

Adolescents: Smoking and quitting

How the professional can help

The prevalence of adolescent smoking is increasing despite the fact that adolescents claim to recognize the health risks associated with this addictive behaviour. Why youth begin to smoke seems to be different from why adult smokers smoke. As such, interventions tailored specifically to the adolescent profile are likely to be more successful.

This fact sheet discusses the stages in the development of smoking behaviour in adolescence, applies the stages of change model to adolescents, provides intervention tips for cessation counselling with adolescent smokers.

Estimated results of adolescent smoking

Most smokers and most users of smokeless tobacco become addicted while still in adolescence (1). It is estimated that smoking will be responsible for the premature death (before age 70 years) of 55% of young men and 51% of young women smokers now age 15 years, if they continue to smoke (2).

Pharmacology and Pharmacokinetics of Nicotine

Nicotine is the major alkaloid of tobacco. About 1.5% of tobacco is nicotine. When a cigarette is smoked, 15% of the nicotine enters the pulmonary circulation and quickly crosses the blood-brain barrier. It enters the brain 7 seconds after inhalation (faster than if injected intravenously). Nicotine reaches the brain more slowly when administered by nasal spray (10 minutes to peak concentration) or by polacrilex (the gum, 20 - 30 minutes to peak), or by patch (2 to 6 hours to peak). Nicotine's addictive potential depends on its mode of delivery i.e., time to peak concentrations. A key to understanding smoking is the 24-hour nicotine curve, which usually begins each a.m. close to 0 and later reaches a 20-50 ngm plateau (venous measurement) before descending to a minimum to begin the day. Arterial measures during smoking reach narrow, intense spikes of nicotine in the 150-300 ngm range. Nicotine binds to acetylcholine receptors at: autonomic ganglia, receptors, especially the locus ceruleus in the brain, which is associated with concentration and stress management. At higher doses, it appears to affect the mesolimbic dopaminergic system, leading to pleasure, reward and relaxation. Thus, smokers have the biphasic effects of stimulation and sedation. The central nervous system (CNS) shows EEG changes in response to nicotine administration and nicotine withdrawal. Smokers report a number of positive effects from smoking: helping concentration; coping with anxiety, tension and anger; avoiding withdrawal symptoms and, also providing pleasure. Conversely, nicotine withdrawal syndrome features unmanageable anxiety, problems concentrating, irritability, cravings to smoke, sleep disturbance and other CNS symptoms.

Smoking : the stages of addiction

Young smokers go through a series of transitions and stages including preparation and anticipation, trying and experimenting, before they become regular, dependent smokers. While the movement through these stages is very individual, it can happen quite quickly. Many adolescents become addicted smokers in a just few years. Strategies aimed at any of these stages will reduce the number of young people who enter adulthood as regular, dependent smokers.

There is general agreement that nicotine is an addictive substance. Although many health professionals refer only the biophysiological component of addiction, we know that the psychological, behavioural, spiritual and social factors, which usually go along with physical dependence, have very important treatment implications.

The words addiction and dependence can be used interchangeably. The criteria for diagnosing psychoactive substance dependence are described in the Diagnostic and Statistical Manual - Fourth Edition (DSM IV) of the American Psychiatric Association.

More practically, the diagnostic criteria for nicotine dependence can be characterized by:

- preoccupation or compulsion to use tobacco products;
- impairment or loss of control over tobacco product use;
- continued use despite negative consequences;
- minimization or denial of problems associated with substance use.

In assessing a smoker's degree of dependence, you can look for the presence of these characteristics. A preoccupation or craving for tobacco is clearly described by most smokers and the withdrawal that often follows stopping use are indicators of compulsion. Loss of control in tobacco use means that the smoker uses more tobacco than he or she plans to. We can also use the degree of difficulty in quitting and amount smoked as markers of greater dependence. If you ask smokers about how they think smoking affects them, you may find commitment to continue use even in the presence of serious health problems, as well as evidence of denying these effects.

Stages of Change

Professionals can best help the majority of smokers by understanding the stages of change that smokers pass through, and matching their interventions to the current stage of each smoker. A broad range of research supports a stages of change model for smoking cessation. There are five stages, described briefly below.

Precontemplation: Individuals are not seriously thinking of a change in their smoking behaviour within the next six months. They overestimate the benefits of smoking (pros) and underestimate the hazards (cons). They tend to avoid information designed to help them change, an important coping strategy for them.

Contemplation: Individuals are seriously thinking about changing their smoking behaviour. They expect to do so within the next six months, but not immediately. They

evaluate the cons of smoking as slightly higher than the pros. These smokers are the most ambivalent about change, and can become stuck in "chronic contemplation" as they substitute thinking for acting.

Preparation: Individuals are planning to stop smoking within the next 30 days, and have made a previous attempt for at least 24 hours in the last 12 months. They take significant steps towards stopping, e.g. delaying the first cigarette of the morning, cutting down the number of cigarettes smoked. They have tried to quit more often. For these individuals, the cons of smoking clearly outweigh the pros.

Action: Individuals have quit smoking. These people are actively applying cessation and maintenance skills. They are at great risk of relapse.

Maintenance: Individuals have not smoked for more than six months. During maintenance, people actively use techniques to deal with periodic cravings and triggers.

The Key to Successful Smoking Cessation, Intervention

Most cessation interventions have been designed for those current smokers who are already preparing to take action or who are currently taking action. If smokers are not in the preparation or action stage, these approaches are unlikely to succeed. Given the number of current Canadian smokers who are in the precontemplation and contemplation stages (89%), it is not surprising that quit rates have been low and professionals are frustrated in their efforts to encourage cessation. To increase success, the interventions must be appropriate to a smoker's current stage of change.

Using a stage-matched approach will likely have two outcomes. First, it is likely to be more effective. People who are in precontemplation and contemplation are more likely to move ahead to the next stage after receiving a stage-matched intervention. This intermediate outcome is likely to accelerate the process of change and shorten the time required for successful quitting. Research indicates that helping persons progress one stage in one month doubles the chances that they will not be smoking six months later.

Second, using stage-appropriate interventions enables the professional to focus on achievable outcomes. Instead of working in vain to get a precontemplator to quit smoking, the professional can take appropriate measures to move them to contemplation, and can recognize this as a success. Using a stage-matched approach is likely to give physicians more satisfaction in helping smokers quit.

A study by Goldberg, Hoffman et al (1994) of smoking cessation advice based on the stages of change model concluded that brief, stage-specific advice enhances short-term movement through the stages of change of smoking cessation.

Four Questions to Quickly Assess Stage

Asking the four questions can determine a smoker's state of readiness to change his or her behavior (see table p 13).

Applying the stages of change model to adolescents

QUESTION	ANSWER	STAGE
Have you ever smoked?	NO QUIT NOW	Non-smoker Go to last question Go to next question
Do you intend to quit in six months and have you tried to quit for at least 24 hours in the last year?	NO YES	Precontemplation Go to next question
If YES, are you ready to quit within one month?	YES NO	Preparation Contemplation
If you QUIT, did you quit within the last six months?	YES NO	Action Maintenance

- Pallonen et al (5) applied the stages of change model to a young adult population, and found that compared with older adults, distribution of the stages differed substantially. There were twice as many relapses and only half as many maintainers among young adults. Further, there was substantially more movement among stages in younger than older adults (5).
- Many adolescent smokers are precontemplative - they perceive themselves to be immortal and are confident that they can quit at any time.
- Relapses are likely to be highly discouraging for adolescents, taking them back to the precontemplative stage.
- The stages of change model (see the fact sheet in *Guide Your Patients to a Smoke Free Future* available from the Canadian Council on Tobacco Control, address below) is useful no matter where the smoker is in the development of smoking behaviour stages outlined above under stages of addiction.

Intervention tips for dealing with adolescent smokers

Most of the research on adolescent tobacco use has focused on the prevention of onset of smoking in young adolescents rather than on intervention with active smokers (6). Despite the general recognition that adolescents consider themselves immortal, and as such don't believe that smoking will kill them, many teenagers who smoke are motivated to quit (7). Given the high and increasing level of adolescent smoking in Canada, the following describes a mixture of preventive and cessation techniques geared to adolescents.

Anticipate and assess the addiction risk

Addiction risk increases with

- ⇒ age;
- ⇒ level of stress;
- ⇒ use of other illicit substances - tobacco use is a proven covariant (not a cause) for alcohol, marijuana and other drug use (8);
- ⇒ incidence of other risk-taking behaviour (9);
- ⇒ number of friends, family members and teachers who smoke (10).

Addiction risk decreases with

- ⇒ increasing level of self-esteem (11);
- ⇒ good marks at school (11);
- ⇒ family functionality and cohesiveness - if the family is dysfunctional, peer pressure is more important (11); a positive parental influence (12) - screen parents for smoking behaviour and ask parents about their advice and example to youth.

Ask

- ⇒ Begin screening for smoking behavior at age 9 years and at each visit after that by asking, "Have you ever smoked or used alcohol or drugs?" Use follow-up questions on frequency, amount, etc, to gather any further information based on their original answer (13).
- ⇒ "What do you plan to do if a friend ask you to smoke?"
- ⇒ Ask about school and/or family friends to determine whether there are underlying problems or stresses for which smoking may be an outlet.
- ⇒ Assess the stage in the development of smoking behavior - frequency of smoking, amount smoked and number of offers to smoke are keys to differentiating between tryers and experimenters.

Advise

- ⇒ Advise using stage-matched strategies (see the fact sheet on stages of change).
- ⇒ Provide anticipatory guidance - counseling for potential problems - and clearly state that you advise that they do not start or do try to quit. Research shows that health professionals opinion is valued and a predictor of change of adolescent behavior.
- ⇒ Treat adolescents as persons who have control over their smoking behavior.

Assist

- ⇒ Assist using stage-matched
- ⇒ Provide information about stages of change and the quitting process - this can be an important motivator.
- ⇒ Good listening skills are critical in creating the empathetic, trusting relationship needed to deal successfully with adolescents.

- ⇒ Ask open-ended questions, and probe.
- ⇒ Be non-judgemental, and affirm their experiences.
- ⇒ Summarize what you have heard to help them clearly distinguish between current behavior and what they want.
- ⇒ In precontemplative, contemplative and preparation stages, it is important to accentuate the development of self-esteem and assertiveness, and that this means saying no to your friends.
- ⇒ Scare tactics are unlikely to motivate adolescents to change smoking behavior (14), although youth often point to such tactics as what they believe would make them quit. It is important to provide the appropriate information about smoking in a forthright manner.
- ⇒ Provide information about nicotine addiction - this can be an important motivator.
- ⇒ Reinforce messages that smoking.....is not “cool”;...gives you bad breath, yellow teeth;...stains your fingers;...increase wrinkles;...decreases physical endurance;...is addictive - leads to a loss of freedom and control;...is “ripping you off” - tobacco manufacturers are taking your money and your freedom of choice by addicting you to something that is harmful to your health - you are being manipulated by the adults who run these companies.
- ⇒ Weight control is an issue for adolescents, particularly females, and it should be approached head-on. Smoking does help control weight, but it is an artificial control, as opposed to exercise and healthy eating. While smoking does control weight, it also causes many unhealthy and unattractive things to occur, thereby vastly outweighing any perceived benefits.
- ⇒ When planning a quit attempt with an adolescent, work specifically on identifying triggers and matching them with appropriate coping skills - particularly with adolescents; this includes effective self-assertion skills (strength to do what you know you must) (10).
- ⇒ Be prepared to answer questions about nicotine replacement therapy.
- ⇒ Have on hand information about community resources geared to adolescents (15).

Motivation for Change

The following ideas are drawn from Miller and Rollnick, 1991:

- ⇒ Motivation can be seen as a state of readiness to change that varies across time and situations.
- ⇒ Smokers "unmotivation" or "resistance" occurs when we use strategies that are inconsistent with their stage of readiness.

Elements to Creating Motivation

- ⇒ Express empathy. Smokers trust health care providers who are empathic. Empathy is a strong predictor of outcomes.
- ⇒ Use creative tension. Ask questions which point to the dissonance between the pros and cons of smoking. This builds motivation to consider behaviour change options.

- ⇒ Avoid arguments and confrontation. Understanding the adolescent's perspective and avoiding arguments is critical to building a collaborative context for change. Arguing leads to resistance.
- ⇒ Use resistance adaptively. If resistance is evident, it is a signal that your intervention may be mismatched to the smoker's stage of change. Review the stage to select treatment goals matched to it (see table above).
- ⇒ Support self-efficacy. Setting achievable short-term goals with the adolescent sets up success experiences, which increase self-efficacy and, ultimately, motivation. Help smokers identify the personal resources and supports they can rely on.

- ⇒ Ask open-ended questions. This is critical to creating a helpful relationship. It encourages the adolescent to talk and begin working. With precontemplative and contemplative smokers, ask for their perception of both sides of the issue - the good things and bad things about smoking. "How do you feel about..."
- ⇒ Use reflective listening. Reflective listening is simply reflecting back to the adolescents their feelings about the subject at hand. It creates empathy and generates non-directive and helps smokers get more deeply into the issues relevant to their smoking. Roadblocks to reflective listening include practitioner behaviours such as ordering, directing, warning, providing solutions, persuading, preaching and judging.
- ⇒ Affirm. Affirming the adolescent's experiences shows empathy and avoids argumentation. There is no judgment attached, just affirmation of the adolescent's experience and behaviour towards cessation. "I just heard you say you managed to..."
- ⇒ Summarize. Summarizing what you have heard from the adolescent puts a framework around the discussion, and works well to identify the discrepancy between what they do and what they want. It helps the adolescent to simultaneously experience both sides of their ambivalence. The key to summarizing is relating back the adolescent's own pros and cons of smoking. "So on the one hand, ..., while on the other, ..."
- ⇒ Elicit self-motivational statements. Self-motivational statements support self-efficacy, and directly influence motivation by shifting the balance of the pros and cons of smoking. There are four kinds of self-motivational statements: problem recognition; expression of concern; intention to change; and expression of optimism about change. "What makes you think that if you tried, you could be successful?" "What worries you about continuing to smoke?"

Advocacy

Lobby federal and provincial governments for
 increased taxes on tobacco products;
 plain packaging of tobacco products;
 clear and visible addiction warnings on and in tobacco packages;
 effective sales to minors legislation and enforcement;
 elimination of all forms of tobacco advertising and sponsorship;
 increased restrictions on smoking in public places; and

the regulation of nicotine as the drug that it really is.

Lobby school boards to regulate school properties as no-smoking areas - inside buildings and out-side.

Volunteer to train teachers in smoking prevention and cessation techniques to assist in their efforts.

Ensure that community drug education efforts include education about nicotine use and addiction,

including the risks of experimentation.

Toward a smoke free future

Because most smokers begin smoking before age 20 years, smoking is an adolescent health problem which has long term consequences. Youth may be less likely to experiment with and continue to use tobacco if they are more aware of the immediate risks of tobacco use not only to their health, but to their attractiveness. Health care providers will be effective in promoting long term behaviour change among adolescents if they employ stage-matched interventions and focus on the things that matter to youth. Set up an office system that identifies the smoking status of each youth.

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The National Clearinghouse on Tobacco and Health (NCTH), operated by the Canadian Council on Tobacco Control, is Canada's most comprehensive professional library on the issue of tobacco and health. The NCTH's website is Canada's best tobacco and health Information website and considered one of the best in the world by the World Health Organization. Call 1-800-267-5234 for more information or visit the clearinghouse web site <http://www.cctc.ca/>.

Stage	Goal	Appropriate Intervention
Precontemplation	Help the smoker to think seriously about quitting in the next six months	-Ask regarding feelings about stopping (Ask)-Ask about the pros , then the cons of smoking (Ask)-Increase perception of the risks of smoking (Advise)-Raise doubts about smoking (Advise)-Personalize messages to the smoker's knowledge, beliefs, attitudes, pros and cons (Assist)
Contemplation	-Tip the balance so cons outweigh pros Express confidence in the smoker's ability to quit	-Ask about barriers to quitting and elicit solutions (Ask)-Ask how life would be as a non-smoker (Ask)-Reinforce the smoker's own reasons for change, or the risks of not changing-Encourage small steps toward action, i.e. delaying first cigarette, cutting down the number smoked, quitting for a day (Assist)-Discuss addiction withdrawal and nicotine replacement therapy (Assist)
Preparation	Help the smoker to plan the quit attempt	-Ask about a possible stop smoking date (Ask)-Discuss nicotine replacement therapy if appropriate (Advise)-Discuss possible cessation strategies and resources (Assist)-Help develop an action plan (Assist)-Encourage monitoring of smoking and scheduling of cigarettes(Assist)-Increase the smoker's confidence in following the steps in the plan (Assist)
Action	Support the smoker in taking steps to change	-Ask about triggers for lapse and relapse (Ask)-Urge the smoker to continue coping strategies for several months (Advise)-Hold follow-up visits or phone calls (Assist)-Refer to programs/support groups, if appropriate (Assist)-Review nicotine replacement therapy as appropriate (Assist)

Maintenance	Help the smoker identify and use relapse strategies	<ul style="list-style-type: none">-Ask about cognitive and behavioural strategies used to cope with temptation to smoke, and revise as necessary (Ask)-Reinforce reasons for quitting (Advise)-Reinforce confidence in the ability to quit (Assist)
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