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SYNTHESIS

Smoke-Free Series: Tobacco and Vaping Retail Environments

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Research Question

What are the impacts of the following types of restrictions that affect the tobacco and vaping retail environment: (1) retailer-related restrictions (i.e., minimum age restrictions, point-of-sale display bans), (2) zoning tobacco and vaping retail-free areas/restricting product availability and (3) retailer licensing?

Key Messages

- Overall, the majority of the available evidence focused on tobacco products, with limited evidence available on vaping products.
- Minimum age restrictions for purchasing tobacco cigarettes were associated with positive impacts, specifically reduced smoking prevalence among youth[1-3] and reduced access to commercial sources of cigarettes,[2,4] which in turn decreased youth smoking experimentation.[2] Available evidence was insufficient to support implementation of minimum age restrictions for vaping products on their own to impact youth vaping prevalence.[5,6]
- Retailer zoning restrictions and retail licensing were associated with reductions in tobacco retail outlet density.[7,8] A reduction in smoking prevalence was also observed in the implementation of tobacco retailer caps,[7,9] school buffers for tobacco retail outlets,[7,8] banning tobacco sales in specific retail outlets and/or limiting to only specified outlets,[7-9] and retailer licensing.[2,7,9]
- Policies on tobacco retailer zoning restrictions (i.e., retailer caps, school buffers and sales bans in specific outlets) were generally supported by the public (including among those who use tobacco products), particularly for school buffers and sales bans in pharmacies.[7]
- Vaping retailer licensing remains an emerging area. Available evidence reported reductions in youth intention to vape and youth vaping prevalence in jurisdictions that implemented retailer licensing requirements for the sale of vaping products.[5,6]
- These findings add to the evidence base regarding the impacts of minimum age restrictions, retailer zoning restrictions and retailer licensing. The evidence identified in the current synthesis is consistent with the recommendations provided in the Smoke-Free Ontario Scientific Advisory Committee (SFO-SAC) 2016 report.[10]

Note on Terminology

Any reference to tobacco in this document refers to commercial use of tobacco, which is not associated with the sacred and traditional uses of tobacco, which Indigenous peoples have been using for thousands of years. Traditional or sacred tobacco differs from commercial tobacco both in the way that it is harvested and in the way it is used in ceremony and prayer, often for healing and purifying.

Background

Various tobacco control interventions or policy options that affect the retail environment have been discussed in the literature, including retailer-related restrictions (e.g., age restrictions, point-of-sale tobacco display restrictions), retailer zoning restrictions and retailer licensing. Of note, when the SFO-SAC 2016 review was conducted, vaping products were an emerging topic; as such, the SFO-SAC focus of the retail environments content was only on tobacco products.[10]

Age restrictions involve prohibiting the sale of tobacco and vaping products to individuals under a pre-defined age set by national or provincial/territorial laws.[10-12] Minimum age restrictions have been shown to reduce the availability of tobacco products from retail outlets to underage youth.[10-12] As per the Smoke-Free Ontario Act, 2017 the minimum legal age to purchase tobacco and vaping products is 19 years, and retailers are required to request age identification from individuals who appear to be younger than 25 years.[13] Fines are issued to retailers who contravene the age restrictions.[13] The SFO-SAC recommended that Ontario raise the minimum legal age to purchase tobacco products and actively enforce age restrictions to reduce smoking prevalence among youth and young adults.[10]

Point-of-sale displays are used by the tobacco industry to promote their products and increase sales and smoking among consumers.[10,14] Point-of-sale display restrictions include but are not limited to banning point-of-sale tobacco promotion (e.g., advertisements, packaging displays, signage and other forms for marketing) and limiting direct access to tobacco products by relocating them from shelves to behind counters.[10,14] Bans on point-of-sale displays can reduce temptation to purchase tobacco products, impulse purchases and environmental cues to smoke while contributing to the denormalization of tobacco products.[10,14] In Ontario, the *Smoke-Free Ontario Act, 2017* prohibits retailers (with the exception of specialty vape shops) from in store promotion or display of tobacco and vaping products.[13] The SFO-SAC recommended that Ontario continue to monitor and enforce existing bans on point-of-sale displays to remove sensory cues for purchasing or using tobacco products and to help denormalize use, and to in turn reduce smoking prevalence.[10]

Retailer zoning restrictions include but are not limited to prohibiting retailers along access routes to schools and within certain distances of schools or youth-oriented facilities, capping the number of retailers in a geographical area, establishing minimum distances between tobacco retailers, and restricting the location of tobacco retailers to certain areas.[10] Zoning restrictions can reduce tobacco and vaping retailer density, product availability and environmental cues for use.[10] In Ontario, the *Smoke-Free Ontario Act, 2017* prohibits tobacco and vaping products from being sold in specific locations (e.g., hospitals, pharmacies, long-term care homes, psychiatric facilities, post-secondary institutions, schools, child care centres).[13] However, there are no zoning restrictions per se that aim to reduce the number of tobacco and/or vaping retail outlets in Ontario.[10] The SFO-SAC recommended that Ontario adopt zoning restrictions that reduce tobacco retailer density, tobacco product availability and environmental cues for smoking, to in turn decrease initiation and facilitate quitting.[10]

Retailer licensing programs require retailers to obtain a government-issued license in order to sell tobacco products.[10] Retailer licensing strategies include but are not limited to not renewing licenses to existing license holders, not granting licenses to particular retailers, using a lottery system for a limited number of available licenses, limiting the number of licenses issued (and reducing this limit over time), increasing licensing fees, and stipulating conditions associated with licenses such as limiting the hours and/or days when tobacco can be sold.[10,15] Retailer licensing can reduce the number of licensed retailers, reduce availability of tobacco and vaping products, increase compliance with in-store restrictions, and generate funds to cover costs associated with the administration, implementation, and enforcement (e.g. compliance checks) of retailer licenses.[10,15] In Ontario, tobacco retailers must be registered under the *Tobacco Tax Act*, and this does not include any licensing fees for the retailers.[16,17] In addition, the *Smoke-Free Ontario Act, 2017* requires specialty tobacconists and specialty vape shops to register with their local public health unit, which also does not require any licensing fees.[13,18,19] However, several municipal governments (e.g., Ottawa, Hamilton and Markham) have established annual fees for tobacco retailer licenses that ranged between $40 to more than $900 in 2022.[20-22] The SFO-SAC recommended that Ontario establish substantial licensing fees with restrictive conditions for tobacco retail outlets to reduce retail outlet density, to in turn decrease initiation and facilitate quitting.[10]

With the introduction and legalization of vaping devices into the Canadian market (May 2018), the retail landscape shifted; unlike tobacco products, vaping devices were eligible to be sold through online retailers in addition to brick and mortar stores, unless otherwise specified in provincial legislation.[23] Some retailers are exclusively online, while others are storefronts that have the option for online purchase and delivery. Concerns have been raised around regulation, monitoring and enforcement of online vaping purchases,[24,25] specifically when it comes to youth access. Currently, Quebec and Nunavut are the only Canadian provinces that restrict online sale and delivery of vape products.[26]

The purpose of this evidence synthesis is to provide an update on the evidence published since the SFO-SAC report on the impacts of various retail restrictions (i.e., minimum age restrictions, point-of-sale display bans), retailer zoning restrictions and retailer licensing, on tobacco retailers. This synthesis also includes the available evidence for impacts of retailer restrictions on vaping product retailers.

Methods

A peer-reviewed literature search was conducted on January 18 (MEDLINE) and 23 (Embase) 2024 by Public Health Ontario (PHO) Library Services for articles published between 2016 and 2024. The search did not extend earlier than 2016 because a comprehensive summary of evidence on this research question was completed in 2015 (see Chapter 3: Industry and Chapter 4: Prevention in the SFO-SAC [2016] report[10]). The search included two databases: MEDLINE (Ovid) and Embase (Ovid). Search terms included, but were not limited to: retail outlet, point of sale, zoning, bylaw, availability and licensing. The full search strategy is available upon request from PHO.

The same screening criteria for inclusion/exclusion were applied in both the original and current syntheses; specifically, review-level articles were eligible for inclusion if they addressed interventions in retail settings, including (1) retailer-related restrictions (e.g., age restrictions, retail point-of-sale restrictions), (2) zoning tobacco retail-free areas/restricting product availability and (3) retailer licensing. All outcomes of such interventions were included, for example intervention uptake, sales of tobacco/vaping products and smoking/vaping-related behaviour (e.g., reduction in frequency of cigarette smoking, reduction in frequency of vaping, change in type of product used, reduction in health-related consequences). Papers that described solely marketing or advertisement bans were excluded. Editorials, conference abstracts, protocols and articles from non-Organization for Economic Co-operation and Development member countries were also excluded.

Two reviewers screened titles and abstracts, as well as full-text versions of papers, with the content lead validating all inclusions. One reviewer extracted relevant data, which were validated by another reviewer. Quality appraisal was conducted for the included papers using the Healthevidence.org Quality Assessment Tool for Review Articles; the methodological quality of a review scoring ≤4, 5 to 7, or ≥8 out of a total score of 10 was rated as weak, moderate, or strong, respectively.[27] One reviewer made independent assessments of quality.

Findings

The literature search resulted in the identification of 378 articles, 10 of which met the inclusion criteria. The 10 reviews included one umbrella review of systematic reviews and meta-analyses,[1] one realist review,[2] two scoping reviews[8,9] and six systematic reviews.[3-7,28] One of the systematic reviews is a pre-print that has not been peer-reviewed,[3] and another review did not specify its type but followed a systematic process and was therefore considered as a systematic review.[7] All reviews except one[3] examined multiple jurisdictions and most commonly included studies conducted in the United States (U.S.), United Kingdom, New Zealand and Spain, among other countries. Based on 10 quality criteria, seven reviews were rated high in quality (i.e., score of 8 to 10),[1-6,28] and three rated moderate in quality (i.e., score of 6 or 7).[7-9]

Findings were organized according to the type of restrictions on the retail environment: minimum age restrictions, point-of-sale display bans, retailer zoning restrictions and retailer licensing. Retailer caps were often reported as the number of retailer licenses issued; findings pertaining to retailer caps based on geographic area or population size were considered as zoning restrictions, whereas findings pertaining to retailer caps in general (e.g., cap on the total number of retailer licenses per year) were considered as retailer licensing restrictions. Findings were related to tobacco cigarettes, vaping products (e.g., e-cigarettes, electronic nicotine devices) or both.

Minimum Age Restrictions

Seven reviews (seven high quality; one umbrella,[1] one realist[2] and five systematic[3-6,28] [one pre-print[3]]) addressed the impact of minimum age restrictions on the purchase of tobacco[1-4,28] and vaping products.[5,6]

Minimum Age Restrictions for Tobacco Cigarettes

Three of the included reviews addressed the impact of minimum age restrictions for purchasing tobacco on smoking prevalence.[1-3] These reviews indicated that banning tobacco sales to minors[2] or increasing the minimum legal age of purchase for tobacco[1,3] may reduce smoking prevalence among youth. Davies et al. (2023) found that increasing age of purchase to 21 years of age may be most effective at reducing smoking among 11 to 20 year olds, with a stronger association observed in those 18 to 20 years and among those with lower educational status.[3] Compliance by retailers and active enforcement are important to ensure effectiveness of these policies on youth smoking.[1-3] Several primary studies have been published on the topic, reporting favourable results, for example, increasing retail compliance of minimum age of purchase laws was associated with a reduction in youth smoking.[1,2]

Only one review addressed the impact of minimum age restrictions for purchasing tobacco on health outcomes, however only one primary study was identified.[28] The review cited a U.S. study in which implementation of a minimum legal purchasing age of 21 years for the purchase of tobacco was associated with a lower prevalence of low birth weight infants conceived by young adults between the ages of 19 to 21 years.[28]

Two of the included reviews explored the impact of youth access when minimum age restrictions are implemented for the purchase of tobacco cigarettes.[2,4] Youth under legal age of purchase reported less access to commercial sources of cigarettes when minimum age restriction legislation was strongly enforced.[2,4] As a result of reduced access, youth smoking experimentation was reported to decrease in jurisdictions that implemented tobacco sale bans to minors.[2] Nuyts et al. (2018)'s review highlighted the limited available evidence examining minimum age of purchase legislation from the perspective of minors to get a better understanding and context for the impact of these policies on youth access and smoking behaviours.[2]

Evidence suggests that effectiveness of minimum age restrictions strongly depends on implementation, enforcement and context.[2] Insufficient implementation, monitoring and enforcement can strongly reduce the effectiveness of minimum age restrictions.[2] With these type of gaps, it allows those under legal age of purchase to continue to purchase cigarettes through retail outlets, which also allows continued supply to their peers through social supply/networks.[2,4] The context and policy environment that the minimum age restrictions are implemented in also matters. Nuyts et al. (2018) only found studies where multiple policies were implemented at the same time and therefore, were unable to attribute impact on youth smoking initiation and prevalence solely on minimum age restrictions.[2]

Minimum Age Restrictions for Vaping Products

Two of the included reviews addressed the impact of minimum age restrictions for purchasing vaping products on vaping prevalence;[5,6] with one also exploring the impact on cigarette smoking prevalence.[5] Despite being one of the most commonly reported regulatory strategies being implemented within these reviews, mixed findings were reported for the impact of minimum age restrictions for vaping products on both the prevalence of youth vaping[5,6] and cigarette smoking.[5] As such, Reiter et al. (2024) concluded that the current evidence available was insufficient to support recommendations for solely implementing age restrictions for vaping products with the goal of reducing vaping among youth.[5]

One of the included reviews addressed the impact of minimum age restrictions for purchasing vaping products on perceptions of vaping.[6] Across the two studies cited in the review, mixed findings were reported in the exploration of the changes in perceived harm of vaping product use attributable to bans on sales to minors.[6]

Point-of-sale Display Bans

None of the included reviews provided updated evidence on the impact of point-of-sale display bans of tobacco products since the SFO-SAC (2016) report was published.[10] In support of this finding, we note that one of the included reviews published in 2019 also reported that no systematic reviews or meta-analyses on the effectiveness of point-of-sale advertising restrictions were identified.[1]

However, it noted that previous studies reported associations between exposure to point-of-sale tobacco advertising and increased smoking and smoking susceptibility among youth.[1] Another included review published in 2023 addressed the impact of point-of-sale display bans for tobacco and vaping products on the presence of point-of-sale advertising,[6] and identified only one primary study with contrasting findings.

Retailer Zoning Restrictions

Retailer zoning policies and regulations have the potential to reduce tobacco supply in the retail environment and consequently reduce tobacco use at the population level.[8] Three moderate quality reviews (two scoping,[8,9] one systematic[7]) addressed the impact of retailer zoning restrictions for those selling tobacco products, including: (1) retailer caps (i.e., limiting the rate/number of retailers based on geographic area or population size); (2) school buffers (i.e., decreasing proximity of retail outlets to schools); (3) retailer buffers (i.e., decreasing proximity between retail outlets); and (4) ban on sales in specific retail outlets.

None of the included reviews examined retailer zoning restrictions for those selling vaping products.

Tobacco Retailer Caps

Two of the included reviews addressed the impact of tobacco retailer caps.[7,9] Tobacco retailer caps were shown to reduce retail outlet density[7] as well as smoking prevalence,[7,9] and was a policy that was generally supported by the public.[7]

Glassar et al. (2021)'s review reported reductions in outlet density based on primary studies in the U.S.[7] For example, in 2015, San Francisco implemented a multi-component strategy involving a zoning-based retailer license cap (i.e., 495 licenses city-wide, 45 per electoral district) and other restrictions (e.g., school and retailer buffers) that reduced outlet density by 7.5% within 10 months.[7,29] It is important to note that studies that reported reductions in outlet density did not implement retailer caps independently, but rather as part of a multi-component strategy.[7]

Both reviews reported reductions in smoking prevalence based on modelling studies completed in Canada, Australia and New Zealand.[7,9] For example, using the Ontario SimSmoke simulation model, authors found that by decreasing the number of tobacco retail outlets would decrease smoking prevalence in Ontario by 1.5%.[30]

Only one of the included reviews reported on public support for tobacco retailer cap policies.[7] The results found that policies reducing the number of retail outlets selling tobacco products were supported by most individuals who do not smoke cigarettes or occasionally smoke, while individuals that reported smoking daily were more neutral.[7]

School Buffers for Tobacco Retail Outlets

Two of the included reviews addressed the impact of school buffers for tobacco retail outlets.[7,8] School buffers resulted in reductions in retail outlet density[7,8] and smoking prevalence,[7,8] as well as increases in quality-adjusted life years (QALYs),[7] and were generally supported by the public.[7]

Both reviews reported that the implementation of school buffers for tobacco retail outlets would result in reductions in overall outlet density based on studies in the U.S. and New Zealand.[7,8] New Zealand-based models projected a 2-kilometre school buffer would result in the greatest reduction in tobacco retail outlets.[7] Of note, school buffer policies may reduce inequities in outlet density with greater reductions in lower income communities.[7] A modelling study in the U.S. reported that school buffers of 500, 1,000 and 1,500 feet would decrease outlet density, with greater reductions predicted for urban communities compared to suburban communities (e.g., 59.3% to 73.2% vs. 26.5% to 35.5% reductions, respectively, with a 1,500-foot buffer).[7] It is important to note that studies that reported reductions in outlet density did not implement school buffers independently, but rather as part of a multi-component strategy.[7]

Both reviews reported modest reductions in smoking prevalence with the elimination of tobacco retail outlets within 1 and 2 kilometres (km) of schools based on a modelling study in New Zealand,[7,8] with larger effects reported in rural compared to urban areas.[7]

Only one review explored implementation of school buffers and impact on QALYs.[7] Based on one modelling study in New Zealand, the elimination of tobacco retail outlets within 1 and 2 kilometres of schools would result in modest increases to QALYs, with the largest gains seen among 2 kilometre tobacco-free retail zones around schools (32,000 and 84,800 QALYs gained, respectively).[7]

As with tobacco retailer caps, only one review reported on public support for school buffer policies.[7] Based on studies in the U.S. and New Zealand, there was strong public support for school buffer policies, even among those that reported smoking tobacco.[7]

Tobacco Retailer Buffers

Two of the included reviews addressed the impact of tobacco retailer buffers on retail outlet density.[7,8] The purpose of retailer buffers is to require retailers licensed to sell tobacco products to be outside a minimum distance from each other, thus reducing the clustering of retailers in communities.[7] Retailer buffers resulted in reductions in retail outlet density.[7,8] The reviews reported reductions in outlet density based on studies in the U.S.[7,8] For example, a modelling study in the U.S. reported that a 500-foot retailer buffer would result in the largest reduction in tobacco outlet density at the state level at 22.1%, compared to a 1,000-foot school buffer policy (17.8% reduction) and a pharmacy ban (13.9% reduction).[7] Of note, another modelling study in the U.S. reported that implementation of retailer buffers (ranging from 500 to 1,500 feet) project greater reductions in tobacco outlet density in urban low-income communities compared to suburban high-income communities (e.g., 70.5% vs. 28.6% reduction, respectively, with a 1,500-foot buffer).[7,31]

Unlike the other retailer policies, no studies in the included reviews assessed perceptions of retailer buffer policies.[7]

Ban on Tobacco Sales in Specific Retail Outlets

Three of the included reviews addressed the impact of banning tobacco sales in specific retail outlets and/or limiting the sale of tobacco products to specified outlets.[7-9] These reviews explored the impact of retailer bans or restrictions on retail outlet density, smoking prevalence, population health and cost-savings to health systems based on both modeling and real world implementation studies. Specifically, the retail restrictions examined included banning tobacco sales in pharmacies or convenience stores (based on modelling and/or implementation studies in the U.S.) and restricting sales to only pharmacies or 50% of liquor stores (based on modelling studies in New Zealand). Two reviews reported reductions in outlet density based on studies that examined or modeled tobacco sales bans in specific retail outlets.[7,8] In the U.S., banning tobacco sales in pharmacies showed either actual or predicted reduction in tobacco retail density.[7,8] However, a pharmacy retail ban alone was reportedly insufficient to reduce density disparities in tobacco retailer density across all communities.[7] Pharmacy bans in combination with other policies, such as school buffer zones, were found to have the potential to reduce inequities in retailer density across communities.[7] While bans on sale of tobacco products in pharmacies were the most popular policy reported in the literature, Glasser et al. (2021) highlighted a New Zealand modeling study where researchers explored limiting sales of tobacco to pharmacies only; this study projected this type of policy to be effective, however concerns around equity among all communities and groups were raised by this single policy approach.[7]

Three reviews reported jurisdictions that implemented restrictions of tobacco sales in specific retail outlets had the potential to reduce smoking prevalence within those communities.[7-9] Restricting sale of tobacco products to pharmacies only were projected to be an effective strategy to reduce smoking prevalence, however the magnitude of impact varied and depended on the policy environment and retail shifts within that particular community.[7-9] Alternatively, pharmacy bans were shown to have an impact on community smoking prevalence, but only when banning tobacco sales at pharmacies reduced overall density of tobacco retailers within that community; if density remained the same or increased, there was no change or negative change for smoking prevalence.[7] There were also others that restricted sales to specific retailers, which also showed the potential to influence smoking prevalence.[7,9] For example, a modelling study in New Zealand reported that restricting tobacco sales to 50% of liquor stores only would result in a decrease to smoking prevalence, predicting this decrease would actually be greater than other policy options, such as a 95% reduction in the number of tobacco retail outlets.[7,9]

There is limited evidence on the impact of banning tobacco sales at specific retail outlets or restricting sales to specified outlets on QALYs and cost-savings to health system spending. Two reviews reported increases in QALYs and cost-savings to health systems based on modelling studies in New Zealand.[7,9] Confining tobacco sales to pharmacies only, including the provision of cessation advice, predicted a gain in QALYs and cost savings to health systems over the lifetime of the current population.[7,32] Restricting tobacco sales to 50% of liquor stores only predicted the largest QALYs gained and health care funding saved overtime when compared to other effective interventions.[7,33] Of note, tobacco sales confined to specific retail outlets (e.g., only pharmacies and only 50% of liquor stores) were predicted to have the potential to reduce disparities among population groups.[7,9] The review authors noted the need for additional research on the impact of these retail policies on population health, impact to health care costs, as well as ensuring disparities among population groups are not negatively affected.[7,9]

One review reported that public support was strongest for tobacco sales bans in pharmacies.[7] Among adults who smoke cigarettes, there was also support for banning tobacco sales in grocery stores as well as restricting sale of tobacco products to tobacco only retail outlets.[7] While there was reported support to restrict sale of tobacco products among those that used them, there was a general perception among those working in the area of tobacco control that this type of policy would not be supported by all affected parties involved.[7,9]

Retailer Licencing

Four reviews (one high quality[2] and three moderate quality;[7-9] one realist,[2] two scoping[8,9] and one systematic[7]) addressed the impact of retailer licensing for tobacco cigarettes and two reviews (two high quality systematic reviews[5,6]) for vaping products.

Retailer Licensing for Tobacco Cigarettes

Two reviews addressed the impact of various tobacco retailer licensing restrictions (e.g., retailer rate caps, licensing fees, prohibition of transferring current or issuing new licenses, license penalties or revocation) on retail outlet density.[7,8] Retailer rate caps and increased or high licensing fees reduced retail outlet density.[7,8] For example, a modelling study conducted in the U.S. reported that retailer license caps of 90% down to 50% of the initial number of licenses would result in outlet density reductions in a linear manner (i.e., a 50% license cap would result in a 50% density reduction), with similar reductions across urban/suburban and lower/higher socioeconomic communities.[7] In addition, license revocation for violating license conditions may decrease the number of retailers.[8] Other licensing restrictions were reportedly effective in reducing outlet density, but were associated with limitations.[7] For example, prohibiting the transfer or issuing of new licenses after businesses close was found beneficial.[7] However, substantial reductions in outlet density were not achieved in the short-term because of the extended timeframe needed for businesses of existing license holders to close.[7]

Three of the included reviews addressed the impact of tobacco retailer licensing on smoking prevalence.[2,7,9] All three reviews reported reductions in smoking prevalence based on studies in the U.S. and New Zealand.[2,7,9] However, policies were identified to have greater impact when comprehensive strategies were implemented.[7] For example, a study conducted in New Zealand applied a dual component strategy; reducing the total number of retailer licenses and a population-based license cap.[7,34] The modelling demonstrated a decrease in smoking prevalence, with the potential to reduce inequities by showing larger reductions among some communities and sub-populations (e.g., rural vs. urban).[7,34]

One review cited U.S. and New Zealand studies that showed adult who smoke cigarettes and tobacco control experts supported tobacco retailer license caps and prohibiting transfer of licenses and issuance of new licenses.[7] However, tobacco retailers in New Zealand believed these restrictions should apply to new businesses only, instead of being applied immediately to existing outlets.[7]

Retailer Licensing for Vaping Products

Two reviews addressed the impact of retailer licensing for vaping products on vaping prevalence.[5,6] Both reviews cited a limited number of studies. However, retailer licensing requirements for vaping products reduced youth intention to initiate vaping,[5] as well as prevalence of vaping among youth.[5,6] Given the scarcity of data, both reviews acknowledged that vaping retailer licensing remains an emerging area where ongoing research efforts are needed to understand impact and recommend approaches for retailer licensing of vaping products.[5,6]

Online Retailer Restrictions

Two high quality systematic reviews addressed the impact of online retailer restrictions for vaping products and retail compliance.[5,6] Both reviews reported that online retailers were generally non-compliant with regulatory measures such age verifications for vaping product purchases.[5,6] Yan et al. (2023) highlighted that this trend poses a challenge for the effectiveness of vaping regulations given that youth have reported a shift in purchasing practices since the COVID-19 pandemic, with many obtaining and continuing to purchase vaping products through online retailers.[6] As such, examination of the effectiveness of regulations on online sales of vaping products is warranted.[6]

Limitations

Overall, there was relatively less research identified on retail restrictions for vaping products compared to tobacco cigarettes. The included reviews did not report on any retailer zoning restrictions for vaping products. In addition, data on vaping product purchases are limited and may be underestimated; for example, sales data for vaping products from Nielsen do not capture online or vape shop sales, although approximately 70% of people who vape in the U.S. purchase products via these two sources.[6]

The necessity of monitoring and enforcement of policies for improving outcomes was raised in several reviews.[1-3] However, few details on the implementation of monitoring and enforcement activities were reported. Moreover, the included reviews often cited results from simulation or modelling studies, which may under- or overestimate the true effects of implemented interventions or policies.

We note that some of the included papers highlighted the impacts of retail interventions on smoking, health and community related disparities. However, there is limited evidence on the impact of these policies and interventions on perpetuating health inequalities within marginalized communities and individuals.

The included reviews acknowledged that interventions and policies were rarely implemented independently and often part of a comprehensive tobacco control strategy.[7] For example, some strategies simultaneously implemented multiple types of retailer restrictions, including zoning-related school, retailer buffers and retailer licensing caps. In such cases, the impact of a specific type of intervention or policy on an outcome could not be isolated. While some studies may aim to disentangle the effects of comprehensive tobacco/vaping product control policies using statistical methods, such details have not typically been reported in review-level evidence.

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