Smoke-Free Ontario OTRU Scientific Advisory Group Evidence Update 2017

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Introduction

The Smoke-Free Ontario Scientific Advisory Committee report *Evidence to Guide Action: Comprehensive tobacco control in Ontario (2016)* (SFO-SAC 2016)[1] was a major comprehensive assessment that aimed to identify the tobacco control interventions that would have the greatest impact on reducing tobacco use and tobacco-related burden in Ontario. This innovative report utilized a systematic process to identify and assess the effectiveness of interventions to reduce the use of, and exposure to, tobacco products. It provided a scientific consensus on the most impactful interventions for tobacco control in Ontario and demonstrated that the greatest impact is uses a comprehensive tobacco control strategy leveraging the combined contributions of many interventions.

This report updates the evidence statements from the SFO-SAC 2016 report with the most recent evidence from systematic literature reviews.

This update adds recommendations on two new potential interventions: cessation in prisons and cessation among individuals living with HIV. It also suggests a change in the evidence statement for cessation in individuals with substance use issues from Undetermined to Promising Direction.

The SFO-SAC 2016 used a categorization process to assess the potential contribution of each intervention. Potential contribution was determined by agreement amongst SAC members, considering the evidence of effectiveness, the Ontario context and opportunity gap. The core of this report relied on systematic literature reviews using pre-appraised databases, librarian assisted search, and literature provided by SFO-SAC members rating the literature according to the CDC's *Continuum of Evidence of Effectiveness*.[2] This rating scale identifies the highest level of empirical evidence while also recognizing emerging and promising practices. From this rating, Scientific Consensus statements were developed. Scientific Consensus statements were expert-informed conclusions based on a balance of the body of evidence and the collective opinions of the experts about the potential contribution of each intervention in the context of "What intervention, or set of interventions, will have the greatest impact on reducing tobacco use in Ontario?". Full details on the methodology of the SFO-SAC 2016 report are available on the report's website.

SFO-SAC 2016 was itself based on an earlier Scientific Advisory Committee in 2009. Between 2010 and 2016, a substantial quantity of relevant research was published but the SAC report remained static and thus became outdated as a source of evidence for informing policy and practice. The Ontario Ministry of Health and Long-Term Care, and partners, have identified a need for ongoing updating of the SFO-SAC report evidence in this rapidly changing tobacco control environment. In order, then to engage in a process of maintaining the evidence, OTRU has been tasked with updating the evidence and scientific consensus statements to ensure that the evidence base for tobacco control policy continues on the leading edge. To support these efforts, OTRU has convened the Scientific Advisory Group (SAG) – an expanded group of scientists and researchers concerned with tobacco control in Ontario.

This update includes new research evidence on tobacco control published from October 15, 2015 (the date of inclusion for librarian assisted searching from the 2016 report) to January 1, 2017. At its first annual meeting, held on March 26, 2017, SAG assessed the strength of updated evidence that had been collected, synthesized and pre-assessed by OTRU.

This update identifies all systematic literature reviews concerning tobacco control interventions addressing cessation of tobacco, prevention of tobacco initiation, protection from tobacco smoke, and tobacco industry interventions. The publications were identified through a systematic search process, the quality of the reviews was assessed, and relevant data was extracted. OTRU conducted an initial review to suggest any potential changes in strength of evidence for SAC identified interventions and any new interventions that had not yet been included in SFO-SAC 2016. Validation of changes to evidence were provided by SAG who then considered if evidentiary changes warranted changes to the scientific consensus statements.

Methodology

Search Strategy

The review methodology was based on SAC 2016 with a number of modifications to streamline review burden and focus on identification of review articles and topics that had not been included in the SAC 2016 report. Medline, EMBASE, CINAHL and PsychInfo were searched.

Inclusion criteria were:

- Systematic review articles (not narrative reviews)
- Addressed tobacco control (tobacco use, cessation, prevention, or protection)
- Assessed interventions or potential interventions (ie., not risk factors or health impacts)
- Published between October 15, 2015 and January 1, 2017

Two independent researchers conducted data extraction from each systematic review and coded for chapter (cessation, prevention, protection, or industry) and topic within chapter. The extracted data includes: objective, included studies & jurisdiction, population, intervention, comparison, outcome(s), findings, and author(s) conclusion and limitations. Researchers held resolution discussions in order to discuss and resolve any discrepancies in extraction.

Quality Assessment: Quality assessments of each review were conducted according to McMaster's Health Evidence Quality Assessment tool, which appraises reviews according to a focused research question, outlined inclusion and exclusion criteria, adequate search strategy and duration, transparency of quality assessment, appropriate combining and weighting of results, as well as consistent interpretation of the results. Each review was assigned a quality rating between 0 and 10, thus indicating weak (0-4), moderate (5-7), or strong (8-10) quality. Where possible, the quality assessment work as performed by McMaster's Health Evidence Quality assessment group was used.

Recommendations Process

OTRU researchers compared the new evidence against the existing evidence statements and assessed if CDC evidence level would be changed with the inclusion of updated evidence according to the number of additional reviews, the quality of reviews and the review conclusions. Resulting suggestions for all included topics (change in recommendation, no change in recommendation, and creation of new topic) were brought to the SAG group for discussion of validity of proposed changes to CDC evidence level, and potential changes were to the impact statement. The SAG was also consulted for expert opinion of the inclusion of any additional relevant reviews.

Results

Initially 315 unique articles were identified through the search process. Title and abstract screening reduced the number to 71 potential. After further review a total of 51 review articles were assessed as fully eligible for inclusion. These articles were classified into 21 different topics from three of the four chapters. No new eligible reviews on industry interventions were identified. Included reviews and full data extraction are available in an excel file: Data Extraction Table.xlsx.

Topics with changes to the evidence level and impact statement are available in Table 1. Updated evidence statements that did not require changes to the evidence level or impact statement are available in Table 2.

Two new topics were identified for inclusion into the updated reported - prisons (cessation setting) and cessation for individuals with HIV.

Preliminary assessments suggested possible increases in evidence level for five topics and a decrease in evidence level for one topic. However, only one topic was recommended for an increase in evidence level by SAG: cessation in individuals with substance use issues. The recommendation was changed from Undetermined to Promising Direction. No changes were recommended to be made to the impact statement.

Conclusions

The best available evidence was used to update the consensus statements and evidence statements of the SFO-SAC 2016 report. The Scientific Advisory Group recommended a number of changes to the process going forward in the future including the identification of the primary studies that may have contributed to the updating of review level information from previous reports. Future reports should also consider the impact of equity.

Table 1: Topics with Changes to Recommendation Levels

Topic	Statement in SAC 2016 Report	Updated Statement	Review first author and assessed quality	Update of Recommendation
CESSATION				
Individuals with HIV	N/A	The body of evidence regarding the effectiveness of interventions on individuals living with HIV included one systematic review & meta-analyses, and one meta-analysis (both appraised as Level I). Overall, the evidence showed positive significant effect for smoking cessation interventions. Behavioural tobacco-treatment interventions targeting smokers living with HIV demonstrated a significant effect in terms of increased abstinence. Combined interventions of pharmacotherapy and behavioural support were reported to be effective for individuals living with HIV.	Keith – Level I Pool – Level I	Not included to **Supported**
Prisons	N/A	The body of evidence regarding the effectiveness of interventions on the prison population included one systematic review appraised as Level I. The evidence showed moderately positive effects for smoking cessation interventions. It indicated that cessation programmes/bans can be an effective mechanism to interrupt prisoner smoking behaviour, particularly with multicomponent strategies.	de Andrade - Level I	Not included to **Emerging**
Individuals with Substance Use	The body of evidence regarding the effectiveness of interventions for persons undergoing methadone maintenance included one narrative review appraised as Level II. Overall, the results of the review showed no significant effect on increasing abstinence or reducing the average number of cigarettes per day.	The body of evidence regarding the effectiveness of interventions on individuals with substance use included one systematic review and one narrative review (one appraised as Level I and one appraised as Level II). Overall, the evidence showed positive effects for some smoking cessation interventions. Pharmacotherapy and combined counselling and pharmacotherapy showed significant association with tobacco abstinence. However, counselling alone did not significantly increase tobacco abstinence.	Apollonio – Level I	Undetermined to **Promising Direction**

Table 2: Topics with Changes Only to Evidence Statement

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
CESSATION				
E-cigarettes	The body of evidence regarding e-cigarettes included three systematic reviews and meta-analyses, five systematic reviews, three narrative reviews and one review of reviews (two appraised as Level I, four as Level II, and six as Level III). Overall the evidence is unclear on whether e-cigarettes are effective to increase smoking cessation.	The body of evidence regarding e-cigarettes included five systematic review & meta-analyses, six systematic reviews, three narrative reviews, and one review of reviews (five appraised as Level I, four as Level II, and six as Level III). Overall, the evidence is unclear whether e-cigarettes are effective at increasing smoking cessation. Two systematic reviews indicated that there is a positive association between e-cigarette use and smoking cessation. However, other studies indicated that e-cigarette use is also associated with increased odds of cigarette use for youth and young adults.	Hartmann-Boyce – Level I Malas – Level I Kalkhoran – Level I	Emerging
Indigenous Populations	The body of evidence on the effectiveness of interventions culturally-adapted to Indigenous populations included one systematic review and meta-analysis and three systematic reviews (two appraised as Level I, one as Level II, and one as Level III). Overall, there is evidence that interventions (e.g., pharmacotherapy and cognitive and behavioural therapies) are effective to increase smoking cessation in Indigenous populations. However, the evidence consistently stated that more research was needed on	The body of evidence regarding the effectiveness of interventions among Indigenous populations included four systematic reviews and one systematic review and meta-analyses (three appraised as Level I, one as Level II, and one as Level III). Overall, there is evidence that interventions (e.g., pharmacotherapy and cognitive and behavioural therapies) are effective to increase smoking cessation in Indigenous populations. The results also indicate that interventions that incorporated educational programs along with additional form of interventions showed reduction. However, the evidence consistently stated that more research was needed on whether culturally-adapted interventions for Indigenous populations are needed.	Minichiello – Level I	Promising Direction

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	whether culturally-adapted interventions for Indigenous populations are needed.			
Individuals Who Identify as LGBT	The body of evidence on the effectiveness of interventions targeted to individuals who identify as LGBT included one narrative review appraised as Level II. Overall, the results of the review showed that tailored "LGBT-friendly" interventions were effective, however, two studies (using intensive counselling and pharmacotherapy) that were not tailored to LGBT were found to be equally effective for both LGBT and heterosexual individuals.	The body of evidence regarding the effectiveness of interventions on LGBT populations included one systematic review and one narrative review (one appraised as Level I and one appraised as Level II). Overall, the results of the review showed that tailored "LGBT-friendly" interventions were effective, however, two studies (using intensive counselling and pharmacotherapy) that were not tailored to LGBT were found to be equally effective for both LGBT and heterosexual individuals. Control groups were not used in the included studies of one review.	Berger – Level I	Promising Direction
Individuals with Diabetes	The body of evidence on the effectiveness of interventions for individuals with diabetes included one systematic review and meta-analysis appraised as Level I. The results of the review showed some possible effectiveness in more intensive interventions (i.e., pharmacotherapy and counselling) on smoking cessation.	The body of evidence regarding the effectiveness of interventions on individuals with diabetes included one systematic review and one systematic review and meta-analysis (one appraised as Level I and one appraised as Level II). Evidence indicated that only two studies that involved educational intervention programs of over 40 minutes showed a statistically significant decrease in self-reported smoking. Results suggest some possible effectiveness in more intensive interventions (i.e., pharmacotherapy and counselling) on smoking cessation.	Register – Level II	Promising Direction

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
Individuals with Cancer	The body of evidence regarding the effectiveness of tobacco control interventions for oncology patients included one systematic review and meta-analysis and one narrative review (one appraised as Level II and one as Level III). There was evidence that pharmacological interventions combined with non-pharmacological interventions in the perioperative period were effective at improving abstinence rates, with a higher likelihood of achieving smoking cessation.	The body of evidence regarding the effectiveness of interventions on individuals with cancer included two systematic review and meta-analyses, two systematic reviews, and one narrative review (two appraised as Level I, two appraised as Level II, and one as Level III). There was evidence that pharmacological interventions combined with non-pharmacological interventions in the perioperative period were effective at improving abstinence rates, with a higher likelihood of achieving smoking cessation. Further, the evidence indicates that cognitive behavioural therapy and pharmacotherapy delivered by nurses showed significant increase in smoking cessation. Counselling was found to be an overall effective intervention method for people with head and neck cancer.	Klemp – Level I McCarter – Level I Pineiro – Level II	Well-supported
Individuals with Mental Illness	The body of evidence regarding the effectiveness of interventions on individuals with mental illness included five systematic review and meta-analyses and two narrative reviews (four appraised as Level I, two as Level II, and one as Level III). The evidence showed variable levels of effectiveness, depending on both the intervention and the type of mental illness. Pharmacotherapy and pharmacotherapy with behavioural therapy showed strong effectiveness at increasing	The body of evidence regarding the effectiveness of interventions on individuals with mental illness included six systematic review and meta-analyses and two narrative reviews (four appraised as Level I, three as Level II, and one as Level III). The evidence showed variable levels of effectiveness, depending on both the intervention and the type of mental illness. Pharmacotherapy and pharmacotherapy with behavioural therapy showed strong effectiveness at increasing abstinence when compared to control groups in individuals diagnosed with severe mental illness. Bupropion showed strong effectiveness at increasing abstinence when compared to control groups for individuals with schizophrenia. Psychosocial mood management showed moderate effectiveness at increasing abstinence when compared to control groups for individuals with depression.	Roberts – Level II	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	abstinence when compared to control groups in individuals diagnosed with severe mental illness. Bupropion showed strong effectiveness at increasing abstinence when compared to control groups for individuals with schizophrenia. Psychosocial mood management showed moderate effectiveness at increasing abstinence when compared to control groups for individuals with depression.	Varenicline was also shown to be effective for smoking cessation in individuals with mental illnesses.		
Individuals with COPD	The body of evidence on the effectiveness of interventions for individuals with chronic obstructive pulmonary disease (COPD) included one systematic review and meta-analysis, one systematic review and network meta-analysis, three systematic reviews, and one narrative review (four appraised as Level I, one as Level II, and one as Level III). Overall, the evidence showed positive, but not consistently significant, effects for smoking cessation interventions (e.g. behavioural and	The body of evidence regarding the effectiveness of interventions on individuals with COPD included four systematic reviews, one systematic review & meta-analysis, one systematic review & network meta-analysis, and one narrative review (five appraised as Level I, one as Level II, and one as Level III). Overall, the evidence showed positive, but not consistently significant, effects for smoking cessation interventions (e.g. behavioural and pharmacotherapy interventions), with greater effectiveness seen in combination treatments (e.g., intensive counselling with NRT). New evidence has shown that a combination of behavioural treatment and pharmacotherapy is effective in helping smokers with COPD to quit.	Van Eerd – Level I	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	pharmacotherapy interventions), with greater effectiveness seen in combination treatments (e.g., intensive counselling with NRT).			
Prenatal and Postpartum (population)	The body of evidence regarding the effectiveness of interventions for adults during the prenatal and postpartum period included five systematic review and meta-analyses, three systematic reviews and three narrative reviews (five appraised as Level I, four as Level II, and two as Level III). Overall, psychosocial interventions that were multi-component, such as counselling combined with other strategies (i.e. health education, feedback, and social support) as well as being tailored, were effective at increasing smoking cessation in pregnant women. Evidence on pharmacotherapy interventions had mixed effects and partner support-focused interventions did not appear to have an effect on increasing smoking cessation among pregnant women.	The body of evidence regarding the effectiveness of interventions on adults during the prenatal and postpartum period included seven systematic review & meta-analyses, three systematic reviews, three narrative reviews (seven appraised as Level I, four as Level II, and two as Level III). Overall, psychosocial interventions that were multi-component, such as counselling combined with other strategies (i.e. health education, feedback, rewards/incentives, informational materials, and social support) as well as being tailored, were effective at increasing smoking cessation in pregnant women. Evidence on pharmacotherapy interventions had mixed effects and partner support-focused interventions did not appear to have an effect on increasing smoking cessation among pregnant women. One study reported effectiveness of NRT.	Jones – Level I Coleman – Level I	Well-supported
Other Health Care	The body of evidence regarding the	The body of evidence regarding the effectiveness of	Bartsch – Level I	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
Settings	effectiveness of interventions in primary care and other health care settings for smoking cessation included ten systematic reviews with meta-analysis, three systematic reviews and one review (11 appraised as Level I, two as Level II, and one as Level III). Interventions (mostly behavioural support/counselling of varying intensities, with or without pharmacotherapy) were overall effective at increasing smoking cessation and abstinence in primary care, outpatient pre-operative, dental care and pharmacy, but not in the emergency department setting. Interventions in these healthcare settings can vary in terms of intervention type and intensity, health care provider (i.e., nurses, pharmacists, primary care physicians and dentists), and setting.	interventions in primary care and other health care settings for smoking cessation included seven systematic reviews, ten systematic reviews with meta-analyses, one narrative review, one realist review, and one review (14 appraised as Level I, three as Level II, and three as Level III). Interventions (mostly behavioural support/counselling of varying intensities, with or without pharmacotherapy) were overall effective at increasing smoking cessation and abstinence in primary care, outpatient pre-operative, dental care and pharmacy, but not in the emergency department setting. These effects were found in children and youth as well as adults. Interventions in these healthcare settings can vary in terms of intervention type and intensity, health care provider (i.e., nurses, pharmacists, primary care physicians and dentists), and setting. One study noted that it is important to increase the number of smokers who use the pharmacy-led service, as it is cost-effective, and to increase the success rates of these services, education and routine training for all pharmacy personnel is essential.	Brown – Level I Hall – Level I Peletidi – Level II Greenhalgh – Level III Kazemzadeh – Level III	
Smokeless Tobacco	The body of evidence on the effectiveness of tobacco cessation interventions for smokeless tobacco users included three meta-analyses and one narrative review (two	The body of evidence regarding the effectiveness of tobacco cessation interventions for smokeless tobacco users included three meta-analyses, one narrative review, and two systematic reviews (three appraised as Level I, two as Level II, and one appraised as Level III). Overall, varenicline, nicotine lozenges,	Ebbert – Level I Hurst – Level II	Promising Direction

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	appraised as Level I, one as Level II, and one as Level III). Overall, the results showed varenicline was effective to increase abstinence rates, while NRT and bupropion were not effective among smokeless tobacco users. Interventions in the dental setting were also effective to increase tobacco abstinence.	and, behavioural interventions are reported to help smokeless tobacco users to quit. NRT and bupropion were not effective among smokeless tobacco users. Interventions in the dental setting were also effective to increase tobacco abstinence.		
Waterpipe	The body of evidence on the effectiveness of tobacco cessation interventions for waterpipe users included one narrative review appraised as Level I. Overall, the results from the review showed some evidence that behavioural, or combined behavioural and pharmacological (NRT) interventions, increased smoking cessation. The pharmacological agent bupropion did not appear to provide additional benefit when used along with behavioural support.	The body of evidence regarding the effectiveness of tobacco cessation interventions for waterpipe users included one systematic review and one narrative review (both appraised as Level I). Overall, the results showed some evidence that behavioural, or combined behavioural and pharmacological (NRT) interventions, increased smoking cessation. The pharmacological agent bupropion did not appear to provide additional benefit when used along with behavioural support.	Jawad – Level I	Supported
Behavioural	The body of evidence on the effectiveness of behavioural interventions included four systematic review and meta-	The body of evidence on the effectiveness of behavioural interventions included one systematic review & narrative summary, three meta-analyses, four systematic review & meta-analyses, one review of systematic reviews, and one narrative	Hubbard – Level I Oikonomou – Level I	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	analyses, one review of systematic reviews, two meta-analyses and one narrative review (five appraised as Level I, two as Level II, and one as Level III). More intense (dose response) behavioural interventions (i.e., individual counselling, group counselling and telephone counselling) and motivational interviewing (a client-centered counselling approach) were effective to increase smoking abstinence. Stage- based interventions and interventions focused on smoking cessation and weight control (longer than three months) were not effective to increase smoking cessation.	review (seven appraised as Level I, two as Level II, and one as Level III). More intense (dose response) behavioural interventions (i.e., individual counselling, group counselling and telephone counselling) and motivational interviewing (a client-centered counselling approach) were effective to increase smoking abstinence. Mindfulness training was found to be more effective in smoking cessation than quit lines. Stage- based and family-based interventions and interventions focused on smoking cessation and weight control (longer than three months) were either unclear, or not effective to increase smoking cessation.		
Pharmacotherapy	The body of evidence on the effectiveness of pharmacotherapy interventions included two reviews of Cochrane reviews, eleven systematic review and meta-analyses, two meta-analyses, four systematic reviews, three narrative reviews, and one primary study (11 appraised as Level I, 10 as Level II, and two as Level III). First-line	The body of evidence on the effectiveness of pharmacotherapy interventions included six systematic reviews, three meta-analyses, three reviews of reviews, twelve systematic review & meta-analyses, three narrative reviews, and one primary study (15 appraised as Level I, 11 as Level II, and two as Level III). First-line medications such as NRT, varenicline and bupropion have been shown to be effective to increase quit rates and smoking abstinence. Other drugs such as cytisine, nortriptyline, and clonidine, along with combination of pharmacotherapy and behavioural support or counselling have shown effectiveness to	Smith – Level I Stanley – Level I Vogeler – Level I Wu – Level I Hurst – Level II	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	medications such as NRT, varenicline and bupropion have been shown to be effective to increase quit rates and smoking abstinence. Other drugs such as cytisine, nortriptyline, and clonidine, along with combination of pharmacotherapy and behavioural support or counselling have shown effectiveness to increase smoking abstinence in reviews of controlled trials. In addition, full health insurance coverage of both pharmacotherapy and behavioural support increased the odds of quit attempts, use of smoking cessation treatments and smoking abstinence. There was no, or insufficient, evidence supporting the benefits of other antidepressants, such as naloxone, anxiolytics, silver acetate, nicotine vaccines, lobeline, nicobrevin and mecamylamine.	increase smoking abstinence in reviews of controlled trials. In addition, full health insurance coverage of both pharmacotherapy and behavioural support increased the odds of quit attempts, use of smoking cessation treatments and smoking abstinence. There was no, or insufficient, evidence supporting the benefits of other antidepressants, such as naloxone, anxiolytics, silver acetate, nicotine vaccines, lobeline, nicobrevin and mecamylamine. Several studies combined behavioural support/counselling with pharmacotherapy, and found the combination was effective in encouraging smoking cessation. One study reported that combination buproprion and varenicline displayed greater efficacy in smoking cessation than varenicline monotherapy. Women and men treated with varenicline achieved similar cessation outcomes at 6 months; however, the benefits of varenicline were greater for women compared to men.		
Technology-Based	The body of evidence regarding the effectiveness of technology-based interventions for smoking cessation included seven meta-analyses, seven systematic reviews, three	The available evidence on the effectiveness of technology-based interventions for encouraging smoking cessation included eight meta-analyses, nine systematic reviews, three systematic review & meta-analyses, three narrative reviews, and one primary study (12 appraised as Level I, nine appraised as Level II, and three as	Boland – Level I Graham – Level I Scott-Sheldon – Level I Whittaker – Level I Ybarra – Level I	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	narrative reviews and one primary study (seven were appraised as Level I, eight as Level II, and three as Level III). **Internet and computer interventions** were effective to increase quit and abstinence rates, especially when tailored and/or interactive, compared to minimal, non-interactive controls (e.g., print and self-help material). **Text messaging** interventions were effective to increase smoking cessation in terms of reducing cigarette consumption, increasing quit rates and self-reported abstinence. Text messaging interventions reviewed were often combined with other interventions.	Level III). **Internet/computer** interventions were effective at increasing smoking cessation and quit rates, and were noted as superior to other methods such as print materials. Interventions were especially effective when tailored and/or interactive. **Text messaging interventions** were found to reduce smoking behaviour and encourage abstinence. These effects held true among Indigenous, psychiatric and inpatient substance use disorder patients as well.	Afshin – Level II	
PREVENTION				
Elementary and Secondary School Prevention Programs (Prevention)	The best available research evidence for school-based programs to prevent tobacco use came from nine systematic reviews (six of which had meta-analyses). Four reviews were appraised as Level I quality, four were appraised as Level II quality, and one was appraised as Level III quality.	The best available research evidence for school-based programs to prevent tobacco use came from nine systematic reviews (six of which had meta-analyses), and two systematic review & meta-analyses (six appraised as Level I, four appraised as Level II, and one appraised as Level III). Effective school-based programs (e.g., those that prevent uptake of smoking and reduce smoking prevalence and behaviour): 1)address social influences (i.e., provide adolescents with skills to overcome social influences that promote tobacco use, 2) address social competence jointly with	Georgie – Level I	Supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	Effective school-based programs (e.g., those that prevent uptake of smoking and reduce smoking prevalence and behaviour): 1)address social influences (i.e., provide adolescents with skills to overcome social influences that promote tobacco use, 2) address social competence jointly with social influences and self-control (i.e., enhance adolescents' tobacco refusal skills by improving their general social competence, and their specific skills for overcoming social influences that promote tobacco use), 3) include problem-solving training, 4) focus on healthy alternatives to substance use, 5) include peer education, and 6) involve parents. Successful programs are often brief (i.e., no longer than one year), include multiple sessions over the school year, and are delivered by health educators and/or trained community members. Competitions, such as programs that require students to commit to regularly	social influences and self-control (i.e., enhance adolescents' tobacco refusal skills by improving their general social competence, and their specific skills for overcoming social influences that promote tobacco use), 3) include problem-solving training, 4) focus on healthy alternatives to substance use, 5) include peer education, and 6) involve parents. Successful programs are often brief (i.e., no longer than one year), include multiple sessions over the school year, and are delivered by health educators and/or trained community members. Competitions, such as programs that require students to commit to regularly reporting their smoke-free status for a given interval, are effective for preventing initiation among elementary and secondary school students. There was moderate evidence to show lower odds of weekly or monthly smoking in those that received the intervention.		

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	reporting their smoke-free status for a given interval, are effective for preventing initiation among elementary and secondary school students.			
Onscreen Tobacco Use (Prevention)	The body of evidence for this topic comprised a recent systematic review and meta-analysis (Level I quality), a systematic review (Level II quality), and two grey literature reports. Overall, there is consistent evidence that young people exposed to tobacco use and product placement in movies are more likely to: 1) experiment with or take up smoking, 2) report more positive attitudes towards smoking, and 3) endorse pro-smoking beliefs and intentions. No clear relationship was established between playing video games and smoking behaviour among children and adolescents. There is limited evidence that addresses onscreen tobacco use and product placement interventions. One modelling study suggested that using a movie-rating system that limited children's and adolescents'	The evidence for this topic consisted of two systematic review & meta-analyses, one systematic review, and two grey literature reports (two appraised as Level I, one appraised as Level II). Overall, there is consistent evidence that young people exposed to tobacco use and product placement in movies are more likely to: 1) experiment with or take up smoking, 2) report more positive attitudes towards smoking, and 3) endorse pro-smoking beliefs and intentions. The evidence demonstrated that higher exposure to smoking in movies was associated significantly with a doubling in risk of ever trying smoking or initiating smoking. The association between young people reporting having seen smoking imagery in films and smoking status is greater than the prospective association; while both associations are substantial, it is not clear whether or not they are causal. No clear relationship was established between playing video games and smoking behaviour among children and adolescents.	Leonardi-Bee – Level I	Emerging

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	exposure to onscreen tobacco use and tobacco products would reduce youth smoking rates and avert tobacco-related deaths. Another study determined that anti-tobacco advertisements presented before a movie can elicit stronger disapproval of smoking characters in the movie (among non-smoking viewers) and reduce intentions for future smoking (among viewers who are current smokers).			
Prevention in the Family Setting	Family-based, tobacco-related interventions aim to reduce tobacco use among youth by changing dysfunctional family patterns, relationships and behaviours by improving communication and parenting skills. The evidence examining family settings comprised one Level I quality systematic review and one Level II quality overview of reviews. The evidence suggests that high-intensity interventions that target families and parents can reduce the risk of smoking initiation among youth. Better training of those implementing the	The evidence available on smoking prevention within a family setting included one systematic review & meta-analysis, one systematic review, and one overview of reviews (two appraised as Level I, one appraised as Level II). The evidence suggests that high-intensity family-based interventions prevent children and adolescents from starting to smoke, with significantly fewer children and adolescents who started smoking after family intervention. Better training of those implementing the intervention and fidelity of implementation can lead to more positive outcomes.	Thomas – Level I	Supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	intervention and fidelity of implementation can lead to more positive outcomes.			
PROTECTION				
Home Environment	The best available body of evidence consisted of three systematic review and meta-analyses, seven systematic reviews, and three primary studies, (six appraised as Level I, six Level II, and one Level III). The body of evidence demonstrates that personal household smoking bans are effective to reduce SHS exposure among adults and children. However, in MUH environments, personal household smoking bans alone are not effective to prevent external SHS from entering homes due to the transfer of tobacco smoke from other units and outdoor spaces where smoking is allowed. Overall, complete smoke-free policies in MUH are effective to reduce exposure to SHS and THS. However, the Ontario Residential Tenancies Act (RTA) requires housing providers to exempt existing leases when new smoke-	The best available body of evidence consisted of four systematic review & meta-analyses, one meta-analysis, eight systematic reviews, and three primary studies (nine appraised as Level I, six Level II, and one Level III). The body of evidence demonstrates that there are overall positive effects post-legislative ban, with the majority of studies demonstrating significant increases in home smoking restrictions. All studies either reported overall significant positive effects post-legislative ban or no significant differences pre- and post-legislation. Further, changes in particulate matter or air nicotine following interventions to protect children from tobacco smoke suggest that such programs are effective in reducing tobacco smoke pollution in homes. Despite improvements, there was a persistence of significant pollution levels in homes after individual level intervention.	Daly – Level I Monson – Level I Rosen – Level I	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	free policies are implemented, resulting in continued exposure. There is evidence that both voluntary household smoking bans and smoke-free MUH policies are effective to reduce cigarette consumption and increase smoking cessation, which can also protect non-smokers by limiting SHS exposure. Interventions that advise smokers not to smoke inside the home, such as counselling, motivational interviewing and self-help materials to encourage adult smokers to quit smoking or reduce their cigarette consumption can also reduce SHS exposure, particularly for children.			
Institutional	The body of evidence regarding the effectiveness of banning smoking in institutional settings included one systematic review and meta-analysis and six primary studies (two appraised as Level I, three Level II, one Level III). Overall, there was evidence that outdoor smoking policies reduced secondhand smoke (SHS) exposure in hospitals and	The body of evidence regarding the effectiveness of smoking bans in institutional settings included two systematic review & meta-analyses, one systematic review, and six primary studies (four appraised as Level I, three Level II, and one Level III). Overall, there was evidence that settings-based smoking policies reduced active smoking rates in hospitals and universities, with the greatest reductions among hospital-based staff. Policies also reduced mortality rates and reduced exposure to environmental tobacco smoke in prison settings. Increased quit attempts and evidence of support for tobacco control bans and policies also	Frazer – Level I Frazer – Level I	Well-supported

Topic	Statement in SAC2 Report	New Statement	New Review Quality	Level of Evidence in SAC 2 Report - Unchanged
	psychiatric facilities, and on post-secondary campuses and prison grounds. Outdoor smoking policies also reduced smoking-related illness and mortality among staff, patients/residents and visitors in hospitals and prisons. There was also general support for outdoor smoking policies from staff, patients/residents and visitors in these institutional settings.	occurred after policy implementations; however, the evidence on these outcomes was methodologically weak.		

References

[1] Smoke-Free Ontario Scientific Advisory Committee, Ontario Agency for Health Protection and Promotion (Public Health Ontario). *Evidence to Guide Action: Comprehensive Tobacco Control in Ontario (2016)*. Toronto, ON: Queen's Printer for Ontario; 2017.

[2] National Collaborating Centre for Methods and Tools. *Understanding Evidence: CDC Tool*. Hamilton, ON: McMaster University. Updated 12 September, 2017.