

# Smoking Cessation: It Is Never Too Late

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Public health and smoking are old enemies because smoking is among the 10 leading causes of ill health on a global scale and is also possible to prevent, as repeatedly reported (1). In both developed and developing countries, smoking takes its heavy toll of lives every year, both directly and indirectly, through exposure to passively inhaled tobacco smoke (2) or via fetoplacental effects. Much research efforts have been devoted to finding new ways to help the individual smoker quit the harmful habit, not only based on individual (3) or group-based support activities (4), as supported by the whole health care team, but also on ways of prescribing both older and newer drugs to support smoking cessation. Even if nicotine replacement therapy (5) in its various forms has been around for almost 3 decades and the atypical antidepressant bupropion (6) for ~10 years, new target drugs are constantly being developed to support the addicted smoker in quitting permanently. Such drugs may be useful for very large groups of addicted smokers who have tried the other ways to quit in vain. One example is varenicline, a partial nicotine receptor agonist that has been proven successful in randomized controlled trials, both for smoking cessation and for relapse prevention (7–10). The effect is more pronounced than recorded by use of nicotine replacement therapy or bupropion.

Other ways might also exist to achieve smoking cessation, such as the use of acupuncture, hypnosis, or psychopharmacological approaches, but these remedies are less well proven and therefore not truly evidence based.

## NEW DEVELOPMENT FOR OLD DRUGS

— However, older drug preparations are developing. New

faster delivery nicotine replacement drug delivery systems (11) bear the promise of addressing a broader list of indications, including treatment of nicotine withdrawal during temporary abstinence and long-term nicotine maintenance. Another approach is preventive immunization against nicotine addiction. These vaccines will need to demonstrate efficacy and long-term safety and improve certain consumer acceptability characteristics (e.g., frequency of injections required) before they can become widely used therapies. A recent study showed potential benefits with immunization for nicotine dependence (12), but the beneficial effects has largely been confined to those with high antibody titers, a group that so far has not been possible to identify beforehand. Still the best hope for improved treatment results comes from combining existing and new pharmacotherapies with effective behavioral therapy, both individually and based on group session cessation—a concept that was reported to be successful in a randomized study from Swedish primary health care in the 1990s (13).

## IS HARM REDUCTION OF TOBACCO USE AN ACCEPTABLE STRATEGY?

— One more controversial issue that has provoked a heated debate is whether Swedish tobacco snuff (“snus”) should be recommended for heavy smokers to make them avoid inhalation and thereby decrease their disease risk in general (14). Snus is mostly used in Scandinavia, but similar noninhaled nicotine products are also available in other countries. Should snus be recommended even if this habit might cause health problems by itself, e.g., an increased risk of pancreatic cancer (15)? One argument in favor of using snus for

harm reduction is that a linear relationship has been shown for the number of daily cigarettes smoked and the risk of myocardial infarction, according to the global INTERHEART study in >15,000 subjects with MI and their matched control subjects (16).

## HARMFUL EFFECTS OF SMOKING IN ALL AGE-GROUPS

— Smoking seems to harm human biology irrespective of age, even if exposure to tobacco is believed to be most deleterious in fetal or perinatal life when maternal smoking will increase the risk of fetal loss as well as numerous health problems in the offspring (17). Earlier studies have suggested that the male fetus is even more susceptible than the female fetus to smoking in the pregnant mother (18). The negative effect on fetal growth from maternal smoking was reported to affect the male fetus proportionally more than the female fetus (19). However, few long-term follow-up studies are available to study the consequences past the childhood period. Maternal smoking during pregnancy is a risk factor that could affect offspring health, but is also a risk factor for subsequent nicotine dependence among these subjects (20). In Helsingborg, a community in southern Sweden with previously widespread smoking habits, all pregnant women were routinely asked to state their smoking habits during the period 1961–1965 (21). After long-term follow-up for 30 years, the risk of early mortality was increased in male offspring (21).

Another vulnerable period is smoking in young adolescence when the organ development can be impaired, especially lung function, more so in girls than in boys (22). Most physicians will also take an active stand against tobacco use in middle-aged patients, especially after a cardiovascular event, to improve secondary prevention. In elderly smoking subjects, there is often a more relaxed attitude toward this habit among health care workers. Some of them argue that if a person has lived a long life as a smoker without serious adverse health effects, advice to quit this habit should no longer be a focus. On the other hand, it has been shown that many medical conditions in the elderly can improve, creating increased quality of life after smoking ces-

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sation irrespective of age, e.g., peripheral artery disease and chronic obstructive pulmonary disease. Furthermore, some elderly people with predementia or cognitive impairment might forget about burning cigarettes and thereby cause harm to themselves or to others after accidental fire-setting. Therefore, there exist good clinical arguments to stop smoking in the overwhelming majority of patients and also in supposedly healthy individuals irrespective of their age. One exception could potentially be patients with a fatal disease such as terminal cancer or other serious life-threatening conditions if they are not willing to give up their habit.

No other global risk factor is so common and so dangerous for most ordinary citizens as the hazardous habit of smoking. Certain chronic conditions such as chronic obstructive pulmonary disease, coronary heart disease, and even type 2 diabetes (23) are the worst consequences of smoking besides cancer. However, in early or even fetal life, the exposure to passive smoking in the environment or via a pregnant mother who smokes poses a great health risk that should be taken seriously. Future health research should focus on new ways of helping the tobacco addict to quit the habit, including newly developed central nervous system-active drugs and even vaccines. A deeper understanding of the pathophysiological mechanisms involved in the impact of smoking on, for example, glucose metabolism and diabetes is also needed (23). However, in the end, these individual approaches will not be sufficient if they are not combined with national goals for tobacco reduction and control (24) by use of price politics, taxation, legislation with sales restriction to minors, and international agreements to reduce the production of tobacco products in both developing and more developed countries.

### **A CHALLENGE TO HEALTH WORKERS TO HELP SMOKERS QUIT**

— According to recent Cochrane reports, simple advice by physicians and other health workers has often a small effect on cessation rates, but can have a large impact on a broader scale if offered to many smokers. Additional maneuvers appear to have only a small effect, although more intensive interventions are marginally more effective than minimal interventions (3). Groups for smoking cessation are better than self-help and other less intensive intervention

(4). There is not enough evidence on their effectiveness, or cost-effectiveness, compared with intensive individual counseling. The inclusion of skills training to help smokers avoid relapse appears to be useful, although the evidence is limited. These interventions should be supported by modern effective drug therapy, with more intensity the higher the risk in the individual patient.

Finally, according to the most recently released U.S. guidelines, it is stated that 1) both counseling and medications should be provided whenever possible, 2) there is stronger evidence than before that counseling is a critical part of tobacco cessation, and lastly 3) individual, group, and telephone counseling are effective, and their effectiveness increases with treatment intensity. Physicians are commonly not experts in education and counseling why there is a need to engage all members of the health care team to do better for achieving smoking cessation in their at-risk patients, especially in those with diabetes. This strategy also includes the important activities of health educators, nurses, and pharmacists, to name a few.

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