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Rapid Synthesis

Policy approaches to reduce the recreational use of tobacco and nicotine products

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Context

- Tobacco use remains the leading cause of preventable disease and death in Canada, killing 46,000 Canadians each year.(1)
- Tobacco control policies such as price and tax strategies, graphic health warnings, and smoke-free spaces are valuable policy tools for reducing exposure to tobacco products and second-hand smoke.(2)
- While there is substantial research on the effectiveness of many of the current policies aimed at reducing cigarette use, less is known about effective policies to reduce e-cigarette use due to it being a comparatively newer product.
- This rapid synthesis examines the effectiveness of cigarette and e-cigarette policy approaches in four high-income countries, Aotearoa New Zealand, Australia, the United Kingdom (U.K.), and the United States (U.S.).

Questions

- What policy approaches (regulatory and non-regulatory) have been put in place by governments to reduce the recreational use of tobacco and nicotine products in Aotearoa New Zealand, Australia, the U.K., and the U.S.?
- What is known about the effectiveness of these approaches?
- Do any of the approaches explicitly address health equity concerns, or target historically disadvantaged populations?

High-level summary of key findings

- Higher taxes and prices were associated with lower use of cigarettes and e-cigarettes.
- Financial incentives were associated with increased odds of cigarette smoking cessation.
  - In particular, financial incentives can increase pregnant women's capability, opportunity, and motivation to stop cigarette smoking.
- Age restrictions, such as minimum age laws, were generally associated with lower cigarette use.
- The number and density of tobacco retail outlets were associated with cigarette use; restrictions on the number and density of tobacco retail outlets were generally associated with lower cigarette use.
- Reducing nicotine in cigarettes to minimally addictive or nonaddictive levels should reduce tobacco use.
- Higher nicotine concentration and access to a variety of flavours were likely associated with higher abuse potential and appeal of e-cigarettes for adult current and former cigarette and e-cigarette users.
- Targeted interventions, such as public-awareness campaigns, and culturally tailored cessation programs, defined as congruent providers, translated material, and counselling in the preferred language, were associated with lower cigarette use.
- There was a scarcity of research in existing reviews and syntheses that examined, in the context of e-cigarettes, age, retail outlet, and advertising restrictions, product regulations (e.g., graphic health warnings), targeted interventions, and culturally tailored cessation programs.

Framework to organize what we looked for

- Type of tobacco and nicotine product
  - Cigarettes
  - E-cigarettes
- Policy approaches that could be used to reduce recreational use of cigarettes and e-cigarettes
  - Pricing policies
    - Taxes
    - Pricing policies (e.g., minimum prices)
    - Financial incentives to support cessation (e.g., subsidies)
  - Sales regulations
    - Age restrictions (e.g., minimum age, smoke-free generations)
    - Retail availability (e.g., reducing the number of retail outlets)
    - Retail restrictions/bans (e.g., disposable e-cigarettes, internet sales)
  - Product regulations
    - Ingredient restrictions/bans (e.g., limits on nicotine concentration, flavour regulations)
    - *Packaging regulations (e.g., standardized/plain packaging, graphic warnings)
  - *Advertising/marketing regulations
    - *Advertising/marketing restrictions/bans (e.g., point-of-sale advertising restrictions)
  - Targeted investments to reduce use among vulnerable groups
    - Cessation programs (e.g., Australia's Tackling Indigenous Smoking Program)
    - Health education campaigns
    - Enforcement (e.g., sales to youth)
  - Supply-side policies
    - Illicit cigarette/e-cigarette trade (e.g., track and trace)
    - New nicotine product approval/notification
- Priority populations
  - 2SLGBTQIA+
  - Children and youth
  - Expectant mothers

Box 1: Approach and supporting materials

At the beginning of each rapid synthesis and through its development, we engage a subject matter expert who helps to scope the question and ensure relevant context is considered in the summary of the evidence.

We identified evidence addressing the question by searching PubMed, Web of Science, and Google Scholar to identify evidence syntheses and protocols for evidence syntheses. The searches were conducted on 17, 18, and 31 October 2024, respectively. The search strategies used are included in Appendix 1. We identified jurisdictional experiences by hand searching government and stakeholder websites for information relevant to the question from four countries: Aotearoa New Zealand, Australia, United Kingdom, and the United States.

In contrast to our rapid evidence profiles, which provides an overview and insights from relevant documents, this rapid synthesis provides an in-depth understanding of the evidence.

We appraised the methodological quality of evidence syntheses that were deemed to be highly relevant using the first version of the AMSTAR tool. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality, medium-quality evidence syntheses are those with scores between four and seven, and low-quality evidence syntheses are those with scores less than four. The AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to evidence syntheses pertaining to delivery, financial or governance arrangements within health systems or implementation strategies.

This rapid synthesis was prepared in a 60-business-day timeline.

A separate appendix document includes:
1) methodological details (Appendix 1)
2) key findings from included evidence synthesis (Appendix 2)
3) details about each included synthesis (Appendix 3)
4) documents with policy implications (Appendix 4)
5) documents from the jurisdictional policy scan (Appendix 5)
6) documents excluded at the final stages of reviewing (Appendix 6).

    - Indigenous peoples
    - Individuals with lower socio-economic status
- Outcomes
    - Primary outcome:
        - Cigarette/e-cigarette use (including, but not limited to, initiation/onset, participation, consumption, cessation, substitution, escalation, persistence, sales)
    - Secondary outcomes:
        - Illicit cigarette/e-cigarette use
        - Risk perceptions and beliefs

* For these policy domains, we did not search for or synthesize evidence pertaining to cigarettes as Canada has already implemented comprehensive restrictions on advertising, marketing and sponsorships, and package regulations.

What we found

We identified 26 medium-to-high-quality evidence syntheses that assessed various tobacco control policies for cigarette and e-cigarette use, of which 11 were meta-analyses. A paucity of and heterogeneity in research designs were the most common reasons for not conducting a meta-analysis.

In addition, we undertook a jurisdictional scan of tobacco control policies specific to cigarette and e-cigarette use in Aotearoa New Zealand, Australia, the U.K., and the U.S. We found that in general, the tobacco control policies were very similar in all four countries. We also found that all four countries had implemented a multipronged approach including varied pricing policies, particularly taxes; sales, product, and advertising restrictions and regulations; age restrictions; and targeted programs for hard-to-reach groups.

Some of the most innovative approaches included smoke-free generation, financial incentives, and limits on nicotine content for both cigarettes and e-cigarettes. Aotearoa New Zealand was the most progressive jurisdiction passing regulations in 2022 that limited tobacco retail outlets by 90%, prohibited the sale of tobacco to anyone born after 2007 (smoke-free generation), and limited nicotine concentration to very low levels. However, all three policies were repealed by the newly elected federal government in 2024. Taking Aotearoa New Zealand's lead, the U.K. introduced a smoke-free generation bill in March 2024, the state of South Australia was exploring a smoke-free generation policy, and the U.S. Food and Drug Administration has signalled its intent to reduce nicotine levels in cigarettes to a minimal or non-addictive level.

Coverage by and gaps in the existing effectiveness evidence synthesis

Most of the evidence syntheses assessed cigarette smoking policies as opposed to e-cigarette vaping policies (17 versus seven). Several reviews reported on multiple policies (six) and a few reviews reported on both cigarette and e-cigarette use policies.

For cigarettes, we found evidence of effectiveness for most policy domains. Taxes, health warnings, and media campaigns were considered among the most effective policies at the population level. We were unable to identify any evidence syntheses that met all inclusion criteria for non-tax price policies, enhanced enforcement of age restrictions, smoke-free generation policies, and nicotine concentration restrictions. In most cases, the lack of evidence was due to the novelty of the interventions.

For e-cigarettes, there were more evidence gaps. Taxes, age restrictions, and flavour bans were the most researched policies, whereas little or no evidence that met all inclusion criteria was found for non-tax price policies, financial incentives, nicotine concentration, smoke-free generation policies, packaging regulations, targeted cessation programs, enhanced

underage enforcement, and new product approval regulations. Most of the e-cigarette studies focused on youth vaping behaviours.

Key findings from included evidence documents and jurisdictional scans

We describe the key findings from the evidence documents by policy domain for cigarette and e-cigarette policies. For additional insights see Appendix 2, which provides a detailed summary of the relevant evidence documents by policy domain, Appendix 3, which provides a detailed summary of each included evidence synthesis, Appendix 4, which provides a brief overview of evidence synthesis that did not meet the inclusion criteria but may be of interest to policymakers, and Appendix 5, which provides a list of relevant documents from the jurisdictional scan.

Key findings related to pricing policies for cigarettes and e-cigarettes

Overall, we found evidence that pricing policies, such as taxes, that increase the cost of cigarettes and e-cigarettes are effective policies for reducing use.

— Cigarettes

Tax and price policies

Several evidence syntheses concluded that tax was one of the most effective policies for reducing the prevalence of cigarette smoking and promoting smoking cessation (3, 4) in both the short and long term.(5)

All four jurisdictions from the policy scan, Aotearoa New Zealand, Australia, the U.K., and the U.S. use various taxes as part of their tobacco control strategy.

Tax – Priority populations

Several evidence synthesis reported that taxes had a greater impact on children and youth and individuals from lower socio-economic status (SES) groups.(3, 4, 5) Tax policies were considered equity-positive policies for their potential to reduce health inequity.(3, 6)

Pricing policies – priority populations

A 2019 evidence brief that examined area-level disparities in prices of tobacco and vaping products in Ontario and Quebec found some limited evidence that supported minimum price laws since such laws were associated with higher prices, particularly concerning discount cigarettes. An important equity consideration and conclusion of the policy brief was that "[i]mposing a minimum price may reduce (but not eliminate) neighbourhood-level price differences, at the lower end of the price distribution".(7)p. 25)

The evidence brief also identified a review that examined the effect of price interventions such as minimum unit pricing on alcohol consumption. The review concluded that price-based alcohol policy interventions such as minimum unit pricing were likely to reduce alcohol consumption, and alcohol-related morbidity and mortality.(8)

Financial incentive (e.g., subsidies)

The U.K.'s Swap to Stop campaign actively encourages cigarette smokers to swap from combustible cigarettes to e-cigarettes through the provision of free vape kits (9, 10) and as such e-cigarettes have become a standard treatment for tobacco dependence.(11) We were unable to identify any evidence syntheses that directly evaluated this program. The use of e-cigarettes as a cigarette-cessation device remains controversial due to the lack of research on the long-term impact of

e-cigarettes on health, the potential for long-term abuse, and the risk of youth initiation and future smoking behaviour.(12, 13, 14) The smoke-free generation legislation currently under consideration in the U.K. is an acknowledgment of the trade-offs of the current vape policy (Swap to Stop) and the rapid uptake of youth vaping in the U.K.(9)

Financial incentives – priority populations

To our knowledge, the U.K. is the only jurisdiction using financial incentives as a population-level smoking cessation strategy.(9, 15) Although we were unable to identify evidence syntheses that directly assessed this policy due to its novelty, the jurisdictional scan revealed an evaluation of the U.K.'s financial incentive program. It indicated that the £400 financial incentive was an effective smoking cessation strategy for expectant mothers during pregnancy, but most mothers relapsed shortly after their child was born.(16) A meta-analysis that examined a broad range of cessation interventions for expectant mothers also indicated that financial incentives were among the most effective non-pharmaceutical instruments.(17) A Cochrane review of financial incentives for smoking cessation interventions at the individual program level also suggested that guaranteed financial incentives (as opposed to financial incentives that were not guaranteed) could be an effective cessation device.(18)

— E-cigarettes

Tax and price policies

The e-cigarette tax policy in the U.K. is aimed at encouraging switching from combustible cigarettes to e-cigarettes and, as such, e-cigarettes are taxed at a lower rate than cigarettes. Cigarettes are charged a Value Added Tax and an excise tax and e-cigarettes are only charged a Value Added Tax. Similarly, Aotearoa New Zealand has reduced excise tax on heated tobacco products to encourage switching from combustible cigarettes.(19) The U.K. is currently considering adding an excise tax on e-cigarettes due to the rapid increase in youth vaping.(11) A meta-analysis of the cross-price elasticity of e-cigarettes and cigarettes, using predominantly U.S. data, found that an increase in the price of cigarettes was associated with an increase in the use of e-cigarettes suggesting that cigarettes and e-cigarettes were substitutes.(20) For jurisdictions seeking to reduce e-cigarette use, several high-quality evidence syntheses concluded that increasing e-cigarette taxes to raise prices was an effective policy.(3, 20, 21, 22)

Taxes – priority populations

An evidence synthesis found insufficient evidence to conclude that youth were more responsive to price than adults.(22)

Price policies (e.g., minimum prices) – priority populations

We were unable to identify evidence syntheses that met our inclusion criteria and examined pricing policies in the context of e-cigarettes. A systematic review that examined price manipulation by the e-cigarette industry found compelling evidence that the industry targeted vulnerable populations through price manipulation (e.g., lowering prices in economically disadvantaged neighbourhoods), furthering that regulations such as minimum price laws may mitigate such behaviour.(23)

Key findings related to sales regulations for cigarettes and e-cigarettes

Overall, we found that:

- Age restrictions, such as minimum age laws, were likely effective policies for reducing cigarette use.
- Access policies, such as restricting the density of tobacco retail outlets, were likely effective policies for reducing cigarette use but there was a lack of similar evidence in the e-cigarette context.
- However, the evidence pertaining to cigarette use and retail density indicated that restricting retail outlet density for e-cigarettes may reduce e-cigarette use.

— Cigarettes

Age restrictions

All four jurisdictions, Aotearoa New Zealand, Australia, the U.K., and the U.S., have age restrictions on the sale of tobacco products. The U.S. has the most aggressive policy with the enactment of the U.S. Tobacco 21 law that raised the minimum legal sales age to 21 in 2019. The law also requires the retailer to check ID for everyone under the age of 27.(24) In Aotearoa New Zealand, Australia, and the U.K., minimum age is 18.(25, 26) The U.K. also prohibits proxy sales (26). A high-quality evidence synthesis that investigated the impact of the U.S. Tobacco 21 law indicated that the law reduced smoking prevalence and cigarette sales among 18 to 20 year olds but the impact on 11 to 17 year olds was less clear.(27)

Smoke-Free Generation

Aotearoa New Zealand was the first jurisdiction to enact a 'Smoke-Free Generation' bill in December 2022; the bill was later repealed by the newly elected federal government in 2024.(28) The U.K. has a similar bill currently proceeding through parliament and the State of South Australia was also considering such action. Because this policy has not been successfully implemented in any jurisdiction at this time, there was no direct evidence of its effectiveness. The evidence regarding the effectiveness of age restrictions generally suggested that the Smoke-free Generation policies may be effective at reducing smoking.

Retail availability and bans

In 2022, Aotearoa New Zealand enacted legislation that would significantly reduce the number of retail outlets by 90%, however, the legislation was later repealed by the newly elected federal government in 2024.(28) Some jurisdictions in the U.S. such as California have implemented regulations that restrict the proximity of retail outlets to schools or control the number of tobacco retail outlets through retail licensing. Several studies have evaluated both the proximity of tobacco retail outlets to schools and the density of tobacco retail outlets in a given area. Higher tobacco retail density was consistently found to be associated with more smoking.(29, 30)

Retail availability and bans – priority populations

Positive associations were found between tobacco outlet density and cigarette smoking in pregnancy, youth, adults, and cessation. Additionally, increased retail density in communities with large chain pharmacies that sold both tobacco and pregnancy-related products was associated with increased smoking among pregnant women.(29, 30)

— E-cigarettes

Age restrictions

To purchase e-cigarettes in the U.S., a person must be at least 21 years of age and retailers are required to check the ID of everyone under the age of 27.(24) The U.K. restricts the age for e-cigarette purchases to 18 years and a bill is currently going through parliament that will restrict the sale of non-nicotine vapes to 18 years as well.(9, 31) Aotearoa New Zealand and Australia also have an age restriction of 18 years.

Two evidence syntheses reported that the impact of age restrictions on vaping behaviour was a highly evaluated policy approach;(21, 22) however, the evidence was mixed.(3, 21, 22) One evidence synthesis suggested that the mixed results may be due to the easy access minors had to illicit vapes through fake IDs, retail noncompliance, and online sales.(22)

Retail availability and bans

Australia is the only jurisdiction that restricts the sale of e-cigarettes to pharmacies. Prior to 2024, e-cigarettes, pods, and liquids were only available through prescription. Although a prescription is no longer required, e-cigarettes are still only accessible through a pharmacy after consultation with the pharmacist.(19, 32, 33) In the U.S., 34 states require a retail license to sell e-cigarettes as a way to control access.(34)

We were unable to identify evidence syntheses that met our inclusion criteria and examined the effectiveness of Australia's e-cigarette ban. An evidence synthesis that examined the U.S. tobacco retail licensing requirement indicated that the retail licensing policy resulted in a small but statistically significant reduction in consumption.(3)

Aotearoa New Zealand, Australia, and the U.K. are in the process of banning single-use e-cigarettes, in part because of their negative environmental impact.(9, 31, 33, 35) Australia prohibits the use of all e-cigarettes other than for therapeutic purposes.(33)

Key findings related to product regulations for cigarettes and e-cigarettes

Overall, we found that:

- There was some evidence that flavour bans may have reduced vaping among youth and adults.
- Higher nicotine concentration was likely associated with higher abuse potential and appeal of e-cigarettes among adults who were both current and former users of cigarette and e-cigarette.

— Cigarettes

Product regulations – nicotine concentration

In 2022, Aotearoa New Zealand enacted legislation to reduce cigarette nicotine concentration to "very low levels"; however, it was later repealed by the newly-elected federal government in 2024.(36, 37) The U.S. Food and Drug Administration has also signalled its intent to reduce nicotine levels for cigarettes to a minimal or non-addictive level; as of December 2024, no regulations had been introduced.(38, 39) Since no jurisdiction has successfully implemented low nicotine regulation, we were unable to identify any evidence syntheses. However, a number of clinical trials have indicated that reduced nicotine concentrations may reduce cigarette use.(40, 41) Additionally, the 2024 U.S. Surgeon General's Report concluded that "[r]educing nicotine in cigarettes and other combustible tobacco products to minimally addictive or nonaddictive levels should reduce tobacco use among many population groups experiencing tobacco-related disparities."(42)p. 217)

Plain packaging regulations and graphic health warnings

All four jurisdictions, Aotearoa New Zealand, Australia, the U.K., and the U.S., have graphic warning legislation for cigarette packages. The warnings, however, vary in form and size.(25, 35) As of November 2024, the U.S. has yet to enact this legislation.(39, 43) Aotearoa New Zealand, Australia, and the U.K. also have plain package laws and Australia prohibits packages that have inserts, make a noise, or produce a scent.(25) An evidence synthesis indicated that pictorial and text-based health warnings were associated with higher cessation and attempts to quit smoking.(3)

— E-cigarettes

Product regulations – flavours, nicotine concentration, and bans

Few U.S. states ban any or all e-liquid flavours. The U.S. Food and Drug Administration has not approved any e-cigarette flavours other than tobacco,(11) and more recently menthol, to encourage switching from combustible cigarettes to e-cigarettes.(19) Aotearoa New Zealand prohibits the colouring, flavours, or smells other than tobacco, menthol, or mint.(44)

The U.K. has legislation going through parliament that would prohibit certain ingredients such as vitamins, colouring, or additives, including those which impart particular flavours, smells, or tastes.(45)

There was inconclusive evidence that the regulatory approval of flavours for the specific purpose of inducing the substitution of e-cigarettes for combustible cigarettes had been effective.(46) The evidence suggested that flavour bans may have reduced vaping among youth and adults,(21, 22) and that higher e-liquid nicotine concentrations were associated with greater switching potential (from cigarettes to e-cigarettes).(46)

Plain packaging regulations and graphic health warnings

Aotearoa New Zealand prohibits e-cigarette packaging that will attract youth such as cartoons,(9) while the U.K. is pursuing legislation that will restrict colourful imagery on vape packaging.(45) The U.K. and the U.S. require e-cigarette packaging to display a text health warning as opposed to a pictorial warning.(47)

We were unable to identify any evidence syntheses that met our inclusion criteria and examined the effectiveness of restrictive packaging or health warnings for e-cigarettes.

Key findings related to advertising and marketing regulations for e-cigarettes

Overall, we found that exposure to vaping imagery may be associated with e-cigarette uptake among youth.

— E-cigarettes

Australia and the U.K. have extensive bans on the advertising of e-cigarettes on television, radio, and in print.(9, 32) Australia is also seeking to restrict product placement in films, series, and computer games.(32) Wales prohibits outdoor advertising or direct mail,(25) and the U.K. prohibits advertising online and on social media. The U.K. also prohibits reduced harm messaging.(9) We were unable to identify evidence syntheses that specifically examined the impact of advertising/marketing restrictions on e-cigarette use. However, an evidence synthesis that examined product placement found a positive association between vaping exposure in films and on TV and the “uptake of” or “ever trying” vaping.(48)

Advertising bans – priority populations

An evidence synthesis that explored the equity implications of sales and marketing policies such as local sales bans, plain packaging, and health warnings indicated that such policies were somewhat equity negative. In other words, such policies had a larger impact on individuals from higher SES groups relative to lower.(6)

Key findings related to targeted interventions for cigarettes and e-cigarettes

Overall, we found that

- Targeted interventions, such as public awareness campaigns, were among the most effective policies for reducing cigarette use.
- Culturally tailored interventions, defined as congruent providers, translated material, and counselling in the preferred language, was an effective policy strategy.
- The effectiveness of cultural tailoring and other cessation programs may be enhanced through the provision of free or subsidized nicotine replacement therapies.

— Cigarettes

Cessation programs

Some smoking cessation programs in Australia, the U.K., and the U.S. offer free nicotine replacement therapy and/or pharmaceuticals.(9, 49) The U.S. Affordable Care Act requires most health plans to cover a full set of cessation benefits without cost-sharing; it is currently facing a court challenge.(43) Limited evidence indicated that free or subsidized nicotine replacement therapies (e.g., gum, transdermal patches, nasal spray, inhalers, and oral tablets/lozenges) supported smoking cessation, an effect that was amplified when combined with counselling.(3)

The U.K. has invested £35 million in cessation programs aimed at all patients admitted to hospital. For example, pregnant women receive specialist opt-out support as part of the maternity pathway. This means if a woman is referred to cessation services, she must specifically opt out of it. Routine carbon testing is done at booking to identify smokers.(9) Due to its novelty, we were unable to identify any evidence of the program's effectiveness.

Cessation programs – Priority populations

A meta-analysis that examined multiple interventions for expectant mothers indicated that financial incentives were the most effective smoking cessation strategy next to counselling, which had a small but positive impact on smoking cessation. There was inconclusive evidence to support the use of nicotine replacement therapy as a short-term strategy, but nicotine replacement therapy showed promise as a long-term strategy. There was also inconclusive evidence to support the use of digital interventions, social support, biomedical feedback, exercise, or pharmacology.(17)

A Cochrane review that examined smoking intervention for those living with HIV found no clear effective approach, although varenicline, a medicine that decreases nicotine cravings, showed promise.(50) Similarly, a Cochrane review that examined smoking intervention for homeless populations found no clear approach due to insufficient evidence. The review suggested that intensive behavioral intervention showed promise, but the certainty of this conclusion was low.(51)

Cessation programs – Priority populations and cultural tailoring

Evidence syntheses that examined the cultural tailoring of cessation programs reported mixed results, but this may be moderated by the depth of cultural tailoring and the targeted population. For example, one evidence synthesis found that culturally congruent providers, translated material, and counselling in a preferred language were sufficient without the need to incorporate deeper cultural practices and norms.(52) This was consistent with another evidence synthesis that found that cultural tailoring, defined as existing cessation or novel interventions modified to include Indigenous beliefs, language, or specific Tribal stories was not an effective smoking cessation strategy.(53) An evidence synthesis that evaluated tailored quitlines also reported mixed results.(54)

Health-education campaigns

All four jurisdictions, Aotearoa New Zealand, Australia, the U.K., and the U.S., have used public-health campaigns to warn of the dangers of smoking, and nicotine addiction and direct smokers to support services.(9, 32, 37, 38) In 2012, the U.K. launched Stoptober to inspire smokers to quit from October 1 to 28 (28 days).(9) A meta-analysis indicated that media campaigns were among the most effective policies to promote smoking cessation; more recent studies have reported mixed results.(3) The effectiveness of mass media campaigns was dependent on the campaign's reach, frequency, duration, and the extent to which it was combined with other interventions.(3)

Australia's Tobacco Tackling Indigenous Smoking Program (TIS) is a comprehensive program that uses evidence-informed methods, community engagement, locally tailored messaging, and Indigenous-led initiatives to prevent smoking.(32, 55) Although we were unable to identify any evidence synthesis that examined the effectiveness of this program, the jurisdiction scanned revealed a program report that stated that Australia's TIS teams reached 14% of their target populations including youth, pregnant women, and Elders.(56)

Public awareness campaigns – Priority populations

An evidence synthesis indicated that the equity impact of mass media campaigns was mixed. Some studies found a larger impact among lower SES users, while others reported a larger impact among higher SES users.(6)

— E-Cigarettes

Health-education campaigns

The U.K. has developed an education resource pack on vaping for school.(9) We were unable to identify any evidence syntheses that examined this specific U.K. program. However, an evidence synthesis, primarily based on U.S. data, indicated that school educational interventions were not associated with changes in vaping behaviour for people under 21.(57) This was consistent with a meta-analysis that found inconclusive evidence that school-based interventions reduced e-cigarette use, and in some instances may had the opposite effect.(58) Media campaigns also did not appear to be associated with reduced e-cigarette use.(3)

Key findings related to supply-side policies for cigarettes and e-cigarettes

— Cigarettes

We were unable to identify any evidence syntheses that met our inclusion criteria and examined supply-side policies aimed at mitigating the illicit cigarette trade. Two reports that did not meet our inclusion criteria (a comprehensive report prepared by the Ontario Tobacco Research Unit and a scoping review of the supply side of the illicit tobacco market) highlighted several measures or strategies to limit illicit tobacco trade related to supply-chain controls and use of the tax system, which we list below.

Supply chain controls include:

- licensing of all operators along the supply chain, from tobacco leaf farming to the retail sales of manufactured cigarettes
- tracking and tracing – tracking (monitoring the route taken by-products through their supply chains) and tracing (recreating the route taken by-products through their supply chains
- restrictions on the distribution of cigarettes and other tobacco products through the postal service and through private delivery service
- enhanced enforcement (investigations/seizures, border controls, inspection penalties).

Tax-system measures include:

- tax markings/stamps to ensure taxes have been paid and the product has reached its intended destination
- export taxation and harmonization
- taxation agreements with First Nations communities
- introducing excise/import tax on key ingredients such as acetate tow and cigarette paper.(59)

— E-cigarettes

We were unable to identify any evidence syntheses that met our inclusion criteria and examined the effectiveness of supply-side policies aimed at mitigating the illicit e-cigarette trade. However, a recent scoping review, which did not meet our inclusion criteria, examined supply-side policies to prevent the illicit trade of e-cigarettes and related products. The scoping review highlighted a paucity of research that examined illicit trade in the context of e-cigarettes. Of note, a few studies indicated substantial non-compliance among internet retailers, particularly concerning nicotine concentrations and flavours.(60)

In the U.K., the Data Protection and Digital Information Bill, currently going through Parliament, seeks to reduce underage online retail purchases of tobacco and vapes through improved age verification and eligibility requirements.(9, 61)

Next steps based on the identified evidence

- We found a scarcity of syntheses that examined non-tax pricing policies for both cigarettes and e-cigarettes. Given the overwhelming evidence that taxes that raise prices reduce the demand for cigarettes and e-cigarettes, syntheses that focus on non-tax price approaches such as minimum and uniform prices are lacking.
- There was a scarcity of research in existing reviews and syntheses that examined, in the context of e-cigarettes, age, retail outlet, and advertising restrictions; product regulations (e.g., graphic health warnings, nicotine concentrations); targeted interventions; and culturally tailored cessation programs. Given the rapidly evolving e-cigarette market, updating existing reviews is warranted and living systematic reviews should be considered.
- In the context of preventing the illicit trade in cigarettes and e-cigarettes, syntheses highlighted a scarcity of formal policy evaluations. Given the inherently dynamic and adaptive nature of the illicit market, regular evaluations of policies and interventions aimed at preventing illicit tobacco trade are warranted.

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