

Evidence Brief

Addressing Area-level Disparities in Prices of Tobacco and Vaping Products in Ontario and Québec

24 September 2019



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Evidence Brief:

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McMaster Health Forum and Forum+

The goal of the McMaster Health Forum, and its Forum+ initiative, is to generate action on the pressing health- and social-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health and social systems – locally, nationally, and internationally – and get the right programs, services and products to the people who need them. In doing so, we are building on McMaster's expertise in advancing human and societal health and well-being.

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the evidence brief. The funders played no role in the identification, selection, assessment, synthesis, or presentation of the research evidence profiled in the evidence brief.

Merit review

The evidence brief was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

What's the problem?

Evidence strongly suggests that area-level differences in tobacco pricing exist as prices of tobacco products have been found to be lower in low socio-economic status neighbourhoods and when the percentage of youth in the neighbourhood is high. This specific problem is magnified given that:

- tobacco is the leading cause of death in Canada and continues to be taken up among those who are most vulnerable;
- the cost of tobacco to society is significant, yet the most effective interventions to continue to curb tobacco use through taxing, pricing and regulatory policies have not been used to their full extent by governments;
- rapid increases in the use of electronic nicotine delivery systems (ENDS) may provide a pathway to the cessation of tobacco use, but may also introduce a new pathway to becoming addicted to nicotine; and
- the tobacco industry continues to deploy pricing strategies that avoid or minimize the effects of government action.

What do we know about three elements of a potentially comprehensive approach to addressing the problem?

- Element 1 – Optimize the use of tobacco-taxation policies
 - This element could involve: 1) raising excise taxes for tobacco; 2) harmonizing federal and provincial tobacco taxes; and 3) earmarking tobacco taxes.
 - Although tax changes that increase retail prices reduce tobacco use, improve population health and increase tax revenue, tax changes are unlikely to have any meaningful effects on area-level price differences.
- Element 2 – Optimize the use of tobacco-pricing strategies
 - This element could involve:
 - setting a price for comparable tobacco products by: 1) setting the price of a tobacco-brand family or across all comparable tobacco products; 2) using a minimum and/or maximum price; or 3) drawing on volumetric pricing based on amount of nicotine content or harm; and
 - being intentional about tobacco pricing for the pricing of electronic nicotine delivery systems.
 - Pricing strategies such as uniform, minimum and maximum prices can reduce and even eliminate area-level price differences.
- Element 3 – Adopt or strengthen regulations that support implementation and enforcement
 - Optimizing taxation (element 1) and pricing strategies (element 2) will need to be accompanied by new and/or strengthened regulations to ensure such strategies are implemented and enforced in order to have their intended effects.
 - This could involve: 1) requiring manufacturer disclosure of retail-level practices and contracts, and retail prices and sales volume; 2) prohibiting manufacturers from using retail-level practices and contracts that involve incentives (e.g., discounts for volume purchases); 3) limiting manufacturers to using one pack size; 4) raising retailers' licence fees; 5) introducing zoning restrictions to reduce tobacco-outlet density; and/or 6) raising minimum age for tobacco purchases.
 - Adopting or strengthening regulations such as the disclosure of retail prices and sales volume can support the implementation and enforcement of pricing strategies that limit or eliminate area-level price differences.

What implementation considerations need to be kept in mind?

- Key barriers to implementation are found mainly at the provider- and system-level and include gaining support from Indigenous leaders regarding tobacco taxing, pricing, and regulation strategies on reserves, tackling push-back from the tobacco industry regarding more stringent tobacco control measures, the changing ENDS market, and the current political landscape which appears to be more conservative towards tobacco-control policies.
- The Québec Ministry of Health's legal obligation to report in 2020 on the five-year implementation of the Tobacco Bill adopted in 2015 may represent a window of opportunity to examine policies that can reduce area-level price differences.

REPORT

Over the past two decades, cigarette smoking rates have declined in all Canadian provinces, but there is still substantial uptake, especially among youth who are susceptible to nicotine addiction.⁽¹⁾

Associations between socio-economic status (SES) and smoking are well documented. In Canada, while overall smoking prevalence has fallen over time, SES differences in smoking have remained the same.

There is overwhelming evidence that taxes that increase prices are associated with lower tobacco-use prevalence, lower consumption among tobacco users, fewer relapses among former users, more cessation attempts and successful cessation, lower tobacco-use initiation and ultimately improvements in population health.^(2; 3) In addition, there is evidence that young people and those from more socio-economically disadvantaged groups tend to be more sensitive to price changes. Specifically, recent comprehensive reviews of smoking and SES concluded that increasing the price of tobacco products was likely the intervention with the greatest potential to reduce health inequalities from tobacco use.⁽⁴⁾

As a response to more comprehensive marketing restrictions (e.g., prohibition of all tobacco advertising, promotion, and sponsorship, including point-of-sale and plain and standardized appearance), the tobacco industry has increasingly focused its attention on the use of price as a marketing tool.⁽⁵⁾ Price manipulation can make it more difficult for price-sensitive smokers to reduce their consumption or quit smoking, and can facilitate uptake by susceptible non-smokers.

As part of a project that sought to examine area-level differences in the prices of tobacco products and electronic nicotine delivery systems (ENDS) in Ontario and Québec, we systematically searched for and critically reviewed studies that examined associations between area-level characteristics and the prices of tobacco products and ENDS. We identified 18 relevant studies (three from Australia and 15 from the United States) and found consistent evidence that cigarette prices were lower in lower SES-status neighbourhoods, and in neighbourhoods with a higher percentage of youth, of blacks or African-Americans, and of Hispanics. These findings are consistent with tobacco-industry documents that detailed how manufacturers used race, class and geography to target vulnerable populations. However,

Box 1: Background to the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a potentially comprehensive approach for addressing the problem, and key implementation considerations. Whenever possible, the evidence brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies and to synthesize data from the included studies. The evidence brief does not contain recommendations, which would have required the authors of the brief to make judgments based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

The preparation of the evidence brief involved five steps:

- 1) convening a Steering Committee comprised of representatives from the partner organizations (Institut national de santé publique du Québec (INSPQ), Public Health Ontario (PHO), Ontario Tobacco Research Unit (OTRU), Coalition québécoise pour le contrôle du tabac (CQCT) and the McMaster Health Forum);
- 2) developing and refining the terms of reference for an evidence brief, particularly the framing of the problem and three elements of a potentially comprehensive approach to addressing it, in consultation with the Steering Committee and a number of key informants and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
- 3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, elements and implementation considerations;
- 4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
- 5) finalizing the evidence brief based on the input of several merit reviewers.

The three elements of a potentially comprehensive approach to addressing the problem were not designed to be mutually exclusive. They could be pursued simultaneously or in a sequenced way, and each element could be given greater or lesser attention relative to the others.

The evidence brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary and the video interviews with dialogue participants.

we identified too few studies that examined price differences between neighbourhoods for cigarillos, chewing tobacco and ENDS to reach any conclusions.(6)

We also collected prices of cigarettes and ENDS in 182 retailers located near 43 schools in southern Ontario (Windsor, London, Niagara, Stratford, Kitchener-Waterloo, Peel and Toronto) and in 145 retailers located near 45 schools in the Montréal region. Data were collected in late fall in 2016 and 2017 and late spring in 2018 and 2019. We found that cigarette prices were consistently lower near secondary schools located in lower-SES areas than near secondary schools located in higher-SES areas.(7)

The purpose of the evidence brief is to review the best available data and research evidence on addressing area-level disparities in prices of tobacco and vaping products in Ontario and Québec, three elements of a potentially comprehensive approach to addressing this problem and its causes, and key implementation considerations related to each of the elements. In addition, as noted in Box 2, while this brief strives to address all people, where possible it also gives particular attention to equity-related considerations for youth and young adults and people of low SES.

Given this scope, this evidence brief draws upon the evidence related to the effectiveness of price and tax policies at reducing tobacco use, but does not make an in-depth discussion nor conduct an assessment of the evidence. As such, this brief does not conduct an assessment of the evidence of the effectiveness at reducing tobacco use of regulations such as zoning restrictions to reduce tobacco-outlet density, raising minimum age for tobacco purchases, pack-size rules and higher licence fees on retailers. The focus of this brief is solely on the effect of policies and regulations on the difference in prices of tobacco products and ENDS between neighbourhoods.

The evidence brief uses several terms and concepts, which we define in Table 1. Throughout this brief, unless otherwise specified, the term ‘tobacco’ refers to combustible tobacco products, and in the Canadian context, generally manufactured cigarettes.

Box 2: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms and costs of approach elements to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use “PROGRESS,” which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:

- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in “precarious work” arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

The evidence brief strives to address all Canadians, but (where possible) it also gives particular attention to:

- youth and young adults; and
- people of low SES.

Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them. Given the high tobacco-use prevalence among LGBTQ+ persons, particular attention may be warranted.

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003; 10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

Table 1: Summary of key terms and concepts used throughout the evidence brief

Term/concept	Explanation/definition
Wholesale price	Price paid by retailers to manufacturers/wholesalers
Retail price	Price paid by end consumers
Affordability	Retail price of a product relative to wages, income or wealth
Specific tax	A tax levied on a specific quantity (has an impact on all brands equally, per quantity, volume or weight)
Ad valorem tax	A tax based on a percent of product value (e.g., percentages of retail or manufacturer's selling price)
Value-added tax (e.g., VAT, HST and GST)	Multi-stage consumption tax applied at various stages of the production and distribution chain, and is typically charged as a percentage of retail price
Retail sales tax	Charged only when a product is sold to the final consumer/end user
Excise tax	A selective tax on certain goods consumed within or imported into a country
Price discounts	Discounts paid to retailers or wholesalers to reduce the price of cigarettes to consumers (not including free cigarettes or coupons)
Price policies	Policies that aim to prevent tobacco companies from using price as a marketing tool to promote tobacco use (e.g., uniform price, standardized price and minimum/maximum price)
Tax avoidance	Use of legal methods to circumvent tax (e.g., tax-free purchase or purchase of products in other jurisdictions in allowable quantities according to customs regulations)
Tax evasion	Use of illegal methods to circumvent tax (e.g., purchase of smuggled or illegally manufactured products)
Contraband cigarettes	Cigarettes that violate provincial and/or federal statutes with regards to taxes, manufacturing and distribution
Electronic Nicotine Delivery Systems (ENDS)	Battery-powered portable electronic devices that heat liquid (known as e-liquid or e-juice) containing nicotine, or heat real tobacco leaves (heat-not-burn products) and generates vapor that is inhaled by the user (vaping). The experience simulates smoking a cigarette and the ENDS may or may not look like a cigarette (e-cigarette)
Socio-economic status (SES)	Measured by indicators such as income, education level, and occupation level. SES may be measured at the individual level or area-level (e.g., neighbourhood-specific averages)
Multi-tier pricing system (MTPS)	Introduced in Canada by the tobacco industry in 2003, MTPS allows for the differentiation of tobacco products (e.g., premium, discount, cheapest) on the market so that different groups of consumers can be targeted by different price tiers

THE PROBLEM

Over the past two decades, cigarette use has declined nationally, but there is still substantial uptake, especially among youth, as well as augmented SES differences in smoking.(1; 8-10) Existing literature examining SES differences in the prices of tobacco products strongly suggests that prices of tobacco products are lower in low-SES neighbourhoods, and when the percentage of youth in the neighbourhood is higher, thus supporting the notion that area-level differences in tobacco pricing exist.(6)

This specific problem is magnified given that:

- 1) tobacco is the leading cause of death in Canada and continues to be taken up among those who are most vulnerable;
- 2) the cost of tobacco to society is significant, yet the most effective interventions to continue to curb tobacco use through taxing, pricing and regulatory policies have not been used to their full extent by governments;
- 3) rapid increases in the use of electronic nicotine delivery systems (ENDS) may provide a pathway to the cessation of tobacco use, but may also introduce a new pathway to becoming addicted to nicotine; and
- 4) the tobacco industry continues to deploy pricing strategies that avoid or minimize the effects of government action.

We describe each of these factors in turn below based on data and evidence we identified from our searches, as well as from insights we identified through the key informant interviews we conducted during the preparation of this evidence brief.

Tobacco is the leading cause of death in Canada and continues to be taken up among those who are most vulnerable

In Canada, tobacco use is the leading cause of preventable death and illness with more than 45,000 deaths attributable to tobacco use in 2011-12.(11) In 2015, over 32,000 incident cancer cases in Canada were estimated to be attributable to tobacco smoking, over 1,400 cases attributable to passive smoke exposure, and if smoking prevalence were reduced by 3.7% in 2018, over 41,000 cancer cases would be avoided by 2042.(12) Literature also shows that if not for smoking, life expectancy in Ontario would potentially increase by 2.5 years for women and approximately three years for men.(13)

The most recent national data available, from the Canadian Community Health Survey (CCHS), points to a national cigarette-smoking prevalence in 2018 of 15.8%, amounting to nearly five million Canadians aged 12 years and older, with prevalence being significantly higher in males than females (18.6 versus 13%).(14) Although youth cigarette-smoking prevalence is at an all-time low of 3.2% for youth aged 12- to 17-years-old, susceptibility to smoking remains high.(14; 15) Of particular concern, the cigarette-smoking prevalence among young adults (18- to 34-years-old) has remained stable in recent years and stood at 19.2% in 2018.(14) The most recent data from the Canadian Student Tobacco, Alcohol and Drugs Survey (CSTADS) indicate that, in 2016-17 18% of students in grades 7 to 12 (approximately 383,000) had ever tried smoking a cigarette, and that 3% of grade 7-12 students (about 66,000 students) were current cigarette smokers, with 1% smoking daily and 2% smoking occasionally. Prevalence of past-30-day use of any tobacco products (e.g., cigars, waterpipes and smokeless tobacco) was about 10% in grade 7-12 students in 2016-17.(16)

Box 3: Mobilizing research evidence about the problem

The available research evidence about the problem was sought from a range of published and 'grey' research literature sources. Published literature that provided a comparative dimension to an understanding of the health-system aspects of the problem was sought using three health services research 'hedges' in MedLine, namely those for appropriateness, processes and outcomes of care (which increase the chances of us identifying administrative database studies and community surveys). Published literature that provided insights into alternative ways of framing health-system dimensions of the problem was sought using a fourth hedge in MedLine, namely the one for qualitative research. For evidence that provided an understanding of the social-system aspects of the problem, administrative database studies and community surveys (that provide a comparative dimension) and qualitative studies (that provide insights about framing) were sought by searching EBSCOHost, ProQuest and Web of Science.

Grey literature was sought by reviewing the websites of a number of domestic and international organizations, such as Statistics Canada and the Organisation for Economic Cooperation and Development.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Canada), and that took equity considerations into account.

Ontario

In Ontario, the cigarette-smoking prevalence was 15.2% in 2018 (approximately 1.9 million daily and occasional smokers). Similar to national findings, smoking prevalence differs by sex, with prevalence being 18.8% in males and 11.8% in females in 2018.(14) Although very low, smoking prevalence in youth aged 12 to 17 has not substantially declined in recent years, while 18% of young adults (18- to 34-years-old) reported smoking cigarettes in 2018 in Ontario.(14) About 16,000 Ontarians die as a result of smoking each year, amounting to approximately 44 deaths each day, while 30,000 start smoking each year.(11; 17)

Québec

In 2018, the current smoking prevalence in Québec was 17.5%, which is approximately 1.7% above the national smoking prevalence.(14) Prevalence in smoking also differs by sex, with males having a higher prevalence than females (19.7 % versus 15.3%). Although smoking prevalence in youth (12- to 17-years-old) has remained relatively low in recent years, 22.4% of young adults (18-34-years-old) reported smoking cigarettes in 2018.(14) About 13,000 Québécois die as a result of smoking each year, amounting to approximately 36 deaths each day.(11)

The cost of tobacco to society is significant, yet the most effective interventions to continue to curb tobacco use through taxing, pricing and regulatory policies have not been used to their full extent by governments

Studies calculating the annual economic burden attributable to tobacco use in Canada produced estimates ranging from \$12 billion to \$18.7 billion, depending on the year and costs included.(11; 18-20) A report produced by The Conference Board of Canada found that in 2012, the total costs of tobacco use were \$16.2 billion with indirect costs (lost productivity) and direct healthcare costs contributing \$9.5 and \$6.5 billion respectively. The remaining costs were attributed to other direct costs, such as research and prevention and law enforcement.(11) A similar study produced a national cost estimate for 2013 of \$18.7 billion.(19) Moreover, of the \$38.4 billion that was attributable to substance use in 2013, tobacco contributed \$12 billion or 31.2% of the total burden.(18) Of the \$12 billion, healthcare costs accounted for approximately \$5.9 billion (53%) while lost productivity costs contributed \$5.8 billion (37%).(18)

Some studies also report estimates for each province. The most recent such report found that total direct healthcare costs associated with tobacco use were nearly \$2.3 billion in Ontario and \$1.9 billion in Québec, and indirect costs resulting in premature mortality amounted to \$884 million and \$642 million respectively.(11) In addition, the Canadian Substance Use Costs and Harms Working Group estimated a total cost in 2014 for substance use of \$14.7 billion for Ontario, of which \$4.8 billion (or 32%) was attributable to tobacco use. Of the costs attributable to tobacco use, healthcare costs contributed \$2.4 billion (50%), and lost productivity contributed \$2.3 billion (48%) respectively.(18)

Taxation and pricing policies

The varying financial arrangements in terms of taxing policies across provinces provide a market conducive towards price variation. Table 2 outlines the taxing structure on cigarettes in Ontario and Québec. In Ontario, the provincial tax on a cigarette, as of 29 March 2018, is 18.475¢ compared with a tax of 14.9¢ in Québec as of 5 June 2014 and a federal tax of 12.189¢ per cigarette as of 1 April 2019. Presently, there are no taxes on ENDS.(21) Another factor that may contribute to price variation is the sale of cigarettes on First Nations reserves, with retail prices often being substantially lower than cigarettes manufactured by Canada's three largest tobacco companies: Imperial Tobacco Canada (a subsidiary of British American Tobacco); Rothmans, Benson & Hedges (a subsidiary of Philip Morris); and JTI-Macdonald (a subsidiary of Japan Tobacco International).

Table 2: Cigarette prices and federal and provincial taxes per pack of 25 cigarettes in Ontario and Québec

	Ontario	Québec
Retail Price (May – July 2018)		
- Belmont Blue	\$16.60	\$14.45
- Canadian/Québec Classics	\$15.00	\$12.00
- Peter Jackson	\$14.85	\$11.80
- Pall Mall	\$12.60	\$10.40
Federal excise duty		
- from February 28, 2018	\$2.98	\$2.98
- from April 1, 2019	\$3.05	\$3.05
Provincial excise tax	\$4.62	\$3.73
Tobacco excise tax as a % of price	~ 46 – 61%	~ 47 – 65%
Sales tax		
- Harmonized Sales Tax (HST), provincial component	8%	-
- Goods and Services Tax (GST)	5%	5%

Sources: (7; 22-24)

The current pricing practises in Canada are a deviation from Canada's historic one-price cigarette market. The change resulted from a number of actions by tobacco manufacturers and governments. Understanding how we arrived at this change is important to understanding how to back out of it. Key dates are highlighted in Table 3, and a summary of key points is provided in the list below.

- Canada once had unitary pricing for all brands. Differential pricing was introduced when restrictions were placed on advertising, promotion and retail displays. Differential pricing and directed behaviour of retailers became the new means of tobacco promotion.
- By 2006, the biggest tobacco companies had cut out tobacco wholesalers as the middlemen, and started selling directly to retailers.
- Price competition was created to replace advertising and retail-display competition. Imperial Tobacco Canada launched its CORE program which encouraged volume sales by retailers or chains by rewarding them with discounted prices the day after retail displays were banned.
- In 2009, the federal government removed controls on wholesale pricing. This opened the door to allowing the tobacco companies to charge different prices to retailers, irrespective of purchased volumes.
- The tobacco companies have progressively exercised more and more control over tobacco retailers. The companies now all have contracts with retailers. The progression of these controls and the provisions of contracts were first documented in 2016, but a better understanding of their evolution and effects on price and availability of cigarettes, heat-not-burn products and vaping products is warranted.(25)
- Tobacco companies have the capacity to change prices frequently (even daily), by individual store and by brand. This capacity needs to be considered when proposing various regulatory measures to control tobacco companies' contractual relationships with retailers and their tobacco-pricing practices.

Table 3: Key dates in the development of retailer programs

Date	Event
July 2002	Federal Court rules that the Tobacco Act does not prevent retailers from selling multiple packs at lower prices (26)
2002	Discount brands manufactured by new tobacco companies reach 5% of market-share (27)
February 2003	Rothmans became the first major tobacco company to reduce the price of a major brand (Number 7), and Imperial Tobacco drops the price of Peter Jackson (28)
October 2003	Federal advertising bans come fully into effect, and industry spokespeople acknowledge that they have shifted their marketing focus to “price, place and product”(29)
2005	First display bans come into effect in Canada (Manitoba and Saskatchewan)
May 31, 2006	Quebec bans the sale of cigarettes in restaurants, bars, universities and many other places (30)
May 2006	Imperial Tobacco announces Direct to Store Sales, introduced in October (31; 32)
2006	Imperial Tobacco moves manufacturing and production to Mexico to reduce costs (31)
May 31, 2008	Bans on retail displays of tobacco products come into effect in most populous provinces (British Columbia, Ontario and Québec)
June 1, 2008	Imperial Tobacco Canada launches “CORE” program to encourage retailers to keep prices low
June 2008	Federal Competition Policy Review releases report “Compete to Win” (33) which endorses an end to federal control of pricing
January 2009	Federal government introduces changes to the Competition Act which eliminated pricing restrictions,(34) and the amendments receive Royal Assent on March 12, 2009
2009	Rothmans, Benson & Hedges (RBH) launches “Connect”, a program which provides incentives for retailers to collect and redeem points and to receive information on RBH products (35)
November 2010	Imperial Tobacco Canada launches its Expansion Preferred Pricing Program,(36) which offers lower wholesale prices to retailers willing to accept contractual obligations Pall Mall is launched as Canada’s lowest-priced cigarette
January 2014	Imperial Tobacco alters its retail discount program, permitting retailers to choose the amount of discount they receive in return for the amount of retail margin they take
September 2014	Rothmans, Benson & Hedges launches Connexions,(35) introduces Direct to Store Delivery, and copies Imperial Tobacco Canada in offering price reductions to contracted retailers
November 2015	Québec legislature updates its <i>Tobacco Control Act</i> (Bill 44) (30)
September 2016	Imperial Tobacco Canada changes its retailer incentive program, creating targets for each contract store
November 2016	Federal government revises tobacco legislation (S-5), but does not introduce new restrictions on price or within-trade promotions

Regulatory policies

In Canada, there are no regulations that prevent manufacturers and retailers from setting prices, above costs, that vary between neighbourhoods. Manufacturers and retailers can use the characteristics of the population that resides in a neighbourhood to set differing prices. There are, however, a number of regulations that may have important implications for how prices are set by manufacturers and retailers.

There are legal restrictions of location for vendors of tobacco products in Ontario through the *Smoke Free Ontario Act* and in Québec through the *Tobacco Control Act*. Tobacco retail outlets generally cannot be operated in buildings housing health institutions (e.g., hospitals and long-term care homes), schools and post-secondary institutions, and sport or recreational centres, and sale is also prohibited in/through vending machines.(17; 37)

In Canada, contraband cigarettes are typically those sold on First Nations Reserves or through clandestine networks operating off-reserves without the collection of federal or provincial taxes. Curbing illicit tobacco sale is challenging in part because tobacco products that are manufactured on First Nations reserves allow for a supply of cigarettes in excess of the established quota. These unique circumstances have contributed to the illicit market in Canada, with a substantial proportion of illicit cigarettes being produced in First Nations reserves. In Ontario, sales are governed by the First Nations Cigarette Allocation System which exempts First Nations people from provincial and federal sales taxes. The allocation system is in place to address the purchase of cigarettes by non-Indigenous individuals by using quotas to limit the shipment of tax-exempt cigarettes to reserves. The quotas are determined using an annual formula that takes into account the adult population of First Nations on and off-reserve, however, the results typically produce an estimate of the rate of consumption that is substantially higher than the national average for cigarette consumption.

Further provisions also allow an increase in the quota. Such a system may, however, be more vulnerable to abuse.(38) Québec uses a rebate system in which retailers on reserves are responsible for selling cigarettes to non-Indigenous individuals at a price that includes taxes and are then reimbursed from the government.(39) Furthermore, in light of the recent restructuring of the public-health sector in Ontario, it is unclear how and whether changes will limit local-level tobacco enforcement. A recent analysis that sought to examine levels and trends in cigarette contraband in Canada found a clear upward trend from the early 2000s in cigarette contraband in Québec and Ontario, followed by, on the whole, a decreasing trend from about 2007 to 2009. This study suggested that in Ontario about 30% of total cigarette consumption was composed of contraband cigarettes from 2007 to 2009, decreasing to about 20% in 2010 and 2011, and dropping further to about 10% in 2013. The data analysed also suggested fairly low levels of contraband cigarettes in Québec from 2010 onwards.(40)

In November 2016, the government of Québec introduced regulations that banned the offering of financial incentives to retailers. Bill 44 amended the *Tobacco Control Act* to include section 21.1 (2015) as follows: “A manufacturer or distributor of tobacco products is prohibited from offering rebates, gratuities or any other form of benefit related to the sale or the retail price of a tobacco product to operators of tobacco retail outlets, including their employees.”(30)

In Ontario, as previously stated, the *Smoke-Free Ontario Act* (2017) regulates the sale of tobacco and nicotine products and their use in public spaces. However, unlike Québec, manufacturing incentives are not banned. In addition, the promotion for ENDS products is unrestricted.

Federally, the *Tobacco and Vaping Products Act* (2018) provides limited restrictions on manufacturers, with section 29 stating that: “No manufacturer or retailer shall:

- a) provide or offer to provide any consideration, for the purchase of a tobacco product, including a gift to a purchaser or a third party, bonus, premium, cash rebate or right to participate in a game, draw, lottery or contest;

- b) furnish or offer to furnish a tobacco product without monetary consideration or in consideration of the purchase of a product or service or the performance of a service; or
- c) furnish or offer to furnish an accessory that displays a tobacco product-related brand element without monetary consideration or in consideration of the purchase of a product or service or the performance of a service.”(41)

Moreover, in terms of vaping, the implementation of the *Tobacco Products and Vaping Act* in May 2018 allowed for the legal sale of nicotine-containing e-cigarettes and also permits less-restricted advertising, including point-of-sale marketing and mass-media advertising, unless they are regulated at the provincial level.(1) The federal *Tobacco and Vaping Products Act* expressly permits price signs and thereby creates an incentive for manufacturers to focus on price.(41) As an exemption to the general prohibition on advertising, tobacco manufacturers and retailers are accorded specific permission to inform customers about the availability and price of tobacco products. No regulations have been established to further limit this provision, though some provinces, like Québec, do limit the size and appearance of retail price signage.

Rapid increases in the use of electronic nicotine delivery systems (ENDS) may provide a pathway to the cessation of tobacco use, but may also introduce a new pathway to becoming addicted to nicotine

Electronic Nicotine Delivery Systems (ENDS) have recently surged in popularity in many countries.(1; 42–44)(1; 42–44) It is accepted that ENDS are generally a safer alternative to combustible cigarette smoking, but the extent of the reduction in harm is still debated.(45) For example, while less harmful than cigarettes, there is evidence that ENDS may be associated with irreversible damage to lung tissue, cancer, asthma and wheezing.(46) The introduction of the *Tobacco and Vaping Products Act* in May 2018 permits easier access by youth, and recent estimates provide evidence that the prevalence of vaping among youth in the past 30 days, week, or within 15 days or more in the past month has significantly increased from 2017 to 2018.(1)

Currently, there is limited information on the pricing of ENDS products and the impact of prices on ENDS. Our systematic review identified too few studies to reach any conclusions about area-level differences in ENDS prices.(6) Additionally, our survey of retailers in schools in southern Ontario and the Montréal region in the fall of 2016 and 2017 and in the spring of 2018 found too much heterogeneity between products to allow us to compare prices between neighbourhoods.(7) In addition, another recent systematic review found limited evidence on the impact of prices on ENDS sales. However, there is emerging evidence that ENDS users may be two to three times more sensitive to price than smokers, and that ENDS may be a substitute for cigarettes as the price of cigarettes increase.(47)

The tobacco industry continues to deploy pricing strategies that avoid or minimize the effects of government action

Given the regulations on cigarette sales in Canada (e.g., minimum age, bans on advertising) as well as regulations on cigarette packaging (e.g., health warnings), the tobacco industry has focused on pricing-differentiation strategies to appeal to current and new customers. With the federal government’s announcement in April 2019 of the introduction of the Tobacco Products Regulations law imposing plain and standardized appearance for tobacco across Canada,(48) the tobacco industry will likely continue to capitalize on pricing strategies given that branding will no longer be a marketing tool available to them.

Such price-segmentation strategies between tobacco brands has been employed since the mid-2000s in Canada. Three price categories have typically been used to differentiate between premium, discount and value/cheapest brands. Such a segmentation strategy can mitigate the effects of tax hikes because tobacco companies can manipulate prices by adjusting their mark-ups for specific brands and provide price-sensitive smokers with the option to switch to a cheaper brand to maintain their smoking habit.(3) In addition to price segmentation between brands (or multi-tier pricing), there is evidence that manufacturers vary the price of

individual brands based on area-level characteristics such as SES and the youth and ethnic/racial compositions of an area.(6; 7)

Additional equity-related observations about the problem

In 2018, 21.2% of low-income Canadians (those in the first quintile of household income) were current cigarette smokers (daily or occasional) while only 11.5% of high-income Canadians (fifth quintile) reported smoking daily or occasionally. Similarly, 15.3% of low-income Canadians reported smoking daily while only 6.9% of those with high income did so.(49) Given the evidence that cigarette prices were lower in lower SES-status neighbourhoods, and in neighbourhoods with a higher percentage of youth, it is of consequence that both youth and those of lower SES tend to be more responsive to price changes.

If ENDS prove to be better than alternative cessation techniques such as counselling or nicotine replacement therapy (i.e., gum, patches, sprays, inhalers, or lozenges that deliver nicotine) at helping users of combustible tobacco quit, greater availability and lower prices in low-SES areas could assist in reducing smoking-prevalence disparities. However, the high price of many ENDS devices and starter kits (for example, in early September 2019, Vype ePen 3, Juul and IQOS 3 starter kits cost about \$20, \$65 and \$145) may have the opposite effect and accentuate disparities in tobacco-use prevalence between low- and high-income smokers.

THREE ELEMENTS OF A POTENTIALLY COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM

Many different strategies could be selected as a starting point for deliberations about an approach for addressing area-level disparities in prices of tobacco and vaping products in Ontario and Québec. To promote discussion concerning the pros and cons of potentially viable approaches, we have selected three elements of a larger, more comprehensive approach to addressing area-level disparities in prices of tobacco and vaping products. The three elements were developed and refined through consultation with the Steering Committee and key informants who we interviewed during the development of this evidence brief. The elements are:

- 1) optimize the use of tobacco-taxation policies;
- 2) optimize the use of tobacco-pricing strategies; and
- 3) adopt or strengthen regulations that support implementation and enforcement.

The elements could be pursued separately or simultaneously, or components could be drawn from each element to create a new (fourth) element. They are presented separately to foster deliberations regarding their respective components, the relative importance or priority of each, their interconnectedness and potential of or need for sequencing, and their feasibility.

The principal focus in this section is on what is known about these elements based on research evidence. Evidence briefs typically focus on drawing on findings from systematic reviews. However, our searches yielded only a small number of systematic reviews. Given this, we have supplemented findings with insights from primary studies and/or policy documents that explain what a change might look like and its potential benefits, harms and costs. For the small number of systematic reviews that we have included, we present the findings from them along with an appraisal of the methodological quality of the reporting (using the AMSTAR tool) (see the appendix for more details about the quality-appraisal process). We also highlight whether they were conducted recently, which we define as the search being conducted within the last five years. In the next section, the focus turns to the barriers to adopting and implementing these elements, and to possible implementation strategies to address the barriers.

Box 4: Mobilizing research evidence about approach elements for addressing the problem

The available research evidence about elements of a potentially comprehensive approach for addressing the problem was sought from Health Systems Evidence (www.healthsystemsevidence.org) and Social Systems Evidence (www.socialsystemsEvidence.org). Health Systems Evidence is a continuously updated database containing more than 7,200 systematic reviews and more than 2,600 economic evaluations of delivery, financial and governance arrangements within health systems, and Social Systems Evidence is a continuously updated database containing more than 2,000 systematic reviews and close to 100 economic evaluations of social-system program and service areas, as well as delivery, financial and governance arrangements within social systems. The reviews and economic evaluations were identified by searching each database for reviews addressing features of each of the approach elements.

The authors' conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were 'empty' reviews), while others concluded that there was substantial uncertainty about the element based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned, or an approach element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular approach element may want to search for a more detailed description of the approach element or for additional research evidence about the approach element.

Element 1 – Optimize the use of tobacco-taxation policies

This element is focused on optimizing the use of tobacco-taxation policies in order to address area-level disparities in prices of tobacco and vaping products in Ontario and Québec. This could involve:

- a) raising excise taxes for tobacco;
- b) harmonizing federal and provincial tobacco taxes; and
- c) earmarking tobacco taxes.

We did not find any systematic reviews that focused on these types of policy levers for addressing area-level disparities in prices of tobacco and vaping products. However, we include below a brief summary of evidence from key reports about the impact of prices on tobacco use. Following this, we provide in Table 4 a summary of insights about the possible features of the sub-elements and their potential benefits, harms and costs if implemented in Ontario and/or Québec.

Overview of key evidence about the impact of taxes and prices on tobacco use

There is overwhelming evidence that taxes that increase prices are associated with lower tobacco-use prevalence, lower consumption among tobacco users, fewer relapses among former users, more cessation attempts and successful cessation, lower tobacco-use initiation and ultimately improvements in population health. There is also substantial evidence that higher tobacco taxes are associated with higher tax revenues and that tobacco-tax avoidance and tax evasion do not wipe out all the benefits of tax increases.(3; 50)

In 2011, the International Agency for Research on Cancer (IARC) – the cancer research agency of the World Health Organization (WHO) – conducted a compressive review of the evidence and found ‘strong evidence’ and ‘sufficient evidence’ in relation to tobacco taxes and prices on several outcomes. The IARC defines ‘strong evidence’ as: “There is consistent evidence of an association, but evidence of causality is limited by the fact that chance, bias or confounding have not been ruled out with reasonable confidence. However, explanations other than causality are unlikely.” In contrast, it defines ‘sufficient evidence’ as: “an association has been observed between the intervention under consideration and a given effect in studies in which chance, bias and confounding can be ruled out with reasonable confidence. The association is highly likely to be causal.”(50)

The IARC concluded that there was ‘strong evidence’ that:

- in high-income countries, tobacco use among lower-income populations is more responsive to tax and price increases than is tobacco use among higher-income populations;(2) and
- changes in the relative prices of tobacco products lead to some substitution to the products for which the relative prices have fallen.(2)

In addition, the review found ‘sufficient evidence’ that:

- increases in tobacco excise taxes that increase prices:
 - result in a decline in overall tobacco use,
 - reduce the prevalence of tobacco use among adult and young people,
 - induce current tobacco users to quit,
 - lower the consumption of tobacco products among continuing users, and
 - reduce the initiation and uptake of tobacco use among young people, with a greater impact on the transition to regular use;
- tobacco use among young people responds more to changes in tobacco-product taxes and prices than among adults;
- tobacco-tax increases that increase prices improve population health;
- increases in tobacco taxes increase tobacco-tax revenues; and
- tax avoidance and tax evasion reduce, but do not eliminate, the public health and revenue impact of tobacco-tax increases.

The IARC Working Group did not specifically examine the evidence that pertains to the effect of higher taxes on tobacco price differences between neighbourhoods. However, the Working Group concluded that there was ‘sufficient evidence’ that:

- higher and more uniform specific tobacco excise taxes result in higher tobacco-product prices and increase the effectiveness of taxation policies in reducing tobacco use; and
- tobacco industry price-discounting strategies, price-reducing marketing activities, and lobbying efforts mitigate the impact of tobacco excise-tax increases.

In 2016, the United States National Cancer Institute and WHO revisited some of this evidence and reached similar conclusions.(3) In 2016, Public Health Ontario released a report that provided a comprehensive assessment of the tobacco-control interventions that would have the greatest impact on reducing tobacco use and its associated burden in Ontario. The report built on the Smoke-Free Ontario Scientific Advisory Committee (51) 2010 Report and carefully assessed the quality of the evidence. The report also examined interventions that target relatively new products, such as e-cigarettes and other non-combustibles.(17) The SFO-SAC 2016 Scientific Consensus Statement states that: “Taxation is one of the most proven effective tobacco control interventions; however, Ontario has the second lowest tobacco tax rate in Canada at 15.475 cents per cigarette. This rate is lower than the minimum rate recommended by WHO MPOWER, and Ontario has not had substantial tax increases for many years. Substantial tax increases would contribute significantly to decreasing tobacco use in Ontario (p. 51).”

Insights about possible features of the sub-elements and their potential benefits, harms and costs

In Table 4, we summarize the key features of each sub-element, their potential benefits, harms and costs. The information in the table is drawn from an exhaustive search of peer-reviewed and grey literature of reviews. We searched for both reviews and individual studies that used quantitative approaches to examine the associations between sub-elements and area-level price differences specifically, and more generally price variability.

a) Raising excise taxes for tobacco

If the extent to which an increase in taxes is fully and uniformly passed on to all tobacco products by manufacturers, per unit taxes can be expected to reduce price variations while ad valorem taxes can be expected to increase price variations. It is not clear, however, if manufacturers are more likely to vary prices of the same brands between neighbourhoods in a tax system that relies more on ad valorem relative to specific taxes.

We are aware of no studies that quantitatively examined the association between tax changes and area-level disparities in prices, and no reviews that examined the association between tobacco tax structures and variability in tobacco prices. However, we identified six studies that provide empirical evidence on the associations of the tobacco excise tax structure and cigarette prices. Using data from 21 European Union countries from 1998 to 2007, Chaloupka, Peck et al. (52) provided evidence that the price gap between premium and low-priced brands was larger in countries with a greater share of ad valorem tax: a 10% raise in the share of ad valorem tax in total excise tax led to about a 4% to 5% increase in the price gap, with a smaller impact in more concentrated markets. Chaloupka, Kostova, Shang (53) used data from 14 high-, mid- and low-income countries (Bangladesh, China, Egypt, India, Mexico, the Philippines, Poland, Romania, the Russian Federation, Thailand, Ukraine, Uruguay, United States and Vietnam) and concluded that countries with simpler cigarette tax structures, particularly those that emphasized specific taxes and did not involve tier-based taxes, exhibited less variability in the prices smokers paid for cigarettes across brands. Other studies that used data from high-, mid- and low-income countries all found roughly similar results.(53-57)

Existing empirical evidence indicates that a tax system that relies more heavily on ad valorem taxes, relative to specific taxes, likely has greater variability in cigarettes prices. However, as mentioned earlier, this evidence

does not necessarily suggest that more variability in the price of brands is associated with more area-level price differences within brands.

b) Harmonizing federal and provincial tobacco taxes

Provincial tobacco taxes vary substantially in Canada. For example, Manitoba, British Columbia and Alberta charge \$7.50, \$6.88 and \$6.25 per pack of 25 cigarettes, while Ontario and Québec charge substantially less (\$4.62 and \$3.73). Additionally, not all provinces and territories apply the provincial sales tax (PST) (or the provincial component of the Harmonized Sales Tax (HST)). For example, Ontario applies its HST on tobacco products while Québec does not apply its PST. Harmonizing provincial tobacco taxes would likely reduce price differences between provinces, but it is unlikely to affect neighbourhood-level price differences. Setting a ‘harmonized’ tax rate at the highest rate (British Columbia) would nearly double Québec’s rate. Assuming that manufacturers fully pass-through the tax increase, a pack of 25 cigarettes in Québec would increase by \$3.15. Given the substantial differences in the price and tax of tobacco products between provinces, this option may not be politically feasible.

For the most part, federal and provincial taxes are applied on the same tobacco products. There are, however, exceptions. For example, Canada’s fourth largest cigarette manufacturer, Grand River Enterprises (GRE) located on the Six Nations of the Grand River Reserve in southwest Ontario, pays tobacco taxes to the federal government, but no provincial tobacco taxes to the Ontario government. This situation is due to the way taxes are imposed, which are at wholesale level by the federal government and at the consumption level by provincial governments. Coordinated agreements between the federal government and provincial government such as the “Coordinated Cannabis Taxation Agreements” could ensure that all tobacco manufacturers pay provincial taxes. Imposing provincial taxes on GRE brands would reduce the price difference between high- and low-priced cigarettes, but is unlikely to have much of an effect on area-level price disparities.

c) Earmarking tobacco taxes

A number of jurisdictions (national and sub-national) earmark a portion of tobacco-tax revenue for various purposes, most often for health-related programs, although very few are specifically for tobacco-control programs.(54; 58) In Canada, the province of Québec has earmarked a portion of tobacco taxes for decades where since the 1970s, a small portion of tobacco taxes was used to fund Montréal’s Olympic stadium.(59)

It is unlikely that earmarking any portion of tobacco-tax revenue have any direct effect on neighbourhood-level price differences. Earmarking, however, can provide resources to enforce regulations that seek to limit neighbourhood-level price differences. Similarly, earmarking can provide resources to compensate/support those who may be negatively affected by policy changes, such as low-income smokers who continue smoking who may face higher prices as a result of a policy that seeks to limit or eliminate area-level price differences. Finally, there is some evidence that earmarking tobacco-tax revenue for tobacco control increases political and civil society support for tobacco-tax increases.(54) It is then conceivable that earmarking a portion of tobacco-tax revenue for tobacco-control programs can make the introduction of policies that seek to limit area-level price differences more politically feasible and generate greater public support.

Table 4: Optimize the use of tobacco-taxation policies - Overview of sub-elements and their potential benefits, harms and costs

Sub-element	Key features of the sub-element	Potential benefits	Potential harms	Potential costs
Raising excise taxes for tobacco	<ul style="list-style-type: none"> Per unit taxes (if fully passed on to consumers) can be expected to reduce price variations while ad valorem taxes can be expected to increase price variations. It is not clear, however, if manufacturers are more likely to vary prices of the same brands between neighbourhoods in a tax system that relies more on ad valorem relative to specific taxes. 	<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> Likely negligible at reducing area-level price disparities <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> Lower tobacco use, improved population health, increased tax revenue 	<ul style="list-style-type: none"> Low-income smokers who continue smoking may face higher prices as a result of tax increases. 	<ul style="list-style-type: none"> All politically feasible tax increases are likely to provide cost savings for the government that increased taxes.
Harmonizing federal and provincial tobacco taxes	<ul style="list-style-type: none"> Harmonizing provincial tobacco taxes would likely reduce price differences between provinces, but it is unlikely to affect neighbourhood-level price differences. Coordinated agreements between the federal government and provincial government such as the “Coordinated Cannabis Taxation Agreements” could ensure that all tobacco manufacturers pay provincial taxes. Such agreements, however, are unlikely to have much of an effect on area-level price disparities. 	<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> Likely negligible at reducing area-level price disparities <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> Coordinated agreements between the federal government and provincial governments that ensure that all tobacco manufacturers pay provincial taxes can be expected to lead to higher taxes and higher prices, and in turn, to lower tobacco use, improved health and higher tax revenue. Setting a ‘harmonized’ tax rate at the highest rate (British Columbia) would increase taxes and also very likely increase prices substantially in lower-taxed provinces. 	<ul style="list-style-type: none"> Low-income smokers who continue smoking may face higher prices as a result of tax increases. 	<ul style="list-style-type: none"> Tax increases as a result of federal/provincial harmonization are likely to be cost saving.
Earmarking tobacco taxes	<ul style="list-style-type: none"> A number of jurisdictions (national and sub-national) earmark a portion of tobacco-tax revenue for various purposes, most often for health-related programs, although very few specifically for tobacco-control programs. 	<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> Likely negligible at reducing area-level price disparities <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> Earmarking can provide resources to compensate/support those who may be negatively affected by policy changes (e.g., low-income smokers who continue smoking who may face higher prices as a result of a policy that seeks to limit or eliminate area-level price difference). Earmarking a portion of tobacco-tax revenue for tobacco-control programs can make the introduction of policies that seek to limit area-level price differences more politically feasible and generate greater public support. 	<ul style="list-style-type: none"> Program funded by earmarked taxes may face uncertain future budgets. 	<ul style="list-style-type: none"> Earmarking can introduce rigidities in the budgeting process and may impede the proper allocation of general revenue among competing priorities.

Element 2 – Optimize the use of tobacco-pricing strategies

In addition to optimizing the use of taxation policies (element 1), pricing strategies could be used to address area-level disparities in prices of tobacco and vaping products in Ontario and Québec. This could include:

- a) setting a price for comparable tobacco products by:
 - o setting the price of a tobacco-brand family or across all comparable tobacco products,
 - o using a minimum and/or maximum price or a set price, or
 - o drawing on volumetric pricing based on amount of nicotine content or ‘harm’; and
- b) being intentional about tobacco pricing with respect to the pricing of electronic nicotine delivery systems.

A summary of the key findings from synthesized research evidence is provided in Table 5.

We identified no reviews or individual studies that quantitatively examined the association between any governmental non-tax tobacco-pricing strategies and area-level disparities in prices or variability in tobacco prices. We identified one review that sought to determine how non-tax policy approaches to raising tobacco product prices were ‘described, recommended and evaluated in the literature’.(60) This review identified only six empirical studies (none of which are from Canada) that examined the impact of price-promotion restrictions (four studies) and minimum-price laws (two studies). First, Feighery, Ribisl et al.(61) assessed whether stores in states with minimum-price laws have higher cigarette prices and lower rates of retailer participation in cigarette company promotional incentive programs. Retail cigarette prices and retailer participation in incentive programs in 2001 were compared in eight states with minimum-price laws and seven states without them. Given that New York State had the most stringent minimum-price law through its exclusion of promotional incentive programs in its price-setting formula, cigarette prices in New York were compared to all other states included in the study. Cigarette prices between states with and without minimum-price laws were not found to be statistically significantly different, but cigarette prices in New York were found to be statistically significantly higher than in all other states.

Second, Tynan, Ribisl et al. (62) compared average cigarette prices in 2009 for designated market areas (collection of counties containing a metropolitan area) in states with and without minimum-price laws in three retail channels (grocery stores, drug stores and convenience stores). Prices were found to be lower in states with minimum-price laws for all three channels. We also identified a review that studied ‘the strengths and limitations of specific tobacco taxation and pricing strategies.’(63) In addition to Feighery, Ribisl et al. (61) and Tynan, Ribisl et al.,(62) this review identified a third empirical study that examined the impact of minimum-price laws. Huang, Chriqui et al. (55) found that U.S. states with minimum-price laws had prices for lower-priced cigarettes that were approximately 5–11% higher than states without minimum-price laws, and that states that restricted price promotions as part of their minimum-price laws had higher prices by an additional 6%.

We identified one review that examined the effect of price interventions or policies such as minimum unit pricing on alcohol consumption, alcohol-related morbidity and mortality, and wider harms. 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.(64)

In 2016, the Smoke-Free Ontario Scientific Advisory Committee concluded that: “[w]hile evidence on non-tax price measures (i.e., minimum price policies, maximum price or ‘price cap’ policies, bans on tobacco discounts, and non-tax fees) is sparse, experience of their use in other areas (e.g., alcohol) suggests that they have the potential to decrease tobacco use.”(51) A minimum-price policy was recommended by Ontario’s Tobacco Strategy Advisory Group in 2010 and the WHO.(65; 66)

a) Setting a price for comparable tobacco products

This could be achieved in three ways. First, imposing a uniform price across a tobacco-brand family or all comparable tobacco products such as cigarettes, would remove all neighbourhood-level price differences. Such regulations exist in a number of countries. For example, in Argentina, Chile, France, Japan and Poland, brand prices are uniform across the country (i.e., prices vary among brands, but the prices of individual brands do not vary among neighbourhoods or regions). Such an approach would not, however, prevent manufacturers from employing multi-tier pricing strategies.

While such an approach does not necessarily prevent manufacturers from employing multi-tier pricing strategies, they do prevent industry from absorbing tax increases, and appear to reduce the price segmentation gaps by forcing industry to determine and keep prices static for longer periods than they would otherwise.(67)

Second, a minimum and maximum price or a set price could be used. Although most tobacco-price regulations have traditionally been used to protect businesses and not public health (by preventing price wars and helping maintain higher profit margins), pricing rules can be used with the objective to improve population health.(2) Minimum pricing rules can prevent low-cost selling from existing firms and prevent new firms entering the market with products sold at lower prices.(2) Many jurisdictions, including about half of U.S. states, have minimum-pricing rules.(62) Imposing a minimum price may reduce (but not eliminate) neighbourhood-level price differences, at the lower end of the price distribution. Similarly, imposing a minimum price may make it more difficult to employ multi-tier pricing strategies at the lower end of the price distribution. Minimum prices, however, may lead to larger differences between low- and high-priced products if a high ad valorem tax is also imposed. Some argue that minimum-price standards are already built into tobacco taxation, with combined fiscal charges essentially providing a floor price. Such a principle is reflected in Quebec's anti-contraband efforts, which makes it illegal for anyone to sell a tobacco product for less than the provincial and federal tobacco tax rates, and the GST mark-up.(68)

Maximum prices have been suggested to prevent manufacturers from over-shifting a tax. We are aware of no jurisdictions that have employed such a regulation. Imposing an upper threshold on prices, if enforced, would reduce the price differences between low- and high-priced products and may reduce (but not eliminate) area-level price differences. Imposing a maximum price may make it more difficult to employ multi-tier pricing strategies at the upper end of the price distribution.

The last approach that could be used is volumetric pricing based on amount of nicotine content or 'harm'. Volumetric taxation (i.e., a tax by alcohol units) has been proposed as an alternative approach to tax alcohol products. For example, a recent modelling study of the English alcohol market suggested that alcohol-content-based taxation would lead to larger reductions in health inequalities across income groups, and would have the largest impact on harmful drinking, with minimal effects on those drinking in moderation.(69) Harris (1980) suggested that a differential tax based on tar and nicotine content could improve population health by encouraging smokers to move from high tar/nicotine cigarettes to low tar/nicotine cigarettes. Such suggestion was based on the assumption that low tar/nicotine cigarettes were less harmful.(70) Given what is known now about the risks of low tar/nicotine cigarettes, such a policy would likely have done more harm than good.(71) By construction, if enforced, volumetric pricing would remove all neighbourhood-level price differences between like-products.

b) Being intentional about tobacco pricing with respect to the pricing of ENDS

Unlike tobacco products, no additional specific taxes are imposed on ENDS in addition to the federal Goods and Services Tax (GST) and the provincial Harmonized Sales Tax component (HST) or the Provincial Sales Tax (PST). The net effect of higher ENDS prices on the consumption of combustible tobacco products is unclear. If ENDS and combustible tobacco products are complements, an increase in ENDS prices can be expected to decrease the use of tobacco products and render their users less sensitive to changes in the price of combustible tobacco products. Conversely, if ENDS and combustible tobacco products are substitutes, an

increase in ENDS prices can be expected to decrease the use of combustible tobacco products and render their users more sensitive to changes in the price of combustible tobacco products. The net health effect is even harder to predict as the impact of ENDS pricing on the use of ENDS by those who don't use combustible tobacco products needs to be taken into account.

The effect of the pricing of ENDS on area-level differences in the prices of combustible tobacco products is unclear as the availability and prices of ENDS may differ between neighbourhoods.

Table 5: Optimize the use of tobacco-pricing strategies - Overview of sub-elements and their potential benefits, harms and costs

Sub-element	Key features of the sub-element	Potential benefits	Potential harms	Potential costs
Set a price for comparable tobacco products	<p>Strategies may include:</p> <ul style="list-style-type: none"> • imposing a uniform price across a tobacco-brand family or all comparable tobacco products such as cigarettes, as is currently done in Argentina, Chile, France, Japan and Poland; • using a minimum and maximum price or a set price; or • drawing on volumetric pricing based on amount of nicotine content or 'harm'. 	<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> • Imposing a uniform price across a tobacco-brand family or all comparable tobacco products such as cigarettes would remove all neighbourhood-level price differences. • Such an approach would not, however, prevent manufacturers from employing multi-tier pricing strategies, unless a single uniform price is mandated for all products. • Imposing a minimum price may reduce (but not eliminate) neighbourhood-level price differences, at the lower end of the price distribution. • Imposing an upper threshold on prices would reduce the price differences between low- and high-priced products, and may reduce (but not eliminate) area-level price differences. • Volumetric pricing would remove all neighbourhood-level price differences between like-products. <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> • Pricing strategies that lead to higher prices would reduce tobacco use and improve population health. 	<ul style="list-style-type: none"> • Low-income smokers who continue smoking may face higher prices as a result of price strategies that increase prices. 	<ul style="list-style-type: none"> • Pricing strategies not accompanied by tax increases that lead to higher prices and that reduce tobacco use would reduce tax revenues.
Be intentional about tobacco pricing with respect to the pricing of ENDS	<ul style="list-style-type: none"> • Unlike tobacco products, no additional specific taxes are imposed on ENDS in addition to the federal Goods and Services Tax (GST) and the provincial Harmonized Sales Tax component (HST) or the Provincial Sales Tax (PST). 	<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> • The effect of the pricing of ENDS on area-level differences in the prices of combustible tobacco products is unclear as the availability and prices of ENDS may differ between neighbourhoods. <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> • Lower ENDS prices relative to the prices of combustible tobacco may lead to increased combustible tobacco cessation. 	<ul style="list-style-type: none"> • Lower ENDS prices may lead to more nicotine addiction, in general, and among youth in particular. 	<ul style="list-style-type: none"> • Lower ENDS prices relative to combustible tobacco prices that lead to increased combustible tobacco cessation would reduce tax revenue.

Element 3 – Adopt or strengthen regulations that support implementation and enforcement

Optimizing taxation (element 1) and pricing strategies (element 2) could be accompanied by new and/or strengthened regulations to ensure such strategies are implemented and enforced in order to have their intended effects. This could involve:

- a) requiring manufacturers to disclose their retail-level practices and contracts (not just average wholesale prices and total volume by brand);
- b) prohibiting manufacturers from using retail-level practices and contracts that involve incentives (e.g., discounts for volume purchases);
- c) limiting manufacturers to one pack size;
- d) raising retailers' licence fees;
- e) requiring retailers to disclose retail prices and volume;
- f) introducing zoning restrictions to reduce tobacco-outlet density; and
- g) raising the minimum age for tobacco purchases.

A summary of the key findings from the synthesized research evidence is provided in Table 6.

a) Require manufacturers to disclose their retail-level practices and contracts (not just average wholesale prices and total volume by brand)

Requiring manufacturers to disclose retail-level practices and contracts with retailers is unlikely to reduce neighbourhood-level price differences or impede multi-tier pricing strategies. These data, however, may allow better monitoring of neighbourhood-level price differences. Such data may also allow for a better understanding of the pricing strategies employed by manufacturers, guide the establishment of appropriate price levels and increase the social acceptability of price controls.

b) Prohibit manufacturers from using retail-level practices and contracts that involve incentives (e.g., discounts for volume purchases)

We are aware of no studies that examined the effect of introducing restrictions on retail-level practices and contracts that involve incentives and changes in area-level price differences or changes in price variability. One study examined a November 2016 policy change in Québec that banned the offering to retailers of 'rebates, gratuities or any other form of benefit related to the sale or the retail price of a tobacco product'.⁽⁷²⁾ In the fall of 2017 (about a year after the policy change), price data were collected from 273 convenience stores in four municipalities (Drummondville, Gatineau, Montréal and Québec City) and substantial price differences were observed between and within brands. These findings do not suggest that prohibiting manufacturer retail-level practices and contracts that involve incentives will reduce or eliminate variability in prices. Similarly, it is unclear if such restrictions would have any effect on area-level price differences and short-term price fluctuations.

c) Limit manufacturers to one pack size

We are aware of no studies that examined the effects of introducing pack-size limits on changes in area-level price differences or changes in price variability. One recent study reviewed the evidence for legislation to cap cigarette pack size to reduce tobacco-related harm. It found that observational studies indicated that individuals smoked fewer cigarettes when using smaller packs, and pointed to the relationship between reduced consumption and successful cessation.⁽⁷³⁾ Another study reviewed Truth Tobacco Industry Documents to understand tobacco companies' rationales for introducing new package quantities, including companies' expectations and research regarding how package quantity may influence consumer behaviour.⁽⁷⁴⁾ The internal documents suggested a complex research program with an aim to develop strategies to motivate brand-switching and continued use among current users, and to counter higher prices due to tax increases or price competition from other manufacturers.⁽⁷⁴⁾

Limiting manufacturers to one pack size (e.g., 25 cigarettes per pack) would prevent manufacturers from jointly manipulating pack size and price. As a result, such restriction may reduce the extent to which manufacturers employ multi-tier pricing strategies and likely reduce price variability. However, the direction and magnitude of the effect of such a restriction on area-level price differences is unclear and likely to be small, although this will depend on the pack size selected. For example, reducing the pack size to 20 cigarettes (from the most popular 25-cigarettes pack) would likely decrease neighbourhood-level price differences, while increasing the pack size to 30 cigarettes would likely increase neighbourhood-level price differences.

d) Raise license fees on the retailers

We are aware of no studies that have examined the effects of changes in license fees on changes in area-level price differences or changes in price variability. A large increase in license fees may lead to fewer retailers. In 2007, Australia introduced a 15-fold licence fee increase. Indeed, the retail licence fee is already some 750 times greater in the city of Ottawa than its neighbouring Gatineau, and there is no appreciable effect of non-tax price variations. The substantial increase in licence fees was found to be associated with lower tobacco retailer licence renewals.(75) The association between the number and location of retailers and area-level price differences or in price variability is, however, unclear. Reduced competition could, conceivably, increase price differences between neighbourhoods. That said, the current context allows industry to segment price across brands, thereby ensuring the availability of cheaper products for the most price-sensitive smokers. As with the earmarking of tobacco taxes, raising licence fees can provide resources to compensate/support those who may be negatively affected by policy changes.

e) Zoning restrictions to reduce tobacco-outlet density

We are aware of no studies that have examined the association between tobacco-outlet density and area-level price differences or price variability. As mentioned above, the effect between the number and location of retailers and area-level price differences or price variability is unclear. Reduced competition could, conceivably, increase price differences between neighbourhoods.

f) Raise the minimum age for tobacco purchases

There is evidence that raising the minimum age for tobacco purchases reduces tobacco use. The SFO-SAC 2016 Advisory Committee concluded that: “Raising the minimum legal age to purchase tobacco products would likely reduce tobacco use among youth and young adults.”(51) We are aware of no studies that have examined the association between minimum age for tobacco purchases and area-level price differences or price variability. The mechanism by which an increase in the minimum age for tobacco purchases may affect neighbourhood-level price differences or price variability is unclear. Changes in the composition of the population of tobacco users as a result of increasing the minimum age for tobacco purchases could plausibly affect pricing from manufacturers.

Table 6: Adopt or strengthen regulations - Overview of sub-elements and their potential benefits, harms and costs

Sub-element	Key features of the sub-element	Potential benefits	Potential harms	Potential costs
Require manufacturers to disclose their retail-level practices and contracts (not just average wholesale prices and total volume by brand)	<ul style="list-style-type: none"> Key data not currently disclosed could include retail prices (not just wholesale prices) and sales volume by brand and area-level. 	<i>Potential benefits for addressing area-level price disparities</i> <ul style="list-style-type: none"> Data obtained through disclosure may allow better monitoring of neighbourhood-level price differences. <i>Other potential benefits</i> <ul style="list-style-type: none"> Data obtained through disclosure may allow better monitoring of multi-tier pricing. 	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> Costs of government regulation is likely low. Costs to manufacturers for adhering to regulations is likely low (especially relative to revenues and profits).
Prohibit manufacturers' retail-level practices and contracts that involve incentives (e.g., discounts for volume purchases)	<ul style="list-style-type: none"> In November 2016 Québec banned the offering to retailers of rebates, gratuities or any other form of benefit related to the sale or the retail price of a tobacco product. 	<i>Potential benefits for addressing area-level price disparities</i> <ul style="list-style-type: none"> It is unclear if such restrictions would have any effect on area-level price differences. <i>Other potential benefits</i> <ul style="list-style-type: none"> Such regulations may level the playing field between retailers and facilitate conducting businesses. 	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> Costs of government regulation is likely low. Costs to manufacturers for adhering to regulations is likely low (especially relative to revenues and profits).
Limit manufacturers to one pack size	<ul style="list-style-type: none"> Limiting manufacturers to one pack size (e.g., 25 cigarettes per pack) would prevent manufacturers from manipulating pack size and price jointly. 	<i>Potential benefits for addressing area-level price disparities</i> <ul style="list-style-type: none"> The direction and magnitude of the effect of such a restriction on area-level price differences is unclear and likely to be small, and depends on the pack size that is selected. <i>Other potential benefits</i> <ul style="list-style-type: none"> Such restriction may reduce the extent to which manufacturers employ multi-tier pricing strategies and likely reduce price variability. 	<ul style="list-style-type: none"> Low-income smokers who continue smoking and who purchased a smaller pack size that is no longer available may end up spending more on tobacco products. 	<ul style="list-style-type: none"> Costs of government regulation is likely low.
Raise licence fees on the retailers		<i>Potential benefits for addressing area-level price disparities</i> <ul style="list-style-type: none"> The association between the number and location of retailers and area-level price differences or in price variability is unclear. Reduced competition could, conceivably, increase price differences between neighbourhoods. <i>Other potential benefits</i> <ul style="list-style-type: none"> Raising license fees can provide resources to compensate/support those who may be negatively affected by policy changes. 	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> Costs of government regulation is likely low. Regulations not accompanied by tax increases and that reduce tobacco use would reduce tax revenues.

		<ul style="list-style-type: none"> • A large increase in licence fees may lead to fewer retailers. • Fewer retailers may lead to decreased tobacco use and improved population health. 		
Zoning restrictions to reduce tobacco-outlet density		<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> • The association between the number and location of retailers and area-level price differences or in price variability is unclear. • Reduced competition could conceivably increase price differences between neighbourhoods. <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> • Fewer retailers may lead to decreased tobacco use and improved population health. 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • Costs of government regulation is likely low. • Existing retailers that can no longer sell tobacco may see a reduction in revenues and profits. • Existing retailers that continue selling tobacco may see an increase in revenue and profits. • Regulations not accompanied by tax increases and that reduce tobacco use would reduce tax revenues.
Raise the minimum age for tobacco purchases	<ul style="list-style-type: none"> • The mechanism by which an increase in the minimum age for tobacco purchases may affect neighbourhood-level price differences or price variability is unclear. • Changes in the composition of the population of tobacco users as a result of increasing the minimum age for tobacco purchases could plausibly affect pricing from manufacturers. 	<p><i>Potential benefits for addressing area-level price disparities</i></p> <ul style="list-style-type: none"> • Unclear <p><i>Other potential benefits</i></p> <ul style="list-style-type: none"> • There is evidence that raising the minimum age for tobacco purchases reduces tobacco use among youth and can improve population health. 	<ul style="list-style-type: none"> • Program funded by earmarked taxes may face uncertain future budgets. 	<ul style="list-style-type: none"> • Regulations not accompanied by tax increases and that reduce tobacco use would reduce tax revenues.

Additional equity-related observations about the three approach elements

Policy changes that raise combustible tobacco prices are likely to benefit low-SES individuals the most because more of them are addicted to nicotine and because they are more responsive to changes in prices, relative to higher-SES individuals. Additionally, policy changes that reduce price variability, thereby making it harder to engage in tax avoidance, may also benefit those with low incomes more relative to the wealthy.

Low-income smokers, however, who continue smoking the same quantity of tobacco when faced by higher prices that are the result of a policy that seeks to limit or eliminate area-level price differences will end up spending a greater share of their income on tobacco products. Increases in tobacco taxes and/or retail licence fees can provide additional resources to compensate and/or support low-SES individuals who do not change their tobacco-use behaviour.

Finally, policy changes that raise combustible tobacco prices and/or reduce price variability are more likely to benefit teens and young adults relative to older adults, as younger individuals tend to be more responsive to price changes.

IMPLEMENTATION CONSIDERATIONS

There are a number of barriers that may hinder the implementation of strategies proposed in each element to address area-level disparities in prices of tobacco and vaping products (Table 7). These factors need to be considered when choosing, modifying, and/or implementing any one of the proposed elements. Key barriers to implementation include gaining support from Indigenous leaders regarding tobacco taxing, pricing and regulation strategies on reserves, tackling push-back from the tobacco industry regarding more stringent tobaccocontrol measures, the changing ENDS market, and the current political landscape which, in some jurisdictions, appears less sympathetic towards strong tobacco-control policies.

Despite the barriers to implementation, there are windows of opportunity present that can be strategically aligned with the timing of the implementation of the elements to maximize the degree of success (Table 8). At present, the main windows of opportunity relate to the expiry of legislation and strategies in Québec where the Ministry of Health has a legal obligation to report in 2020 on the five-year implementation of the Tobacco Bill adopted in 2015, and at the federal level given that Canada's Tobacco Strategy will expire in 2023. Both will be important opportunities to propose additional measures to address area-level disparities in prices of tobacco and vaping products.

Policymakers should be watchful of new windows of opportunities that may arise, especially with the changing regulatory landscape of ENDS. For example, several initiatives in other countries are worth noting as potential examples to draw on to support the need to move forward with the types of approaches included in the elements.

Table 7: Potential barriers to implementing the elements

Levels	Element 1 – Optimize the use of tobacco-taxation policies	Element 2 – Optimize the use of tobacco-pricing strategies	Element 3 – Adopt or strengthen regulations
Individual	Current combustible tobacco users who do not reduce their consumption of combustible tobacco after tax changes that raise the price of combustible tobacco products will end up paying more.	Current combustible tobacco users who do not reduce their consumption of combustible tobacco after changes to price policies that raise the price of combustible tobacco products will end up paying more.	Current combustible tobacco users who do not reduce their consumption of combustible tobacco after changes in policies that reduce the availability of combustible tobacco products will end up paying more.
Industry (e.g., manufacturers and retailers)	Tobacco manufacturers will not support any changes to tax policies that may raise the price of tobacco products. Given that tobacco production can provide employment and economic benefit for communities that live on reserves,(14) Indigenous leaders may not be supportive of changes to tax policies that raise the price of on-reserve tobacco products or that make the sale of tobacco products manufactured on reserve to off-reserve non-Indigenous residents more cumbersome.	Tobacco manufacturers will not support any changes to policies that may impede their ability to use price as a marketing tool. Given that tobacco production can provide employment and economic benefit for communities that live on reserves,(14) Indigenous leaders may not be supportive of changes to policies that limit the ability of on-reserve manufacturers to use price as a marketing tool.	Tobacco manufacturers will not support any changes to policies that reduce the availability of tobacco products.

Organization (not for profit and non- governmental organizations)	Not-for-profit organizations funded by tobacco manufacturers such as the National Coalition Against Contraband Tobacco (NCACT) and convenience stores associations are likely to support the advocacy efforts of those who fund them	Not-for-profit organizations funded by tobacco manufacturers such as the National Coalition Against Contraband Tobacco (NCACT) and convenience stores associations are likely to support the advocacy efforts of those who fund them	Not-for-profit organizations funded by tobacco manufacturers such as the National Coalition Against Contraband Tobacco (NCACT) and convenience stores associations are likely to support the advocacy efforts of those who fund them
System	The lack of consensus in the public-health community about the potential benefits and pitfalls of ENDS will make agreement on a policy solution challenging, especially with respect to tax and price strategies that may affect ENDS pricing	Trade and price competition rules may restrict the ability of governments to implement price strategies that seek to limit or eliminate price differences. For example, in the European Union, the courts (Scottish Outer Court of Session, Scottish Inner Court of Session, European Court of Justice and the U.K. Supreme Court) upheld Minimum Unit Pricing for alcohol in Scotland, while Austria, France, Ireland and more recently Italy had their legislation imposing a minimum price successfully challenged.(71; 78) The lack of consensus in the public-health community about the potential benefits and pitfalls of ENDS will make agreement on a policy solution challenging, especially with respect to tax and price strategies that may affect ENDS pricing	Legal challenges may limit the ability of governments to implement strategies to restrict the availability of tobacco products

Table 8: Potential windows of opportunity for implementing the elements

Type	Element 1 – Optimize the use of tobacco-taxation policies	Element 2 – Optimize the use of tobacco-pricing strategies	Element 3 – Adopt or strengthen regulations
General	<p>In Québec in November 2020, the Ministry of Health has a legal obligation to report on the five-year implementation of the Tobacco Bill adopted in 2015, which will be an important opportunity to revise legislation and propose additional measures to address area-level disparities in prices of tobacco and vaping products.</p> <p>Canada's Tobacco Strategy is set to expire in 2023 and, similar to Québec, this will also provide an important opportunity to revise plans, goals and policies for tobacco and vaping regulations at the federal level.</p>		
Element-specific	None identified	None identified	None identified

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APPENDICES

The following tables provide detailed information about the reviews identified. Each row in a table corresponds to a particular review and the reviews are organized by option element (first column). The focus of the review is described in the second column. Key findings from the review that relate to the option are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of the reporting for each review has been assessed using AMSTAR (A MeASurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review with the highest reporting quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to reviews pertaining to delivery, financial, or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable reporting quality to a review scoring 11/11; both ratings are considered “high scores.” A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

The last three columns convey information about the utility of the review in terms of local applicability, applicability concerning prioritized groups, and issue applicability. The third-from-last column notes the proportion of studies that were conducted in Canada, while the second-from-last column shows the proportion of studies included in the review that deal explicitly with one of the prioritized groups. The last column indicates the review’s issue applicability in terms of the proportion of studies focused on policy options to reduce or eliminate area-level price differences.

Appendix 1: Reviews relevant to policy options

Option element	Focus of review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on policy options to reduce or eliminate area-level price differences
N/A	Area-level differences in the prices of tobacco and electronic nicotine delivery systems (6)	Consistent evidence that cigarette prices were lower in lower socio-economic-status neighbourhoods, and in neighbourhoods with a higher percentage of youth, of blacks or African Americans, and of Hispanics	2019	8/9	0/18	18/18	0/18
Optimize the use of tobacco-pricing strategies	To determine how non-tax policy approaches to raising tobacco product prices were ‘described, recommended and evaluated in the literature’ (60)	This review identified six empirical studies (none of which were from Canada) that examined the impact of price-promotion restrictions (four studies) and minimum-price laws (two studies). There was mixed evidence that prices of cigarettes were lower in U.S. states with minimum-price laws.	Not reported	2/9	0/6	N/A	0/6
Optimize the use of tobacco-taxation policies	Strengths and limitations of specific tobacco-taxation and pricing strategies (63)	Mixed evidence that U.S. states with minimum-price laws had higher cigarette prices than states without minimum-price laws	Not reported	0/9	0 (denominator unclear)	N/A	0 (denominator unclear)
Optimize the use of tobacco-pricing strategies							
Adopt or strengthen regulations that support implementation and enforcement — Limit manufacturers to one pack size	Overview of evidence for legislation to cap cigarette pack size to reduce tobacco-related harm (73)	Observational studies indicated that individuals smoked fewer cigarettes when using smaller packs. Evidence suggests a positive association between reduced consumption and successful cessation.	Not reported	0/9	0 (denominator unclear)	N/A	0 (denominator unclear)

