Strategies to promote smoking cessation among adolescents

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Français en page 205

J Harvey, N Chadi; Canadian Paediatric Society, Adolescent Health Committee. Strategies to promote smoking cessation among adolescents. *Paediatr Child Health* 2016;21(4):201-208.

In recent years, youth have been exposed to a broader spectrum of tobacco products including smokeless tobacco, hookah (water pipe) and e-cigarettes. Despite active local, provincial/territorial and national prevention strategies and legislated controls, thousands of teenagers develop an addiction to tobacco products each year. Current and available smoking cessation interventions for youth have the potential to help teens stop smoking and, as a result, greatly reduce Canada's health burden in the future. Paediatricians and health care professionals can play a key role in helping teens make informed decisions related to tobacco consumption and cessation. This practice point presents the evidence and rationales for smoking cessation interventions which have been studied in youth specifically, such as individual counselling, psychological support, nicotine replacement therapy, bupropion and varenicline. Interventions for which limited or conflicting data exist are also discussed.

Key Words: Adolescents; CBT; Counselling; NRT; Smoking cessation; Tobacco

Tobacco use is the single most preventable cause of death and disease in North America. Every year in Canada, thousands of teenagers smoke their first cigarette. In fact, close to 90% percent of adult smokers smoked their first cigarette before the age of 18.(1)

The present practice point complements the CPS position statement "Preventing smoking in children and adolescents: Recommendations for practice and policy", also published in this issue.

FACTORS IMPACTING SMOKING CESSATION

Studies have shown that most adolescent smokers would like to quit smoking.(2) Many teenagers try to quit on their own, but most attempts are unsuccessful and relapse rates are high. There are many factors impacting the success of smoking cessation attempts in adolescents (Table 1). Multiple factors need to be taken into account when choosing the best strategy to help teenagers quit.(3-5)

Health care professionals (HCPs) need to be mindful of each adolescent's personal needs and preferences related to smoking and smoking cessation.(6) For example, smoking rates in Canada are significantly higher among sexual minority (LGBTQ) youth and Indigenous children and teenagers. For details, see the CPS position statement "Use and misuse of tobacco among Aboriginal peoples": www.cps.ca/en/documents/position/tobacco-aboriginal-people. Other elements to be considered before recommending a cessation strategy include cultural background, knowledge, attitudes and beliefs involving tobacco, and readiness to quit.

Des stratégies pour promouvoir l'abandon du tabac chez les adolescents

Ces dernières années, les jeunes ont été exposés à un plus large spectre de produits du tabac, y compris le tabac sans fumée, la shisha (pipe à eau) et la vapoteuse (cigarette électronique). Malgré les stratégies actives de prévention et les mesures législatives locales, provinciales, territoriales et fédérales, des milliers d'adolescents développent une dépendance aux produits du tabac chaque année. Les interventions d'abandon du tabac destinées aux adolescents peuvent les aider à arrêter de fumer et, par conséquent, réduire considérablement le fardeau du tabagisme sur la santé au Canada. Les pédiatres et les autres professionnels de la santé peuvent jouer un rôle important pour aider les adolescents à prendre des décisions éclairées sur le tabagisme et l'abandon du tabac. Le présent point de pratique expose les données et les principes relatifs aux interventions d'abandon du tabac qui ont fait l'objet d'études expressément chez les jeunes, telles que les conseils individuels, le soutien psychologique, les substituts nicotiniques, le bupropion et la varenicline. Il traite également d'interventions pour lesquelles les données sont limitées ou contradictoires.

REVIEW OF CESSATION INTERVENTIONS

Individual counselling

According to a recent Cochrane review of smoking cessation in teenagers, the interventions with the strongest level of evidence to support them are individual counselling, motivational enhancement and cognitive behavioral therapy (CBT).(3) Focused interventions from physicians, nurses and other HCPs could have significant impact on smoking cessation rates. For example, HCPs can use motivational enhancement therapy, a variation of motivational intervention, to help teenagers clarify their goals and beliefs related to smoking.(7) The 5 A's method (Ask-Advise-Assess-Assist-Arrange) is the most commonly used framework.(8) It can be used to guide a brief counselling session and should take no more than 3 minutes to 5 minutes to perform.(9) An overview of this method can be found in Table 2.

CBT, a structured one-on-one therapeutic approach that can be delivered by trained physicians, psychologists or other HCPs, has shown good effectiveness in adolescents.(10,11) The therapy is usually 'problem-focused' and 'action-based', actively engaging youth in changing their own smoking habits and behaviours. Also, an increasing number of alternative, adapted or combined forms of counselling intervention (eg, contingency management – a type of substance abuse treatment using positive reinforcement or rewards) have shown promising results in different youth populations.(12)

TABLE 1
Factors impacting the success of teens attempting to quit smoking

More likely to quit	Less likely to quit
Older teenager	Nicotine addiction
Male sex	Mental health conditions, including attention deficit disorder/attention deficit hyperactivity disorder
Teen pregnancy and parenthood	Drug and alcohol use
Scholastic success	Chronic illness
Team sport participation	Family stress
Peer and family support for cessation	Peer and family tobacco use
CYP2A6 slow nicotine metabolizer	Overweight or weight preoccupation
	Developmental drive to experiment
	Fear of peer rejection
	Perceived lack of privacy and autonomy

Pharmacotherapy

First-line pharmaceutical therapy in adults includes nicotine replacement therapy (NRT), bupropion and varenicline. In the latest (2013) update of a Cochrane review summarizing the evidence for smoking cessation interventions in youth, the data were insufficient to recommend any type of pharmaceutical treatment in young smokers.(11) Nevertheless, national guidelines encourage NRT use in regular teenage smokers, though not in occasional smokers,(3,13) mostly based on adult data.

Several trials looking specifically at the efficacy of nicotine replacement products in teenagers(8) have revealed promising results and acceptable safety profiles. Nicotine gums and transdermal patches are the most commonly prescribed products, with lozenges and nasal sprays lagging far behind. The most common reported side effects in youth are mouth and skin irritations, increased heart rates and higher blood pressure readings.(13) Nicotine inhalers, which – unlike e-cigarettes – deliver slow and unheated nicotine vapour, are not recommended for adolescents due to lack of evidence of effectiveness.(14)

A few trials have looked at the effects of bupropion and varenicline in adolescent smokers, with promising results.(11) However, due to the small number of subjects being tested and conflicting or nonsignificant trial data, recommendations regarding the use of either medication are still mostly based on expert opinion. HCPs should be aware of contraindications to these medications (eg, an eating disorder or seizure disorder in the case of bupropion). Detailed information on dosages, relative and absolute contraindications, and the side effects of NRT, bupropion and varenicline can be found in the Selected resources, below (see especially the Winnipeg Regional Health Authority guideline for health professionals, pages 10-21). Data for other second-line pharmaceuticals used in adults, such as clonidine, nortriptyline and cytosine (a partial nicotine receptor antagonist), are lacking for youth.(8,15,16)

Experimental interventions

Experimental interventions for adolescent smokers have been gaining popularity in the literature. Among the most studied interventions are school-based smoking cessation programs,(17) smoking cessation interventions using text messaging,(18,19) peer mentoring(20) and digital or virtual self-help interventions.(21) At the present time, data supporting the effectiveness of such interventions are limited; they should be used in combination with counselling.

Finally, mind-body interventions, such as mindfulness, yoga, hypnosis and biofeedback(22) have been described as promising in the adult literature. However, data supporting their effectiveness in youth are lacking.

TABLE 2
The '5 A's' method for counselling smoking cessation

5 A's	Description	Suggested questions
Ask	Ask about tobacco use: For all teens, at every visit and without parents present	<ul style="list-style-type: none"> • Have you ever smoked cigarettes or e-cigarettes? • How often do you smoke? • How many cigarettes did you smoke yesterday/last week/last month? • Why do you think it would be a good/bad idea to quit? • Do you use other forms of tobacco?
Advise	Strongly urge all tobacco users to quit	<ul style="list-style-type: none"> • Did you know that quitting is (one of) the single most important thing(s) you can do to protect your health and the health of those around you?
Assess	Determine readiness to quit by assessing willingness to attempt to quit: <ul style="list-style-type: none"> • within the next 30 days (preparation) • within the next six months (contemplation) or • beyond six months (pre-contemplation)(10) 	<ul style="list-style-type: none"> • Would you be ready to quit smoking in the next 30 days? In the next six months? • Have you ever tried to quit? What do you think made you start smoking again?
Assist	Provide help for teens attempting to quit (including pharmacotherapy, when indicated) by setting a date and directing the teen toward supportive materials or groups Counsel on the risks associated with taking up replacement substances, such as marijuana or alternate forms of tobacco	<ul style="list-style-type: none"> • When do you think would be a good time/day for you to quit? • Do you have friends or family who can support you when things get difficult?
Arrange	Arrange follow-up to review progress and re-evaluate pharmacotherapy use and problems, as appropriate	<ul style="list-style-type: none"> • When can we meet again to talk about your progress?

Some sources also add a sixth "A" (Anticipate) before the five previous steps as a reminder to prepare to hold the interview in an appropriate setting (ie, with or without parents or peers present).

E-cigarettes

The topic of electronic cigarette use as a smoking cessation intervention strategy in youth is highly controversial. In fact, the study data around the safety and/or benefits of e-cigarette smoking in adults and youth are conflicting.(23) At the present time, HCPs should not recommend e-cigarettes as smoking cessation aids, but rather educate young patients about their potential for harm. For details, see the CPS statement "E-cigarettes: Are we renormalizing public smoking?": www.cps.ca/en/documents/position/e-cigarettes

Table 3 summarizes smoking cessation interventions in youth as well as the level of evidence supporting their recommendation. Readers can access the levels of evidence for individual recommendations using the Oxford Center for Evidence-based Medicine at: www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/.

CONCLUSION

Paediatricians and other HCPs can play a key role in helping teenagers to control tobacco consumption and cessation. To be most effective, however, they should be familiar with ongoing research

TABLE 3
Summary of smoking cessation interventions in youth

Intervention	Recommended/not recommended	Level of evidence
Brief counselling (in person: individual or group)	Recommended	1b
Cognitive behavioral therapy	Recommended	1b
Phone or distance counselling	Recommended	2b
Mobile phone interventions (text message reminders from a health care provider)	Recommended in combination with other interventions	2b
Self-help, noninteractive audio-visual materials	Recommended in combination with other interventions	3b
Nicotine-replacement products (gums, patches, lozenges, sprays)	Recommended only for regular smokers 12 to 18 years of age	3b
Bupropion	Recommended in some cases, use with caution	5
Varenicline	Recommended in some cases, use with caution	5
E-cigarettes	Not recommended	4
Other pharmaceuticals: Clonidine, nortriptyline, and cytosine	Insufficient evidence	–
Internet and social media-based interactive interventions	Insufficient evidence	–
School-based cessation programs	Insufficient evidence	–
Mind-body therapies and hypnosis	Insufficient evidence	–

Oxford Centre for Evidence-based Medicine – Levels of Evidence. See Levels of evidence for smoking cessation recommendations, compiled by Phillips B, Ball C, Sackett D, et al since November 1998. Updated by Jeremy Howick, March 2009: www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/ (Accessed June 27, 2015)

into the rapidly increasing number of evidence-based interventions available for youth, including brief counselling techniques. Using the '5A's' method provides a practical framework for identifying and assisting adolescents who smoke. Important gaps in the research literature remain, however, and there are many questions still to answer around smoking cessation in youth. Paediatricians and other HCPs must stay informed about the latest advances in this area, particularly as more adolescent-specific data become available.

Recommended resources

For health care professionals

1. The Canadian Action Network for the Advancement, Dissemination and Adoption of Practice-informed Tobacco Treatment (CAN ADAPT): www.nicotinedependenceclinic.com/English/CANADAPTT/Guideline/Introduction.aspx
2. Canadian Cancer Society, Smokers' helpline (health care providers' section): www.smokershelpline.ca/
3. Lung Association, Quit Now (health care providers' section): www.quitnow.ca/helping-others-quit/healthcare-providers.php
4. Centers for Disease Control and Prevention (U.S.), Health care professionals: Help your patients quit smoking: www.cdc.gov/tobacco/campaign/tips/partners/health/hcp/
5. American Academy of Pediatrics Julius B. Richmond Center of Excellence for tobacco control: www2.aap.org/richmondcenter/Clinicians_ClinicalPractice.html
6. Winnipeg Regional Health Authority, August 2013. Clinical practice guideline: Management of tobacco use and dependence: www.wrha.mb.ca/Professionals/tobacco/cpg.php

For patients

1. Health Canada. Quit Smoking. On the road to quitting – guide for young adults: www.hc-sc.gc.ca/hc-ps/tobac-tabac/quit-cesser/index-eng.php
2. Health Canada. Quit4life website/Handbook for young smokers trying to quit: www.hc-sc.gc.ca/hc-ps/tobac-tabac/youth-jeunes/life-vie/index-eng.php
3. Government of Canada, Healthy Canadians, Smoking and tobacco: www.healthycanadians.gc.ca/healthy-living-vie-saine/tobacco-tabac/index-eng.php
4. iQuitnow (Quebec): <http://www.iquitnow.qc.ca/>
5. Canadian Cancer Society, Smokers' helpline (online program,

free phone help, text messaging [for Ontario residents only], self-help books, information for friends and family): www.smokershelpline.ca/

6. Department of Health and Human Services, National Institutes of Health, National Cancer Institute (U.S.). Teen self-help, online tools and information: <http://teen.smokefree.gov/default.aspx#.VU5hiPIVhBc>

ACKNOWLEDGEMENT: This practice point has been reviewed by the Community Paediatrics, Drug Therapy and Hazardous Substances, and First Nations, Inuit and Métis Health Committees of the Canadian Paediatric Society.

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