Comprehensive restrictions have <b>no exemptions for any places</b> (e.g. within a certain distance of schools)	Jurisdiction-wide ban (e.g. not limited to buffer-zones)
<i>Flavors included</i>	<b>Menthol prohibited</b>	<b>Menthol prohibited</b>	“Because descriptions such as “mellow” or “arctic” can imply a flavor, and because testing for actual flavoring may be difficult or expensive, consider regulating not only products that are <b>flavored</b> , but also <b>all products that are marketed as having a distinguishable, distinctive or characterizing flavor (or aroma).</b> ”	“Any tobacco product that has the <b>taste or aroma other than tobacco</b> ” (implies menthol is included)	Flavored tobacco products: “any tobacco product that imparts a characterizing flavor.” “Characterizing flavor” means “Characterizing Flavor” means a <b>taste or aroma, other than the taste or aroma of tobacco</b> , imparted either prior to or during consumption of a Tobacco Product or any byproduct produced by the Tobacco Product, including, but not limited to, tastes or aromas relating to menthol, mint, wintergreen, fruit, chocolate, vanilla, honey, candy, cocoa, dessert, alcoholic beverage, herb, or spice; provided, however, that a Tobacco Product shall not be determined to have a Characterizing Flavor solely because of the use of additives or flavorings or the provision of ingredient information.”	Comprehensive restrictions have <b>no exemptions for any flavor types</b>	All characterizing flavors except tobacco are prohibited (including menthol)
<i>Products included</i>	<b>E-cigarettes included</b>	<b>E-cigarettes included</b>	“Draft the definition of “tobacco product” broadly so it encompasses products such as <b>electronic cigarettes, flavored cigars, little cigars and spit/chewing tobacco, as well as dissolvable tobacco products, flavored tobacco lozenges, and other emerging smokeless products, along with their components and related accessories.</b> ”	“ <b>Any tobacco product</b> that has the taste or aroma other than tobacco” (implies e-cigarettes are included)	<b>All tobacco products, including e-cigarettes (with and without nicotine) and components, parts, or accessories normally used with a tobacco product (e.g. rolling papers, e-liquid, etc)</b>	Comprehensive restrictions have <b>no exemptions for any product type</b>	Applies to all tobacco products, including e-cigarettes, and components/accessories
<i>Retailers included</i>	<b>Applies to adult-only retailers</b>	<b>No retailer exemption</b>	Clearly state to whom the policy applies	“ <b>All retailers</b> ” (implying no exemptions)	““Tobacco Retailer” means <b>any Person who sells, offers for sale, or does or offers to exchange for any form of consideration, tobacco, Tobacco Products or Tobacco Paraphernalia.</b> ”	Comprehensive restrictions have <b>no exemptions for any places (e.g. tobacco bars, adult-only stores)</b>	Applies to all retailers

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