Tobacco enforcement strategies that affect youth access to tobacco: A rapid review

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Region of Peel
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Key Messages

1. Multi-faceted interventions are most effective for reducing youth access to tobacco when combined with on-going and active enforcement of minimum age restrictions. Guideline recommendations encourage making access to tobacco as difficult as possible for youth by prosecuting retailers who break the law and by conducting test shopping. Enforcement that is strong enough to disrupt the sale of tobacco to minors has an impact on sales and smoking prevalence.

2. Retailer education and/or community mobilization does not have a lasting impact on sales to youth or smoking prevalence without law enforcement. However, guideline recommendations include training for retailers and communication about legislation.

3. Underage test shopping protocols should reflect real life youth behaviours by showing identification, visiting the store multiple times, and looking/acting like a youth smoker when making purchase attempts to improve the validity and reliability of test shopping protocols. Test shoppers should be over age 16 and kept on staff as long as possible.

4. Limited studies were available to address the social supply of tobacco. A media campaign conducted in Central Eastern Ontario was successful in changing attitudes and intentions towards supplying tobacco to underage youth.

Executive Summary

Research Question

What are the tobacco enforcement strategies that affect youth access to tobacco, including sale and social supply?

Issue and Context

Historically, efforts have focused on mitigating underage access to tobacco through retail sources. As part of their enforcement program, the Environmental Health Division at the Region of Peel conducts semi-annual “test shops” to assess retailers’ compliance with youth access laws. With the high tobacco retailer compliance rate in the Region and the Tobacco Enforcement Officers meeting all inspection/compliance targets set by the Ministry of Health and Long-Term Care (MOHLTC), the test shopping protocol has not altered very much over the last two decades. However, other public health units have recently updated their test shopping programs to better mimic “real life” tobacco purchase attempts, such as having the test shoppers show their photo identification or by test shopping in the evening. These health units reported that their compliance rates have decreased after making these changes, resulting in higher rates of sales to underage youth. This has caused the Environmental Health Division to question whether their current test shopping program is accurately reflecting real life tobacco purchase attempts, and if the “unrealistic” program is artificially inflating the retailer compliance rates.

Social supply, the provision of tobacco products through family or friends, is more challenging for Tobacco Enforcement Officers to witness and then enforce the Smoke-

Free Ontario Act (SFOA). The enforcement directives from the MOHLTC do not include approaches to mitigate social supply. However, the majority of Peel students who use tobacco products are obtaining them through social supply, with only 16% purchasing their last cigarette from a vendor. Therefore, the purpose of this rapid review is to determine which interventions and/or enforcement strategies will most effectively limit youth access to tobacco products through retailers and social supply.

Methods and Results

Three searches of the grey and published literature were conducted between 2015 and 2016 for synthesized evidence on strategies to limit youth access to tobacco; single studies were included in a second search when no synthesized evidence was located on social supply interventions. A total of 128 papers were identified in the second search and seven remained after relevance assessment. One additional article was identified through a third search conducted after a relevant systematic review was found through a journal's "table of contents" email alert. Four papers were included in this rapid review after quality appraisal: one guideline, one systematic review, one review paper, and one evaluation study.

Synthesis of Findings

- Multi-faceted interventions are most effective for reducing youth access to tobacco, especially when combined with ongoing and active enforcement. There is limited evidence that merchant education programs, without enforcement, will have any effect on older youths' smoking behaviour.

- Legislation alone is not sufficient to prevent tobacco sales to minors; effective enforcement is needed. Enforcement that disrupts sales to underage youth and improves retailer compliance will decrease youth smoking prevalence rates.
- Underage test shopping protocols that mimic “real life” youth purchasing behaviours are associated with higher youth tobacco sales. For example, smokers and older youth were more successful in purchasing tobacco; flashing or showing identification (ID) helped youth obtain cigarettes in some studies, and visiting a store more than once increased tobacco purchase rates.
- Few interventions addressed social supply. One media campaign was able to make positive changes in attitudes towards supplying cigarettes to underage youth.

Recommendations

1. Pilot new test shopping program elements that more realistically mimic “real life” youth tobacco purchase attempts including:

    - Youth showing identification if asked by clerk;
    - Hiring older test shoppers (> 16 years of age) and keeping on staff for longer than one year; and
    - Test shopping in evenings or weekends.

2. Explore social supply and youth purchasing behaviours further through: (1) monitoring the literature for emerging research; (2) looking for additional sources of data, including asking the Centre for Addiction and Mental Health if they can enhance their “source of cigarettes” question on the Ontario Student Drug Use and Health Survey; and (3) partnering with local research experts to determine how young smokers buy tobacco products and how they access through social supply and/or others.

3. Consider implementing a social marketing campaign that targets the social supply of tobacco (e.g., *Bad Ways to be Nice*) with local partners, including the Central East Tobacco Control Area Network.

4. Formalize advocacy positions for other policy interventions, including tobacco minimum pricing, increasing legal age of tobacco purchase to 21 years old, and other tobacco vendor or outlet restrictions.

1 Issue

The Region of Peel is mandated by the MOHLTC to enforce the SFOA which states that it is illegal to sell or supply tobacco to a person under 19 years old (1). Historically, efforts have focused on mitigating underage access to tobacco through retail sources to prevent youth smoking initiation and to reduce smoking prevalence. As part of their enforcement program, the Environmental Health Division provides education to tobacco retailers on the SFOA requirements, and conducts semi-annual "test shops" to assess retailers' compliance with youth access laws. The current retailer tobacco compliance rate is very high in the Region (98.6%)(2), but there are concerns that the test shopping protocol does not adequately mimic "real life" tobacco purchase attempts and may be contributing to a falsely high compliance rate.

Social supply, the provision of tobacco through friends or family, is more challenging for Tobacco Enforcement Officers to witness and enforce the SFOA. However, the majority of Peel students who use tobacco products are obtaining them through social supply (60%), or someone else (17%)[1], with only 16% buying their last cigarette from a vendor (3). Therefore, the Environmental Health Division is reviewing their protection and enforcement program and would like to 1) revise their test shopping protocol to better mimic real life tobacco purchases; and 2) identify interventions that address the social supply of tobacco. This rapid review will determine which enforcement strategies and/or interventions most effectively limit youth access to tobacco products.

[1] This is the wording from the Ontario Student Drug Use and Health Survey (OSDUHS) question on social supply. It could potentially mean another social source – that is, a cigarette was given to them by an acquaintance – or that they bought a cigarette from someone who is not a retailer.

2 Context

Tobacco use is still the leading preventable cause of death and disease in Canada (4). In Peel, diseases attributable to smoking are responsible for 15% of all deaths and almost 5% of all hospitalizations (5). Although few Peel students in grades 7 to 12 smoke cigarettes on a daily basis (2.3%), many experiment with tobacco and related products (6). Smoking at a young age is associated with several health outcomes including nicotine addiction; asthma; reduced lung function and impaired lung growth during childhood and adolescence; and early abdominal aortic atherosclerosis (7). Young cigarette smokers are a particularly vulnerable group as they are more likely to use different types of tobacco products, engage in other risky behaviours such as binge drinking and cannabis use, and have higher rates of mental health issues than non-smokers (8,9).

The SFOA enforcement directives from the MOHLTC indicate that public health units need to conduct two youth “test shops” annually for all tobacco vendor/retailers to assess regulatory compliance (10). In Peel, test shops are carried out by hired youth, typically 15 to 16 years old. The youth are sent into tobacco retail premises, under the supervision of a Tobacco Enforcement Officer, to attempt to purchase tobacco. Tobacco vendor/retailers are required under Section 3(2) of the SFOA to request identification from anyone purchasing tobacco products who appears to be less than 25 years of age, to determine if the person is 19 or older and can legally purchase tobacco. The youth test shopping program has been practised since the mid-1990s. It is considered by the

Ontario Court of Appeal to be a legitimate method of determining compliance with age-based sales restrictions.

With the high tobacco retailer compliance rate in the Region, and the Tobacco Enforcement Officers meeting all the inspection/compliance targets set by the MOHLTC, the test shopping protocol used by the Region of Peel has not altered very much over the last two decades. Peel's test shoppers are not allowed to lie about their age if the retailer asks them, do not carry photo identification, primarily make their purchase attempts after school and with cash, and are usually 15 years of age. Younger shoppers are hired for practical reasons: when tobacco vendors are taken to court for violations, older youth may no longer be available to testify if they may have left the Region for post-secondary education. However, other public health units have recently altered their test shopping programs to better mimic real life tobacco purchase attempts, such as having the test shoppers show their photo identification or by test shopping on the weekends. These health units reported that their compliance rates have decreased, resulting in higher rates of sales to underage youth. This has caused the Environmental Health Division to question whether the current test shopping program is accurately reflecting real life tobacco purchase attempts, and if not, is the "unrealistic" program artificially inflating the retailer compliance rates. As the enforcement directives from the MOHLTC do not include approaches to mitigate social supply, the Environmental Health Division would also like to determine what interventions might reduce youth access to tobacco through social supply.

3 Literature Review Question

What are the tobacco enforcement strategies that affect youth access to tobacco, including sale and social supply? The research question in PICO format:

Population (P)	Persons selling or supplying tobacco to underage youth
Intervention/Exposure (I/E)	Enforcement or access interventions/strategies to prevent or mitigate illegal supply of tobacco to youth
Comparison (C)	n/a
Outcome (O)	Mitigation of youth access to tobacco and changes in smoking rates/behaviours

4 Literature Search

Two searches for both published and grey literature were conducted in July and November 2015 by Public Health Librarians. The first search did not identify any synthesized evidence on social supply interventions; therefore, a second search was conducted to include single studies. The third search was prompted in June 2016 when a new and relevant systematic review was identified through a journal's "table of contents" email alert.

The librarians and research and policy analyst:

- searched Medline, Cochrane Database of Systematic Reviews, Global Health, Health Evidence and PsycINFO
- limited the searches by date, from 2009/2010 to 2016

- included only English language publications, and those from similar countries (i.e., UK, Australia, New Zealand, United States)
- specified types of papers (i.e., guidelines, syntheses); however, the second search in November 2015 included single studies in an effort to retrieve articles on social supply interventions.

Related citation and author searches in PubMed were also used by the research and policy analyst to find additional papers.

Grey literature sources included public health resources (e.g., National Guidelines Clearinghouse, Centre for Disease Control – The Community Guide, National Institute for Health and Care Excellence, World Health Organization) as well as organizations that support tobacco control (e.g., Ontario Tobacco Research Unit). Refer to Appendices A and B for the detailed search strategies used in this rapid review.

5 Relevance Assessment

One reviewer assessed the search results for relevance; however, any articles that were questionable were brought forward to a colleague for discussion. The following criteria were used to assess the final results:

- Inclusion criteria: synthesized evidence (i.e., guidelines, reviews) but single studies were considered for social supply interventions; population that included tobacco suppliers or vendors; intervention that focused on enforcement or access interventions to prevent/mitigate illegal supply of tobacco.

- Exclusion criteria: interventions that focused on internet sales of tobacco products.

6 Results of the Search

The second search identified 128 articles. Following primary relevance assessment and removal of duplicates, 18 articles remained (see Appendix C for search flowchart). After full text review, seven articles still met relevance criteria: one guideline, two systematic reviews, two literature reviews and two single studies. All seven proceeded to quality appraisal.

The third search identified 155 articles. Following primary relevance assessment and removal of duplicate papers identified in the previous searches, one article remained (see Appendix D for search flowchart). After full text review, this systematic review still met relevance criteria and proceeded to quality appraisal.

7 Critical Appraisal

Eight documents in total were appraised: two papers received a strong quality rating, five papers received a moderate quality rating, and one paper received a weak quality rating. A minimum of two reviewers performed quality appraisal. Discrepancies were resolved through discussion. The three quality appraisal tools were used: Appraisal of Guidelines Research and Evaluation (AGREE) instrument, Health Evidence Quality Assessment tool – review articles, and the AACODS checklist for grey literature[2].

[2] Accessed from: http://canberra.libguides.com/content.php?pid=660700&sid=5471876

A paper must have received a cut-off quality score of five or higher to be included in this review. Most of the reviews lost quality rating points for not assessing or discussing the design rigour of the included studies in their reviews, and for lack of transparency in scoring and weighting of studies. Four papers in total were excluded: one single study and one review paper because of their lower quality rating, and two review papers because they contained a high number of duplicate studies when cross-checked with the other, higher quality and/or more recent papers.

8 Description of Included Studies

Four papers were selected for inclusion in this rapid review: one guideline, one systematic review, one review paper and one evaluation study. These four resources are the highest quality and most relevant and/or synthesized research documents located through the literature searches. Detailed information about the studies and results can be found in the data extraction tables (see Appendix E).

1. DiFranza (2012): *Which interventions against the sale of tobacco to minors can be expected to reduce smoking?* (11)

The author published this shorter literature review which was based on a systematic review conducted for the World Health Organization. The objective of this review was to determine if disrupting the sale of tobacco to minors can be expected to reduce tobacco use (11). The author reviewed published and government reports, for a total of over 20,000 pages of documents and 424 academic reports: over 150 reports on retailer behaviour and sources of tobacco for minors; 47 editorials/opinion/policy recommendations; 75 evaluation studies on the impact of tobacco use by youth and

other program outcomes; 30 literature reviews; 28 program descriptions; 60 articles on regulatory or legal issues on access, use and possession of tobacco; 31 surveys of knowledge/attitudes and/or perceptions of availability; 13 papers on research methods; six articles on internet sales; five government reports; and four news accounts. The heterogeneity of the studies prevented the author from conducting a meta-analysis. Studies were grouped according to type of intervention with particular attention to whether the sale of tobacco to minors had been disrupted (11).

2. NICE public health guidance 14 (2008, revised in 2014): *Preventing the uptake of smoking by children and young people.* (12)

This NICE guidance focuses on mass media and point-of-sales measures to prevent uptake of smoking by children and young people (12). The guidance incorporates a review of the qualitative and quantitative evidence, an economic appraisal, stakeholder comments and fieldwork results. Evidence Statement Two, “which interventions are effective in reducing the illegal sale of tobacco to children and young people”, is most relevant to our rapid review question. This evidence statement included 21 studies: five reviews, one non-randomized controlled study and 15 cross-sectional studies. Only two studies addressed the impact of interventions on smoking behaviour. Most of the studies in this review examined the effect of access restrictions on illegal sales. Effect size estimates (e.g., rate reduction in illegal sales) were not discussed in the body of the guideline, and rarely provided in the evidence tables. Due to the heterogeneity of the studies, a narrative review was completed, not a meta-analysis (12).

3. Lee et al., (2016): *"May I buy a pack of Marlboros, Please?" A systematic review of the evidence to improve the validity and impact of youth undercover buy inspections.* (13)

This systematic review had three objectives: 1) examine the existing evidence assessing underage buy protocols; 2) determine any characteristics of sales to minors that can be changed by state program staff (e.g., age); and 3) review the implications of two types of legal authority for protocols that govern underage buy enforcement in the United States: criminal (i.e., state-level laws prohibiting sales to youth) and administrative (i.e., federal regulations prohibiting sales to youth). The authors identified 47 records: ten studies experimentally assessed the underage buy protocols and 44 studies assessed the associations between youth characteristics and tobacco sales. The experimental studies mimicked youth behaviours with assessments of familiarity (i.e., recognition by clerks as returning customer), truthfulness, use of minors who smoke, purchasing non-tobacco products during the test shop, and using an identification card. Other experimental research examined the impact of non-cigarette tobacco purchases, assessments of more frequent inspections, and not completing purchases rung up by the clerk. This literature did not include other test shopping details such as whether youth enter the store together, if they use cash or debit, etc. One of the authors, a lawyer with tobacco regulatory science training, reviewed the authors' findings and conclusions with attention to the issue of entrapment (13).

4. **Zhang et al. (2015):** ***Bad Ways to be Nice campaign: Evaluation survey results*** (14).

Zhang and colleagues' (2015) evaluation report describes the preliminary results of a media campaign that was intended to raise awareness of the issue of supplying cigarettes to teenagers, and to encourage young adults to think twice before giving cigarettes to teens (14). The "Bad Ways to be Nice" campaign was developed by the Central East Tobacco Control Area Network in partnership with the Regional Municipality of York and the Not to Kids Coalition. The campaign was launched in the fall of 2013 and used a variety of media, including videos, social media, and cinema ads, to share these messages with young adults in the Simcoe-Muskoka and York regions. The evaluation, which was conducted by the Ontario Tobacco Research Unit, used street intercept surveys of smokers and non-smokers to determine: 1) if the young adults were aware of the campaign, 2) whether they were receptive to the campaign, and (3) if the campaign changed their attitudes towards supplying cigarettes to teens. Overall, 617 young adult smokers and non-smokers participated in the survey (14).

9 Synthesis of Findings

- **Multi-faceted interventions (e.g., multi-component educational strategies, increasing taxes, restrictions on smoking in public places) are most effective for reducing youth access to tobacco, especially when combined with ongoing and active enforcement of minimum age restrictions.** The NICE guideline indicated that successive retail inspections, prosecutions, awareness campaigns, and implementing minimum-age laws decrease sales of tobacco (12).

- **Legislation alone is not sufficient to prevent tobacco sales to minors; effective enforcement is needed.**
    - **Enforcement that disrupts tobacco sales to underage youth will decrease youth smoking prevalence rates.** One review by DiFranza (2012) demonstrated that all interventions that disrupt the sale of tobacco to minors had a favourable impact on youth smoking (11). However, even if enforcement is weak (i.e., compliance rates are low) there is still a small impact on youth tobacco purchases, smoking rates will decrease in students and the number of never smokers will increase. More aggressive enforcement/higher compliance rates will lead to a larger decline in both purchases and prevalence of student smoking (11).
    - **Enforcement improved retailer compliance and smoking rate was reduced.** DiFranza (2012) indicated that effective enforcement increases compliance rates and decreases smoking prevalence while reliance on commercial sources of cigarettes was reduced. Some evidence indicated that intervention effects declined over time; regular enforcement and effective implementation of enforcement programs is needed (11, 12).
- **Limited evidence that merchant education programs in absence of law enforcement will have any impact on smoking by youth older than 12 years of age.** Two studies found merchant education programs and/or community mobilization reduced either smoking uptake or made it harder to purchase tobacco. However, these studies demonstrated an effect only on smoking rates in younger

students in grade seven and only male students found it harder to purchase tobacco from gas stations (no effect sizes given)(11).

- **Underage test shopping protocols that mimic "real life" youth purchasing behaviours are associated with higher youth tobacco sales.** DiFranza (2012) indicated that all successful enforcement programmes employ routine inspections involving test purchases made by minors. Lee and colleagues (2016) and the NICE guideline (2014) demonstrated that standard underage purchase protocols can be improved and should strive to mimic real life appearance, behaviours and demographics of participating youth in protocol development.
    - Smokers and older youth were more successful in purchasing cigarettes.
    - Female youth were more likely to be sold cigarettes than male youth; however, they were also more likely to be asked for ID, which impacted their access to tobacco in some studies.
    - Flashing or showing ID helped youth obtain cigarettes in some studies.
    - Purchasing an additional item did not change the likelihood of a sale, nor did the non-completion of a sale impact the violation rate.
    - Visiting a store more than once, being familiar with the store clerk and continuing to make attempts to purchase increased the tobacco purchase rates.
    - Younger and male store clerks were more likely to sell tobacco illegally to youth.

- Lower income neighbourhoods and neighbourhoods with higher proportions of Black or Hispanic populations had higher rates of tobacco sales to youth. Black or Hispanic male youth were also more likely to access tobacco than white male youth.

- Using adult chaperones and unmarked police cars may alert the retailer to a compliance check and reduce the validity of underage buy protocol.

- No studies determined if youth were more likely to be sold specific brands of tobacco.

- **Few interventions address the social supply of tobacco among youth. One media campaign was able to make positive changes in attitudes towards supplying cigarettes to underage youth**. Participants in the evaluation of the *Bad Ways To Be Nice* campaign reported being receptive to the campaign (87%), aware of the campaign (22%), had positive attitudes towards the campaign (80%) which confirmed their thinking or convinced them not to buy or give cigarettes to teens (14). A positive change in attitudes towards supplying cigarettes to teens was also reported (33%)(14). No other interventions were discovered through the literature searches.

See Table 1 below for more detailed summary of the results and Appendix E for the data extraction tables.

Table Legend
Positive effect = **+**
Negative effect = **-**
Mixed results = **+/-**
Review or Systematic Review = **R**
Guideline = **G**

Table 1. Summary of interventions, test shopping protocols and other characteristics related to youth tobacco access

Interventions	Outcomes					
	Decrease Sales/Supply to Underage Youth		Reduction in Youth Access (self-report)		Decreased Prevalence of Youth Tobacco Use	
	Effect	Evidence	Effect	Evidence	Effect	Evidence
Retail Access Interventions						
Multi-faceted interventions (e.g., increasing taxes, multi-component educational strategies) are most effective for reducing youth access to tobacco, especially when combined with on-going and active enforcement of minimum age restrictions.						
Multi-faceted interventions	+	G = 2 R, 3 studies				
Enforcement at the local or state level that disrupts the sale of tobacco to underage youth will reduce sales and smoking prevalence. Weak enforcement programs had a mixed and/or minimal impact on retail access to tobacco and smoking rates.						
Local/State Enforcement	+	R =19 studies			+	R =19 studies
Enforcement that Disrupts Tobacco Sales	+	R = 5 studies	+	R = 5 studies	+	R = 19 studies
Weak Enforcement Programs	+/-	R= 3 studies			+/-	R = 3 studies
Retailer education alone or with community mobilization does not have a lasting impact on sales to youth or smoking prevalence without law enforcement. There was no effect of retailer education or mobilization on older youth.						
Retailer Education Alone			+/-	R = 1 study	+/-	R = 1 study
Community Mobilization & Education					+/-	R = 1 study
Legislation will not have an impact on tobacco sales to minors. Evidence was mixed on youth smoking rates unless laws are enforced**.**						
Legislation	-	R = 4 studies			+/-	R = 8 studies
Other: having higher density of noncompliant retailers had a mixed impact on smoking prevalence among youth; tobacco industry campaigns had no effect on tobacco sales.						
Violation Rates: Retailer Compliance					+/-	R & G = 1 R & 2 studies
Tobacco Industry Campaigns	-	G = 1 study				
Characteristics of retail interventions: no studies looked at intensity of interventions. There were mixed results about the impact of an intervention over time. Social supply is a barrier to effective implementation of access restrictions.						
Implementation of youth access restrictions	+	G = 4 R				
Sustainability/Duration	+/-	G = 5 studies				

Test Shopping Protocols & Characteristics Associated with Youth Access						
Test shopping protocols should reflect real life youth behaviours by showing ID, visiting the store multiple times, and looking/acting like a youth smoker when making purchase attempts to improve the validity and reliability of the test shopping protocols. Purchasing multiple items had no effect.						
Youth appearance/youth smokers	+	R = 1 study				
Use of Identification (i.e., flash or real ID)	+	R&G = 3 studies				
Familiarity with store clerk/Repeated visits	+	R = 3 studies				
Lying about age	+/-	R = 3 studies				
Type of Purchases (i.e., smokeless tobacco, single cigarettes)	+/-	R = 4 studies				
Purchase of additional items/Completion of sale	-	R = 3 studies				
Underage youth, clerk and community characteristics are related to the increased likelihood of a tobacco sale. Older youth and Black and Hispanic youth were more likely to access tobacco. Stores in lower SES neighbourhoods and in Hispanic neighbourhoods had higher underage sales; evidence was mixed for sales in predominantly Black neighbourhoods. Younger and male clerks more likely to sell tobacco to minors.						
Test shopper's age (i.e., older youth)	+	R & G =14 studies				
Test shopper's sex (i.e., female vs male)	+/-	R & G =17 studies				
Test shopper's race/ethnicity (i.e., Black, Hispanic youth)	+	R = 7 studies				
Store clerk's characteristics	+	G = 3 studies				
Neighbourhood characteristics - proportion Black residents in neighbourhood	+/-	R = 9 studies				
Neighbourhood characteristics - proportion Hispanic residents in neighbourhood	+	R = 5 studies				
Neighbourhood characteristics – socioeconomic status	+	R = 5 studies				
Impact of policies on ethnoracial youth	+/-	G = 1 study				
Social Supply Interventions						
Social supply interventions: A media campaign was successful in changing attitudes and intentions towards supplying tobacco to underage youth.						
Media campaign	+	Single study				

Practice Recommendations

Two of the resources provided practice recommendations. Lee and colleagues gave recommendations on modifying the protocol and youth recruitment for test shopping programs. The NICE guideline gave recommendations for local authorities and other agencies that target underage sales at tobacco retailers.

Recommendations for the Test Shopping Protocol and Recruitment (Lee et al., 2016)

1) Youth recruitment, age and appearance

- Consider using minors over age 16, with age 17 ideal
- Test shoppers should represent real life youth smokers, and reflect the racial/ethnic and gender composition of the neighbourhood
- Train and maintain experienced test shoppers, including smokers

2) Elements of the Test Shopping Protocol

- Vary requested tobacco products according to the demographic (i.e., Black youth typically purchase menthol cigarettes)
- Require minors to carry identification and show if asked
- Train minors to avoid answering questions to disclose compliance check
- Consider sending the same test shopper multiple times to the same retailer

Recommendations for Local Authorities/Agencies that Target Retailers and Underage Tobacco Sales (NICE, 2014)

1) Ensure retailers are aware of legislation prohibiting tobacco sales to underage youth by providing training/guidance, encouraging them to request proof of age; run campaigns to publicize the legislation.

2) Make it as difficult as possible for youth to get tobacco products. This includes prosecuting retailers who break the law, undertaking test shopping, etc.

(3) Work with other agencies to identify where underage tobacco sales are a problem, and to improve inspection and enforcement activities.

(4) Assess whether an advocacy campaign is needed to support enforcement; discourage any campaigns developed by the tobacco industry.

(5) Ensure efforts to reduce illegal tobacco sales by retailers are sustained.

10 Applicability and Transferability

Members of the rapid review team, Tobacco Enforcement Officers, Associate Medical Officer of Health, and medical residents met for a facilitated discussion. The purpose of the meeting was to discuss the feasibility of the recommendations and transferability of the report findings to our local context. A summary of the key points are presented below.

Applicability – Political acceptability

- Overall, there is an amenable political climate to control youth's access to tobacco in the community. There has been a recent push for more restrictive tobacco legislation, both federally and provincially. However, the MOHLTC has not provided any recent direction for social supply interventions. Therefore, implementing effective interventions to reduce youth's social supply would be acceptable to the public and local government.

- Potential changes to the test shopping program are seen as politically acceptable – a more accurate picture of compliance rates among Peel's tobacco vendors is important to determine. Public health could be seen as a better enforcer by using a more realistic test shopping approach. It was suggested that we may want to publicize/disclose the name of the retail premises convicted of selling tobacco to youth and further engage with the community on this issue. However, a few concerns were raised about changes to the test shopping program: (1) if we increase the number of test shopping visits, this could lead to accusations of entrapment, and good arguments in favour of this approach may be needed for any court proceedings; and (2) having youth show ID when attempting to purchase tobacco could be seen as entrapment by the public. It may raise legal arguments for due diligence and possible concerns over the youth's privacy. Others in the room did not feel these changes to the program would be an issue but thought using more training/education may be necessary for vendors.

- Potential alignment for the advocacy of older minimum legal age of purchase could occur when new marijuana legislation is released in the spring. If the legal age to purchase marijuana is 21 years old, it may support advocacy to increase both alcohol and tobacco's age of purchase.

- Possession laws being a viable policy option to reduce youth smoking rates was discussed. That is, should the legal responsibility of tobacco possession be shouldered by underage youth, not just by tobacco vendors? Tobacco possession laws have been used in other jurisdictions; however, some literature indicates that possession laws are not enforced and likely not viewed positively here in Ontario.

- A positive advocacy position on minimum pricing or taxation will not likely be acceptable to government. However, evidence indicates that increasing pricing and minimum age would reduce accessibility to tobacco products. Other policy interventions to reduce youth access to tobacco such as reducing or restricting the number of vendors (i.e., tobacco retail density) or how tobacco is sold (i.e., regulated similar to LCBO) could also be explored.

Applicability – Social acceptability

- Recommendations to reduce youth access to tobacco by updating the test shopper program will likely be supported by the public and tobacco retailers. The SFOA has been in effect for 10 years so tobacco retailers should be accepting of changes to the test shopping protocols and/or associated education if we are transparent about the program changes. These potential changes are an improvement to the test shopping program and Peel could be seen as being proactive. The Region's approach of "Working with You" provides a good opportunity to work closely with retailers to make improvements to the enforcement program. For example, if more sales occur after implementing the new test shopping program, we can issue warnings and promote training enhancements, monitoring and disciplinary actions.

- Two potential safety concerns were raised by the suggested changes to test shopper protocol: (1) evening shifts – concerned about visibility of test shopper entering and exiting the retail premises; and (2) use of youths' own ID – concerned that a tobacco retailer may somehow abuse this information (i.e., name, address). It was suggested that a health card could be used for ID as it does not have youth's

address on it. The protection of test shoppers is paramount and safety issues will need to be considered when developing new test shopping protocol.

- Implementing a media campaign – *Bad Ways to Be Nice* - about social supply will likely be acceptable to our community; however, this intervention may not be effective in changing behaviours. Although the campaign created awareness around the issue of sharing/supplying tobacco and intention to supply, there are no follow-up data to determine its impact on behaviour. Concerns were raised over implementing a "stand-alone" intervention and the effectiveness of social marketing strategies. The divisions may also want to consider including a social supply component within the social smoking campaign/interventions currently being considered by the tobacco control program.

- Other potential approaches to reducing social supply were suggested including collaboration with schools/school boards, school liaison police and other youth groups. For example, school liaison police officers could help with enforcement of social supply. Other health units have used surveillance tactics to support school with identifying tobacco use and social supply within school viewing area. Others in the room did not feel these types of interventions would be acceptable to our community and would be resource intensive. There is the perception that schools/school boards do not feel tobacco is a high priority or a problem; may be difficult to get buy-in.

- Public and current smokers may not find increased tobacco prices and legal purchase age acceptable – may see public health as a “nanny state” with further restrictions on access.

Applicability – Resources and Capacity

- Peel Public Health currently has six Tobacco Enforcement Officers to enforce compliance with the SFOA/ECA in various settings, including approximately 700 tobacco vendors. These officers currently spend about 40% of their time on test shopping related activities (2014 data). The enforcement team’s resources will likely be at capacity when the new Waterpipe By-law requires enforcement and new aspects of e-cigarette legislation are enacted. Other new projects have been initiated recently including proactive workplace inspections. Resources from other divisions may be needed to support any additional initiatives. For example, CDIP may need to provide project management support or lead the social supply initiative.

- More test shopping visits, and doing them outside of typical business hours, could increase needed resources (i.e., overtime or lieu time) for enforcement officers to do evening and weekend shifts. Also, more underage sales could lead to more warnings or charges and increased time and costs to attend court challenges. There may be an initial increase in resources needed to address these issues with vendors, but over time, this should stabilize/decrease.

- Recruitment will need to be expanded to hire older test shoppers. More training may also be needed; the Enforcement team could consider training over two days instead

of the current day-long training to better prepare the test shoppers. As well, if test shoppers are kept on staff longer, it will be easier for training purposes.

- Research is usually a lengthy process, time-intensive and can be costly. The team may want to explore partnerships and other data sources to see if we can find out more about social supply without embarking on resource intensive research project. Applying for a research grant and partnering with local experts is also a possibility. Working with CAMH to modify tobacco supply question in the Ontario Student Drug Use and Health Survey should not involve extra costs outside of staff time.

- Any costs to implement the *Bad Ways to Be Nice* campaign could be minimal as the materials have already been developed, particularly if social media outlets are used for distribution. In-kind or financial support may be available from community partners.

- Formalizing advocacy positions can be completed by staff; likely no extra costs or resources needed.

Transferability

- The test shopping program will reach all tobacco retailers. It was also suggested that revisions could be made to the SFOA educational materials to include common languages spoken in Peel.

- The research studies included in this review had populations that were diverse and likely similar to Peel. However, there is a range of age requirements to purchase

tobacco products across the USA and regulations differ between state and local jurisdictions.

- The media campaign to reduce social supply, *Bad Ways to Be Nice*, although developed and implemented in a nearby Ontario region, may not be targeted to our diverse population. A suggestion was made that some of the materials could be translated into common languages used in Peel.

11 Recommendations

1. Pilot new test shopping program elements that more realistically mimic "real life" youth tobacco purchase attempts including:

- Youth showing identification if asked by clerk;
- Hiring older test shoppers (> 16 years of age) and keeping on staff for longer than one year; and
- Test shopping in evenings or weekends.

2. Explore social supply and youth purchasing behaviours further through: (1) monitoring the literature for emerging research; (2) looking for additional sources of data, including asking the Centre for Addiction and Mental Health if they can modify their "source of cigarettes" question on the Ontario Student Drug Use and Health Survey to ask more specifically about who youth obtain tobacco from and if they pay them for the tobacco; and (3) partnering with local research experts to determine how young smokers buy tobacco products, and how they access through social supply and/or others.

3. Consider implementing a social marketing campaign that targets the social supply of tobacco (e.g., *Bad Ways to be Nice*) with local partners, including the Central East Tobacco Control Area Network.

4. Formalize advocacy positions for other policy interventions, including tobacco minimum pricing, increasing legal age of tobacco purchase to 21 years old, and other tobacco vendor or outlet restrictions.

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Appendices

Appendix A: Search Strategies for Original 2015 Search

Appendix B: Search Strategies for Updated 2016 Search

Appendix C: Literature Search Flowchart for Searches 1 and 2

Appendix D: Literature Search Flowchart for Search 3

Appendix E: Data Extraction Tables

Appendix F: Applicability & Transferability Worksheet

Appendix A: Search Strategies for Original 2015 Search

Original search strategy by librarian specialist in 2015

Database: Ovid MEDLINE(R) <1946 to November Week 2 2015>
Search Strategy:
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1 "tobacco*".ti,ab. (68372)
2 "smoke pollution".ti,ab. (72)
3 "smok*".ti,ab. (197868)
4 "second-hand smok*".ti,ab. (708)
5 exp Tobacco/ (25196)
6 exp Smoking/ (129954)
7 exp Tobacco Smoke Pollution/ (11315)
8 exp "Tobacco Use"/ (130213)
9 exp Tobacco Products/ (4465)
10 "compliance".ti,ab. (80947)
11 "enforc*".ti,ab. (18186)
12 "campaign*".ti,ab. (27511)
13 "strateg*".ti,ab. (608194)
14 "policy".ti,ab. (113666)
15 "policies".ti,ab. (49619)
16 "educat*".ti,ab. (378728)
17 "inspect*".ti,ab. (30257)
18 "warn*".ti,ab. (22239)
19 "offence*".ti,ab. (1923)
20 "public place*".ti,ab. (1410)
21 "environ*".ti,ab. (588536)
22 "public space*".ti,ab. (358)
23 "social space*".ti,ab. (194)
24 "sidewalk*".ti,ab. (404)
25 "beach*".ti,ab. (4405)
26 "park*".ti,ab. (94888)
27 "patio*".ti,ab. (76)
28 "public square*".ti,ab. (58)
29 "shared space*".ti,ab. (42)
30 "outdoor space*".ti,ab. (65)
31 "workplace*".ti,ab. (25319)
32 "vehicle*".ti,ab. (92420)
33 "public area*".ti,ab. (278)
34 "ground*".ti,ab. (93194)
35 "restaurant*".ti,ab. (3568)
36 "bar*".ti,ab. (386016)
37 "multi-unit dwell*".ti,ab. (3)
38 "muds".ti,ab. (218)

39 "playground*".ti,ab. (1035)
40 "hotel*".ti,ab. (2826)
41 "motel*".ti,ab. (89)
42 "inn*".ti,ab. (292082)
43 "sport*".ti,ab. (41910)
44 "garage*".ti,ab. (362)
45 "nurser*".ti,ab. (7925)
46 "daycare*".ti,ab. (835)
47 exp Day Care/ (4777)
48 "day care*".ti,ab. (6001)
49 "condo*".ti,ab. (17093)
50 "apartment*".ti,ab. (1628)
51 "residence*".ti,ab. (32388)
52 "hospital*".ti,ab. (850833)
53 "long-term care*".ti,ab. (14634)
54 "stairwell*".ti,ab. (44)
55 "hallway*".ti,ab. (315)
56 "lobbies".ti,ab. (105)
57 "lobby".ti,ab. (621)
58 "manufactur*".ti,ab. (65688)
59 "construct*".ti,ab. (329951)
60 exp Restaurants/ (3065)
61 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 (270633)
62 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 (1210242)
63 "offense*".ti,ab. (2560)
64 62 or 63 (1212240)
65 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 (2709058)
66 61 and 64 and 65 (12104)
67 limit 66 to (english language and yr="2010 -Current") (4223)

****

Appendix B: Search Strategies for Updated 2016 Search

Second search strategy conducted by RPA in June 2016:

Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to June 08, 2016>, Ovid Healthstar <1966 to May 2016>, Ovid MEDLINE(R) Epub Ahead of Print <June 08, 2016>, Ovid MEDLINE(R) <1946 to June Week 1 2016>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <June 08, 2016>, PsycINFO <2002 to June Week 1 2016> Search Strategy:

---

1 "social source*".ti,ab. (293)

2 "social network*".ti,ab. (33807)

3 "social* supply*".ti,ab. (27)

4 "access*".ti,ab. (656307)

5 "social suppl*".ti,ab. (39)

6 exp government regulation/ (39400)

7 exp health promotion/ (145100)

8 exp social control, formal/ (1197196)

9 exp tobacco industry/lj (3764)

10 exp tobacco industry/ (8214)

11 "tobacco vendor*".ti,ab. (42)

12 "tobacconist*".ti,ab. (40)

13 "tobacco purveyor*".ti,ab. (0)

14 "tobacco retailer".ti,ab. (56)

15 "tobacco merchant".ti,ab. (2)

16 "sale*".ti. (9150)

17 ("compliance*" or "enforcement" or "campaign" or "strateg*").ti,ab. (1624018)

18 exp smoking/ec, lj, pc (40647)

19 ("minor*" or "youth" or "child*" or "adolescen*").ti,ab. (2891603)

20 exp child/ (2835772)

21 exp adolescent/ (3041584)

22 exp age factors/ (789464)

23 exp child behavior/ (32866)

24 exp adolescent behavior/ (48205)

25 exp minors/ (4820)

26 ("review" or "meta analys*").ti. (731516)

27 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 (3433483)

28 19 or 20 or 21 or 22 or 23 or 24 or 25 (6155660)

29 tobacco*.ti,ab. (147508)

30 "smok*".ti,ab. (450666)

31 18 or 29 or 30 (523240)

32 27 and 28 and 31 (22566)

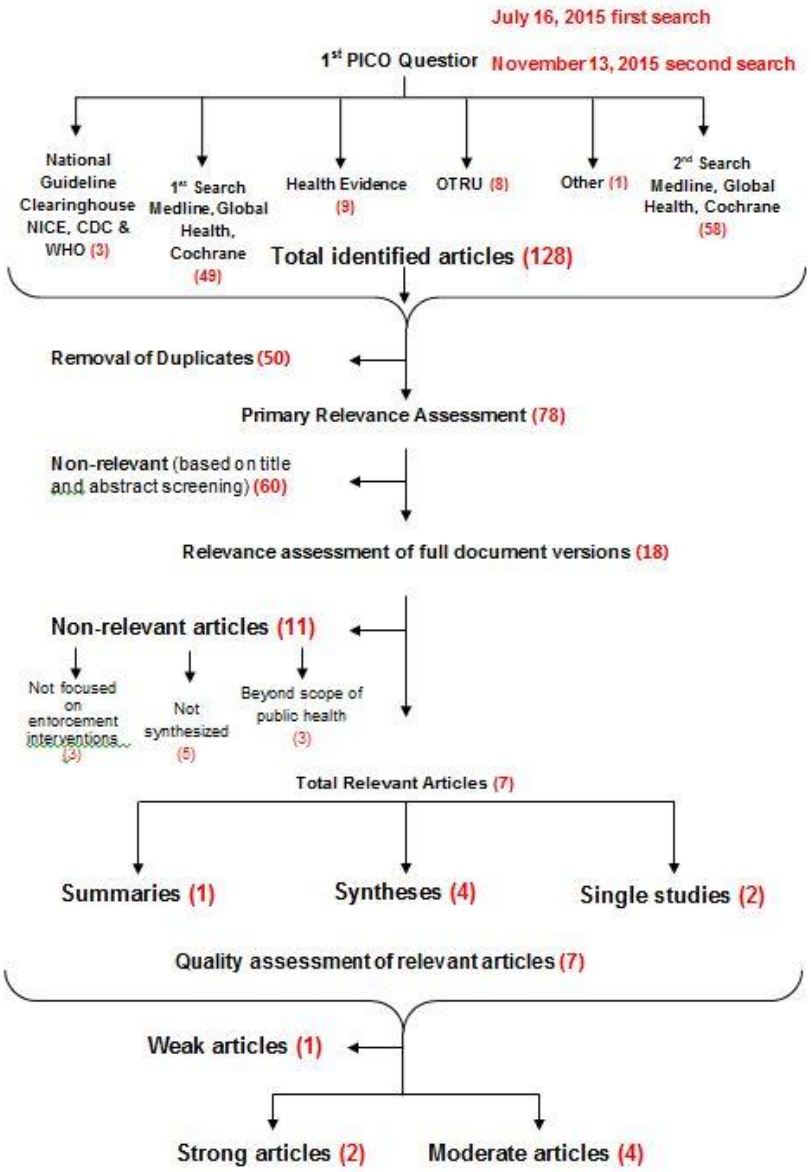
33 26 and 32 (530)

34 remove duplicates from 33 (271)

35 limit 34 to english language [Limit not valid in CDSR; records were retained] (259)

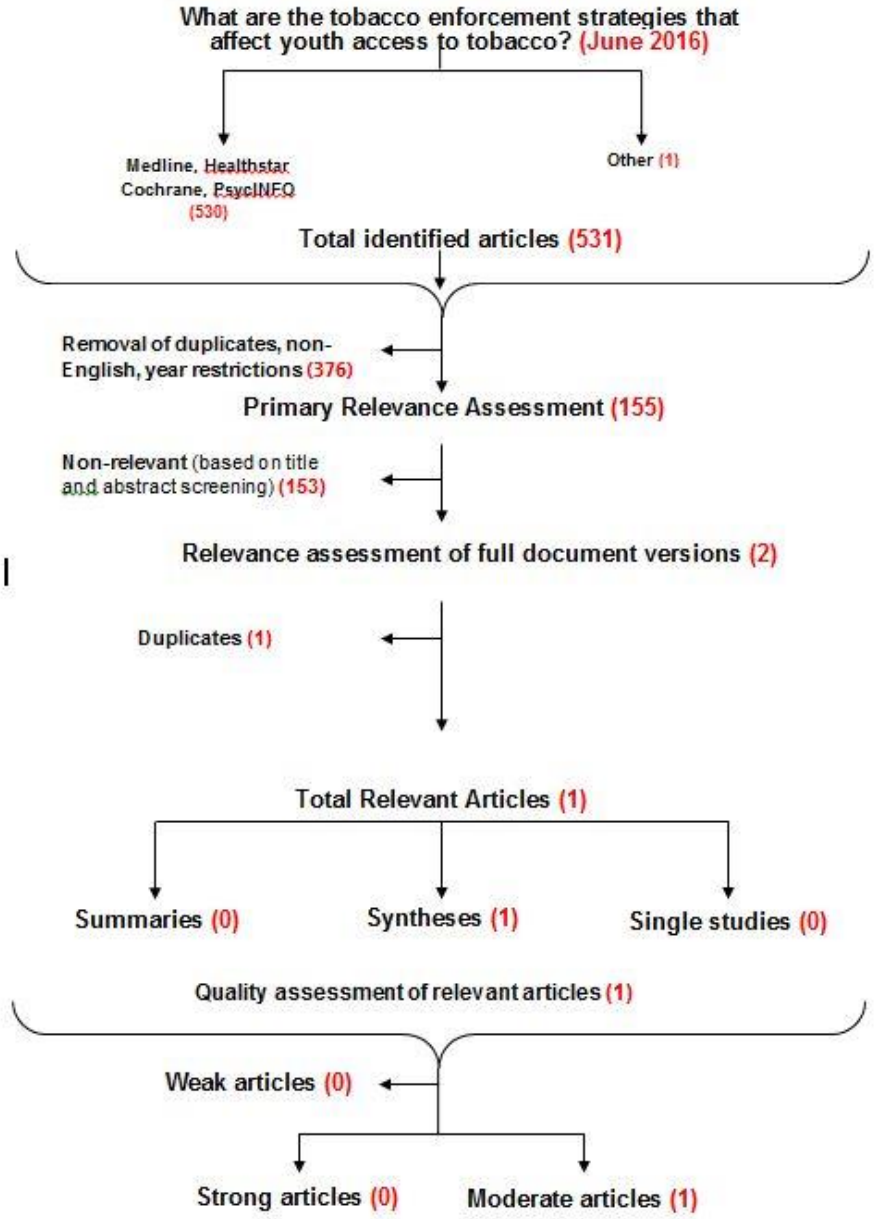
36 limit 35 to yr="2009-current" (155)

Appendix C: Literature Search Flowchart for Searches 1 and 2



Adapted from: healthevidence.org *Keeping Track of Search Results: A Flowchart.*

Appendix D: Literature Search Flowchart for Search 3



Adapted from: healthevidence.org *Keeping Track of Search Results: A Flowchart.*

Appendix E: Data Extraction Tables

Data Extraction Tables: What are the tobacco enforcement strategies that affect youth access to tobacco?

GENERAL INFORMATION AND QUALITY RATING FOR REVIEW	
Citation	National Institute for Health and Care Excellence (NICE), 2008; amended 2014. Preventing the uptake of smoking by children and young people. NICE public health guidance 14. Guidance.nice.org.uk/ph14
Country	• Country of guideline: United Kingdom • Country of included studies: USA (12), multinational (2), New Zealand (1), Sweden (3), Australia (1), Tasmania (1)
Quality Rating	Strong quality (Rated using AGREE II tool): review met 6/7 quality criteria
Objectives of Guideline	• To provide formal guidance on mass-media and point-of-sales measures to prevent the uptake of smoking by children and young people. • For the purpose of this review only data for the latter was abstracted, based on the following questions: Which interventions are effective in reducing the illegal sale of tobacco to children and young people?
GUIDELINE DETAILS	
Type of review	• Systematic review: due to heterogeneity in the populations, interventions, and outcomes measured.
Search period	• 1996-2006
Databases searched	• Eight databases searched: ASSIA, BNI, CDSR, CENTRAL, CINAHL, Current Contents, DARE, EMBASE, HMIC, HSTAT, MEDLINE, National Research Register, PAIS, PsycINFO, SIGLE, Social Policy and Practice, Sociological Abstracts, and TRIP.
Other search strategies used	• Additional papers were identified from four websites: Centre for Tobacco Control Research, Ash, Quit, Department of Health.
Inclusion and exclusion criteria	Inclusion: children and young people under 18 years of age; used mass-media communications, including new media (such as podcasting, text messaging or social networking websites) to prevent the uptake of smoking; aimed to prevent sales of tobacco to children and young people; and were published in English from 1990 onwards.

	Exclusion: focused on those aged 18 years and older; focused on family, education or social interventions; were school-based; included counselling or self-help and did not involve the use of mass media; focused on price measures; and were conducted in a developing country or not published in English.
Number and types of included studies	• 21 studies: included 5 reviews, 1 non-randomized controlled study and 15 cross-sectional studies
Quality assessment of included studies	• Yes, using the NICE methodology checklist. Each study was described by study type and graded (++, +, −) to reflect the risk of potential bias arising from its design and execution.
DETAILS OF INTERVENTIONS	
Target groups and ethnicity	Primary: Children and young people Secondary: Professionals responsible for preventing illegal sales of tobacco • The samples comprised of males and females of multiple ethnicities including African-American, Hispanic, White, Asian, Scandinavian, and Middle Eastern. • Generally, the interventions were implemented in urban centers among all socioeconomic classes.
Intervention providers	N/A
Intervention settings	• Tobacco retailers: news agents, tobacconists, sweet shops, convenience stores, gas stations, food stores, service stations, supermarkets and corner stores.
Outcomes	The *primary* outcome of interest for professionals responsible for preventing illegal sales was: • Number of sales to minors. The *secondary* outcomes of interest for professionals responsible for preventing illegal sales were: • Number of warnings and cautions issued • Number of spot checks • Number of local authorities using children in test purchasing exercises • Number of criminal proceedings and successful prosecutions.
Description of interventions	• In general, interventions were designed to prevent the illegal sale of tobacco to children and young people. Interventions included: unannounced inspections, compliance inspections, active enforcement, undercover compliance surveys, education alone, multi-component/comprehensive strategies (i.e., enforcements and penalties, as well as community education and mobilization)
GUIDELINE RESULTS	
Main Results	**Evidence Statement 2 (applicable to research question):**

Study Quality Legend:
++ all or most criteria fulfilled; conclusions thought very unlikely to alter
+ some criteria fulfilled; those criteria that have not been fulfilled or adequately described are though unlikely to alter the conclusions
- few or no criteria fulfilled; conclusions of the study are thought likely or very likely to alter
	• There is evidence that access restriction interventions impact effectiveness in terms of the number of sales to young people, young people's ability to access cigarettes and store clerk compliance.
	• There was a lack of information regarding whether interventions impact behaviours, attitudes, beliefs, intentions or perceptions.
	  ○ Only two studies addressed the impact of interventions on smoking behaviour. When faced with restrictions, youth appear to acquire tobacco from non-retail sources such as family members or peers.
	• Factors that have been shown to influence number of sales, young people's ability to access cigarettes and store clerk compliance include active enforcement, comprehensive interventions, interventions produced by tobacco control bodies, requesting age/proof of ID, demographics of the vendor/store clerk, site setting of the access intervention, and the demographics of the target audience.
	  ○ The age, gender and ethnicity of shop assistants selling tobacco appear to influence sales to youth. Younger store clerks are more likely to sell tobacco illegally to a minor, identification is less likely to be requested and an illegal sale is more likely to occur when the store clerk is a man. Some evidence also suggests that ethnicity may influence intervention outcomes; Asian clerks were found more likely to request age, with white store clerks most often requesting identification.
	• Overall, the factors outlined above work best when combined with requesting proof of age/ID, active enforcement (in relation to both retailer-youth purchaser and trading standards-retailers) and other youth prevention strategies like taxation.
	• **Statement 2.1:** Some access interventions appear to be more effective than others. Compared to interventions created by tobacco control bodies, interventions produced by the tobacco industry do not decrease the sale of tobacco to young people.
	  ▪ **Statement 2.1.1**: One cross-sectional study (-) found that a tobacco industry sponsored campaign did not reduce sale of tobacco to minors, yet state mandated warning were only slightly more successful in reducing young people's ability to

purchase tobacco. Tobacco industry interventions may not prevent illegal sale of tobacco; active enforcement by health officials may be more effective.

- **Statement 2.2.1:** No studies in the review examined whether interventions were delaying rather than preventing onset of smoking. One cross-sectional study (+) did find that interventions impacted youth's stage of smoking uptake. Evidence from this study suggests that compliance with youth access laws reduces the probability of being in higher stages of smoking. Youth who are in earlier stages of smoking depend more on social sources for acquiring tobacco. One review (+) did not find a difference in youth smoking rates between communities with or without greater merchant compliance with sales restrictions.

- **Statement 2.3:** There is strong evidence that comprehensive interventions are more effective than individual restrictions alone. Furthermore, active enforcement and requesting age/ID can also decrease sales of tobacco.

    - **Statement 2.3.1:** One Cochrane review (++) and one cross-sectional study (+) found that multi-faceted interventions (active enforcement, multi-component educational strategies, and increasing taxes and restrictions on smoking in public places) are the most effective for reducing youth access tobacco, particularly when combined with ongoing and active enforcement of minimum age restrictions. Active law enforcement has been identified by one review (+) and two cross-sectional studies (-) as an important part of multi-component interventions. [data about vending machines not extracted – banned in Canada].

    - **Statement 2.3.2:** Two cross-sectional studies (+) found that when store clerks requested proof of age, illegal sales decreased. There is some evidence that asking for identification decreases illegal sales more than asking for age. Yet evidence from a non-RCT study (+) suggests that minors who present ID are more successful when purchasing tobacco than those who do not. Therefore, stringent verification of ID must occur to decrease young people's ability to purchase tobacco.

- **Statement 2.4:** The status of the person delivering an access restriction does impact effectiveness. The age, gender and the ethnicity of shop assistants selling tobacco appear to influence sales to young people.

    - **Statement 2.4.1:** in one cross-sectional study (+), clerks participating in a compliance

	program were as likely to make illegal sales of tobacco to young people as store clerks who were not participating in the program. Evidence from one non-RCT (+) and two cross-sectional studies (+) suggests that the age, gender and ethnicity of the clerks influences the outcomes. Overall younger store clerks are more likely to sell tobacco illegally to a minor, identification is less likely to be requested and an illegal sale is more likely to occur when the clerk is a man. Some evidence also suggests that ethnicity may influence outcomes: Asian clerks were more likely to request age, with white store clerks most often requesting ID. • **Statement 2.5 and 2.5.1:** The site-setting influences effectiveness. Young people are successful at buying tobacco in a variety of locations including convenience stores, gas stations and food stores. Applicability of data – includes places where we do not sell tobacco in Canada (e.g., department stores, video rental shops, vending machines etc.). Data not extracted. • **Statement 2.6:** Duration of access to interventions may impact effectiveness. There is some evidence that compliance with access restrictions increases over time. Effectiveness may not be self-sustainable and may be impacted by social sources of tobacco. ○ **Statement 2.6.1:** No studies directly studied the intensity of interventions over time. Evidence from two cross-sectional studies (+) indicate that over time factors such as successive retail inspections, prosecutions, awareness of campaigns and implementing a minimum-age law result in decreased sale of tobacco. Yet evidence from one review (+) demonstrates that effectiveness of access restrictions on purchasing tobacco may depend on the level of implementation (i.e., level of fines, rate of compliance, community involvement). Evidence from one empirical review (+) indicates that interventions may not produce a sustained decrease in the illegal sale of tobacco – interventions without compliance checks, significant penalties and store clerk awareness have limited long-term effects. One cross-sectional study (+) also showed a decrease in non-compliance over time. • **Statement 2.7:** Effectiveness of access restrictions is affected by a variety of demographic variables. Those close to the legal minimum age (older youth) and more established smokers are more successful at purchasing tobacco. There were more mixed findings for the impact of sex, one strong piece of evidence indicates that boys are more successful at purchasing tobacco than

	girls. Survey data indicates that girls are more likely to try and buy cigarettes. Refusal rates, and purchasing success rates, are similar for boys and girls. The ethnicity of the young person influenced whether or not age/ID was requested. There was a lack of information regarding the impact of socioeconomic status. ○ **Statement 2.7.1:** Access restrictions on the sale of tobacco have an impact on people who smoke in different ways, depending on their age and smoking status. Evidence from one Cochrane review (++) reveals that regular smokers encounter access restrictions on the sale of tobacco more frequently, but also employ more techniques to obtain cigarettes, such as presenting fake ID or lying about their age. One cross-sectional study (-) found that retailer compliance resulted in the greatest decrease in smoking behaviour for younger and less experienced smokers. There is evidence from two cross-sectional studies (+/++) and one non-randomized CT (4+)that young people close to the legal minimum age (older youth) were more successful in purchasing tobacco. Some evidence also suggests that youth's age or appearance affects their ability to purchase tobacco. Two cross-sectional studies (+) and survey data from England found that young people who appear older are more successful at purchasing tobacco than those who look younger. ○ **Statement 2.7.2:** Evidence from one US cross-sectional study (++) found that males had greater purchasing success rates. English survey data indicates that girls try to purchase cigarettes more than boys; however refusal rates and purchasing success rates are similar. Evidence from two cross sectional studies (+) indicates that boys were more successful in purchasing tobacco. Conversely, one US cross-sectional study (+) suggested that girls are more successful in buying tobacco and one cross-sectional study (+) found that girls were more frequently asked to present ID when attempting to buy cigarettes. Some evidence also suggests that requesting ID results in the greatest reduction of girls' access to purchasing cigarettes. ○ **Statement 2.7.3:** Evidence indicates that ethnicity influences the ability to buy tobacco among young people. One US cross-sectional study (+) found that African American children, followed by Latino and white children respectively were more likely to be asked for ID when attempting to purchase cigarettes. ID requests resulted in the greatest reduction of African American children's success in purchasing cigarettes. One US-based

	cross-sectional study (+) found that tobacco policies impact young people differently. Evidence shows that smoking rates for white male young people are more responsive to anti-tobacco activities and clean indoor restrictions, while young black males are more influenced by smoking protection and youth access laws. • **Statement 2.8:** acquiring tobacco from social sources and lack of enforcement are barriers to the effective implementation of access restrictions. ○ **Statement 2.8.1:** Two key barriers to implementation of access restrictions on purchasing tobacco were identified. Evidence from three reviews (+) and one review (++) indicates that access restrictions are impeded by a young person's ability to access tobacco products from social sources, including friends, family, and strangers. English survey data report similar findings. Evidence from one (+) cross-sectional study based in the USA shows that weak enforcement of laws and policies creates a barrier to the effective reduction of the number of young people who smoke. In particular, minimum age restrictions are not well enforced.
CONCLUSIONS AND RECOMMENDATIONS	
	<u>Recommendations for local authorities and trading standards bodies with retailers as target:</u> • Ensure retailers are aware of legislation prohibiting under-age tobacco sales by: (1) providing training and guidance on how to avoid illegal sales; (2) encouraging them to request proof of age from anyone who appears younger than 18 who attempts to buy cigarettes and get it verified; complete the 'age restricted products refusal register' for each tobacco sale refused on grounds of age; (3) run campaigns to publicize the legislation and could include details of possible fines that retailers can face, where tobacco is being sold illegally and successful local prosecutions as well as health information • Make it as difficult as possible for young people under 18 to get cigarettes and other tobacco products. Under their legislation (UK) they indicate prosecuting retailers who persistently break the laws; undertaking test purchases each year, using local data to detect preaches in the law and auditing them regularly to ensure consistent practice across all local authorities • Work with other agencies to identify areas where under-age tobacco sales are a particular

	problem • Work with Local Better Regulation Office (UK –specific) to improve inspection and enforcement activities related to illegal tobacco sales • Assess whether an advocacy campaign is needed to support enforcement. • Actively discourage use of enforcement and related campaigns developed by the tobacco industry • Ensure efforts to reduce illegal tobacco sales by retailers are sustained.
COMMENTS AND LIMITATIONS	
	• Effect size estimates (e.g., rate reduction in illegal sales) were not discussed in the body of the guideline, and rarely provided in the evidence tables.

GENERAL INFORMATION AND QUALITY RATING FOR REVIEW	
Citation	DiFranza, JR. Which interventions against the sale of tobacco to minors can be expected to reduce smoking? Tobacco Control, 2012; 21:436-442.
Country of Publication	USA
Quality Rating	Rated using Health Evidence Quality Assessment Tool for Review Articles - Moderate Strength (6) • Review lost points as quality appraisal of included evidence not completed, for lack of transparency, and no weighting of studies.
Objectives of Review	The objective of this study was to determine if disrupting the sale of tobacco to minors can be expected to reduce tobacco use by youths.
Summary of Results	• There was little evidence that merely enacting a law without sufficient enforcement had any impact on youth tobacco use. • There was no evidence that merchant education programmes had any impact on youth older than 12 years of age. • There was no evidence that enforcement efforts that failed to reduce the sale of tobacco to minors had any beneficial impact. • All enforcement programmes that disrupted the sale of tobacco to minors reduced smoking among youth.
DETAILS OF REVIEW	
Type of review	Comprehensive review – based on a systematic review
Search period	1997-2010
Databases searched	• Archival records from author from 1997-2010. • Supplemented by search on Medline and PsycINFO using terms tobacco, youth, and access.
Other search strategies used	• References from articles were also reviewed for additional publications. • Request posted on listserv for International Society for Research on Nicotine and Tobacco for any published or unpublished manuscripts.
Inclusion and exclusion criteria	• Not described – appears every article included.
Number of included studies	Total number of studies/reports = 428 • 57 reports of retailer behaviour during purchase attempts • 56 reports on sources of tobacco for minors

	• 46 editorials, opinions or policy recommendations • 41 studies with an evaluation of the impact on tobacco use by youth • 34 evaluations of programme outcomes other than the impact of youth tobacco use • 30 literature reviews • 28 descriptions of programmes • 27 articles focused on issues such as the sale of single cigarettes, self-service displays, vending machines, tax revenues and retailer density • 19 laws and regulations • 18 surveys of knowledge, attitudes and opinions • 17 on miscellaneous topics • 14 concerning purchase, use and possession laws • 13 evaluations of research methods • 13 studies assessing the impact of perceived availability • 6 articles on internet sales • 5 government reports • 4 news articles.
RESULTS OF REVIEW	

Main results	• The Medline search produced 303 citations and PsycINFO produced 103.
	• The final document collection included: 20,000 pages of US local, state and federal government documents and government documents from other countries; tobacco industry documents describing their public relations programmes and objections to youth access legislation and regulations; unpublished manuscripts and data; personal communications; books; doctoral theses; merchant education materials; and 424 academic documents.
	
	Will enacting a law prohibiting sale of tobacco to minors reduce youth smoking?
	• Mere adoption of law prohibiting sale of tobacco to minors is insufficient to prevent the sale of tobacco to children. Confirmed by dozens of studies across world.
	• Do features of law affect youth smoking? Examples: ban on vending machines, self-service, single cigarette sales.
	  ○ Several studies found weak associations between strength of law; whereas others did not.
	  ○ An analysis of US states failed to demonstrate any association between the strength of

	the law and strength of enforcement (DiFranza, 2005). • Summary: it cannot be expected that enacting a law, no matter how strong, will have any impact on adolescent smoking in the absence of effective enforcement. **Are merchant education programmes sufficient to reduce youth tobacco use?** • A controlled study with over 6,000 English youth evaluated impact of merchant education program (Staff et al., 1998). Results indicated that male students rated it harder to buy tobacco from petrol stations. Logistic regression models indicated a 54% reduction of smoking uptake and a 39% reduction of daily smoking among 7th grade students in the intervention group. No impact on older students. • A 3-year randomized control study (RCT) of community mobilization and merchant education without enforcement was conducted in four Arizona communities (Altman et al., 1999). The intervention produced a temporary reduction in cigarette purchases by 7th graders, but not by 9th or 11th graders. During the period when 7th graders made fewer purchases, smoking was reduced by a relative 23% in this age group; neither purchases nor smoking were reduced among older youth. • Summary: there is no evidence that merchant education programmes, in the absence of law enforcement, have any impact on smoking by youth older than about 12 years of age. **Can enforcement disrupt the commercial distribution of tobacco to minors?** • Opponents feel that disrupting sales is futile as youth will get tobacco from social sources. In reality, adolescents who purchase cigarettes are primary social sources for other youth. Disruption of commercial distribution creates supply shortages, driving up cost of tobacco on the street, and discourages sharing among peers as smokers protect their supply. • In Texas, it was demonstrated that enforcement resulted in a marked decline in smoking among middle school students and a simultaneous decrease in the number of commercial and social sources of tobacco (Huang et al., 2002). • Disruption of sales of tobacco to minors has resulted in fewer purchases made by youth, fewer youth reporting that commercial sources are their usual source, fewer youth reporting a commercial source for their last cigarette, and more reports that cigarettes are harder to purchase. • Clear that enforcement can disrupt the commercial distribution of tobacco to minors and this is a crucial test of the quality of an enforcement programme.

	• The next section sorts programmes into those that did or did not show evidence that the sale of tobacco to minors had been disrupted. **1.** <u>Can enforcement that is too weak to disrupt the commercial distribution of tobacco to minors be expected to impact youth tobacco use?</u> • Two studies were conducted in England on the impact of a particularly ineffective approach to enforcement (Bagott et al., 1997; 1998). The decoys were very young (under 13). The decoys were refused in 100% of attempts to purchase tobacco. Yet 95% of youth in the same community purchased tobacco at least once per week, and 55% purchased on daily basis. • Rogotti et al. (1997) conducted a six-community randomised control trial in greater Boston. Legal challenges form tobacco retailers temporarily derailed enforcement efforts and intervention failed to disrupt sales to minors as the percentage of youth who purchased tobacco did not change. • Summary: there is no evidence that enforcement that is too weak to disrupt the commercial distribution of tobacco to minors has any effect, positive or negative, on youth smoking. 2. <u>Can enforcement that disrupts the commercial distribution of tobacco to minors be expected to impact youth tobacco use?</u> • 19 studies were examined in detail where the sale of tobacco to minors was disrupted. In each case the intervention was followed by a decline in youth tobacco use. ○ Study designs ranged from: RCTs (n=3), evaluations (n=4), community studies (n=2) cross-sectional designs (n=6) and longitudinal or prospective designs (n=4) ○ Interventions included: community mobilization and education (n=1), compliance checks (n=2), enforcement – state vs local regulations (n=8); enforcement – weak vs aggressive programs (n=2); access/possession laws (n=3); density of non-compliant retailers (n=1); state violation rates (n=1); and merchant education (n=1) ○ Results (detailed tables were moved to a separate file): 1) community mobilization had a temporary effect on reducing smoking prevalence in 7th graders with no changes in smoking rates among older students. 2) compliance checks in one study indicated that 80% compliance rates resulted in reduced smoking rates by 18%; in the second study as violation rates went up, there was a reduced reliance on retail sources for cigarettes (odd result). 3) local or state enforcement resulted in violation rates dropping across all studies; and

	smoking rates in middle school especially were reduced; reliance on commercial sources of cigarettes was reduced; as compliance rates increased, prevalence of smoking decreased. However reliance on social sources increased in some studies. 4) weak vs aggressive enforcement: compliance rate was 66% in weak enforcement program but still had a small impact on purchasing ability and increase in the number of never smokers; aggressive enforcement with compliance between 96-100% led to a 73% decline in purchase attempts and reduced prevalence of student smoking by 50%. 5) density of non-compliant retailers: violation rates varied across towns; and violation rates influenced initiation of smoking but not continuation. 6) merchant education impacted the ease of male students purchasing tobacco from gas stations; smoking prevalence was significantly reduced among grade 7 students. 6) enacting new laws reduced the proportion of students who bought and smoked tobacco; decreased the commercial sources and purchases among youth. • Although enforcement started later in Canada than the US, Canada achieved very low violation rates more quickly than the US. • All available evidence indicates that interventions that successfully disrupt the sale of tobacco to minors can be expected to reduce the rate of tobacco use among adolescents. • All successful enforcement programmes employ routine inspections involving test purchases made by minors. • Signatories of the FCTC should incorporate into their laws plans for enforcement through routine inspections involving test purchases as this is the only approach that can be reasonably expected to reduce smoking among youth.
COMMENTS AND LIMITATIONS	
	• No limitations noted by the author • Great variation in types of studies and locations which meant the author could not do a meta-analysis; however, breadth of work is indicative of success of intervention in disrupting sale to children, reducing retail and social supply and tobacco use in youth. • Limitations noted by rapid review team: no quality ratings, limited detail about studies provided, limited details of methods because based on a larger report to WHO

GENERAL INFORMATION AND QUALITY RATING FOR STUDY	
Citation	Lee JGL, Gregory KR, Baker HM, Ranney LM, Goldstein AO. “May I have a pack of Marlboros, please?” A systematic review of evidence to improve the validity and impact of youth undercover buy inspections. PLoS ONE, 2016; 11(4): e0153152.
Country of Publication	USA
Quality Rating	Rated using Health Evidence Quality Assessment Tool for Review Articles - Moderate Strength (6) • Review lost points as quality appraisal of included evidence not completed, for lack of transparency, and no weighting of studies.
Objectives of Review	(1) systematically examine the existing peer-reviewed evidence assessing underage buy protocols; (2) examine correlates of sales to minors in underage buy inspections that can be changed by state program staff (i.e., minor characteristics) and neighbourhood characteristics of the tobacco retailers that are chosen to be inspected; and (3) review the findings in relation to issues of entrapment with criminal vs administrative enforcement authority.
Summary of Results	• 10 studies experimentally assessed underage buy protocols and 44 studies assessed the association between youth characteristics and tobacco sales. • Protocols that mimicked real-world youth behaviours were consistently associated with substantially greater likelihood of a sale to a youth. • Many of the tested protocols appear to be designed for compliance with criminal law rather than administrative enforcement in ways that limited ecological validity. • Commonly used underage buy protocols poorly represent the reality of youths’ access to tobacco from retailers. • Compliance check programs should allow youth to present themselves naturally and attempt to match the community’s demographic makeup.
REVIEW DETAILS	
Type of review	• Systematic review
Search period	• 1980 until May 22 2015
Databases searched	• PubMed • PsycINFO
Other search	• Hand searched first four volumes of the journal *Tobacco Control*

strategies used	
Inclusion and Exclusion Criteria	Inclusion criteria: • Published in peer review journals or dissertations • Addressed access to tobacco products by people under age 18 • Assessed underage purchase attempts or variations in implementation of purchase protocols; or examined variations of purchase protocols • Assessed the rate or likelihood of underage sales • Were conducted from 1980 to present • Were conducted in the United States • No language restrictions Exclusion criteria: • Conference presentations and published abstracts
Number of included studies	47 studies were identified: • Ten experimental studies that assessed variation of underage buy protocols; • 44 studies reported on association of youth characteristics in underage buys and tobacco retailer non-compliance.
Other notes	• One author – a lawyer with tobacco regulatory science training - reviewed the findings and conclusions against the legal authorities (i.e., criminal and administrative) that guide underage buy inspections programs with attention to the issue of entrapment.
RESULTS OF REVIEW	
Main results	Experimental studies (n=10)
	Based on experimental research, commonly used underage buy protocols appear to poorly represent the reality of youths' access to tobacco products from retailers for two reasons: (1) local youth making tobacco purchases are likely to be known to clerks over time, and (2) most youth tobacco purchasers look like, act like, and are tobacco users. (1) Real world youth behaviour and familiarity in experimental studies: • One of ten studies compared real-world youth behaviour with a standard protocol: youth smokers were compared against non-smoking youth who were clean shaven or did not wear makeup. The youth smokers had 5.7 times greater odds of being sold a tobacco product (95%CI: 1.5-22.0) after controlling for sales clerk age, ID request and community characteristics. • One of ten studies tested underage buy protocols with minors who became familiar with the clerk by visiting the store multiples times. Familiarity with the minor was associated with higher sales:

	odds of a sale was 5.51 times greater (95%CI: 2.93-10.35) than in the standard protocol. • Three studies examined the role of truthfulness in compliance rates: in two of the three studies, youth lying about their age did not increase the likelihood of a tobacco sale; in the third study it did result in sale more often (OR=4.22, 95%CI: 1.69-10.57). • Two studies examined the role of purchasing additional items with the tobacco product: in both studies, purchase of an additional item with the tobacco product did not change the likelihood of sale. • Two studies reported on the use of actual IDs by youth during a compliance check. (2) Use of an identification card and type of product requested in experimental studies: • One study compared youth flashing an ID quickly versus not using any ID: youth flashing ID resulted in 3.8 times greater likelihood of a sale (95%CI: 2.05-7.03) compared to not flashing ID. • In a separate study, if youth asked for ID, minor responded either they had no idea, or with an ID. When they presented ID (which stated under 21), there was a significantly higher rate of sales (RR=6.2). • Several older studies looked at alternate tobacco purchases (prior to 2000). One study found no differences between purchases of cigarette, smokeless tobacco and cigars. Another study found that packs of cigarettes were more likely to be sold to youth than a single cigarette. In another study boys were more likely to be sold smokeless tobacco in comparison to a cigarette package. (3) Purchase completion in experimental studies: • One study looked at terminating the sale after the clerk rang it up versus completing the purchase of the pack of cigarettes. Not completing versus completing the purchase did not impact the violation rate. (4) Frequency of visits in experimental studies: • One study examined the frequency of visits – once or twice. Visiting the same store twice produced a violation rate that was 7-8% higher than just visiting once. (n.b. study purpose was measurement/reliability) (5) The role of minors' experience: • No studies looked directly at minors' experience, but one study used youth smokers as experience and comfort in purchasing cigarettes would be more challenging for a non-smoking youth. One study found a dose-response relationship between youth experience with attempting to purchase tobacco products and purchase rates increasing by 15% in second half of the project in comparison to the first half.

	Correlational studies (n=44) *Youth and neighbourhood characteristic correlates of underage sales:* 44 correlational records were identified and they judged 20 to be at low risk for confounders between age, gender, race and neighbourhood characteristics. (1) Age: • 11 studies provided unequivocal evidence that the age of the minor is positively associated with the likelihood of the sale. For example, one study reported a 4.2% buy rate for 13 year olds, and a 30.5% buy rate for 16 year olds. Another study reported that the odds of a tobacco sale were 2.43 times higher for a 17 year old in comparison to a 15 year old. (2) Sex: • 13 studies looked at the sex of the youth and seven found that girls were more likely to be sold tobacco than boys. Five studies found no significant differences. No studies found a positive association between male and tobacco sales. One study reported on gender discordance between buyers and the clerk, finding higher rates of sales from female clerks to female minors, and male clerks and male minors. (3) Race/ethnicity: • Five of six studies showed a significantly higher likelihood of sales to a black youth than a white youth. One study which looked at single cigarette sales did not find a significant difference by the minor's racial background. (4) Neighbourhood: • A diversity of definitions of neighbourhoods, limited reporting of unadjusted results and use of dichotomized neighbourhood characteristics complicated the literature on whether sales differ by demographic characteristics of a neighbourhood. • Two studies reported decreased likelihood of sales to minors as neighbourhood income increased. Three other studies did not find these same relationships. • The relationship between percentage of Black residents in a given neighbourhood and likelihood of sales to minors was also complex. Two studies using adjusted regression analyses reported positive associations. In unadjusted analyses, there was no significant relationship in four studies, and a positive association in three studies. Two other studies found negative associations between Black residents and retail sales to minors. • Four studies found significant positive associations between proportion of Hispanic residents in a neighbourhood and underage sales. One study found no significant association.

	Legal considerations • Public health professionals appear to be concerned about underage purchase attempts constituting entrapment and designed restrictive, ecologically invalid protocols in response to this concern. The existing legal literature suggests this fear may be unsubstantiated. • To meet the legal standard for entrapment, significant inducement or coercion is required by the inspection program – well beyond the straightforward underage tobacco purchase attempt. It must be proven that the retailer would not have sold to the minor under regular circumstances. Historically this has been extremely difficult to prove. • As a general rule, the use of underage buyers to expose illegal activity or regulatory violations does not constitute entrapment because the inspection does no more than offer the opportunity to commit the violation.
CONCLUSIONS AND RECOMMENDATIONS	
	Conclusions: • The experimental literature offers some clear improvements to the standard underage buy protocol; whether or not they are for enforcement of criminal state laws or administrative FDA regulations should influence the protocols. • State programs developing or updating protocols should consider the legal authority under which the protocol is being implemented and strive to mimic real-world appearance, behaviours and demographics of participating youth in protocol development. • Developing standard protocols that focus on the validity and reliability of the data is key to identifying violators, remedying the problem and ultimately reducing youth access to tobacco products. Recommendations for Protocol* (1) Youth recruitment, age and appearance: • Consider using minors no younger than 16, exclusively using minors age 17 is ideal • Minors should represent real-world youth smokers, reflecting the gender and racial/ethnic composition of their locale • Minors should not be made to look artificially younger by requiring dressing in a particular way (e.g., no makeup, no facial hair). Hiring should be done over the phone to avoid appearance bias. • Train and maintain experienced minors, including minor smokers who smoked before being recruited (n.b., minor smokers should be offered smoking cessation resources; minors who start smoking should be dismissed).

	(2) Protocol: • Vary the requested tobacco product to match the product typically purchased by minor of each particular demographic • Require minors to carry identification cards and show them *if asked* • Train minors in avoiding answering questions to disclose a compliance check, but there is no evidence to suggest lying about age improves validity of compliance checks. • Consider sending the same minor to conduct purchase attempts more than once at the same store.
COMMENTS AND LIMITATIONS	
	• The literature reviewed does not address several important issues of underage buy compliance check protocols including how and when retailers become aware that they are being assessed for compliance (e.g., adult chaperones who enter with minor? Use of 'unmarked' police cars to drop off youth?) • Older literature identified in this review paper raises questions about (1) changes in format of state-issued identification (i.e., newer colour-coded licenses) and (2) changes in the retail environment (i.e., no longer have self-service displays or vending machines). • Because of the limited literature and its age, the researchers did not exclude records based on their quality or risk of bias. • Publication bias may be present. • The researchers did not include detailed information on the reasons that records were not included in this review.

*** Readers are advised to consult with local attorneys general to ensure compliance as some state laws may pre-empt these recommendations.**

GENERAL INFORMATION AND QUALITY RATING FOR STUDY	
Citation	Zhang B, Diemert L, Fox J, Baker-Barill C, Uprichard J, Zeoli S, Karapetyan T, O'Connor S. Bad ways to be nice campaign: Evaluation Survey Results. Toronto, ON: Ontario Tobacco Research Unit, Not to Kids Coalition, CETCAN, Regional Municipality of York, 2015.
Country of Publication	Canada
Quality Rating	Appraised using the AACODS checklist for grey literature. No quality concerns were reported.
Objective of Study	• Evaluation of *Bad Ways to Be Nice* campaign: to support the CE TCAN and its partners in evaluating the short-term and mid-term program objectives as outlined. • The short-term objectives: (1) identify level of campaign awareness among young adults in the CE TCAN; (2) assess young adult receptivity to the campaign messages. • The mid-term objective: assess if the campaign changed CE TCAN young adults attitudes toward supplying cigarettes to teens.
Summary of Results	• The initial phase of the campaign was to achieve an awareness of campaign and response to campaign – exceeded their expectation • The campaign made those who were more likely to supply cigarettes to teens think twice before supplying cigarettes to teens.
STUDY DETAILS	
Method	• Following spring campaign, CE TCAN conducted street-intercept survey of 617 smokers and non-smokers • Data collected from July 7 2014 – Aug 7 2014 in Simcoe-Muskoka and York regions. • Street intercept interviews took place at variety of locations including: beaches, coffee shops, cinemas, mall entrances, sports events, etc • Participants asked about behaviours regarding social supply of cigarettes, and general awareness of the campaign • All participants shown a poster and a text description of the three campaign videos to assist recall and confirmation of awareness of the videos • Those who recalled videos were asked about receptivity ot them and if the videos impacted their attitudes/intentions • Those who did not recall campaign were shown one of the three videos and then asked for

	their receptivity and impact
Inclusion and Exclusion Criteria	• Screening: resided in the area for at least one month, 19-25 years of age • Participants asked if smoked in last 6 months – wanted a mixed sample of smokers and non-smokers • Verbal consent to survey participation
Participation rate	• Among 1,238 people approached, 614 declined, 7 were not eligible, resulting in 617 participants. The response rate was 50%.
Data analysis	• Univariate and bivariate descriptive statistics of the street intercept data were conducted. • Fishers' exact test was used to compare proportion differences between groups. • Statistical significance was set at $p<0.05$. SAS used for statistical analysis.
EVALUATION RESULTS	
Sample demographics	• 617 eligible young adults; 54% female, 46% male, average age of 21.6 years • More young adults with higher education (some or completed college or university education = 84%) than lower education (high school or less =16%) • There were more non-smokers (59%) than smokers (41%).
Results	• 33% of young adults made positive changes in attitudes toward the issues of supplying cigarettes to teens • Specifically younger young adults (19-21 years old)(37%), smokers (45%) and young adults who supplied cigarettes to teens in the past (56%) were more likely to make positive changes in attitudes toward the issue of supplying cigarettes to teens. • 19% of young adults reported that the campaign did not make them think about the issue. • 46% reported that the campaign confirmed their thinking that it is NOT okay to buy or give cigarettes to teens; 7% were convinced NOT to buy or give cigarettes to teens; 27% said it made them think twice about the issue • Overall 27% of young adults ever knowingly supplied cigarettes to teens. Male young adults (40%), young adults with low education (48%) and smokers (47%) were more likely to report ever knowingly supply to teens. • In the last 12 months, 15% have knowingly supplied teens with cigarettes (same demographics as above). • Intention to supply to teens is low – 17%. • Overall: initial phase of the campaign managed to change attitudes of the suppliers toward the issue of supplying cigarettes to teens, and can be considered a success in achieving the

	campaign midterm objective.
COMMENTS AND LIMITATIONS	
	• Based on a convenience sample of young adults; many not be generalizable to the entire young adult population • Good range of places that the young adults were recruited which minimized clustering, and provided a wider range of demographics • Cross-sectional survey with no comparison groups; therefore no causality can be inferred • Long-term impacts of the campaign remain unknown.

Appendix F: Applicability & Transferability Worksheet

Factors	Questions	Notes
Applicability (feasibility)		
Political acceptability or leverage	• Will the intervention be allowed or supported in current political climate? • What will the public relations impact be for local government? • Will this program enhance the stature of the organization? ○ *For example, are there reasons to do the program that relate to increasing the profile and/or creative a positive image of public health?* • Will the public and target groups accept and support the intervention in its current format?	

Social acceptability	• Will the target population find the intervention socially acceptable? Is it ethical?
	  ○ *Consider how the program would be perceived by the population.*
	  ○ *Consider the language and tone of the key messages.*
	  ○ *Consider any assumptions you might have made about the population. Are they supported by the literature?*
	  ○ *Consider the impact of your program and key messages on non-target groups.*	

Available essential resources (personnel and financial)	• Who/what is available/essential for the local implementation?
	• Are they adequately trained? If not, is training available and affordable?
	• What is needed to tailor the intervention locally?
	• What are the full costs?
	  ○ Consider: in-kind staffing, supplies, systems, space requirements for staff, training, and technology/administrative supports.
	• Are the incremental health benefits worth the costs of the intervention?
	  ○ Consider any available cost-benefit analyses that could help gauge the health benefits of the intervention.	

	○ Consider the cost of the program relative to the number of people that benefit/receive the intervention.	
Organizational expertise and capacity	• Is the intervention to be offered in line with Peel Public Health's 10-Year Strategic Plan (i.e., 2009-2019, 'Staying Ahead of the Curve')? • Does the intervention conform to existing legislation or regulations (either local or provincial)? • Does the intervention overlap with existing programs or is it symbiotic (i.e., both internally and externally)? • Does the intervention lend itself to cross-departmental/divisional collaboration? • Any organizational barriers/structural issues or approval processes to be addressed? • Is the organization motivated (learning organization)? ○ Consider organizational capacity/readiness and internal supports for staff learning.	
Transferability (generalizability)		
Magnitude of health issue in local setting	• What is the baseline prevalence of the health issue locally? • What is the difference in prevalence of the health issue (risk status) between study and local settings? ○ *Consider the Comprehensive Health Status Report, and related epidemiological reports.*	
Magnitude of the "reach" and cost effectiveness of the intervention above	• Will the intervention appropriately reach the priority population(s)? ○ What will be the coverage of the priority population(s)?	
Target population characteristics	• Are they comparable to the study population? • Will any difference in characteristics (e.g., ethnicity, socio-demographic variables, number of persons affected) impact intervention effectiveness locally? ○ *Consider if there are any important differences between the studies and the population in Peel (i.e., consider demographic, behavioural and*	

	other contextual factors).	
Proposed Direction (after considering the above factors):		