Preventing children from smoking

How family physicians and pediatricians can help

ROGER E. THOMAS, MD, CCFP
ANDREW P. THOMAS, DPHIL

SUMMARY

Children progress through five stages to become smokers: anticipation, initiation, experimentation, habituation, and adult smoking. Children at risk of smoking can be identified. Physicians should ask for information that predicts smoking behaviour, advise not starting, assist staying a nonsmoker, arrange follow-up visits and booster sessions, and anticipate challenges to antismoking behaviours.

RÉSUMÉ

Les enfants franchissent cinq étapes pour devenir des fumeurs: anticipation, initiation, expérimentation, acquisition de l'habitude et tabagisme adulte. Il est possible d'identifier les enfants à risque de tabagisme. Les médecins devraient s'informer des facteurs prédictifs du comportement tabagique, conseiller de ne pas débuter, soutenir les non-fumeurs, céduler des visites de suivi et des sessions de renforcement et anticiper les obstacles que doivent surmonter les comportements antitabagiques.

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FAMILY PHYSICIANS AND PEDIATRICIANS can help preteens and teenagers avoid becoming smokers four ways. First, they can identify the children in their practices who are likely to begin smoking and encourage them not to smoke. Because smoking is due to social influences from family members and friends and to psychological factors, such as poor self-esteem, low self-confidence, and an external locus of control,[1] physicians who know families over long periods can identify those at risk and encourage them not to smoke more effectively than school-based programs (some school programs lose 30% of their participants after 1 year[2]).

Second, physicians can encourage parents and siblings who smoke to quit, especially before children reach 8 years of age and begin experimenting. A review of 108 studies revealed that individualized advice from a physician-and-nurse team, repeated often, was the therapy most likely to stop people smoking.[3]

Dr Roger Thomas *is Professor of Family Medicine and Director of Postgraduate Studies at the University of Ottawa.* **Dr Andrew Thomas** *is Research Director of the Qualitative Research Unit at Social and Community Planning Research in London, UK.*

Third, primary care physicians, their staffs, and patients can encourage school boards to institute and maintain antismoking programs in schools. (Ontario now has compulsory antidrug and antismoking instruction in schools.)

Fourth (the most effective method of reducing smoking[4]), through their medical associations, physicians can promote a complete ban on advertising and selling tobacco to minors. In Woodridge, Ill, where a police officer persistently enforced bylaws forbidding tobacco sales to minors, the percentage of merchants selling to minors decreased from 70% to 5% and adolescent smoking declined by 50%.[5] Banning advertising can be very effective: Camel brand cigarettes increased their share of the child market from 0.5% to 32% by using the "smooth" Old Joe character.[6] Australian 13-year-olds who said they felt influenced to smoke when they watched tobacco advertisements had a 15% higher rate of smoking than those who did not feel influenced.[7]

How do children begin smoking?

Children become smokers the same way they become addicted to drugs and alcohol. The first stage in smoking is anticipation and preparation. Most

children give curiosity as the reason for initially trying cigarettes[8] and predict they will smoke when they are older.[9] Familiarity with tobacco products through advertising is likely to be an early stimulus to children's curiosity: 30% of 3-year-olds and 91% of 6-year-olds could correctly identify the logo of Camel cigarettes.[10]

Cigarette advertising influences children to smoke: *Tobacco companies target the child market*

The second stage is initiation, when children try their first cigarettes. After only four cigarettes, 70% continue to the third stage, experimentation.[11] In the fourth stage, habituation, they smoke regularly with peers, and in the fifth stage they become adult smokers and regularly smoke alone and in groups.

The strongest predictor of regular adult smoking is having already tried it.[12] A prospective study of 2159 children aged 11 to 13, who were not smoking, showed that the best predictor of smoking 30 months later was earlier experimentation with cigarettes.

How many children smoke?

By age 10, 30% to 50% of children will have experimented at least once with cigarettes, with initiation rates accelerating rapidly thereafter.[13] On average, 1% to 3% of 10-year-olds[14] and 20% to 24% of 15-year-olds will smoke one cigarette each week.[15] Children who begin smoking by age 12 are more likely to be regular and heavy smokers than those who begin when older.

Effects of smoking

Teenage mothers who smoke are likely to have smaller babies and are more likely than nonsmokers to have placenta previa, abruptio placentae, preterm deliveries, premature rupture of membranes, and higher perinatal death rates.[16] The Bogalusa Heart Study of 2000 children aged 14 to 17 years noted regular smokers had lower high-density lipoprotein and higher low-density and very low-density lipoprotein levels.[17] Children aged 6 to 19 who had smoked for 2.5 years had a 10% reduction in forced expiratory volume in 1 second.[18] Smoking is responsible for 30% of both cardiovascular and cancer deaths, 90% of lung cancer deaths, and 85% of emphysema cases.[19] Smoking 10 cigarettes a day through adulthood increases the risk of lung cancer 12-fold, and 20 cigarettes a day twice that.

How frequently do physicians ask and advise?

Estimates suggest that family physicians are aware of only about 20% of the smokers in their practices,[20] even though they could easily and inexpensively know more. A smoking-related enquiry in an Ottawa university family medicine clinic that lasted on average 15 seconds increased physicians' awareness of smoking status by 26% (at an average cost per percentage point improvement of $7.37); a letter

increased awareness by 37% ($61.80); and a telephone call from a nurse by 44% ($22.03).[21]

Assessing risk of smoking

Risky behaviour is the main source of mortality and morbidity for children. To reduce smoking risk, physicians should assess intention and behaviour and offer preventive advice and therapy at every regular health examination and every visit. Physicians can ask the following questions.

Do you plan to smoke? Adolescents' intentions to smoke predict well whether they will be smoking 5 years later.[22] An Australian study showed that those who planned to smoke said they liked smoking and their parents smoked, and those who did not plan to smoke said they disliked cigarettes and thought they were bad for health.[23]

Do your parents smoke? If one parent smokes, children will be more than twice as likely to smoke than if neither parent smokes.[24-29]

Do your brothers and sisters smoke? Several studies[24,30] have demonstrated that children with older siblings who smoke are twice as likely to smoke themselves.

Do your friends smoke? Peer influence has been proven the most important influence in several studies.[24,27,28,30-35] As children become older the smoking behaviour of their peers becomes progressively more influential[36] (parental example remains important). For example, knowing whether friends, parents, and siblings smoked predicted with 45% accuracy which nonsmoking sixth graders in Calgary would still be nonsmokers 3 years later.[37]

How are things going in school? Poor academic achievement is a key correlate of smoking. A study of high school students in Pennsylvania showed that only 19% of those with A or B averages smoked but 56% of those with C or below smoked.[38]

For 1663 fifth graders in the State of Washington, good predictors of early smoking were taking dares and agreeing that one did things that were bad for one's health and that life was not going well.[39] In addition, numerous studies have shown that children who smoke have a poor image of themselves. While the scientific basis for this area of research is weaker than for other areas of smoking research, physicians should not neglect to question school performance during the standard history enquiry and physical examination. Ask children, "Are you feeling stressed out?" "Do you take risks?" "Do you feel the need to act tough?" Such questions can lead to discussion of risk-taking behaviour.

Does cigarette advertising make you want to smoke? Whether adolescents smoke and how much they smoke are also related to their exposure to cigarette advertising.[40] Unfortunately, media antismoking campaigns have not been shown to reduce adolescent smoking.

What a physician can do

The National Cancer Institute's five "A"s constitute a simple enquiry about a child's smoking risk[41] (*Table 1*[41,42]). The Canadian Council on Smoking and Health also has good resource material, offers instructional material used in schools, and will perform searches (phone [613] 567-3050).

Ask for information that predicts smoking behaviours. Family physicians and pediatricians should use their history-taking and counseling skills on each visit to discover which social forces are influencing the child to smoke. Evidence of the efficacy of this approach comes from a range of school programs, such as the "Keep it Clean" programs at the Universities of Waterloo, Iowa, and Minnesota. These teach children how to recognize the

social influences acting on them and how to resist them. The programs have proven more effective than health agency antismoking programs.

Advise not starting smoking. Because family physicians and pediatricians are involved in long-term endeavours to keep children from smoking, patients must be prepared for long-term commitments. Regular review of the benefits of success and increasing children's expectation of success will reinforce this commitment.[43] School programs that had booster sessions had 60% fewer new smokers than programs that did not.[44]

Assist staying a nonsmoker. Children should be encouraged to come for regular health checks, with an emphasis on anticipatory prevention. In three family practices, 73% of 13- to 17-year-olds responded to an invitation for a health check and 60% of the smokers attending made contracts to stop.[45] Parents should also be advised to counsel their children regularly not to smoke. Physician intervention is particularly important here because parents who smoke think they cannot advise their children not to smoke, yet their advice has been shown to be effective.[46] If both parents smoked yet disapproved of their children smoking, 55% of their children in grades 7 to 12 never smoked, but if neither disapproved only 24% never smoked. If neither parent smoked and both parents disapproved, 69% of their children never smoked, but if neither disapproved the percentage fell to 53%.

Arrange follow-up visits and booster sessions. Children should be taught how to cope with high-risk situations, such as being pressured to smoke. Where possible, refusal strategies should be rehearsed in the office through role playing. Physician and parents should offer encouragement.

Anticipate challenges to antismoking behaviours. Just as behavioural therapists advocate gradually reducing their patients' reliance on them, physicians should teach children to manage their nonsmoking strategies themselves. As self-management tends to be effective for about a year,[43] physicians should periodically reinforce the

Table 1. **Five "A"s to prevent tobacco use**

ASK FOR INFORMATION THAT PREDICTS SMOKING BEHAVIOURS
Does any caregiver or anyone in the house smoke?
Do siblings and friends smoke?
Do you discuss smoking with friends and in school?
Do you think smoking is harmful?
How are you getting along in school? Are you happy? Do you feel stressed? Do you take risks?
Do cigarette advertisements make you want to smoke?
Do you intend to smoke?
ADVISE NOT STARTING; ADVISE FAMILY MEMBERS WHO SMOKE TO STOP
Advise parents and the child to stop.
Advise family that most adults and adolescents do not smoke and that only 7% of physicians smoke.
ASSIST STAYING A NONSMOKER; ASSIST FAMILY MEMBERS WHO SMOKE TO STOP
In the office, have patients role play refusing to smoke.
Encourage patients to participate in social skills programs that support not smoking.
For smoking children and parents, suggest a quitting date and give self-help materials and counseling. For adults (and, with informed consent, those adolescents with adult physiques), prescribe nicotine patches.
ARRANGE FOLLOW-UP VISITS AND BOOSTER SESSIONS
During follow-up sessions, ask about smoking in the child's environment and by the child.
Help children who are experimenting to stop smoking.
Monitor the progress of parents who try to stop smoking.
ANTICIPATE CHALLENGES TO ANTISMOKING BEHAVIOURS
Help children take responsibility for their behaviour.
Inform parents that smoking has immediate adverse health consequences for the whole family.
Inform parents that smoking experiments begin in primary school.

Adapted from Epps and Manley[41] and Glynn and Manley.[42]

antismoking strategies that children have discovered for themselves. The principles of effective antismoking counseling are to ask all patients whether they smoke, personalize the risks, give information about short-term benefits, write contracts for quitting, arrange follow up, and refer failures to programs.[19]

Advocating community programs

Physicians, their staffs, and patients can encourage schools to implement smoking prevention policies and programs. Schools with written antismoking policies, regular enforcement of nonsmoking regulations on and near school grounds, and prevention programs have been shown to have lower smoking rates.

Providing information alone is ineffective; programs also need to teach social skills. This strategy has been shown repeatedly to be effective in preventing smoking. Botvin,[47] for example, constructed a program that taught 15- and 16-year-olds both tobacco refusal skills and personal skills. Three months later, 8% of the experimental group had started smoking compared with 19% of the control group. Two years later only 2% more of the students who were receiving additional booster sessions had started smoking compared with 15% more in the control group.

Modifications in smoking behaviour can be maintained for long periods. Several studies have shown reductions ranging from 6% to 73% lasting from 2 to 6 years.[31,48] The effects of antismoking programs, however, are likely to be attenuated without periodic interventions and booster sessions during the teenage years.

A review of smoking prevention programs concluded that they should have at least 10 class sessions with follow-up booster sessions, use small-group discussion techniques, use peers to demonstrate refusal skills in role playing, and include parents in homework activities.

Helping parents and siblings stop smoking

One of the most helpful steps a family physician can take to prevent children from starting to smoke is to encourage those already smoking in the household to stop. A study of family physicians in 70 Canadian community practices showed that patients who used nicotine gum and attended five follow-up counseling visits had a 28% abstinence rate after 1 year, while those who received "usual care" had a 4% abstinence rate.[49] Another Canadian study revealed that those who received written information on quitting had an 8% abstinence rate at 1 year, while those who received written information and nicotine gum had an 11% rate.[50]

Conclusion

Children as young as 5 years sometimes intend to smoke when they are older. Children usually proceed through predictable stages in becoming smokers: anticipation, initiation, experimentation, habituation, and adult smoking. Community antismoking programs have an important role in stopping and reducing smoking; physicians are key players in bringing about change. Family physicians can assess children's and teens' risk of smoking and can encourage family members to quit. They can help children avoid smoking by counseling them in the office using the five "A"s. ■

Correspondence to: *Dr Roger Thomas, Clinical Epidemiology Unit, Élisabeth Bruyère Centre, 75 Bruyère St, Ottawa, ON K1N 5C8*

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