Helping **people** quit **tobacco**

A Manual for Doctors and Dentists

World Health Organization
Regional Office for South-East Asia

Helping People Quit Tobacco:

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Helping People Quit Tobacco: A Manual for Doctors and Dentists

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Foreword

Tobacco cessation is one of the important components of a comprehensive tobacco control strategy. Article 14 of the WHO Framework Convention on Tobacco Control requires Parties to "include diagnosis and treatment of tobacco dependence and counselling services on cessation of tobacco use in national health and education programmes, plans and strategies", and to "develop and disseminate appropriate, comprehensive and integrated guidelines" in order to take "effective measures to promote cessation of tobacco use and adequate treatment against tobacco dependence". Tobacco cessation in adults is critically important to improving public health in the short and medium term because the vast majority of projected deaths from tobacco use in the near future will be among people who are currently using tobacco products.

Helping People Quit Tobacco: A Manual for Doctors and Dentists aims to provide guidelines for medical professionals to build capacity to strengthen tobacco cessation activities. The document describes behavioural and pharmacological interventions, including advice and counselling, intensive support and administration of pharmaceuticals to facilitate changes in tobacco users' behaviour. It addresses important issues such as information about the global and regional burden of tobacco use, the WHO MPOWER policy strategy as a tobacco control measure, the risks of tobacco use and the benefits of quitting. This information will increase the knowledge of health professionals and motivate them to undertake cessation efforts among affected populations.

The development of the *Manual* has followed an iterative process of drafting, review and discussion and is based on scientific evidence and best practices from around the world. I hope that the *Manual* will help to further strengthen tobacco cessation services in the Region and assist Member States in framing their respective national tobacco treatment strategies tailored to local needs.

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Chapter 1

Introduction: MPOWER and TEACH

Learning objectives:

By the end of this chapter you, the clinician, should have a brief understanding of:

- The global burden of tobacco use.
- Overall approaches to tobacco control.
- Your role as a health professional in tobacco control/cessation.

Tobacco is the only legally available and commonly used substance that will kill one third to half the people who use it. As of 2000, there were an estimated 1.1 billion smokers worldwide and this number is estimated to increase to 1.45 billion in 2010. [1] Certain forms of smoked (*bidis* and *kreteks*) and smokeless (chewing) tobacco are most prevalent in countries in South-East Asia.[2] Tobacco use, a human-made epidemic, kills about 5.4 million people a year globally.

Tobacco is the major cause of preventable mortality and morbidity all over the world

Deaths due to tobacco are likely to more than double between 1998 and 2030, when there may be more than 8 million deaths annually.[3] This means that tobacco-related deaths will exceed the total number of deaths from malaria, maternal and major childhood conditions, and tuberculosis combined. More that 80% of the deaths are predicted to occur in the developing world,[3] where dreams of a better life are only just beginning to

unfold among the masses. The burden will not just be in terms of death and illness but also reduced productivity and increasing health-care costs.

The tobacco epidemic worldwide is affecting the poorer and least educated the most.[4] Among them is less resistance to the introduction of new tobacco products and an enormous potential new market, particularly women and youth. The countries of the SE Asia Region, which have scarce resources for health and still suffer from the burden of communicable diseases, will not be able to afford to treat a population suffering from the consequences of tobacco consumption.

However, all is not lost. If effective tobacco control measures, along with treatment, are made available, and the adult tobacco consumption halves, millions of deaths can be prevented.[2]

MPOWER

The WHO Report on the Global Tobacco Epidemic 2008[3] recommends a comprehensive and effective approach to control tobacco in the 21st century: MPOWER.

MPOWER stands for:

Monitor use and prevention policies.

Protect people from tobacco smoke.

***O**ffer help to quit tobacco use.*

***W**arn about the dangers of tobacco.*

Enforce bans on tobacco advertising, promotion and sponsorship.

Raise taxes on tobacco.

Two of the six effective tobacco control policies lie with the health-care sector!

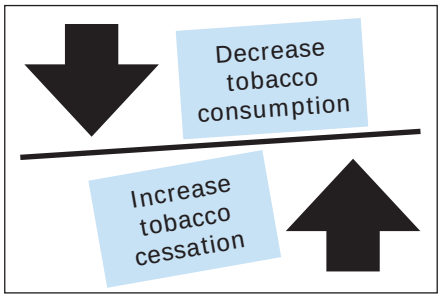
What has made saving lives and preventing disease a real possibility?

- The damage caused by tobacco has now been very clearly documented, and there is growing awareness of tobacco use being the primary and most preventable cause of death and disease.
- People are beginning to realize that tobacco use is not just a habit but often an addiction which is very difficult to give up without help.
- Effective treatment has emerged that can substantially improve the chances of quitting compared with only the individual's efforts on his own.

Unfortunately, in the South-East Asia Region there is still considerable lack of awareness of tobacco-related harm among people and tobacco cessation treatment is not widely available. Even in developed parts of the world such as Europe and North America, treatment is not available for all tobacco users who need or want it. And when it is available, few tobacco users are motivated to take advantage of it. In most regions of the world, there is minimal or no planned treatment for tobacco cessation.

As health professionals, our core responsibility is two-fold:

- Play a role in **reducing the use of tobacco in the community** by providing clear and definite **advice on the dangers of tobacco** to the public in general and to patients who seek health consultation in particular.
- **Encourage tobacco cessation** with proper advice, support and treatment.



Tobacco cessation in simple words means stopping tobacco use, which is in some ways the most difficult, as well as for many the most successful, thing the person concerned may have done. Only 5% of the world's population has access to comprehensive tobacco cessation services.[3] It is sad that the biggest cause of preventable death and disease has the least amount of effective intervention available. Death and disease are even more serious problems in the SEA Region where poverty, illiteracy and shortage of medical personnel result in poor health indices.

We envisage that the prevention of tobacco use and treatment of its addiction follow the **TEACH** paradigm:

Training – Train all health-care providers to be familiar with the health, social and economic risks from tobacco use and how to provide help to users to quit.

Education – Educate people in the community as well as persons who access health-care services on the harm from tobacco use and thus decrease initiation and encourage cessation.

Advice – Advise all persons using tobacco to quit.

Counselling and care – Counsel persons regarding the benefits and ways of quitting and provide help to prevent relapse and care, both psychosocial and pharmacological, as needed.

Harm minimization – Harm minimization, both to those exposed to tobacco smoke and tobacco users themselves.

In this *Manual*, our attempt is to help you, the clinician, to:

- understand the extent and patterns of tobacco consumption in the SEA Region;
- be familiar with the extensive health damage tobacco can cause, as this knowledge will be very important to educate patients and communities;
- know how to assess tobacco use;
- learn how to provide brief and effective advice about tobacco in a busy clinic, out-patient or hospital setting;
- help people understand and fight relapses; and finally,
- understand the larger framework of tobacco control and the potential role we may play as health professionals in minimizing tobacco use in the community.

Currently, there is fairly extensive research evidence on what seems to work for tobacco cessation. However, in countries where treatments are well developed, the experience is largely related to cigarette smoking and not other forms of smoking and smokeless tobacco, use of which is very common in the South-East Asia Region. It will be a challenge to evolve treatment methods which will be effective in diverse cultural settings and for different patterns of tobacco use.

Chapter 2

Missed opportunities and core messages

Learning objective:

By the end of this chapter you will be able to understand:

- The opportunities for timely intervention that are lost, and the grave price that is paid by not providing these interventions to persons with tobacco use.
- That annual tobacco-attributed deaths in the SEA Region is over 1.2 million

The statistics are alarming; they are also often confusing and complicated. Let us understand the situation further through individual cases that more clearly illustrate these missed opportunities for timely intervention.

(i) M, a 50-year-old man in a slum, was attending an awareness programme organized by a voluntary organization. The doctor was explaining about the serious side-effects of smoking. The man got up and remarked. "Why didn't someone tell me all this when I was 18 years old. I may have never started smoking".

Why didn't we provide this information then?

(ii) A 45-year-old-man, J, who headed a low-income household, died of cancer from a 35-year-old

bidi smoking habit. No one had advised him in the past to quit smoking.

The survival of J's entire family is at stake. His lost capacity is further emphasized as his wife and children sink deeper into poverty.

(iii) K, a 40-year-old software engineer suddenly dropped dead from a heart attack. He had a family history of cardiovascular disease. He was obese and held a stressful job. He had smoked from the age of 22 years, and smoking was his way of handling stress. He had seen advertisements that smoking was injurious to health but he couldn't stop smoking; he didn't know how.

Though K knew that smoking was injurious to health, he didn't really know he was at risk because of his positive family history. The advertisements he saw didn't have any personal meaning for him. And even if the thought had crossed his mind that he should stop, he didn't know how to do it. Will power alone was clearly not enough for him.

(iv) A 30-year-old man, P, had been smoking for five years and decided he must quit as his wife constantly picked on him when she smelt tobacco in his breath. He was also embarrassed to meet his business colleagues with the smell of tobacco on his clothes and his persona. He tried to stop but the withdrawal symptoms were very unpleasant. He switched instead to *gutkha*, a chewable form of tobacco. He felt relieved when he chewed *gutkha* and his clothes no longer smelt of tobacco smoke. Five years later, he developed some hardness in his cheeks. Opening his mouth became more and more difficult and in a year's time he had to be fed through a straw.

He did not know the health risks of chewing tobacco. If he had known better ways to deal with his withdrawal symptoms, he may have never needed to switch to this unsafe form of chewing tobacco.

(v) A 38-year-old housemaid, S, chewed a local form of tobacco. It cost little and it kept away her hunger. She was always tired, had constant aches and a burning pain in the stomach. Chewing tobacco helped to deal with these pains temporarily. So did the pills that the local GP gave her for the aches and pains.

The GP did not ask S about her tobacco use habit. He did not tell S that her aches and pains and tiredness were due to anaemia and that the gastritis she had was worsened by chewing tobacco. Correcting the anaemia and making sure she had her meals on time would have taken care of her symptoms.

(vi) Z, an 8-year-old girl, was brought to the paediatrician with asthma problems. The doctor put her on the latest inhalers, but she kept getting frequent attacks. There was no family history of asthma. The doctor was puzzled and increased her dose of medication.

Had the paediatrician checked with Z's father, she would have known that the latter was a chain smoker who smoked at home in the bedroom they all shared. Z was constantly exposed to tobacco smoke, which aggravated her respiratory problems.

(vii) B, a 38-year-old labourer, earned about Rs 150 (US$ 3) per day. He has been smoking for about 15 years and spent about Rs 15 per day on tobacco. He had developed a chronic cough since the last five years, fatigued easily and lost a significant amount of weight, but continued to smoke as it had become a "habit".

Who will tell B that he has spent 10% of his family earnings on tobacco? If he had only saved this money, he could have put aside more than Rs 80 000 (about US$ 1700), a sum which he could have used for his children's education or even to buy his family a small plot of land. Instead, all that the smoking has given him is ill health, which may turn out to be tuberculosis.

(viii) For M, a 22-year-old successful model, smoking had become an integrated part of her partying lifestyle. She had never wanted to smoke, but the pressure from friends was too much. Everyone thought it was cool to smoke and they smoked occasionally for effect. M is an anxious girl, very prone to mood swings. Whenever she was tense, she found that smoking calmed her nerves. After her relationship broke up, she started smoking regularly.

M did not know that her primary problem was anxiety and mood swings, for which she should have sought help. Instead, she now had two problems, the primary problem and the problems as a consequence of her tobacco use.

(ix) R, a 35-year-old villager, chewed tobacco since the age of 15. Once during a dental check-up the dentist had showed him a small white patch in his mouth and said it could lead to cancer if he continued to use tobacco. The dentist also told R that quitting, though difficult, could be managed by certain simple techniques. R tried them, and they certainly worked. R quit tobacco use, and the white patch in the mouth disappeared.

A story with a difference, thanks to a vigilant health professional!

What problems do these cases highlight?

(1) Lack of awareness of the range of harm from tobacco use

Many people are not aware of the extent of harm that can occur from tobacco use. While many people, particularly those in urban areas, are aware that smoking causes cancer, few know little about the other dangers of tobacco use. Even if they are aware, they never think that these may happen to them. Apart from the risk of

cancer, we have not adequately publicized the range of health and other problems from tobacco use. Physicians have not seriously engaged with patients in educating them about specific harm from tobacco use.

(2) Lack of awareness of the benefits of quitting

Few people know or have seriously thought of the range of benefits from not starting, or quitting early, or even quitting when there is established disease. At any stage in one's life, it is worth quitting tobacco use, and it is important to know about and realize these benefits.

(3) Lack of awareness about treatment

Most people believe they have to handle it all by themselves: it is a habit they brought on, and so it is entirely up to them to give it up. This belief is shared by people in general as well as tobacco users. When self-assisted quit attempts fail, the tobacco user simply accepts that he/she is fated to use tobacco.

(4) Lack of effective treatment services

In the SEA Region, very few doctors and dentists feel equipped to provide treatment to persons with chronic tobacco use. The reasons include a lack of knowledge and skill to deliver these services, as well as the attitude mentioned earlier: that tobacco use is just a "personal undesirable habit brought on by the person". Many health professionals are themselves tobacco users – a problem that often starts during undergraduate medical training – and that makes it very difficult for them to offer treatment.

(5) Many users are addicted to tobacco

For many others, tobacco use helps to deal with underlying problems such as stress, anxiety and depression. They do not realize this, nor have they understood that they need healthier ways of dealing with these problems instead of using tobacco.

(6) Tobacco affects persons exposed to smoke (passive smoking)

Apart from the personal health risks from tobacco smoking, we have simply not been aware of the enormous health risks that others around us, including our children, other family members, friends, co-workers and others, are exposed to when they inhale second-hand smoke.

Chapter 3

Tobacco use in the South-East Asia Region

Learning objectives:

At the end of this chapter, you should be aware of:

- The burden (scale) of tobacco use, regionally and locally.
- The types of tobacco use in the Region.
- The changing profile of tobacco users.

The Member States of the WHO South-East Asia Region – Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor–Leste are inhabited by 1.536 billion people (2000 estimates), – or about 25% of the world's population.[11] Half of them are developing countries, while the other half fall in the category of least developed countries.

People in the Region use both smoking and smokeless forms of tobacco. Four countries of the Region – India, Indonesia, Bangladesh and Thailand – are among the top 20 tobacco-producing countries in the world.[2] 16.5% of the world's tobacco cultivation occurs in the SEA Region.[11] The production of major tobacco products like cigarettes has gone up by more than 50% in the Region in the recent past. Except for Sri Lanka and Thailand where it has reduced, tobacco production has substantially increased in India, Indonesia, Bangladesh, Myanmar and perhaps also DPR Korea.

Adult tobacco surveys in South-East Asia

Country	Source	Year and type of survey	Age group	Tobacco type	Overall prevalence %	Male prevalence %	Female prevalence %
Bangladesh	Global Adult Tobacco Survey Bangladesh	2009 National	≥15	Current tobacco user	43.3	58.0	28.7
				smoked only	23.0	44.7	1.5
				Smokeless only	27.2	26.4	27.9
Bhutan	–	–	–	–	–	–	–
Democratic People's Republic of Korea	Smoking Survey among male population in DPRK	2002 Subnational	16+			59.9	
India	National Family Household Survey-3	2005-2006 National	15–54	Current any tobacco use		57.0	10.8
				Current smoking *bidis* or cigarettes		32.7	1.4
				Current smokeless		36.5	8.4
Indonesia	Indonesia Household Survey	2004 National	15+	Current tobacco smoking	34.5	63.2	4.5
				Daily tobacco smoking	28.4	52.4	3.3
Maldives	Smoking Survey	2001 National	16+	Current any tobacco use		37.4	15.6
				Current cigarette use	12.6	27.3	2.2
Myanmar	World Health Survey Myanmar	2003 National	18+	Current tobacco smoking	30.9	48.9	13.7
				Daily tobacco smoking	22.7	35.6	10.4
Nepal	Nepal Demographic and Health Survey	2006 National	15–49	Current cigarette use		30.2	15.2
Sri Lanka	World Health Survey	2003 National	18+	Current tobacco smoking	21.6	39.0	2.6
				Daily tobacco smoking	13.6	24.5	1.6
Thailand	Global Adult Tobacco Survey Thailand	2009 National	≥15	Current tobacco users	27.2	46.4	9.1
				Smoked only	85.7	97.1 (of users)	30.8 (of users)
				Smokeless only	12.9	1.8 (of users)	66.0 (of users)
Timor-Leste	Global School Personnel Study	2005 Subnational	Adults	Current any tobacco use	29.9	37.0	6.1
				Current cigarette use	23.4	30.5	1.3

Compiled from WHO Report on the Global Tobacco Epidemic[3] and the Global Adult Tobacco Survey for Thailand and Bangladesh.[12]

About 30% to 63% of men and 1.8% to 15.6% of women in the SEA Region use some form of tobacco or the other.

Both smoking and smokeless forms of tobacco are known in the Region. Tobacco in general, *bidis* to a greater extent, and smokeless tobacco use in particular have long enjoyed social sanction and respectability in many cultures of the Region.

Bidis are sometimes offered at wedding ceremonies in honour of the guests. *Hookahs* are shared to reinforce social and caste identities, predominantly among males. The social perspective is also changing as more and more women use tobacco in response to their changing role in society. Smokeless tobacco is becoming increasingly acceptable even by children and fashionable "*hookah* bars"or "*shisha* bars" allure the urban young.

In South-East Asia, the adult male smoking rate is 10 times higher than the adult female rate.

However, many women in the region chew tobacco.

Tobacco use is higher among the:

- Rural population
- Poor
- Illiterate

In many of the countries, tobacco use is culturally sanctioned and is part of the social norm.

Local patterns of tobacco use

Bidis and cigarettes are the commonest forms of smoked tobacco used in India, Bangladesh, Nepal, Sri Lanka and Maldives. Hand-rolled tobacco is particularly common in India, Nepal, Bangladesh, Myanmar and Maldives.[11]

Bangladesh

Common forms of tobacco include cigarettes of different quality, *bidis*, *hookahs*, betel nut with quid, dried tobacco leaf with lime, *gul*, etc. Some studies indicate that tobacco prevalence in Bangladesh is as high as 62% among males and 41% among females.[8]

Bidis or *Beedis* or *Biris* are slim, handrolled, unfiltered forms of smoking tobacco. The *bidi* is known as the 'poor man's cigarette'. It usually consists of about 0.2 grams of sun-dried and processed tobacco flakes rolled in a *tendu* or *temburni* leaf and held together by a cotton thread.

Bidis are most commonly rolled in paper in Bangladesh. The tobacco rolled in *bidis* is different from that used in cigarettes and is called *bidi* tobacco. The *bidi* smoker has to puff harder and deeper to keep the *bidi* lit (as the *tendu* leaves are less combustible and less porous than cigarettes rolled in paper) and this is tougher on the lungs.

Bhutan

Chewing *dama* (betel nut with a leaf and some lime) is a common habit and a part of the Bhutanese tradition. *Dama* is an integral part of many formal rituals. But today this habit is more common with the elderly, although the younger generation indulges in it too.

India

Bidi smoking is the most popular form of smoking tobacco[13] followed by cigarette smoking. Other smoking forms include cheroot (roll made from tobacco leaves), *chuttas* (coarsely prepared cheroots), *dhumti* (a conical cigar made by rolling the tobacco leaf in the leaf of another plant), pipes, *chillums* (conical clay pipes), and *hooklis* (clay pipes). Cigars are used by a small number in urban India. Another form of smoking tobacco is the *hookah*, a water pipe through which tobacco fumes pass before inhalation. This was a common practice earlier but is now generally on the decline. However, it is emerging as a fashionable trend in some metros at commercial smoking outlets known as *shisha* bars.

Among forms of chewing tobacco, *paan* (betel leaf with areca nut) with tobacco is the most widely consumed item. Various other flavoured varieties of chewing tobacco are also sold in sachets. These include dry tobacco and areca nut preparations such as *paan masala, gutkha, mawa and khaini.*

Tobacco dentifrice, used for cleaning teeth, is popular in some areas of the country. Common products include *mishri, gudaku paste*, *bajjar,* tobacco tooth powder and tooth paste. Tobacco water, prepared by passing tobacco smoke through water, is common in north-eastern India.[5]

Indonesia

Tobacco use has been known in Indonesia since as early as the 1500s. In the 1800s, cloves were mixed with tobacco cigarettes to create the Indonesian *kreteks*, or clove cigarettes. Presently 80% of cigarettes consumed in Indonesia are kreteks. *Kreteks* were introduced in Indonesia by Studebacher Hock, who thought that the eugenol contained in the clove-flavoured cigarette was a cure for asthma. But he died of lung cancer before he could mass market it. Currently, the majority of tobacco consumption in Indonesia is in the form of *kreteks*, with hundreds of large and small brands being manufactured.[14]

Kreteks consist of 30%–40% cloves, unusual among spices because they contain eugenol used as a local anaesthetic in dentistry. Eugenol is considered a possible human carcinogen, and it is closely related to safrole, a weak hepatic carcinogen. Eugenol numbs the throat and allows for deeper inhalation.

Common forms of tobacco in the SEA Region

Smoked forms:

Bidis

Cigarettes

Kreteks

Cheroot

Others *(hookah, chillum)*

Smokeless forms:

Packaged chewing tobacco

Betel quid with tobacco

Raw tobacco

Tobacco dentifrices

Tobacco water

Tobacco snuff

Behaviours associated with smoking *kreteks* include slower smoking and more puffs because the rods of the clove are firmly packed. *Kreteks* sold in Indonesia have between 1.7 mg and 2.5 mg of nicotine per stick. In addition to eugenol, a single brand of *kretek* can have hundreds of different additives in its "sauce". The "sauce" makes the tobacco less harsh while maintaining the flavour of a particular brand over time given the large variations in leaf quality. Normally during the manufacturing process, hundreds of other chemicals are added to tobacco to ease inhalation and also reduce the amount of tobacco in each stick. In addition to flavours that enhance taste, additives can include ammonia to increase nicotine absorption and cocoa to dilate the airways. While such additives may be safe when ingested, the health effects of inhaling them are not known.

Myanmar

Cheroots are the most common smoked form of tobacco. Cheroots are made from sun-cured and ground Myanmar tobacco leaves. Their stems are baked and chopped and are mixed with tamarind, jaggery and other material and wrapped in *sebastan* leaves. Cheroots are hand-rolled as part of a small-scale industry or by the users themselves. A variety of leaves such as corn-husk and palm leaves are used to wrap the hand-rolled cheroots. A smaller form of cheroot wrapped in paper is known as "*putchun*". A few smokers smoke cigarettes, cigars and pipes. About 15% of the population chews tobacco, mostly with betel, while a smaller number chews raw tobacco.[15]

Maldives

The primary form of tobacco use is smoking tobacco. A small number also use *bidis* and *hookahs*.

Nepal

Bidi, cigarette, *paan masala* and *paan* with tobacco is widely prevalent in the Terai region. In rural areas *hookah* smoking is prevalent.

Timor-Leste

Cigarettes are the most common form of smoked tobacco. Indonesian *kreteks* are also illegally available in Timor-Leste. Chewing tobacco is common in rural and remote areas. *Sonke* is a home-made tobacco roll kept in the mouth the whole day. Local cigarettes are prepared from dried tobacco leaves rolled in corn husk or thin paper. An oral health survey in 2002 found that nearly 40% of adults chewed betel quid and 22.6% used betel quid with tobacco.[16]

Thailand

Cigarettes are the most commonly used form of tobacco. The recent GATS study[12] suggests that chewing tobacco is now documented, in addition to smoking among women.

There are regional differences in the types of tobacco available and the way tobacco is used. Over the last two decades there has been a significant reduction in tobacco prevalence in Thailand, which has been attributed to a strong tobacco control programme.

Emerging tobacco use in newer populations

In South-East Asia, the adult male smoking rate is ten times higher than the adult female smoking rate. Among 13–15-year-olds, however, the male smoking rate is only about two-and-a-half times higher than the female. The details of tobacco use among youth (Global Youth Tobacco Survey) are discussed later.

Most observations of tobacco use in the SEA Region have, therefore, focused on male tobacco users. It is now becoming increasingly obvious that tobacco use is gradually overcoming barriers of gender and age. Tobacco use by women is now becoming part of epidemiological surveys in the SEA Region countries.

Though the overall prevalence of tobacco use among women has been found to be very low, an NGO working on developmental issues in Bangladesh has suggested that this prevalence can be much higher in certain pockets or groups.

In India, chewing tobacco is the commonest type of tobacco used by women and has been shown to be associated with higher mortality.

Global Youth Tobacco Survey

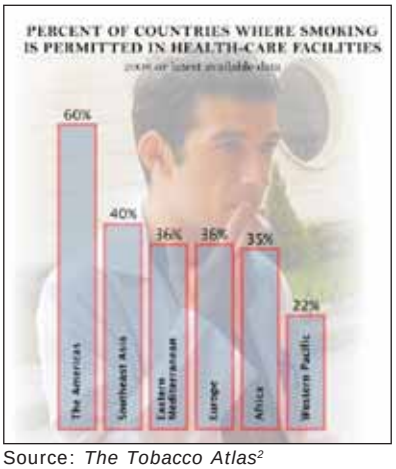
Country	Year	Proportion currently using any form of tobacco (%)		Proportion currently smoking cigarettes (%)		Proportion exposed to smoke in public places (%)
		Males	Females	Males	Females	
Bangladesh	2007	9.1	5.1	2.9	1.1	42.2
Bhutan	2006	29.8	11.0	18.8	5.9	56.4
India	2006	17.3	9.7	5.9	1.8	40.3
Indonesia	2006	24.1	4.0	23.9	1.9	81.4
Maldives	2007	8.5	3.4	6.6	0.9	68.0
Myanmar	2007	22.5	8.2	8.5	1.3	46.4
Nepal	2007	13.0	5.3	5.7	1.9	47.3
Sri Lanka	2007	12.4	5.8	1.6	0.9	65.9
Thailand	2006	21.7	8.4	17.4	4.8	68.2
Timor-Leste	2006	54.5	30.0	50.6	17.3	69.8

All national surveys, except Indonesia (subnational). Not carried out in DPR Korea.
Source: WHO SEARO[17]

How sensitive has the health sector been?

There are several examples to suggest that the health sector has not taken tobacco cessation intervention seriously enough. The fact that many countries in the Region until recently had no strict restrictions in place on smoking in health-care facilities supports this opinion.

The second important fact is that most health professionals in the Region have not received formal training on tobacco cessation. Until recently, only a minority of medical students report having been exposed to formal training in tobacco cessation.



Source: *The Tobacco Atlas*[2]

- Nearly one in three to four 3rd-year dental and medical students in Bangladesh smoke cigarettes.
- Both cigarette smoking and use of other tobacco products is high among dental and medical students in Nepal.
- About one in four dental students in Myanmar smokes cigarettes and one in six medical students uses other forms of tobacco.
- While this data is from the GHPSS[18], other studies from countries in the Region report even higher prevalence among health professionals.
- Figures are not available for some SEA Region countries, but tobacco use among health professionals is an important barrier to their providing tobacco cessation services. Many of them have not received formal training in providing tobacco cessation.

'Physician, heal thyself'

Another important factor that has deterred the active involvement of health professionals in tobacco cessation is the use of tobacco in their own community.

The Global Health Professional Students' Survey (GHPSS) 2005–2007[18] examined tobacco use prevalence among third-year students attending dental, medical, nursing and pharmacy schools in 31 countries globally, including many countries of the SEA Region.

Global Health Professional Students' Survey

	Currently any tobacco use		Learned cessation approaches to use with patients	
	Male dental students %	Male medical students %	Male dental students %	Male medical students %
Bangladesh	21.4	32.8	25.2	25.0
India	11.4	13.5	12.3	22.3
Indonesia	10.7	9.3	10.3	21.8
Myanmar	24.6	16.3	45.0	43.5
Nepal	28.5	30.5	11.2	23.3
Thailand	3.8	3.3	14.6	22.5
Sri Lanka	3.0	7.0	-	16.8

Source: WHO Regional Office for South-East Asia 2009[17, 18]

In India, Nepal and Indonesia there have been other studies looking at tobacco use prevalence among medical students as well as qualified physicians.

According to a cross-sectional study of 377 health professionals in two districts of Nepal in 2007, 32.4% of men and 3.2% of women were current tobacco users. Current tobacco users were significantly less likely to ask and advise about tobacco use compared with non-users.[19]

Similar findings were earlier (2005) reported among medical students in Orissa, India, where the prevalence of tobacco use was much lower.[20] A study from Lucknow, India, of 250 undergraduate medical students in 2008 found a 28.8% current tobacco prevalence, with 37.5% reporting primary smokeless forms of tobacco use in the form of *gutkha, khaini* and *gulmanjan*.[21]

Similarly, in a cross-sectional survey carried out in 2006 among 110 male faculty of medical schools, 229 physicians and 1130 medical students in Kerala, India, 15.1% of the faculty, 13.1% of physicians and 14.1% of medical students reported current tobacco use. When only males are considered, the proportion becomes much higher. While 42% of the faculty and physicians and 51% of the medical students had not made any quit attempt in the previous year, a third of the faculty and physicians and 16% of medical students had attempted to quit at least four times.[22]

Medical students in India and Indonesia also have inadequate perceptions of harm from tobacco use. In a study of 1100 medical students in India reported in 2009, 33% viewed smoking 5–10 cigarettes per day as being relatively harmless. There was a similar perception among Indonesian medical students.[23] In both countries, while students readily perceived a link between smoking and lung cancer, they were not aware of its relationship with many of the other well-established diseases associated with tobacco use.

Key learning points:

- There is a huge burden of tobacco use in the SEA Region.
- There is a large variety of both smoking and smokeless forms of tobacco in the Region.
- Smoking is still predominantly a male habit but use of smokeless forms of tobacco, particularly through chewing, is common among both men and women.
- Tobacco use among youth indicates early initiation and narrowing gender ratios.
- Tobacco use among health professionals is an important barrier to their providing cessation services.

Chapter 4

Why quit? The risks of using tobacco and benefits of quitting

Learning objectives:

At the end of this chapter, the doctor should:

- Be aware of the major health consequences of tobacco use, and of at least a few key effects on each system.
- Be able to discuss these health effects with the patient in simple, easy-to-understand language.
- Be aware and discuss with the patient and family the immediate, short-term and long-term health and socioeconomic benefits that would accrue to them by quitting tobacco smoke.

Most of the tobacco-related damage to health does not become evident until years or even decades after the onset of use. So, while tobacco use is rising globally, the epidemic of tobacco-related disease and deaths has just begun.

There is abundant literature on the health consequences of tobacco use. In this chapter we will highlight the preventable consequences of tobacco use and focus on

Most tobacco users are unaware of the risks of tobacco use

Despite conclusive evidence of the dangers of tobacco, relatively few tobacco users worldwide fully grasp its health risks. People may generally know that tobacco use is harmful, but it is merely seen as a bad habit that people choose to indulge in. The full range of health dangers have not been adequately explained to the public. Consequently, people believe they can reduce or stop tobacco use well in time before health problems occur. The reality is that most tobacco users will be unable to quit by themselves and up to half of them will die from tobacco-related illnesses.

Most people are unaware that even the smallest level of tobacco use is dangerous, in part because this is not the case with other behavioural health risks. Many tobacco users cannot name specific diseases caused by smoking other than lung cancer.

situations where the clinician could play a significant role in halting the progression of tobacco use-related health risks.

In the following section, we present the health-related side-effects of smoking tobacco (cigarettes and *bidis*), smokeless forms of tobacco and other forms of tobacco commonly used in the Region. These effects on health have been summarized from multiple sources.[5,13,24-29]

Adverse effects associated with tobacco use

Brain: strokes

Skin, eye and ear diseases: psoriasis, cataract, macular degeneration, ear infections

Respiratory system: cancer, tuberculosis, asthma, COPD, interstitial lung disease

Bones: brittle bones, osteoporosis

Immune system: reduced immune response, increased infection

Pregnancy and babies: miscarriages, stillbirths, pre-term delivery, low birth weight, sudden infant death syndrome, developmental impairments

Physical appearance: premature ageing, alopecia, tooth decay

Oro-pharynx/larynx: inflammation, ulcers, precancerous and cancers

Heart and circulatory system: hypertension, heart disease, heart attacks, coronary and other artery disease, peripheral vascular disease

Cancers: pancreas, kidney, urinary bladder

Sexual and reproductive system: erectile dysfunction (men), impaired menstrual cycle, early menopause (women), reduced fertility, cancers

The increase in mortality attributed to tobacco use was discussed in an earlier chapter. In India, about one in four middle-aged men dies due to smoking. *Bidis* have been found to contain many of the same harmful chemicals associated with Western-style cigarettes.[13]

Many large-scale cohort studies have been carried out on tobacco users in different states of India right from the 1960s. In urban study areas, among males aged 25–69 years nearly 60% of those who had died had been smokers compared with 39% among controls.[30] Thus, middle-aged smokers had significantly higher death rates than non-smokers from all medical causes combined. The risk of death from tuberculosis was 6.3 times higher, other respiratory illnesses 3.7 times higher, vascular causes 1.7 times higher and neoplastic causes twice as high among smokers than non-smokers. Similar trends were seen among rural smokers.

Tuberculosis

Most of the cases of tuberculosis in the world are to be found in the SEA Region. This Region accounts for 5 000 000 tuberculosis cases and 500 000 deaths from tuberculosis each year.[31,32]

Smoking and tuberculosis – Mechanism:

Postulated mechanisms include:

- Damage to pulmonary mucosa by tobacco smoke makes it more susceptible to infection.
- Accompanying weight loss and malnutrition in smokers.

More recent studies have provided evidence for a causal association between active and passive tobacco smoking and a range of TB outcomes including infection, development of disease, treatment outcomes, relapse as well as mortality. Current smoking is associated with a doubled risk of developing tuberculosis.

Tuberculous consolidation and cavity in a smoker.
Photo courtesy: Dept of Pulmonology, NHIMS

Cardiovascular diseases (CVDs)

Almost half the deaths in the South-East Asia Region are currently attributed to noncommunicable diseases, particularly cardiovascular diseases, respiratory diseases and cancers.[33]

Studies from India found the following associations between *bidi* smoking and cardiovascular disease:[13]

The odds ratio of acute MI in those smoking more than 10 *bidis* per day was higher (4.4) than that of cigarette smokers (3.6) compared with non-smokers.

Bidi smokers had a greater risk of acute myocardial infarction (AMI) compared with cigarette smokers, and both were greater than that of non-smokers (odds ratios 4.4, 3.6 and 1 respectively).

A similar pattern was seen with respect to all coronary artery disease (CAD) (odds ratio among *bidi* smokers 3.1, and tobacco smokers 2.5 compared with non-smokers).

Risk of thromboangitis obliterans (TAO) was 34 times more likely in persons smoking more than 20 *bidis* per day, 7 times more in those smoking 11-20 *bidis* per day or more than 20 cigarettes per day, and 4 times more among those smoking 11-20 cigarettes per day compared with non-smokers.

Smoking is currently recognized as a major preventable factor for developing and aggravating CVDs along with raised body lipids (cholesterol and triglycerides), hypertension, obesity, physical inactivity, poor nutrition and excessive alcohol consumption.

Smoking and cardiovascular diseases — Mechanism:

Smoking damages the endothelial lining of the arterial wall leading to atherosclerotic lesions, which in turn narrow arteries, impair blood flow, reduce arterial elasticity and increase risk of rupture.

Smoking can lead to increased platelet adhesiveness increasing the risk of thrombosis.

Smoking temporarily increases the heart rate and blood pressure, raising the oxygen demand and simultaneously increasing carbon monoxide levels. Oxygen demand-supply imbalance promotes complications of atherosclerosis.

Formation of carboxyhaemoglobin also causes endothelial destruction and cardiac arrhythmias.

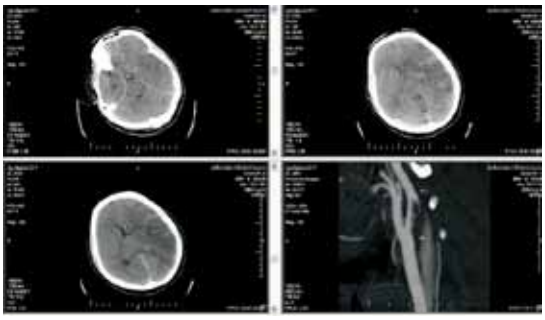
Smokers have raised levels of total cholesterol, triglycerides, LDL ad VLDL cholesterol and lower levels of HDL cholesterol. These lipid abnormalities aggravate risk of heart disease.

Diabetes can also increase the risk of CVDs. Mental health problems such as depression and social isolation can also influence the development of CVDs. Smokers are at increased risk of developing angina, myocardial infarction, strokes and peripheral arterial disease. Smokers have a two-to-threefold greater risk of suffering sudden cardiac death than non-smokers, the risk increasing with increased exposure to cigarette smoke.

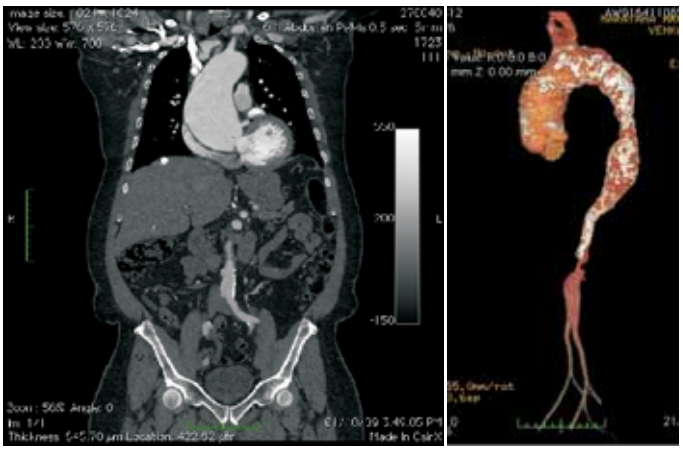
Women who use the contraceptive pill and smoke have 20 times the risk of developing coronary artery disease. There is now strong evidence to show that exposure to second-hand cigarette smoke is also a cause of heart disease in non-smokers.

Smoking is an important cause of stroke, the risk of having a stroke increasing with the amount of tobacco smoked and the duration of smoking. Smokers are at two to four times the risk of having a stroke than non-smokers. Smokers with hypertension are at a much higher risk for haemorrhagic stroke.

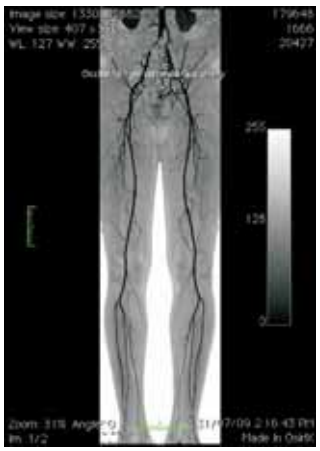
Smoking is also a cause for abdominal aortic aneurysm.



Stroke in a young smoker resulting from a left MCA infarct.
Photo courtesy: Dr K.N. Rajesh



Vascular disease is a common complication of smoking. The above CT scans show aortic aneurysms.
Photo courtesy: Dept of Radiodiagnosis, NHIMS



The above angiogram shows an occlusion in the right common iliac artery.
Photo courtesy: Dept of Radiodiagnosis, NHIMS

Peripheral vascular disease

The link between peripheral vascular disease and tobacco use was described in the early 1900s by Buerger after whom one form of vascular disease is named. Smoking is a common cause for peripheral vascular disease. The likelihood of developing peripheral vascular disease increases with the amount smoked and the duration of exposure to tobacco smoke.

Smoking can both directly cause chronic heart failure as well as contribute to other factors leading to it.

Lower tar and nicotine cigarettes have not been shown to reduce the incidence of CHD, and they do not provide a lower risk alternative for smokers who cannot or do not wish to quit.

Peripheral vascular disease – a common and serious complication of smoking

Early stage – discolouration of foot.

Severe ischaemia of toes and early gangrene.

Gangrene (with surgical debridement).

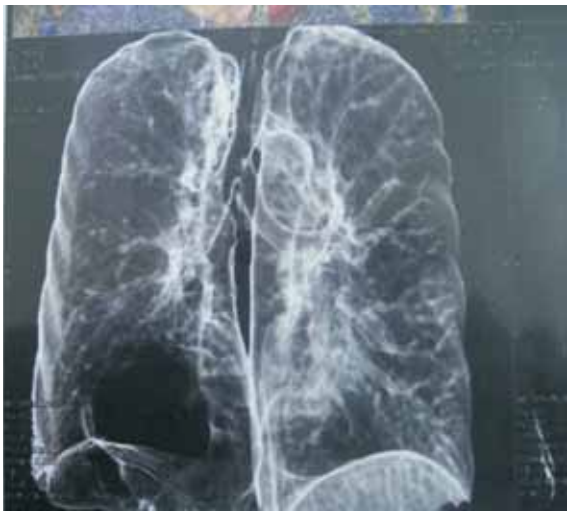
Gangrene with partial amputation.

Respiratory diseases

Smoking contributes to several acute respiratory illnesses including bronchitis, bronchiolitis, influenza and pneumonia in individuals who do not already have

smoking-related lung disease. It is also associated with chronic respiratory diseases including symptoms such as phlegm production, cough and wheezing, and reduced lung capacity.

Smoking is the primary cause of chronic obstructive pulmonary disease (COPD). COPD is characterized by chronic cough, sputum production and inflammation along with frequent infections in the airways (chronic bronchitis), breathing difficulties and loss of lung elasticity (emphysema).



CT reconstruction of a person with COPD showing a large right lower lobe emphysematous bulla.
Photo courtesy: Dept of Pulmonology, NHIMS

While smoking is the primary cause of COPD, it may also occur in non-smokers with a long history of asthma, or in individuals with a rare, genetically-determined deficiency in the protein a1-anti-trypsin. Smokers with this genetic risk factor experience a much more rapid decline in lung function.

Smoking and respiratory disease – Mechanism:

Tobacco fumes:

- Impair ciliary activity and muco-ciliary clearance.
- Promote mucosal and submucosal mucus gland hypertrophy and hyperplasia leading to chronic hypersecretion of mucus.
- Have deleterious effects on immune cell function leading to repeated low-grade infection in the airways.
- Inhibit protease inhibitors leading to destruction of the elastin in small airways and alveoli. Small airway obstruction and alveolar wall destruction lead to dyspnoea and impaired gas transfer with consequent hypoxemia. Airway wall thickening, mucus accumulation and bronchospasm leads to dyspnoea, ventilatory impairment and sometimes hypercarbia.

Cancers

Tobacco is one of the strongest agents associated with cancer. Most people are aware of cancer being a disease commonly associated with tobacco use. However, apart from lung cancer, not many are familiar with other cancers associated with tobacco use.

Lung cancer

Active smoking is responsible for a majority of lung cancer-related deaths aged over 35. Smokers are ten times more likely to die from lung cancer

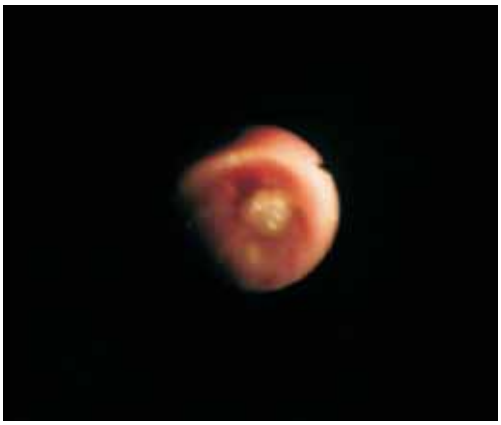
than non-smokers, and heavy smokers are 15 to 25 times more at risk than non-smokers. Thus the duration and intensity of smoking can influence the risk of developing lung cancer.

For example, a child who starts smoking at the age of 14 years or less is five times more likely to die of lung cancer than a person who starts at the age of 24 or more, and 15 times more likely to die of lung cancer compared with someone who never smoked.

In 2002, South Central Asia, with nearly 120 000 cases (59% males), accounted for almost half (43.6%) of the oral cancers occurring globally. India alone was estimated to have 30.3% of the world's cases of oral cancers with at least 52 000 cases in males and 30 900 cases in females.

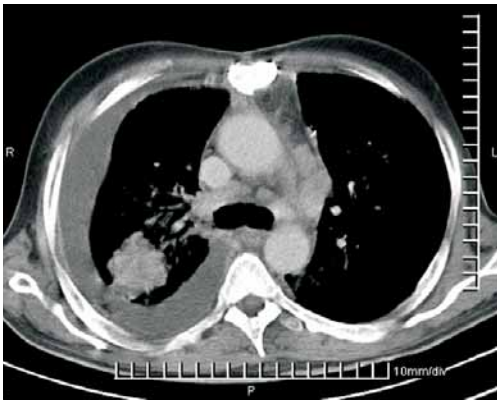
Over half of these patients die within one year of diagnosis.[34]

Lung cancer



Bronchoscopic appearance of an endobronchial tumour in a smoker.
Photo courtesy: Dept of Pulmonology, NHIMS

Pathological specimen of cancer of the upper lobe of the lung. Note the badly damaged and discoloured lung all over because of chronic tobacco use.
Photos courtesy: Dr U.K. Maiya



CT scan of the lung showing a peripheral cancer of the lung with pleural effusion and mediastinal nodes in a chronic *bidi* smoker.

Lung cancers may be non-small cell carcinomas (adenocarcinoma, squamous cell carcinoma and large cell carcinoma) or small cell carcinomas. Despite treatment, the prognosis for those with lung cancer remains generally poor, with only about 11%–14% surviving for five years after diagnosis. The prognosis is likely to be more dismal in many SEA Region countries where malnutrition, lack of prompt diagnosis and inadequate access to treatment compound the problem.

Tobacco and cancer – Mechanism:

Tobacco contains 69 known carcinogens.

Tobacco affects cancer production through its effect on metabolism and enzyme activity.

Many of the metabolites in tobacco smoke have mutagenic activity and can alter the DNA of cells lining the organs and structures with which it comes in contact.

Over time the altered cells replicate themselves leading to tumour formation.

Both smoking and smokeless forms of tobacco are genotoxic and cytotoxic.

Combining tobacco and alcohol increases the risk for cancer several-fold.

Larynx

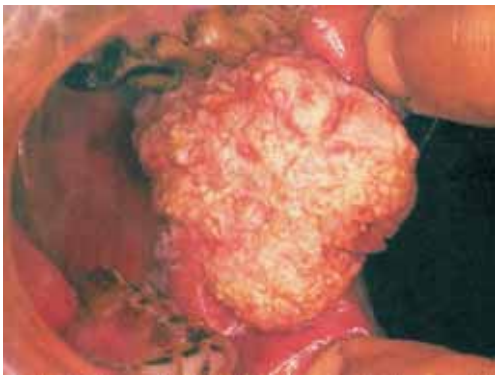
Heavy smokers have upto 20 times the risk of developing laryngeal cancers compared with non-smokers. The risk of developing cancer increases with the duration of smoking and the number of cigarettes smoked. Combined use of alcohol and tobacco increases the risk of laryngeal cancer manifold.

Oropharyngeal cancers

Oral and pharyngeal cancers: The average risk for developing oral or pharyngeal cancer is 10 times higher among male smokers and five times higher among female smokers than lifetime non-smokers. Smoking and oral infection with HPV appear to be independently associated with oropharyngeal cancers.

Oral and pharyngeal tissues come into direct contact with carcinogens present in smokeless tobacco products and tobacco smoke. Oral cancer is one of the 10 most common cancers globally and tobacco use is the most important causal factor for oral cancer, including cancer of the commissures of the lip, floor of the mouth and tongue. In South Asia, oral cancer accounts for one third of the total cancers, and about 90% of patients with oral cancers are tobacco chewers. Another common cause for oral cancer in addition to tobacco use is frequent alcohol use.

Oral cancers: Common complications of smoking and smokeless tobacco



Cancer of the cheek locally advanced. Note the badly discoloured teeth because of prolonged smoking and *paan* chewing.

Cancer of the hard palate and the alveolus.

Photos courtesy: Dr U.K. Maiya

Elderly male *bidi* smoker with cancer of the buccal mucosa with large fungating neck nodes.

Cancer of the tongue in a tobacco user.

Photos courtesy: Dr S. Salkar

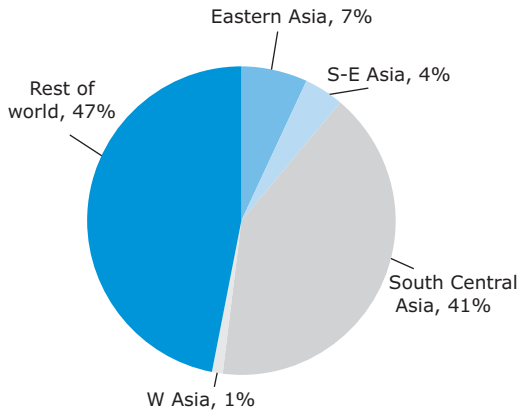
Bidis and cancers

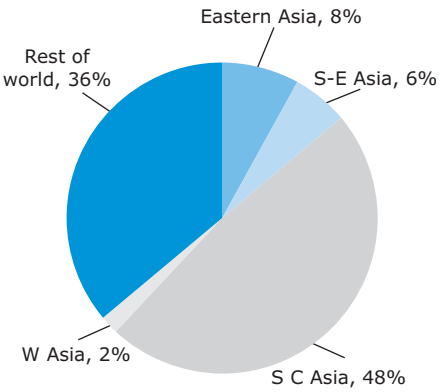
Studies from India[13] have shown that *bidi* smokers have a two-fold higher risk of developing oral cancer and five times higher risk of developing cancer of the base of the tongue and oropharynx than non-smoker. Specifically, they have a:

- three-fold higher risk for cancer of the hypopharynx;
- two-fold higher risk for laryngeal cancer;
- two to four times higher risk for oesophageal cancer;
- five-to-six-fold increase in risk for lung cancer; and
- greater risk for cancers of the buccal and labial mucosa, and of gingiva.

Cases of oral cancer in the South-East Asia Region, as a percentage of global cases (Globocan Estimates 2002) [34]

Cases of oral cancer in the South-East Asia Region, as a percentage of global cases (Globocan Estimates 2002)[34]





Oesophageal cancer

Smokers have up to seven or eight times the risk of developing oesophageal cancer than non-smokers. Use of alcohol with tobacco increases the risk of this cancer manifold.

Barium swallow showing carcinoma oesophagus.
Photo courtesy: Dr V. Baskaran

Stomach cancer

Smoking causes cancer of the stomach. Smoking may also be related to the development of cancers in other sites within the stomach ("non-cardia gastric cancers"), possibly by interaction with the *helicobacter pylori* infection.

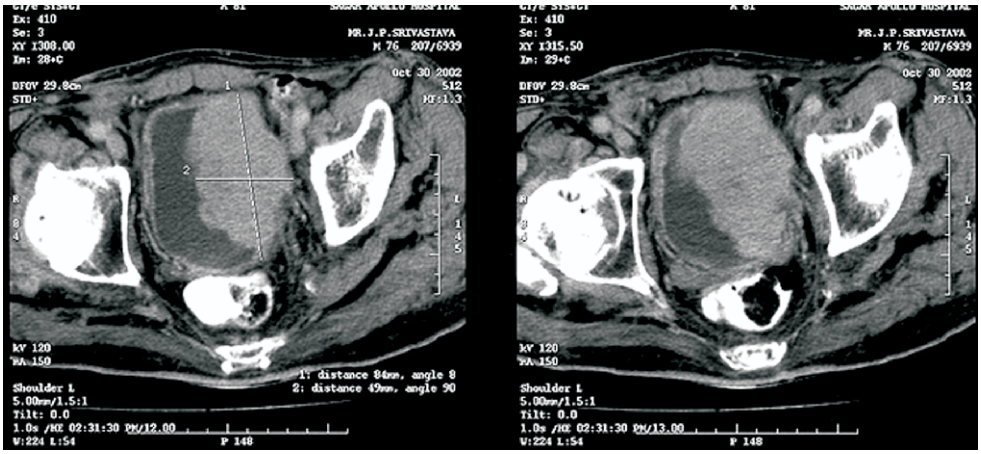
Cancer in the stomach.
Photo courtesy: Dr Gayathri Gopalakrishnan

Pancreatic cancer

Heavy smokers have three to five times the risk of developing pancreatic cancer than non-smokers. Cancers of the pancreas most commonly arise in the cells that line the pancreatic ductules.

Urinary tract cancers

Heavy smoking (more than 40 cigarettes a day) doubles the risk of developing kidney and bladder cancers.



CT scan of carcinoma of the urinary bladder, locally advanced, involving the lateral wall and infiltrating beyond it.
Photo courtesy: Dr U.K. Maiya

Uterine cervical cancer

In the United States, nearly a third of all deaths due to cervical cancer were attributed to smoking. Smokers have a higher risk for carrying the human papilloma virus (a causal agent in cervical cancer).

Breast cancer

Data on links between smoking and breast cancer are mixed. In a Danish study of women interviewed at the time of mammography, smoking for more than 30 years was found to be associated with a 60% increased risk of breast cancer and chances of its onset were an average of eight years earlier than non-smokers.[35]

Colon cancers

Smoking appears to double the risk of colon cancers. Most colon cancers begin as polyps. Risk of cancer increases with polyp size and there is a dose–response relationship with increasing years of tobacco use associated with larger polyps and, after the age of 35 years, between smoking and colon cancer.

Diabetes

A major review and meta-analysis of published data has found that current smokers are more likely to develop Type-2 diabetes than ex-smokers and never-smokers, and that smokers of 20 or more cigarettes a day are at greater risk than less frequent smokers. Overall, current smokers are estimated to have a 44% greater risk, and ex-smokers a 23% greater risk of developing Type-2 diabetes than people who have never smoked.[24]

Common problems among smokers – Mechanism:

Widespread distribution of toxins in tobacco may cause a general decline in health:

- Altered inflammatory/immune processes.
- Oxidative stress.
- Sub-clinical organ injury.

Other risk factors include obesity, high blood pressure, high cholesterol levels, unhealthy diet and physical inactivity. In addition to itself being an important cause of disease and mortality, diabetes can lead to a range of other serious health problems, including coronary heart disease, stroke, peripheral vascular disease, kidney disease, eye disease, and complications in pregnancy and childbirth.

Pre-existing Type-1 and Type-2 diabetes may also be worsened by smoking. Smokers with Type-1 diabetes in particular may have a higher risk of developing kidney disease, and possibly eye and nerve damage as well, whereas smokers with Type-2 diabetes are more likely to increase their risk of coronary heart disease, stroke and peripheral vascular disease.

Smoking and diabetes – Mechanism:

Smoking increases insulin resistance, alters insulin secretion.

Smoking impairs pancreatic function.

The risk of the “metabolic syndrome” is also increased by smoking.

General ill health

Smoking tobacco is very frequently associated with certain common health problems that are often missed or ignored.

Smokers experience a poorer level of overall health than non-smokers. Smokers also report higher levels of tiredness or fatigue, reduced well-being and satisfaction with life, slightly lower self-reported measures of mental well-being, and increased incidence of psychological symptoms such as depressed mood and anxiety. In the elderly, smoking is associated with accelerated declines in physical function, and increased levels of clinical illness and physical and cognitive impairment. Smokers are also more likely to report a history of pain during health examinations.

Spitting is a common habit in Asian countries. It is known to spread many respiratory diseases including tuberculosis. Spitting is particularly common among people who chew tobacco or betel *(paan)*.

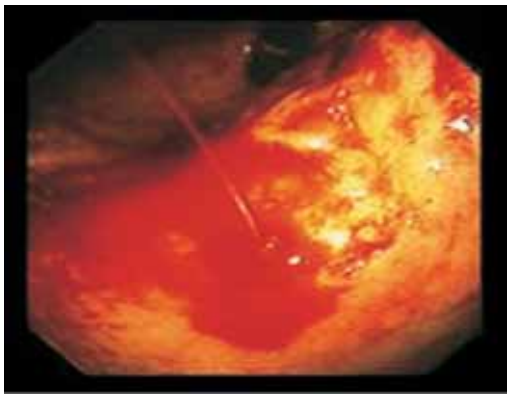
Smokers are also more likely to experience sleep disturbances, including taking longer to fall asleep, being less likely to stay asleep, and having less total sleep time than non-smokers. Frequency of snoring increases with the amount of tobacco smoked, and is independent of obesity, another well-established risk factor for snoring. Snoring is likely to occur in response to the effects of tobacco smoke on the airways, including upper airway inflammation, cough and sputum production.[36]

Compared with non-smokers, smokers have double the likelihood of skin wrinkling, impotence, pneumonia, depression and psoriasis.

Hyposmia: Smoke directly damages the olfactory sensory neurons present in the nasal airways. Smokers are twice as likely to have olfactory impairment compared with non-smokers.

Duodenal reflux: Chemicals in tobacco smoke produce duodenal reflux and altered production of gastric secretions.

Endoscopic appearance of a duodenal ulcer in a chronic smoker.



Active bleeding in a duodenal ulcer.
Photos courtesy: Dr V. Baskaran

Smoking also reduces the production of gastric mucus and other protective secretions, promoting duodenal reflux and reducing blood flow to the lining of the tract. In such an environment, *helicobacter pylori* infection is better able to spread and cause damage. Smoking may also be related to an increased risk of developing complications of peptic ulcer disease, such as ulcer perforation or bleeding.

Premature ageing

Increased wrinkling of the skin and altered complexion have been attributed to smoking, as have elastosis (loss of elasticity in the skin resulting from degeneration of connective tissue) and, in men, telangiectasis (dilation of fine blood vessels in the skin visible as fine red lines). One recent study found that smokers appeared up to 4.7 years older than non-smokers, and in the majority of cases smokers and non-smokers could be correctly distinguished by examining photographs of the face and temple region.[37]

Premature ageing – Mechanism:

It is postulated that smoke affects the skin fibroblasts (cells present in connective tissue that form collagen and elastin), thereby accelerating the appearance of ageing. Recent research has suggested a connection between wrinkling in smokers and the development of chronic obstructive pulmonary disease (COPD).

Smokers with severe facial wrinkling may also have a higher susceptibility to developing COPD; possible mecha-nisms being damage to collagen and elastin, both of which are important to skin and lung function.

Even young smokers in their 20s and 30s may show evidence of microscopic superficial wrinkling. Even non-facial, non-sun-exposed skin may be more wrinkled in smokers than non-smokers.

Sexual dysfunction and impaired fertility

Men who smoke have an increased risk of experiencing sexual dysfunction and the more the cigarettes smoked, greater is the dysfunction. A study carried out in China in 2007[38] attributed smoking as the primary risk factor in one out of every five males reporting erectile dysfunction in the absence of any vascular pathology.

Smokers of up to 20 cigarettes a day are 24% more likely to report having experienced erectile problems, and heavier smokers are 40% more likely to report having had erectile difficulties than non-smokers. The nicotine in tobacco smoke reduces blood flow to the penis by constricting and later causing long-term damage to the blood vessels supplying erectile tissue. This association is even stronger for smokers with co-existing diabetes and cardiovascular disease.

In males, smoking can cause sperm damage rendering them ineffective for fertilization. Both sperm counts and morphology are altered in chronic smokers.

For women, smoking is known to reduce the probability of conception by 40%. Lowered fecundity is attributed both to ovarian damage by smoking as well as through the inception of cervical cancer. Several menstrual irregularities including dysmenorrhoea, anovulatory menstrual cycles and secondary amenorrhoea are more commonly reported among women smokers. Smoking women attain menopause two years earlier than non-smokers on an average.[39]

The findings regarding the association of chewing tobacco and fertility have been mixed. Some studies have suggested that chewing tobacco negatively impacts sperm concentration, movement and appearance. A study in India in 2005 of 638 males undergoing infertility evaluation showed reduced sperm concentration, azoospermia and oligoasthenospermia among tobacco chewers compared with controls. Sperm abnormalities increased with the quantity of chewing tobacco used.[40]

Vision impairment

Smoking is a cause of nuclear cataract, which occurs in the centre of the lens. Smoking may also be associated with an increased risk for developing posterior subcapsular opacity (a cataract situated under the external membrane, usually behind the lens). Smoking may also increase age-related macular degeneration.

Smokers have:

- Sixteen times the risk of losing vision due to optic neuropathy as well as tobacco amblyopia.
- Thrice the risk of having a subcapsular cataract.
- Double the likelihood of macular degeneration.

Inflammatory bowel disease

Smokers are more likely to develop Crohn's disease, an inflammatory disease of the gastrointestinal tract most commonly affecting the small intestine. Smokers who develop the disease may experience a greater severity of symptoms, a greater risk of recurrence or relapse, and higher likelihood of requiring repeat surgery.

Reduced bone density

Smoking reduces bone density, and has been shown to cause hip fractures in women who have passed menopause. There is also some evidence that older

smokers are more likely to fall than non-smokers, due to increased likelihood of neuromuscular and physical impairment.

Roughly one in eight hip fractures is attributable to smoking. Data on older males and hip fracture are more limited, but suggest similar trends. Positive associations have been found between smoking and an increased risk of fracture at other sites in older population groups, but at this stage they are not conclusive.

Hypothyroidism

Among women with hypothyroidism, smoking is reported to both reduce production of thyroid hormones and block their action, exacerbating the effects of hypothyroidism.

Case-control studies have shown that in populations where a considerable number of women smoke, smoking was over seven times more frequent among hypothyroid patients with Graves' ophthalmopathy.

Smoking and reduced bone density – Mechanism:

- Nicotine and cadmium in tobacco smoke may have a direct effect on bone cells.
- Lower absorption of calcium and vitamin D.
- Altered metabolism of other hormones.
- Altered body weight and inactivity may also contribute to demineralization.

Cognitive decline

Older smokers may be at a greater risk for developing both Alzheimer's dementia and vascular dementia compared with non-smokers. A meta-analysis shows that current smokers had a 40%–80% risk of cognitive decline compared with never smokers.[41]

Cutaneous abnormalities

Smoking has been associated with psoriasis, hidradenitis suppurativa (inflammation of sweat glands in the groin and underarm regions producing painful boils or abscesses), and worsening of the skin lesions that occur with diabetes, lupus and AIDS.

Data from the Nurses' Health Study II in the United States[42] shows that psoriasis is more common among smokers than non-smokers, the risk being dose-dependent and decreasing slowly after quitting.

HIV

Smokers are over-represented among male populations infected with the human immunodeficiency virus (HIV), and HIV-positive smokers are more likely than non-smokers to develop a range of other infections.

Diseases of the oral cavity

While dentists may be familiar with the effects of tobacco on the oral cavity, many physicians are not and may thus miss an opportunity for detection, advice and, when necessary, referral. Hence, the oral manifestations are discussed separately. Many of the oral manifestations are caused by smoking as well as smokeless forms of tobacco. Cancers of the oral cavity have already been discussed.

Leukoplakia (white patch) is defined as a raised white patch of the oral mucosa measuring 5 mm or more, which cannot be scraped off or be attributed to any other diagnosable disease. It is the most common precancerous lesion, and it occurs six times more commonly

A recent study in Bangladesh showed that betel quid chewers had a nearly four times greater probability of periodontal disease compared to controls. Betel quid chewing with additives like tobacco or masala produced the greatest increase in risk.[43]

A study of a rural community in Sri Lanka found an association between tooth loss, education, income, oral hygiene and tobacco use.[44]

Tobacco use and oral disease – Mechanism:

- Tobacco is thought to impair the body's immune response, making the person more vulnerable to bacterial infection.
- It impairs regeneration and repair of periodontal tissues.
- Smoking and chewing damage the soft and hard tissue that support the teeth known as periodontium (gingiva: tissues covering the root surfaces of the teeth and ligaments attaching the tooth root to the jaw).
- This leads to gingivitis, causing reddening of gums, swelling and bleeding.
- Untreated gingivitis can lead to chronic periodontitis.
- Plaque formed on the teeth spreads below the gum line, behind the gingiva, causing an inflammatory response.
- Gum recession, gingival separation from the tooth and further infection are common.
- This can lead to bone loss, loosening of teeth, development of abscesses in soft tissue and bone, root surface caries and tooth loss.

among smokers than non-smokers. One subtype of leukoplakia (nodular leukoplakia) has a great risk of progressing to malignancy (20%–46% progress to cancer).

Oral lesions seen with tobacco use

Lesions of the angle of the mouth in a chewing tobacco *(khaini)* **user.**

Lesions in the lip and retromolar region in a young *paan* **and tobacco chewer.**

Lip inflammation in a young *bidi* **smoker.**

Large submandibular gland in an oral tobacco *(gutkha)* **user.**

Photos courtesy: GDCRI

Blanching of the labial mucosa.

Epithelial dysplasia.

Leucoplakia

Lichen planus.

Photos courtesy: Dr S. Salkar

Precancerous lesions

A precancerous lesion is defined as a morphologically altered state in which cancer is more likely to occur than in its apparently normal counterpart. The importance is that such lesions are amenable for primary and secondary prevention measures.

Oral submucous fibrosis or OSMF is a premalignant condition characterized by slowly progressive chronic fibrotic disease of the oral cavity and oropharynx in which the oral mucosa loses its elasticity and develops fibrous bands, which ultimately lead to difficulty in opening the mouth.

While OSMF is attributed to areca nut chewing and is most commonly seen in old people, it has shown a recent dramatic increase among the young in India attributed to *gutkha* and *paan masala* chewing.[45] Upto 5%–7% of OSMF cases progress to become oral cancer.

Restricted opening of the mouth because of oral submucous fibrosis.

Oral submucous fibrosis with malignant transformation.

Photos courtesy: GDCRI

Preleukoplakia

Initially a “low-grade” or mild reaction of the oral mucosa, appearing as a grey or greyish white lesion. It has a slight lobular pattern and an indistinct border blending into the adjacent mucosa. It lacks the clear-cut margins, elevation and whiteness that is characteristic of leukoplakia. About 7% to 15% progress to leukoplakias.

Leukoedema

Leukoedema is chronic mucosal condition in which the oral mucosa has a grey, opaque appearance as though a greyish film were hanging over it like a veil. When the mucosa is stretched, leucoedema disappears and reappears when it is relaxed. Leucoedema develops due to the piling up of spongy cells and intercellular edema.

Smoker's palate

The development of smoker's palate is perhaps the most common reaction of the palate to all forms of smoking. It consists of a diffuse white palate with numerous excrescences having central red dots, corresponding to the orifices of the minor salivary glands. It may begin as a greyish discolouration.

Palatal erythema

This lesion consists of diffuse erythema on the hard palate that occasionally extends upto the soft palate. It is mainly observed in *bidi* smokers and chewers.

Central papillary atrophy of the tongue

This consists of a well-defined oval, pink area in the centre of the dorsum of the tongue, which is devoid of lingual papillae. A similar lesion (erythematous candidiasis) may also be seen among persons with HIV infection and must be ruled out. This is again most commonly seen in *bidi* smokers.

Erythroplakia

A bright red, velvety plaque seen on the oral mucosa. It must be distinguished from transient inflammatory conditions, stomatitis associated with nutritional deficiencies, and palatal erythema caused by *bidi* smoking.

Oral lichen planus

Tobacco use is associated with this chronic mucocutaneous condition, which is precancerous.

Summary of the effects on humans of smokeless tobacco products[28]

Smokeless tobacco products (STPs) vary considerably in form and content, chemical including nicotine, and health effects can thus vary. Studies from India have shown that chewing tobacco can cause mutations and chromosomal damage in bacterial and mammalian cell cultures.

An increase in the formation of oral epithelial cells (as evidence of chromosomal damage) has been shown with moist snuff use in the USA and Sweden. Oral pharyngeal and pancreatic cancers are more common among users of STPs than non-tobacco users. Nasal tobacco use has also shown an association with oral cancer. All STPs are associated with periodontal disease.

STP use has shown to increase the risk of death after myocardial infarction. Animal and human studies indicate that oral tobacco has short-term effects resulting in increases in blood pressure and heart rate. A study from Rajasthan, India, published in 2007[46] showed a significantly greater prevalence of multiple cardiovascular risk factors including obesity, resting heart rate, hypertension, adverse lipid profiles and ECG changes in both smoking and smokeless tobacco users compared with non-users. The study concluded that the cardiovascular risks from chewing are similar to smoking.

However, evidence-based reviews conclude that the role of STP in increasing the risk of hypertension and myocardial infarction is unclear. STPs have adverse effects on fertility and reproductive function. Various studies suggest that diabetes and other components of the metabolic syndrome may be associated with STP use.

Summary of health effects of tobacco (smoking and smokeless)

System / disease	Odds ratio
Cardiovascular disease	
Coronary artery disease (CAD)	
CAD overall	1.49–1.72
AMI	3.6
Sudden cardiac death	2–4
Hypertension	1.13–1.15
Cerebrovascular disease (stroke)	1.8
Peripheral vascular disease	
Cigarettes	4–7
Bidis	7–34
Aortic aneurysm	8
Cerebral artery aneurysm/rupture	2.33–2.83
Respiratory disease	
COPD	30 (heavy smokers)
Interstitial lung disease	1.58*
Pneumonia	4.1
Asthma	1.33–1.49
Tuberculosis	2.48
Cancer	
Lung	15.7
Oral cavity	5.6
Oesophagus	4.8
Larynx	20-30
Urinary bladder	3.61
Kidney	1.35
Pancreas	1.77
Stomach	1.7
Gynaecological malignancies	
Ovary	1.5–3.2
Cervix	1.8–2.3
Penis	2.3–3.4
Haematological	1.4–4.6
Prostate	0.87–1.89
Diabetes mellitus	1.38
Metabolic syndrome	1.77–2.38
Graves' disease (hyperthyroidism)	1.9
Chronic kidney disease	1.5–2.4
Crohn's disease	1.93–7.13
Eye	
Graves' ophthalmopathy	7.7
Cataracts	1.1–2.2
Age-related macular degeneration	3.79
Diminished smell (hyposmia)	1.71
Premature ageing	1.93–4.40
Crohn's disease	1.93–7.13
Erectile dysfunction	1.65

Important:
These figures are obtained from numerous sources, and not individually referenced; every effort has been made to represent a range of figures ideally from meta-analyses or pooled data. Where available, data has been taken from the SEA Region, provided the data quality has been good. Figures may vary because of tobacco/smoking dose, differences between smoking and smokeless tobacco, differences between types of smoking (e.g. cigarettes and *bidis*) or smokeless tobacco (e.g. chewed tobacco, snus and snuff), and region from which the study was taken. In others, the category is very wide; interstitial lung disease, for instance, is a very diverse category and there are some ILDs that are seen almost/exclusively among smokers.

Odds ratio (OR): An odds ratio is a way of comparing whether the probability of a certain event is the same for two groups. An OR of 1 implies that the event is equally likely in both groups (in the instance above, among smokers and non-smokers). An OR of greater than 1 implies that the event is more likely to occur in the active group under study. An OR of less than 1 implies that the event is less likely to occur in the study group.

Genetic influences on tobacco-caused disease

There is evidence that genetic vulnerability can mediate tobacco-related disease. Many different genes, each contributing only a small portion of the overall risk, can influence a tobacco user's individual risk of developing a particular disease. Recent genome-wide association studies (GWAS) have identified an important gene locus on chromosome 15 with a strong association for nicotine dependence.[47,48] These have found that genes in this locus coding for three nicotinic receptor subunits – CHRNA 5, CHRNA 3 and CHRNB4 – are associated with nicotine addiction as well as lung cancer and COPD.

However, as tobacco use is associated with a diverse range of diseases, screening for a specific disease may not be more informative than predicting risk simply on the basis of the individual being a tobacco user. Additionally, it would be impractical to screen for a large number of polymorphisms for diverse diseases.

Even if all the genetic processes are completely understood and genetic pathways identified for each kind of disease, it is probable that virtually everyone will have at least one susceptibility gene or more for one or more tobacco-related disease. However, a better understanding of genetics can lead to understanding differences in nicotine metabolism and the pharmacogenomics of tobacco cessation treatments.

The major toxins in tobacco and how they act

Tobacco smoke contains about 4000 chemical substances, many of them carcinogenic. Tar refers to the toxins in tobacco smoke and residues.

More recently, many toxins have also been identified in *bidis* as well as in the smokeless forms of tobacco.

Bidis[13]

A *bidi* contains one fifth to two thirds of the amount of tobacco contained in a cigarette.

However, weight for weight, *bidis* contain higher nicotine concentration [(21.2 mg/g) compared with commercial filtered cigarettes (16.3 mg/g) and unfiltered cigarettes (13.5 mg/g)].

Tar levels delivered by *bidis* are high, at 45-50 mg/*bidi.*

One study found that *bidis* produced approximately three times the amount of carbon monoxide and nicotine and five times the amount of tar as cigarettes.

As with cigarettes, tobacco from *bidis* contains many carcinogenic chemicals such as tobacco-specific nitrosamines (TSNAs). Very high TSNAs are present in snuff and *chutta* tobacco.

The amount of TSNAs contained in cigarettes, *bidis*, and smokeless tobacco are similar at 1–10 microgram/gram.

Bidis and *chuttas* have higher uranium content compared to cigarettes and snuff.

Bidis have high levels of volatile organic compounds.

Bidis contain more than one and a half times higher levels of carbon monoxide, ammonia, hydrogen cyanide, phenols, cresols and benzopyrenes compared with cigarettes

Chemicals in tobacco and their action

Chemical	Effect
Nicotine	Powerful addictive drug. Causes increase in heart rate and blood pressure. Has adverse effects on cardiovascular health.
Carbon monoxide	Acts as an added stress factor to precipitate cardiovascular disease. It combines with haemoglobin to form carboxyhaemoglobin, which reduces the oxygen-carrying capacity of the blood.
Hydrogen cyanide and acrolein	Respiratory irritants that paralyse ciliary movement.
Phenol	Respiratory irritant and tumor-producing chemical.
Polyaromatic hydrocarbons (PAHs), particularly benzopyrenes	Potent lung carcinogen.
Tobacco–specific Nitrosamines (TSNAs)	Carcinogen.

Effects of tobacco exposure *in utero*

The fetus can be exposed to tobacco toxins either because of maternal smoking or because the pregnant mother inhales tobacco smoke passively, often from a male partner who smokes in the house, a common situation in SEA Region countries.

The effects include higher risk of abortion or miscarriage, ectopic pregnancy, stillbirths, intrauterine growth retardation, prematurity and low birth weight. Some positive associations have been documented between maternal smoking and birth defects such as cleft palate and digital anomalies.

Tobacco smoke exposure can be harmful to the exposed foetus

Carbon monoxide can be harmful to the exposed foetus and is thought to restrict growth by binding with haemoglobin and reducing the oxygen available to the developing foetus. Exposure to carbon monoxide can lead to low birth weight and central nervous system abnormalities.

Toxins like cadmium have been detected in umbilical cord blood

There is a greater risk of sudden infant death syndrome (SIDS), particularly in children born to mothers who actively smoke during pregnancy. Maternal smoking during pregnancy also causes reduced lung function in infants, and may lead to increase in the number of lower respiratory tract infections during infancy.

The effects of maternal smoking *in utero* may also be related to an increased risk of the child having impaired lung function during childhood and adulthood. Smokeless tobacco use during pregnancy has also been shown to have a range of adverse reproductive outcomes, including increased rates of stillbirths, prematurity and lower birth weight.

People with serious health conditions

Continuing tobacco use when a serious disease is present has an adverse impact in terms of recovery from the underlying disease, and particularly treatment response. Patients with cancer who continue to smoke show a reduced response to treatment and a higher rate of recurrence. Both chronic and acute diseases such as diabetes, asthma, peripheral vascular diseases and emphysema can be aggravated or be poorly responsive to treatment if the person continues to smoke.

Conversely, persons who stop smoking show fewer exacerbations and respond better to treatment. Smoking following surgery can interfere with

wound healing. Respiratory complications in the peri-operative and post-operative period are more common among smokers. Smokers are also more likely to need higher levels of analgesia.

Minor mental morbidity such as depression and anxiety along with peer pressure, is known to be associated with initiation of tobacco use. In a study in the United States prevalence of smoking in persons with a lifetime diagnosis of psychiatric disorder was 55%[49]. A study in India among college students in Ranchi showed a higher prevalence of stress, anxiety and depression among smokers.[50]

High rates of tobacco use are reported among patients with serious mental illnesses like schizophrenia and bipolar mood disorders. Some studies suggest that persons with mental illness are twice to thrice as likely to smoke and thus suffer serious health consequences than others. Schizophrenia has been associated with a 20% greater mortality and the main causes of death are cardiovascular and respiratory disease, both known to be tobacco-related.

Interaction with other drugs and medical treatments

Nicotine may alter the effects and effectiveness of various drugs including oral contraceptives, sedatives and drugs used to treat heart disease, respiratory disorders and psychiatric illnesses.

Smoking is known to reduce the effect of cancer radiotherapy and result in poorer survival rates. The side-effects may be greater in chemotherapy patients who continue to smoke.

Environmental pollution

Tobacco smoke causes both outdoor and indoor pollution. One study found that three cigarettes burning continuously over 30 minutes delivered 10 times greater particulate matter output than the exhaust of a modern turbo-diesel car with the engine left idling for the same time.[51]

Second-hand tobacco smoke is also a major cause for indoor air pollution.

Second- and third-hand smoking

Second-hand smoking refers to the passive inhalation of tobacco smoke when another person is smoking. Third-hand smoke refers to the tobacco smoke byproducts that cling to the smoker's hair and clothing or to household fabrics even when the second-hand smoke has cleared. Small children are particularly susceptible because they breathe near, crawl on, play on, touch and lick contaminated surfaces. Such indirect forms of exposure to tobacco smoke are variously referred to as passive smoking, involuntary smoking, environmental tobacco smoke or tobacco smoke pollution.

Second-hand smoking can occur in two forms: sidestream smoke that comes directly from the burning end of the tobacco product and mainstream smoke which is the smoke that the smoker exhales. Second-hand tobacco smoke presents health hazards comparable to smoking. Scientific evidence shows that there is no safe level of exposure to second-hand smoke. Second-hand tobacco smoke also contains toxins and carcinogens, and breathing it in for as little as 20 or 30 minutes can cause harm in a variety of ways.

Some of the known or suspected health risks include cancer (including cancer of the nasal sinuses), cardiovascular diseases and lung disease. As mentioned earlier, second-hand smoke can affect young infants and children adversely. In additional to developmental problems, children can develop asthma or suffer exacerbations from tobacco smoke exposure, are more susceptible to both upper and lower respiratory tract infections and have reduced lung function. Middle ear infections are also more likely in children living in smoking households.

Other problems more commonly described in both adults and children exposed to tobacco smoke include chronic cough, wheezing, eye and nose irritation, dental cavities and irritability.

Occupational health

Short-term and long-term absenteeism due to ill-health are common among smokers. Tobacco use on account of its adverse health impact also increases spending on health care. Younger smokers, even before they develop established tobacco-related disease, are likely to abstain from work because of a wide range of symptoms, including problems of the digestive tract, bodily pain and general health symptoms. Smokers are also more likely to suffer injuries at the workplace than non-smokers.

Tobacco concerns at the workplace

Tobacco causes health damage to employees because of its significant association with cancer, cardiovascular diseases, strokes, diabetes, tuberculosis, asthma and other lung diseases.

This translates to more sick leaves, higher sickness benefit costs, more absenteeism, higher disability costs to the organization, and a greater threat to safety and environmental pollution. [52]

Specific exposure to a range of substances at the workplace can cause illness. For example, environments containing fine particulate matter from grains, flours, plants, coal dust, asbestos, silica, wood, feathers, insects and fungi, drugs and enzymes, chlorofluorocarbons, alcohols, metals and their salts, and welding fumes can cause asthma, progressive lung damage and

other serious respiratory disease. Combining smoking with these exposures may greatly increase disease risk. Workers working in the asbestos industry who also smoke have a 50-fold increased risk of developing lung cancer.

There is also ample evidence suggesting that exposure to petrochemicals, aromatic amines, ionizing radiation and pesticides also interact adversely with tobacco smoke.

The International Labour Organization advocates that tobacco use must be understood in the larger context of workplace well-being, and the inter-relationships between tobacco, alcohol and other drug abuse, work stress, violence, obesity, sleep-related problems, Internet and other addictions, and problems of under- and over-nutrition.

International Labour Organization (ILO) "safe work"[53]

Safety

Smoking has been associated not only with accidents at the workplace but has also been implicated in road traffic accidents. Smoking is associated with loss of concentration and distraction, thereby leading to accidents. Research from New South Wales and Western Australia showed that 10% of drivers reported having smoked during their most recent driving trip of five minutes or greater duration, ahead of those who had used mobile phones (9%) and those who reported eating while driving (6%).[24] In the United States, one in 100 accidents during a five-year period in the 1990s was attributed to smoking.

Smokers are also more likely to die from injury in motor vehicle crashes and other types of accidents, including those involving falls, fires and other unintentional injuries. Possible reasons for this include the effects of smoking on physical performance (such as strength, agility, balance and speed) and on recovery from physical trauma (such as post-operative complications and wound healing).

HYDERABAD: Careless smoking and electrical short-circuits are the main factors for the increasing number of fire accidents in the twin cities (of Hyderabad and Secunderabad) this year.

This was confirmed by the Fire and Emergency Services Department after a detailed study conducted on the reasons for fire accidents that were reported during the last five months.

The Hindu, 26 June 2008

More than 650 Chinese died in about 74 000 fires in the past six months, according to the Ministry of Public Security.

Nearly 300 people were injured in the fires and the direct economic loss was put at 660 million yuan (about US$ 96.6 million). The blaze at the New China Central Television headquarters was not included in the figure as the final report has yet to be published, the ministry said.

Improper installation of electrical devices and carelessness in using fire facilities led to most of the fires, accounting for 26.8% and 21.8% of the total, it said.

Smoking, inappropriate operation of production and manufacturing facilities, and natural fires were the other causes that led to economic losses, according to the Ministry.

People's Daily Online, 4 July 2009

Health problems among tobacco industry workers

People working in the tobacco industry and those involved in the harvesting and manufacture of tobacco products are exposed to a variety of health hazards. International reviews document that 8%–89% of tobacco harvesters may suffer from exposure-related problems, collectively known as Green Tobacco Sickness (GTS). These have been well documented in *bidi* rollers.

Workers in the tobacco industry have high levels of nicotine in their bodies. GTS symptoms include weakness, headache, nausea, vomiting, dizziness, abdominal cramps, breathing difficulty, temperature abnormalities, pallour of the skin, diarrhoea, chills, blood pressure fluctuations, heart rate variation, and increased perspiration and salivation. The symptoms may be self-limiting, but often result in lowered productivity and absenteeism. Among girls working in the *bidi* industry, growth stunting, musculoskeletal problems, menstrual irregularities, eye irritation and numbness of the fingers have been documented.

Economic effects

In the South-East Asia Region, where a significant number of people are grappling with poverty, tobacco use has a serious economic impact.[15]

A study from Bangladesh reported in 2001 that men who smoked cigarettes spent US$ 7.24 per month on them compared to US$ 2.92 on clothing, housing, health and education. Thus 40% of the average male monthly expenditure was on cigarettes.[54] In a study in 2007, the annual cost of tobacco-related illnesses in Bangladesh attributable to tobacco usage was estimated at 50.9 billion Taka, including 5.8 billion Taka for illnesses due to second-hand smoke.[8]

Currently, it is estimated that most families from the lower socioeconomic group spend 10%–15% of their household income on smoking.

The net economic effect of tobacco is to deepen poverty. Tobacco use is higher among the poor than among the rich in most countries and the difference in tobacco use between the two is greatest in regions where average income is among the lowest.

According to an Indonesian report in 2008, households with smokers spent on an average 11.5% of their income on tobacco products compared with 11.0% on fish, meat, eggs and milk combined, 2.3% for health and 3.2% for education.[55]

For the poor, money spent on tobacco means money not spent on basic necessities such as food, shelter, education and health care. The poorest households in Bangladesh spend about 10 times as much on tobacco as on education. In Indonesia, where smoking is most common among the poor, the lowest income group spends 15% of its total expenditure on health.

The poor are much more likely than the rich to become ill and die prematurely from tobacco-related illnesses. This creates greater economic hardship and perpetuates the circle of poverty and illness. Early deaths of primary wage-earners are especially catastrophic for poor families and communities.

It is not just what tobacco costs…It is about the costs of tobacco—loss of life and a lifetime of suffering are huge costs.

When, for example, a 44-year-old Nepali man who heads a low-income household dies of cancer from a 23-year history of smoking *bidis*, the survival of his entire family is at stake. His lost economic capacity is magnified as his spouse, children and other dependents sink deeper into poverty and the extended family members or the government must take on their support.

Benefits from quitting

Freedom from all the harms listed in the earlier part of this chapter is the biggest benefit from quitting. A good parallel to draw in explaining the benefits is that of financial savings. We put aside money in order for it to be available at a later time when we need it. We need to make similar investments on our health by taking care of it, and avoiding potentially harmful lifestyles. Several diseases can be prevented by simply avoiding tobacco use. For the regular user, apart from reduction in the risk of disease there are also other appreciable changes following quitting.

Short-term benefits

Tobacco users must first be convinced that their overall health and quality of life will improve, both in the short and long term, by quitting. Soon after quitting, the sense of smell improves and gastric irritation reduces. With quitting and attendance to oral care, halitosis and appearance can improve. The main effects of smoking on the gastrointestinal tract appear to be short-term with the tract recovering following smoking cessation.

Short-term benefits

- Eating better!
- Looking better!
- Feeling better!
- Smelling better!

It is important to make tobacco users aware of the benefits that will be gained by cessation and not let their fear of withdrawal symptoms cloud their understanding of these benefits.

Longer-term benefits

Cessation of smokeless tobacco use is associated with several benefits. It decreases the risk of several diseases and health problems. It prevents further staining of the teeth and tooth loss. It reduces the risk of pre-malignant conditions like erythroplasia and leukoplakia. The experience of several health education programmes on chewing tobacco, particularly from India, has shown that quitting tobacco has also shown a reduction in oral lesions among those who quit compared with those who continued using tobacco. Quitting chewing and other forms of smokeless tobacco has similar benefits in reducing risks to cardiovascular and respiratory diseases and cancer as does smoking cessation. These benefits are further discussed.

The risk of developing cancer rises with the duration of exposure to tobacco and the amount consumed, and declines with cessation of use. The risk is halved after about five years of cessation, with further reductions apparent over a more extended period of abstinence.

Decline in lung cancer mortality for both sexes is most influenced by reduced intake and cessation of smoking. Although cessation even after many years of smoking reduces the risk of developing lung cancer, former smokers never quite reduce their risk compared with never smokers. This means that decline in lung cancer mortality lags two to three decades behind reductions in the prevalence of tobacco use. Restrictions in the machine-measured levels of tar, nicotine and carbon monoxide levels in cigarettes have not led to any decline in the risk of lung cancer in smokers.

In smokers without COPD, quitting improves lung function by 5% within a few months of cessation and stops the accelerated decline in lung function witnessed among smokers within five years of cessation. It slows the progression of COPD, but emphysematous changes are not reversible.

Some recent evidence suggests that in smokers with COPD, quitting may be of some help to slow the progression of the disease as an auto-immune mechanism in the underlying cause of the ongoing inflammation. Death rates for COPD have declined for males over the past 30 years while rates for women increased until the early 1990s and since stabilized. This is likely to reflect changing patterns in cigarette smoking rather than any improvement to health, due to changes in the toxicity of the cigarettes smoked for which the evidence is currently equivocal.

Quitting helps to prevent atherosclerosis and thus the risk of stroke and myocardial infarctions with sustained cessation. It prevents progression in peripheral vascular disease.

Stopping tobacco use also reduces the progression of the ophthalmological complications, including the development of premature cataract and macular degeneration.

Quitting helps to reduce erectile dysfunction among males and correct menstrual irregularities among females. Quitting is very important to improve pregnancy outcomes.

Smoking cessation halves the risk for oesophageal cancer after five years of abstinence; subsequent reductions in risk occurring more gradually.

Are you a smoker? There are many advantages if you quit smoking:

Within 20 minutes	Your BP and pulse rate reduce.
Within 2 hours	The nicotine gets washed out.
Within 8 hours	Carbon monoxide in your body reduces.
Within 24 hours	Your chance of a heart attack has already reduced.
Within 48 hours	Your sense of smell improves.
By 3 months	Your fertility improves.
By 9 months	Your shortage of breath improves.
Over 5–15 years	Your risks of lung cancer, coronary artery disease and stroke will reduce to levels of that of a non-smoker.

Quitting tobacco also improves oral hygiene, reduces the chance of infection, reduces the risk of teeth loss, and promotes the regression of pre-cancerous lesions.

Adapted from: USDHHS 1990[56]

There are also very important gains for the family, including:

(1) The relief that the tobacco user is not exposing himself to further health risks.

(2) Money saved, which is hopefully then available for other needs of the family.

(3) Improvement in the health of the entire family when exposure to second-hand smoke is eliminated.

It is also known that one person in the family quitting can serve as encouragement to others also to quit.

Key learning points:

- Smoking, chewing and other forms of tobacco cause serious health problems.
- Practically every system in the body is adversely affected by the use of tobacco and the mechanism of many of these effects have now been understood.
- Educating people about the general risks from tobacco use and personalizing this risk to individuals is at the core of tobacco cessation intervention, particularly in developing countries.
- There are both short-term and long-term benefits from tobacco cessation.
- Risks for various diseases continue to reduce over the years with complete cessation.
- Even when there is established disease, there are advantages of quitting.
- Obviously, not starting at all or quitting early are the best strategies to prevent tobacco-related harm.

Chapter 5

The power of addiction

Learning objectives:

At the end of this chapter, you should be aware of:

- The mode of action of nicotine.
- The biochemical mechanism of addiction.

Of all the persons who are using tobacco, it is estimated that about one quarter to one third are dependent. Tobacco is probably more addictive than alcohol and caffeine and illicit drugs such as heroin and cocaine. Nicotine is the addictive substance found in all forms of tobacco.

Substance	Proportion of users that ever became dependent
Tobacco	32
Heroin	23
Cocaine	17
Alcohol	15
Cannabis	9

Source: National Academy of Sciences, 1999[57]

Nicotine absorption

Cigarettes, *bidis* and other smoked tobacco products rapidly deliver the addictive drug nicotine to the brain immediately after smokers inhale – about as efficiently as an intravenous injection with a syringe. The absorption is slower with chewing forms of tobacco.

Nicotine is swiftly absorbed through the acidic tobacco smoke drawn into the lungs. The large surface area of the lungs allows quick delivery of the nicotine through

the bloodstream to the brain. Nicotine is also absorbed through the oral mucosa. Nicotine may also be absorbed through the skin.

Effects of nicotine[58]

A new smoker or tobacco chewer may experience nausea and dizziness from first using tobacco. But with repeated use he/she becomes tolerant to these effects. The body soon gets accustomed to a certain level of nicotine in the blood. The tobacco user needs to take the "drug" repeatedly to maintain the nicotine levels and the "rewarding" experience it produces.

With repeated use, the previous amount of nicotine fails to elicit a response and the user needs to increase the intake of nicotine either by increasing the frequency or quantity of the tobacco product or by altering the technique of use (e.g. changing the puff frequency or degree of inhaling) to obtain the amount of nicotine required.

Nicotine from both smoking and smokeless forms of tobacco causes changes in the brain reward circuits that maintains the addiction.

Nicotine has a half life of six to eight hours. Once it enters the bloodstream, nicotine reaches the brain in 10 to 19 seconds and acts through specialized cell receptors located there and in other organs and muscles.

Physiological effects of nicotine

Nicotine produces a wide range of physiological effects including tachycardia, increased blood pressure and reduced body temperature due to cutaneous vasoconstriction. Vasoconstriction also occurs in the coronary arteries. It causes muscular relaxation due to increased blood flow to muscles. It increases metabolic rate and suppresses appetite. Nicotine also has endocrinal effects.

Nicotine metabolism

Nicotine is mainly metabolized in the liver, and to a lesser extent in the lung and brain. The main metabolites of nicotine are cotinine and nicotine-N oxide. Cotinine has a much longer half life than nicotine (upto 20 hours). It is further metabolized to trans-3'-hydroxycotinine, the main nicotine metabolite. A significant amount of nicotine metabolites are excreted in the

urine. Measurement of urinary cotinine is used in some settings to monitor abstinence from tobacco use.

Effects of nicotine on the brain

Nicotine is a powerful psychoactive drug. Unfortunately, few people realize that they are self-medicating with a drug when they use tobacco. On reaching the brain, nicotine immediately acts on the neuronal nicotinic receptors. It preferentially acts on the brain reward circuit, which is responsible for the pleasure experienced by nicotine or any other drug and the discomfort associated with a drop in nicotine levels in the blood. This reinforces repeated use of the tobacco product.

Nicotine activates the reward circuit in the brain through stimulating dopamine neurotransmission in the mesocorticolimbic dopamine system and the nucleus accumbens, which are the primary areas that form the reward circuit in the brain. This circuit regulates emotions induced by music as well as basic processes such as consuming food and having sex. Amphetamines, cocaine and alcohol also act on the reward circuit.

Nicotine also stimulates secretion of acetylcholine and glutamate in the hippocampus and cerebral cortex. This is associated with increased vigilance, attention and cognition, which is probably the reason why tobacco users feel that nicotine improves their memory. This is true for smaller doses of nicotine. Long-term use of nicotine has been shown to cause cognitive dysfunction.

Withdrawal symptoms

After every tobacco use (smoking or smokeless), blood nicotine levels increase over the next few minutes to hours and then drops. The rise and fall in the levels is more abrupt with smoking forms of tobacco and more uniform with smokeless forms.

When nicotine levels in the blood fall, the brain triggers “alarm bells” that compel the individual to use tobacco again. The unpleasant symptoms that occur when a

Withdrawal from tobacco

Withdrawal symptoms include:

- Depressed mood
- Craving
- Insomnia
- Irritation
- Poor concentration
- Restlessness
- Increased appetite.

Withdrawal symptoms are most severe during the first week and last two to four weeks after stopping tobacco.

person suddenly stops use of any psychoactive drug are known as withdrawal symptoms. The common symptoms of withdrawal are mentioned in the accompanying box. Other symptoms that chronic tobacco users report are fatigue, headache, cough, sore throat, constipation, postnasal drip and tightness in the chest.

Nicotine withdrawal symptoms occur within a few hours of stopping tobacco use, are maximum during the first week and usually last two to four weeks. However, the urge to use or "craving", an important symptom of withdrawal, may last a few months and is an important cause for restarting tobacco use. Craving can occur spontaneously, or be triggered by external or internal cues. Craving is further discussed in the chapter on "Relapse counselling".

Craving or the urge to smoke or chew is the strongest predictor of relapse.

Craving is most intense in the first two days after stopping tobacco.

In some people craving can occur even months or years after quitting.

Nicotine dependence syndrome

As addiction refers to a pattern of continuous use that can be attributed to brain changes that cannot be clinically observed, clinicians more commonly refer to the syndrome of nicotine dependence that can be diagnosed. Both the International Classification of Diseases, Tenth Revision (ICD 10) and the Diagnostic and Statistical Manual (DSM IV) define the category of nicotine dependence.

Common criteria can be summarized by the following:

- A strong desire to use the substance.
- Taking the substance in larger amounts or for longer than intended.
- Difficulty in controlling use.
- Spending a long time obtaining, using or recovering from the substance.
- Giving a higher priority to using the substance than to other activities and obligations.
- Continued use despite knowledge of harmful consequences.
- Tolerance.
- Withdrawal.

As in the case of other psychoactive substances, a diagnosis of dependence requires any three or more of the above criteria to be present.

Screening for nicotine dependence

The Fagerstrom test for nicotine dependence is widely used as a screening test for the physical aspects of nicotine dependence.[59] There are scales for both smoking and smokeless tobacco.[60] Based on the score, the level of addiction can be low (score less than 4), medium (score 4–6) or high (score greater than 6).

Fagerstrom test for smoking

1. How soon after you wake up do you smoke your first cigarette?
   - Within 5 minutes 3
   - 6 to 30 minutes 2
   - 31 to 60 minutes 1
   - More than 60 minutes 0
2. Do you find it difficult to refrain from smoking in places where it is forbidden?
   - Yes 1
   - No 0
3. Which cigarette would you hate to give up the most?
   - The first one in the morning 1
   - All others 0
4. How many cigarettes do you smoke per day?
   - 10 or less 0
   - 11–20 1
   - 21–30 2
   - 31 or more 3
5. Do you smoke more frequently in the first hours after waking up than during the rest of the day?
   - Yes 1
   - No 0
6. Do you smoke when you are so ill that you are in bed most of the day?
   - Yes 1
   - No 0

Modified Fagerstrom test for smokeless tobacco users

1. How soon after you wake up do you use your first dip/chew?
   - Within 5 minutes 3
   - 6 to 30 minutes 2
   - 31 to 60 minutes 1
   - After 60 minutes 0
2. How often do you intentionally swallow tobacco juice?
   - Always 2
   - Sometimes 1
   - Never 0
3. Which chew would you hate to give up most?
   - The first one in the morning 1
   - Any other 0
4. How many cans/pouches per week do you use?
   - More than 3 2
   - 1–3 1
   - 1 0
5. Do you chew more frequently during the first hours after waking up than during the rest of the day?
   - Yes 1
   - No 0
6. Do you chew when you are so ill that you are in bed most of the day?
   - Yes 1
   - No 0

The relevance of addiction

Most people are likely to be addicted to tobacco by the time they develop serious health consequences from tobacco use. Many others are likely to be addicted many years before they develop serious tobacco-related complications.

It is important to emphasize to early users that addiction:

- is another serious problem that can occur due to tobacco use, along with the other health problems.
- is not a habit but a disease that involves biological changes in the brain.

Genetics of addiction

While environmental factors such as availability and peer pressure may commonly initiate tobacco use, it is now well recognized that a significant number of people who become addicted may have a genetic predisposition. Smoking research suggests that the inheriting factor for nicotine addiction may be similar to that for alcohol, asthma and hypertension. Individual genetic factors may contribute between 40%–60% of the variance in risk and may include variations in the number and sensitivity of nicotine receptors, the speed and efficiency of nicotine metabolism, and in physiological and behavioural responses to nicotine.[61]

As mentioned earlier, research has suggested a genetic locus on chromosome 15 that is strongly associated with the development of dependence.[47,48] Recent research has found that inherited variations in the human CYP2A6 gene influence the rate of nicotine metabolism in the body and this in turn may affect the individual's level of tobacco consumption.

The combination of genetic and environmental risks best describes the progression from tobacco use to addiction.

Key learning points:

- Tobacco is probably more addictive than alcohol, caffeine and illicit drugs such as heroin and cocaine.
- Nicotine is the addictive substance found in all forms of tobacco.
- Addiction occurs due to a combination of the effects of nicotine on the reward pathways in the brain, and its withdrawal effects.
- There is a genetic predisposition to addictions, including nicotine addiction.
- Addiction is not just a habit, it is a disease that involves biological changes in the brain.

Chapter 6

Identification and assessment

Learning objectives

At the end of this chapter the doctor should be able to:

- Understand the importance of asking every patient about his/her possible tobacco use and apply this as a routine in every patient encounter.
- Assess the patient's pattern of tobacco use.

The first step in providing tobacco cessation is screening for tobacco use. Identification itself increases the rates of clinician intervention. Effective identification of tobacco use status not only opens the door for successful interventions but also guides clinicians to identify appropriate interventions based on patient's tobacco use status and willingness to quit.

> The identification of tobacco use itself increases clinician's intervention.
>
> Effective identification improves success of intervention.
>
> Effective identification helps the clinician to identify the most appropriate intervention for tobacco cessation.

What are some of the barriers to asking about tobacco use?

Patient barriers:

- The feeling that it is irrelevant to spontaneously report tobacco use.
- Not recognizing that an underlying health problem is linked to tobacco use.

- Feeling ashamed about reporting tobacco use.
- Fear that he/she may be forced to discontinue this "comfortable habit".

Thoughts that reportedly go through the patient's mind include:

"Many doctors and nurses use tobacco, so it can't be harmful."

"There are so many other causes for lung cancer such as polluting gases and smoke."

" I am eating well and exercising, so smoking can't harm me."

"You have got to die of something, so why not enjoy yourself and use tobacco."

"Chewing doesn't hurt anyone. My grandfather chewed and lived upto 90 years."

"It's better to enjoy a shorter life with smoking than be deprived of it lifelong."

"Tobacco causes cancer only after 15 or 20 years. I will die long before that."

"What is there to live for anyway…?"

Overcoming barriers

- Put up posters in the waiting room to educate patients that tobacco causes addiction, and that they can get help from their doctor.
- Address myths about tobacco
- Ask about tobacco use routinely

Clinician barriers:

- Believing tobacco use is not relevant to the medical problem presented.
- The notion that these are personal choices and there is no role for a health professional to intervene.
- Hesitation to ask the elderly and women and children about tobacco use.

We now know that tobacco use must be approached as a health problem just like any other health condition. So asking about tobacco use has no moralistic or judgemental tones. It is an important first step before advising the person to quit or offering assistance to quit.

A very popular approach to tobacco cessation intervention is the 5A Model: Ask, Assess, Advise, Assist and Arrange. In recent years, this has been condensed to a 3A Model in some settings: Ask–Advise–Assist, or an ABC Model: Ask–provide Brief advice–Cessation support.

Vital signs

Blood pressure

Pulse

Weight

Temperature

Respiratory rate

Tobacco use:

Current Former Never

Personal history

Past medical illness

Menstrual history (for women)

Lifestyle factors

- Diet
- Exercise
- Tobacco use
- Alcohol use
- Any other drug use

Paediatricians and obstetricians, do not lose this opportunity!

When children are brought with allergies, ear infections or asthma, ask for a history of adult tobacco use. It is an opportunity for tobacco cessation in the adult, and a sure way of improving the child's health.

In antenatal clinics, do not forget to ask pregnant mothers about tobacco use, particularly chewing tobacco. This is an ideal opportunity to also ask fathers about tobacco use and educate them about the risk to the fetus and to other children at home.

The best way to overcome some of the personal and social barriers is to ask EVERYONE who approaches the health professional about their tobacco use and integrate this part of history-taking in either the "Personal history" or the "Vital signs" section. Document the fact if the person was ever a tobacco user and whether he/she is currently using tobacco.

When eliciting the personal history or vital signs, include the following questions:

Do you smoke/chew tobacco?

Did you ever smoke/chew tobacco?

When eliciting family history, include the following question:

Is there anyone in your family who regularly used tobacco, alcohol or any other drug?

Document this information on the patient's card, case file, record or proforma. This could be done either by the clinician or by another member of the health team such as the nurse or social worker. This information is useful for both current and future interventions.

Physical examination

While you are carrying out a routine physical examination, note down any features which may indicate tobacco smoking or chewing or complications related to such use. These signs will help in personalizing tobacco cessation advice and are discussed in the next chapter.

Physical examination focus

Examination of the oral cavity is important for both smoking and smokeless forms of tobacco.

Examination of the oral cavity

The examination of the oral cavity is important to detect oral mucosal abnormalities. The oral cavity extends from the vermilion border of the lips to the junction of the hard and soft palates in the roof of the mouth superiorly, and to the circumvallate papillae on the tongue.

Examination technique:

The examination of the oral cavity includes inspection and palpation. To examine the oral cavity and oropharynx, adequate lighting, two mouth mirrors or tongue blades, and gloves are needed. Use of cotton gauze to absorb excessive saliva facilitates close evaluation of suspicious mucosal areas.

Bimanual palpation through the cheek, lip, tongue and the floor of the mouth may be essential for understanding the anatomical relations of these lesions. Palpation should be carried out wearing gloves.

	Extraoral: Inspect the head and neck. Palpate cervical lymph nodes. The examination for cervical lymph glands is carried out by standing behind the individual and slightly flexing and bending the neck to the side so that the sternocleidomastoid muscle becomes relaxed and palpation and identification of any enlarged nodes easier.
	Lip and labial mucosa: Inspect and palpate inner and outer surfaces of the upper and lower lip.
	Evert the lips and carefully inspect the labial mucosa. Gently pull the labial mucosa forward by using two mirrors at both right and left corners of the mouth.
	Buccal mucosa: Inspect and palpate the buccal mucosa and cheek. Inspect and palpate the parotid duct to express saliva.
	Inspect and palpate the dorsal surfaces with accompanying retraction of the tongue with gauze. The dorsal surface of the tongue is examined by asking the subject to protrude the tongue and attempt to touch the tip of the chin. Alternatively the tip of the tongue may be held gently by the fingers and a gauze sponge.

	The lateral borders of the tongue are examined by grasping the tip of the tongue with a gauze sponge, extending and rotating it laterally, and retracting the buccal mucosa on the same side with the tongue depressor. Alternatively, the lateral border of the tongue can be examined by asking the person to touch the opposite buccal mucosa with the tip of the tongue and retracting the buccal mucosa with a mouth mirror.
	The ventral surface of the tongue and the floor of mouth are most easily visualized by having the person touch the tip of the tongue to the roof of the mouth. Floor of the mouth : Inspect and palpate the floor of the mouth. Inspect and palpate the sub-mandibular ducts to express saliva.
	Hard palate: Inspect and palpate. Soft palate and oropharynx: Depress the dorsal surface of the tongue and inspect the soft palate and the anterior oropharynx.

Photos courtesy: GDCRI

General physical examination, with special reference to tobacco use effects:

The **general physical examination** may provide evidence of tobacco use in the form of the odour of tobacco on the person, nicotine staining of fingers/nails and facial hair, and cigarette/*bidi* burn marks on clothes.

Clubbing of the fingers may provide early evidence of a complication like a bronchial carcinoma, and cyanosis may indicate associated respiratory failure. Peripheral oedema and a raised jugular venous pulse/pressure may indicate congestive cardiac failure and/or chronic corpulmonale as a complication of COPD. Lymphadenopathy may indicate associated disease such as tuberculosis or act as evidence of metastatic spread from an associated malignancy, haematological or non-haematological. The extremities, including the peripheral pulses, must be examined for evidence of peripheral vascular disease.

Vital signs: Pulse, blood pressure and respiratory rate must be recorded. Systemic examination follows the usual sequence of inspection, palpation, percussion and auscultation, with more detailed examination directed where indicated.

Cardiovascular examination: The focus is on looking for evidence of chamber hypertrophy or failure (displaced apex beat, forcible or heaving apical impulse, third or fourth heart sounds and murmurs), and on arrhythmias.

Respiratory system: Here the focus is on looking for evidence of COPD (hyperinflated "large volume" lungs with diminished chest expansion, hyperresonant percussion note, wheezes (rhonchi) on auscultation, and features suggestive of mass or pleural effusions in lung malignancies). Tuberculosis – one of the important infections associated with smoking – may be identified by tracheal deviation, localized areas of fibrosis and/or cavitation (typically at the apex), or by a pleural effusion.

Abdominal examination (including rectal examination, as well as gynaecological examination in a woman): This focuses on organomegaly for evidence of primary lymphoreticular malignancies or primary growths/ secondaries from a gastrointestinal, genitourinary or extra-abdominal neoplasm. Tender hepatomegaly may also occur when there is associated congestive heart failure.

Nervous system examination: This may show evidence of a previous "stroke" or peripheral neuropathy. Examination of the eye must be carried out looking for evidence of cataracts, retinal changes of hypertension or vascular disease for tobacco-alcohol amblyopia, and for age-related macular degeneration.

Behavioural symptoms: Behavioural symptoms, including restlessness, mood changes and irritability may provide evidence of underlying mood/ psychiatric disorders, or of associated stress which would be important to address in the quit attempt.

Investigations

Demonstrating harm with objective evidence provides the clinician a better opportunity to convince the tobacco user that continuing tobacco use will adversely affect health, and that quitting will have positive benefits. Showing the tobacco user objective findings of an X-ray, an ECG, a spirometry or a blood test, if there is any evidence of abnormality, is often an effective way of convincing the patient that change is necessary and will be beneficial.

Providing feedback is particularly effective during oral examination. Keep a mirror handy, and show the patient evidence of the effects of tobacco.

Even in the absence of demonstrable disease, measures to suggest that the patient is compromising on his/her health are useful. One such simple measure is to demonstrate the exhaled breath carbon monoxide among smokers.

There is a simple and inexpensive instrument that can measure carbon monoxide in the exhaled air. High levels of carbon monoxide (above 7 ppm) indicate recent heavy smoking.

CO monitoring to provide feedback
Photo courtesy: Dept. of Pulmonology, NHIMS

Lung function tests

Spirometry, which assesses lung function, is becoming available in many settings, particularly among respiratory specialists. Spirometry helps to assess age-appropriate lung function, provides a feedback to the patient about his/her current status and helps to monitor improvement in lung function after tobacco cessation. Studies have shown that demonstrating to a person that his/her lung function is that of a significantly older person is very useful to help motivate a person to quit. For instance, to tell a patient: "your chronological age is actually 45 years but your lungs are those of a 65-year-old man" is often the best motivator for quitting even if a person is still asymptomatic or has not yet recognized that he/she has symptoms.

While having facilities to carry out investigations to demonstrate harm from tobacco use is desirable, their absence need not deter the clinician from offering strong and specific advice to the tobacco user based on clinical screening for tobacco use.

Key learning points:

- Doctors, dentists and other health-care providers must consistently identify and record tobacco use status and treat every tobacco user seen in a health-care setting.
- Tobacco use status can be recorded as part of the "Vital signs" or "Personal history".
- Feedback to the tobacco user on clinical examination and investigation findings helps in the process of motivating the person to change.

Chapter 7

Brief intervention for tobacco cessation

Learning objectives:

At the end of this chapter, the doctor should be able to:

- Initiate the process of quitting by the tobacco user.
- Know that this can be done effectively without needing to spend too much time on the intervention.

Why should a busy clinician make treatment of tobacco use a priority?

The evidence is compelling:

- Clinicians can make a difference with even a minimal intervention.
- A slightly longer time can further improve the chances of quitting.
- There is growing evidence that tobacco users who receive clinician advice and assistance with quitting report greater satisfaction with their health care than those who do not.
- Tobacco use interventions are highly cost-effective.
- Tobacco use has a high fatality rate if the person continues with use.

Most of the world's more than one billion smokers – about a quarter of all adults – are addicted. Services to treat tobacco dependence are fully available only in nine

countries having 5% of the world's population. Countries must establish programmes providing low-cost, effective interventions for tobacco users who want to escape their addiction.

In many countries in the Region, persons seeking a health consultation rarely come alone; there is usually a family member who accompanies the individual. Interventions often include educating and advising not just the individual but also his/her family.

Where can brief intervention be done?

Brief intervention can be carried out by individual clinicians as well as in all health settings (both general as well as specialized).

Cessation incorporated into primary care

Integrating tobacco cessation into primary health care and other routine medical visits provides the health-care provider with opportunities to remind users that tobacco harms their health and that of others around them. Repeated advice at every medical visit reinforces the need to stop using tobacco.

Advice from health-care practitioners can greatly increase abstinence rates.

The intervention is relatively inexpensive because it is part of an existing service that most people use at least occasionally.

It can be particularly effective because it is provided by a well-respected health professional with whom tobacco users usually have a good relationship.

Incorporating tobacco cessation into basic medical care is especially appropriate in countries that have an existing network of primary care.

Steps in brief intervention

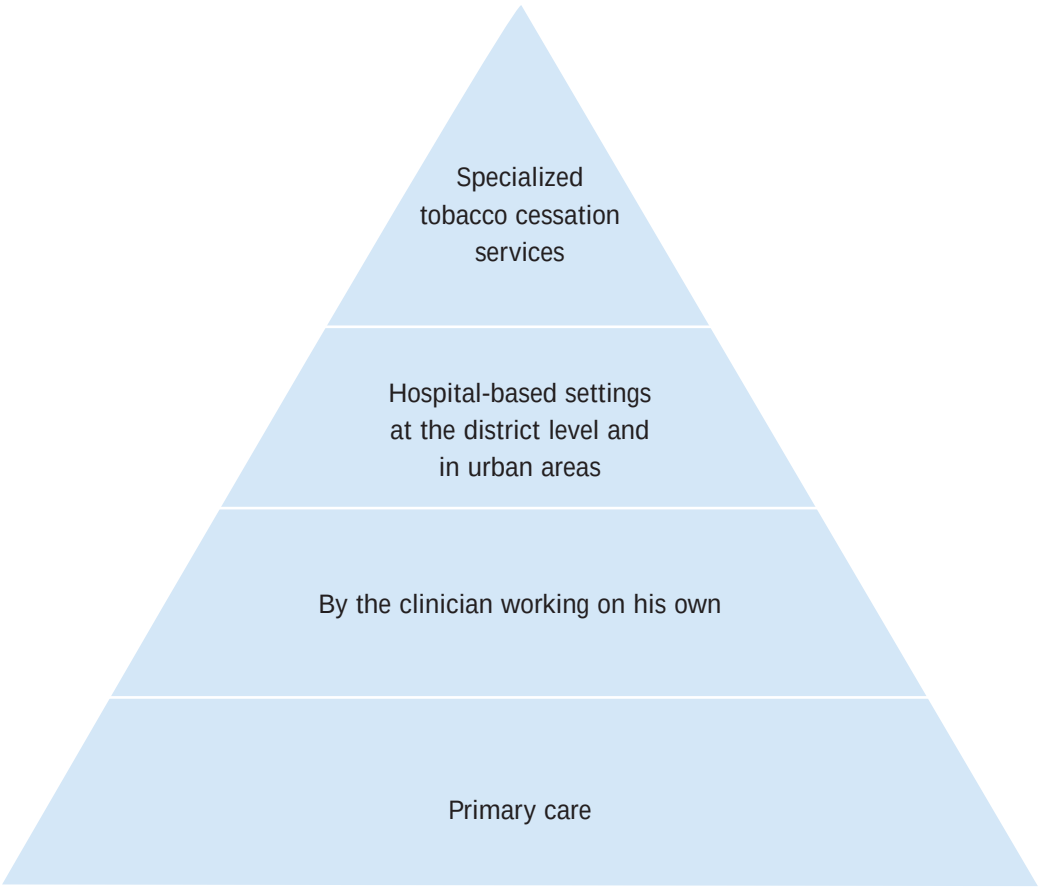
Step 1: Advise all current tobacco users to quit

Make your advice strong and emphatic. *The verbatim statements (what exactly to say) that **you, the clinician,** can make are mentioned **in bold italics.***

1. To a tobacco user without any obvious clinical condition or risk, consider the following advice:

   (a) From a health point of view:

   It is very important that you stop using tobacco right now.



Occasional or light smoking is also dangerous.

You can avoid many diseases such as heart problems, stroke, lung problems and cancer if you stop using tobacco right now.

Please take this pamphlet and understand the problems that tobacco can cause for you. That is why you need to stop...NOW!

The nurse/social worker will explain to you in more detail why you should stop.

Step 1: Advise to quit

Advise the person to quit

- Strongly
- Clearly
- In a personalized manner (linking it to his/her use)

(b) From an economic point of view:

Have you ever thought about how much you are spending on tobacco? You have been smoking or chewing tobacco for the last 10 years. You say you have been smoking about 10 sticks a day and spending Rs 15 on them daily. This means you are spending Rs 450 a month or Rs 5400 annually. What does this come to in 10 years? Rs 54 000. And we haven't even considered how much you spend on chewing tobacco and alcohol. What could you have done with this money? And look at the health problems you can accumulate. You didn't think of it this way before, did you?

(c) From the point of view of the family:

Your wife is very concerned about your health. She says you were very strong earlier but nowadays you tire easily. Though I can't find any obvious reason for this, I can definitely tell you that smoking can reduce your stamina. Your wife's concern is justified. You must stop your tobacco use.

Your child's wheezing is not coming under control despite treatment. We need to find out what factors may be worsening her condition. Keep the house free of dust to the extent possible. Please stop smoking … your smoking can worsen your child's wheezing.

2. To a tobacco user at risk (has an underlying health problem caused or likely to be worsened by continuing tobacco use, or has a significant family history) personalize the risk:

Your blood pressure is high. I would like to monitor it before considering to put you on any medication. Right now, you will need to be careful with your diet, and make sure you learn how to handle tension. Your blood pressure control can get worse if you continue to use tobacco. Even if I need to put you on treatment for blood pressure in the future, remember that the treatment will be more effective if you stop using tobacco.

Have you noticed the reddish discolouration in your mouth? This is a dangerous sign. It is what we call a pre-cancerous lesion … it can turn into a cancer. The best way to allow this to heal without causing problems for you in future is to stop tobacco use.

You told me that your father and an elder brother died suddenly, and the cause seems to have been a heart attack. With such a strong family history, you should make sure you reduce your risk for heart disease. Stopping smoking is an important step that you can take.

Although you are using tobacco just twice a week now, we know that one out of three users can become addicted to tobacco. Your case record mentions that your father and mother regularly use tobacco. Your chances of becoming addicted are, therefore, even greater. You should stop now before you develop an addiction.

To a young smoker*:*

Smoking can make you age very fast, and make your skin become wrinkled and unhealthy. You have a nice smile but tobacco staining can destroy your appearance. Did you know that smoking can make you impotent? There are so many things you can prevent from happening by stopping smoking right now.

To a tobacco chewer*:*

Chewing gutkha *is very dangerous. I had a 30-year-old patient who used* gutkha *for five years and developed a tight band in his cheek. That is a well known complication of* gutkha. *He could not open his mouth more than one inch, and could not chew his food. His family had to feed him through a tube!*

Provide feedback from objective sources

Look at this reading (CO monitor). The readings are high. It means that you are polluting your lungs. Your lungs will not tolerate the irritation caused by smoking. Your smoker's cough is an early warning your lungs are giving you. It is best for you to stop now before you develop bronchitis and other complications.

Step 2: Educate about addiction

Have you ever thought of quitting?

Responses may include:

- *Never, doctor, I had never thought of it as a problem until now.*
- *I've tried, doctor, many times, but could not for more than two days … I get restless, cannot concentrate, I get constipated … it's horrible.*
- *I had stopped for six months. After I lost my job I started again.*

A family member may add:

- *I have told him so many times to stop smoking. He knows it is affecting him and all of us at home. He just has no will power!*
- *When he went on this pilgrimage, he vowed he would stop, and he did for two months. Then one day a childhood friend came home. He was smoking. He offered my husband a* bidi *and after that, it was back to the same old habit!*

Step 2: Educate about addiction

Addiction is a brain disease.

Once addicted, the person feels compelled to use tobacco and will power alone is not always enough to stop.

Withdrawal symptoms, craving and stress can cause the person to go back to using tobacco for temporary relief.

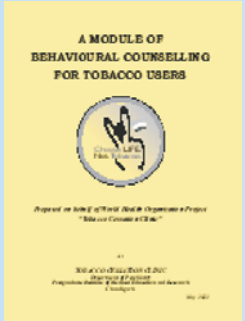
This is an appropriate time to educate about addiction:

When you use smoke/chew tobacco regularly, you can get addicted to it. Tobacco contains a chemical called nicotine which acts on your brain and produces a good feeling. When you stop tobacco use, the nicotine rush stops and the brain sends out distress signals which are the withdrawal symptoms

One can put up in the clinic educational posters that encourage tobacco users to quit, offer information about health and other consequences of tobacco, convey the message that addiction requires help, and provide the required optimism that the tobacco user can successfully quit. These can make counselling easier and more effective.

Similarly, providing a personal information booklet and self-instruction material can be useful in literate populations.

For illiterate populations, pictorial messages and short television clips can provide educational and motivating messages.



Tobacco cessation education material prepared by tobacco cessation clinics at PGIMER, Chandigarh, and NIMHANS, Bangalore, India.

you experience such as irritation and lack of concentration. Many of your routine bodily functions such as going to the toilet in the morning can be disturbed during the withdrawal. That is why you experience constipation. The thing to remember is that most withdrawal symptoms last a few days and rarely more than a week.

The urge to use (or craving) is a withdrawal symptom that can come back again and again. This is also caused by brain changes that occur due to repeated tobacco use. It is important to understand that this urge can lead to relapse, so can stress. Many people have to try 4–5 times before they can successfully quit. With help, the possibility of quitting can be doubled.

Responses to the distressed family member can be:

It is not an issue of will power or that he/she wants to continue smoking. It is the addiction that develops that makes it difficult to stop. Addiction to tobacco is just like addiction to other drugs. Most people need help to overcome this addiction.

Strong motivating factors can help an individual to stop on his own, for example after a pilgrimage, after a serious illness, or following a promise. But the urges brought on by addiction can be so strong that the person is compelled to use tobacco despite him/her feeling guilty about going back on his/her promise.

Step 3: Provide brief counselling

Advice to quit must be accompanied with the reassurance that you will provide help to the person, and by getting a commitment to quit:

There are many effective ways to help you quit. I will help you quit. Would you like help to quit?

Possible responses from the tobacco user are:

- *My God, doctor, I hadn't thought there were so many problems, I'll quit immediately! I can do it on my own.*

Step 3: Provide brief counselling

For users who would like to quit, encourage a quitting attempt.

Help them to set a quit date in the next two weeks.

Educate them about withdrawal symptoms and simple ways of handling them.

Advise them to plan on how to handle situations that set off urges to use in ways other than by using tobacco.

Assure them of help and support to quit.

- *Doctor, I've tried many times before but nothing worked.*
- *I'll think about it, doctor.*
- *We'll see some other time, doctor. It is impossible for me right now.*

Assisting the tobacco user who would like to quit:

Helpful clinician approaches

Building rapport

Expressing empathy

Showing respect

Expressing confidence in the person's ability to give up tobacco.

Set a quit date.

I am glad you have made a decision to stop. Is there a particularly good day for you in the next two weeks when you would like to stop using tobacco?

Get the tobacco user to set a quit date, ideally within the next two weeks. It is useful to set a date which the person can easily remember – a national holiday, a religious festival, a day personally important to him, or a day special to him. If there are no special events in the next two weeks, a date that is easier to remember (such as the first or last day of the month, or the weekend following) may be considered.

Make sure you mention this to your family and friends so that they can help you in your efforts.

If there is a family member accompanying the person, this is a good time to involve the family member in providing support to the person, particularly during a relapse.

Getting tobacco out of sight:

Make sure you get rid of all tobacco products and tobacco use-related gadgets out of sight before your quit date. This includes butts or stubs, empty pouches or packets, matchboxes, lighters, etc. If you have stocked any cigarettes, bidis, kreteks, *pouches or sachets in your house, get rid of them.*

In the first week after quitting, try and avoid places and situations which tempt you to use tobacco. This may include tobacco using friends, tea shops, hotels, restrooms and workplace spaces which may allow smoking.

Being aware of reasons that are most likely to make the person want to use tobacco:

It is important for you to know what can bring on an urge to use tobacco. One significant factor is withdrawal, particularly craving. Think of other factors that may precipitate your urge to use tobacco.

Get the person to think about factors and situations that may lead to use tobacco. The common reasons are craving, a need for immediate pleasure (anticipation of relaxation, association with feeling comfortable), a desire for stimulation (the feeling that tobacco gives a "high", a "lift" or a "kick"), missing the sensation of holding the *bidi*/cigarette or chewing the tobacco in the mouth, stressful situations (when tobacco use provides perceived temporary relaxation or distracts the individual from immediate worries), and the habit aspect of tobacco use (automatically lighting up a *bidi* or cigarette or reaching for a sachet of chewing tobacco and popping it into the mouth without even realizing what one is doing).

Simple methods of dealing with withdrawal

Remind yourself that withdrawal will last only a few days and will make you feel that you have a mild flu.

Take each day at a time.

When the urge comes, remember it will stay only for a few minutes and then go away.

For many, keeping something in their mouth, like a clove, cardamom, fennel seeds or chewing gum is very helpful.

Keep the hands busy – wash vessels, wash clothes, water the plants, squeeze a ball, use prayer beads.

Eat a healthy diet.

Get enough exercise.

Learn to relax.

Avoid situations that cause temptation.

Keep yourself active.

Explain to the person that these feelings/thoughts do not last long, but that it is important to think of simple methods of how to handle them.

In these situations, remind yourself why you have decided to give up tobacco and increase your resolve. Medication can minimize these symptoms.

You can use simple strategies to handle craving and stress: distracting yourself; drinking water when you feel the urge; delaying use a little longer each time; practising deep breathing or meditation; or discussing with a supportive family member or friend.

Remember, the first puff or the first chew after stopping can trigger loss of control and relapse. So avoid any use.

If there have been previous quit attempts, help the person to reflect on what worked and what did not, and use strategies that have helped in the past.

Advice regarding other substance use:

While you are trying to give up tobacco, it is best that you avoid alcohol or any other drug. Use of alcohol can increase your urge for tobacco, as can use of other drugs. Don't drink too much coffee or tea. Avoid aerated beverages that contain caffeine.

Diet, exercise and sleep

Encourage the individual to follow a healthy diet and get enough exercise. Exercise can result in the production of endorphins, which can help in improving the mood and can be particularly useful when the person is enduring a low mood during withdrawal. Another distressing symptom is disturbed sleep. Simple tips to improve sleep are often the best remedy.

Sleep hygiene

Maintain regular sleeping hours.

Avoid any stimulants in the late evening (caffeine, tobacco, etc).

Void your bladder before going to bed.

Wear comfortable clothing.

Minimize noise, light and other forms of stimulation.

For many, a cup of warm milk, a banana or a warm bath are helpful.

Avoid afternoon naps.

Support

Assure the individual that you and your health team will provide support to help in the quitting process. The nurse, counsellor, social worker, pharmacist or trained volunteer can spend more time providing support, advice, clarification and regular follow-up contact.

Once they understand the nature of addiction, family members are likely to be more supportive in helping the person quit tobacco and stay away from it. Motivating one individual in the family to quit can motivate other family members to do so, too.

Step 4: Offer medication

Step 4: Offer medication along with brief counselling

Research has shown that the best results for cessation are achieved when counselling and pharmacotherapy are combined. Both nicotine replacement and non-nicotine pharmacotherapy are currently available and are recommended in treatment guidelines from different countries.

There are now medicines which can help you in quitting. These medicines help in making quitting much easier than having to do it entirely on your own.

Medicine, along with my advice and your effort can ensure double or triple the success in being able to quit compared with doing it just by yourself.

Step 5: Follow-up contact

Step 5: Arrange for follow-up contact

Arrange to see the person again after a week. If a personal visit is not possible for time, financial or other constraints, arrange contact by telephone. A second follow-up contact is advisable in the first month. Subsequently, a monthly contact for the next six months is ideal.

The person must also be clearly told whom to contact in case of a lapse, side-effects with medicines, or when he/she has difficulties dealing with craving or stress. Follow-up can be carried out by any member of the health team, but it would be useful if the clinician could see the person once or twice during follow-up to provide encouragement as well as intervention in case of a relapse.

Brief intervention when a person is not considering quitting:

Induce a desire to change (motivate for change) by discussing both the beneficial effects as well as harmful effects for the individual about tobacco use.

Discuss the benefits first!

Many people feel they get certain benefits from tobacco. Why would they use it otherwise? Tell me, what are the good things about using tobacco for you?

The responses may be:

- *Doctor, what are you saying! What good things can there be about using tobacco?*
- *I enjoy using tobacco. It's the most pleasurable thing in my life.*
- *Right now I can't think of quitting; my business is down and I am under considerable tension.*
- *I tried quitting in the past, but the headache and constipation was awful. I don't want to experience that again.*

Your response could be:

Many people know the harm from tobacco and yet they use it. Clearly it has some temporary benefits for the person using it (acknowledge perceived benefits).

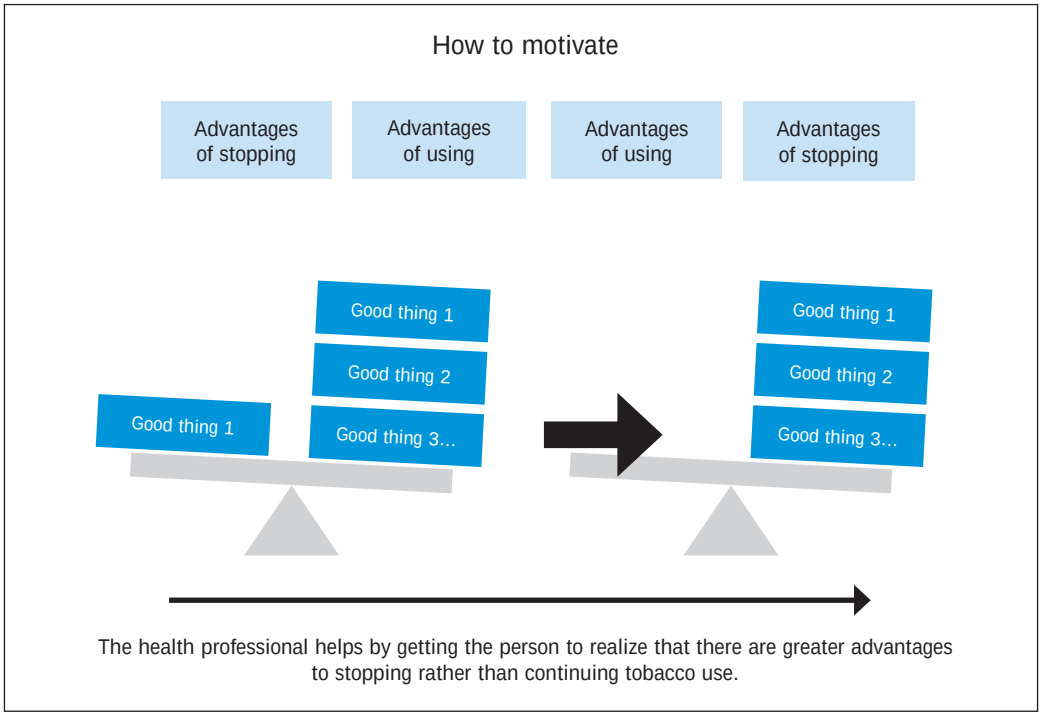
Yes, that's what makes it doubly difficult. But have you thought of the fact that your blood pressure is high and you have a family history of heart attack (acknowledge perceived benefit, but introduce the theme of personalized harm).

Obviously, you use tobacco when you are under stress. Are you under a lot of stress these days (open up a chance of discussing underlying problems and offer help for those problems)?

These are temporary symptoms and they usually go away. I can tell you ways of reducing this discomfort when you decide to quit (address fears about quitting).

Gently encourage the person to talk about perceived benefits (pleasure, relaxation, social desirability, relief from withdrawal or relief from stress) and then ask the person what individual harm tobacco has caused or might cause.

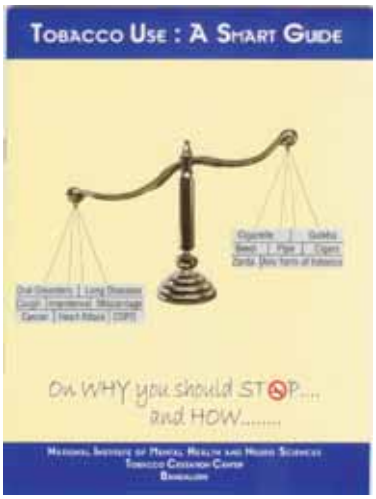
Tilting the balance



The health professional helps by getting the person to realize that there are greater advantages to stopping rather than continuing tobacco use.

Urge the person to consider quitting. Renew the offer of help. Remember to check at follow-up whether he/she would like help with quitting tobacco.

Using a patient workbook or guide[62]



A patient workbook or guide to cessation is particularly useful for helping patients to start thinking and feeling empowered to make changes. These must be prepared in the local language, and contain simple instructions and tips for quitting. The patient can also be encouraged to keep a diary containing the frequency of tobacco use, common triggers, and reminders of how to use strategies other than tobacco use to deal with these triggers. For the illiterate patient, a literate family member, a social worker or nurse can help to maintain the record.

Such a workbook can contain two parts:

Part 1: Information

(a) Information about tobacco and its dangers.

(b) Clarification of the myths surrounding tobacco use.

(c) Why quitting is important.

(d) Why quitting is difficult (the development of addiction).

(e) Information about quitting.

(f) Frequently asked questions.

Part 2: Steps to quitting

(a) **Step 1:** Encourage the patient to understand his/her reason for using tobacco and for wanting to stop.

My reasons for using tobacco (making a list of what is applicable)

I smoke or chew tobacco because:	√
• *it relaxes me.*	
• *it helps me concentrate and work better.*	
• *I have become addicted and cannot control it.*	
• *I am afraid of the withdrawal symptoms.*	
• *I will become irritable, sad or bored if I stop.*	
• *I do not think it is causing me any harm.*	
• *I have too many problems which I cannot face.*	

(b) I should stop because:

- *I will feel better and breathe easier, my cough will reduce and my energy will improve.*
- *I will cut down the risk of illnesses in the future.*
- *My underlying health problem will improve.*
- *I will live longer and healthier.*
- *Food will taste better.*
- *My appearance will improve. I will not age rapidl.*
- *I will feel good about myself if I successfully quit.*
- *I will save money.*
- *I will not have to worry about what people think about me.*
- *I will not have to worry about impotence.*
- *My children will be happy and respect me.*
- *I will be a good role model – my children will not pick up this habit from me.*
- *I will not expose my family to poisonous fumes.*
- *Others.*

Step 2: Encourage the patient to analyse his/her habit

What time of day do I use?	*Where do I use?*	*What am I doing at that time?*	*Who is with me when I use?*	*How am I feeling at the time?*	*How much is the urge to use (on a scale of 1–10)?*

Step 3: Help the patient to plan alternate methods to deal with triggers

My triggers to use	*What I will do instead*	*My triggers to use*	*What I will do instead*
Morning toilet time *Coffee or tea* *After meals* *Drinking alcohol* *Using the telephone* *Driving* *Seeing others using* *Need for relaxation*		*Getting bored* *When I feel tense* *When I want to celebrate* *When I want to concentrate* *When I get the urge* *Withdrawal symptoms*	

Step 4: Quitting

Help the patient decide on a quit date, and the quitting options (abruptly stopping, gradually reducing, or taking medication)**.** Useful medications are discussed in the next chapter:

My quit date will be _____.

Step 5: Changing lifestyle/routines

Encourage the patient to make a note of the various life changes planned and adhere to it in the next few months till a tobacco-free lifestyle becomes the norm.

I will make the following changes in my routine:

Morning	*Exercise* *Remind myself how I will deal with triggers* *Drink plenty of water*
During the day, in case of an urge	*Not carry tobacco sticks/packets/matches/ lighters* *Eat/drink something* *Avoid others who use tobacco* *Distract myself by…* *Avoid alcohol*
Methods to relax	*A hot bath after a hard day's work* *Talking to a family member or friend* *Developing a hobby* *Deep breathing* *Meditation*
Coping with setbacks (reusing)	*Not get disappointed* *Get help* *Try all over again.*

Remember

Comprehensive tobacco cessation services are currently available in only five countries all over the world, primarily resource-rich countries. While a combination of pharmacotherapy and brief intervention has relatively better results, in many countries the SEA Region pharmacotherapy is not widely available, is not subsidized and predominantly involves out-of-pocket expenditure.

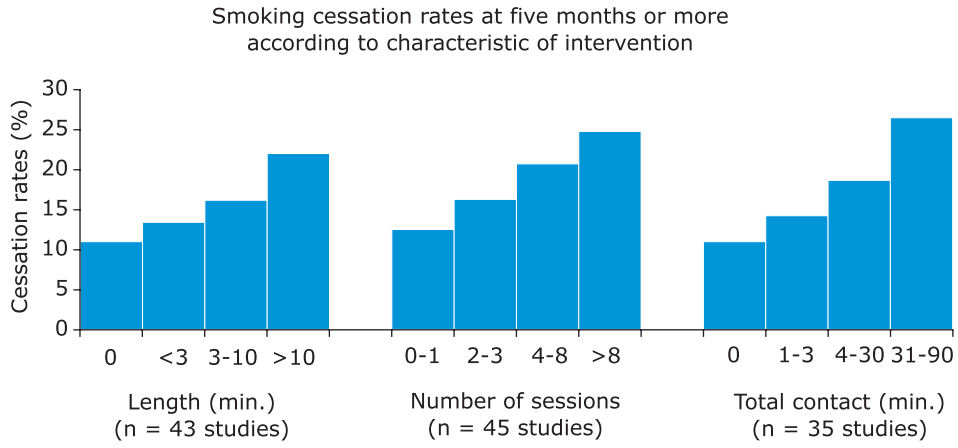
Does that mean that we should not make a start? Not at all. As mentioned in the earlier part of this chapter, brief intervention itself improves outcomes in tobacco cessation.

So far, the evidence on brief intervention suggests that:

- Even a 3-minute intervention can make a difference.

- A relation exists between the intensity of the intervention (time spent with the person using tobacco, number of sessions and total duration of contact with the person) and tobacco cessation outcome.
- Brief intervention encourages people to make a quit attempt.
- Even when patients are not willing to make a quit attempt at the time, brief interventions can enhance motivation to quit and increase the likelihood of future quit attempts.
- Gradually more and more tobacco users are getting exposed to societal and environmental factors that advocate change and come prepared to take treatment.

Smoking cessation — Physician's role



Source: Fiore et al. 2000 [63]

Brief community-based interventions

In Asian populations a significant number of tobacco users successfully quit tobacco use following brief advice and encouragement alone. This finding was reported from a study of Bangladeshi women volunteers in the United Kingdom who used chewing tobacco. [64]

Simple community-based interventions: Evidence for effectiveness in the Region

Even simple health education can bring about change. In a 10 year prospective intervention study in India, over 36 000 tobacco users were examined in a baseline survey for oral cancer and pre-cancer, and subsequently every year for 10 years. At each examination they were given health education about their tobacco habits.

At the end of 10 years, 11% of men and 37% of women had quit tobacco use compared with 2% and 10% respectively of the control cohort. In addition, a substantial number of tobacco users had reduced their smoking significantly. A significantly higher percentage of leukoplakia at baseline regressed in those who had quit or reduced smoking substantially [65]

A study in Bihar, India, showed that community-based mass approaches, with minimal sustained interventions, were more effective than clinic-centred individual interventions. [66]

An NGO in Bangladesh, Ekhlaspur Centre of Health (ECH), started a tobacco cessation programme among women through community- and clinic-based activities in 2001 with WHO support. It carried out an evaluation of a tobacco cessation intervention by community health workers in 2006.[67] A follow-up of tobacco use status was carried out every six months and further counselling provided.

A further follow-up was carried out after 18 months. Of the 184 tobacco users, 25% had quit tobacco after 18 months. This project demonstrated that a tobacco cessation programme can be delivered by trained health workers at the grassroots levels.

Key learning points:

- Brief tobacco dependence treatment is effective. Clinicians should offer every patient who uses tobacco a brief intervention.
- If a tobacco user is unwilling to make a quit attempt, the clinician and other health professionals should use motivational approaches to increase future quit attempts.
- Community-based counselling is a practical and cost-effective approach in the Region.

Chapter 8

Assisting cessation: The role of medication

Learning objectives:

At the end of this chapter, you should be:

- Able to advise the tobacco user about pharmacotherapy and nicotine replacement therapy.
- Aware of the dosage regimens.
- Aware of the major and key minor adverse events of these therapies.

Why use pharmacotherapy for tobacco cessation?

As discussed in Chapter 5, tobacco contains nicotine, which is an extremely addictive substance. On account of the addictive nature of nicotine, although many tobacco users attempt to quit only 3%–5% of them are able to quit without any help. Pharmacotherapy has been shown to double or triple the chances of quitting. Unfortunately, its use is very limited in countries of the SEA Region.

The guidelines for the use of pharmacotherapy have been summarized from various sources.[24,68-73]

Barriers to the use of pharmacotherapy among clinicians

The following are the barriers that impede the use of pharmacotherapy among clinicians:

- Limited availability of pharmacotherapy.
- Limited knowledge of pharmacotherapy.
- Little experience with using pharmacotherapy.

- Therapeutic nihilism ("nothing works") regarding treatment of nicotine dependence.
- Tobacco user's hesitation to accept pharmacotherapy.

Broad approaches to pharmacotherapy:

Type of treatment	Rationale
Nicotine replacement therapy	Supplies the nicotine but eliminates other (harmful) chemicals in the tobacco product. Decreases the intensity of cravings and withdrawal symptoms, enabling people to function better while dealing with the social and psychological aspects of their dependence. May provide some of the effects for which the tobacco user used the particular tobacco product (e.g. the desired mood or immediate support to cope with stress).
Non-nicotine treatments	Act on central brain receptors and minimize withdrawal from nicotine when the tobacco user suddenly stops use.

Addressing the tobacco user's hesitation

Many people believe that they are substituting one addiction for another if they opt for accepting treatment which involves nicotine replacement. The clinician must explain the rationale of pharmacotherapy and reassure them that there are safe and effective ways of using pharmacotherapy.

When to recommend pharmacotherapy?

If available, it must be strongly recommended to tobacco users with severe dependence which can be determined by any of the clinical indicators below:

Using tobacco within the first 30 minutes of waking up.

or

Using more than 20 cigarettes or *bidis* every day or using very high doses of smokeless tobacco.

or

A score of more than 6 on the Fagerstrom questionnaire.

Do not undermine the tobacco user's ability to choose

Though you may recommend pharmacotherapy in addition to counselling, some tobacco users would like to attempt to quit using the behaviour strategies suggested.

Respect this choice. Tell the person to try the behavioural methods and to consider pharmacotherapy if that alone does not work, since the combination generally works better. Urge the person to keep follow-up contact.

Pharmacotherapy should be strongly recommended to:

- All persons with severe dependence.
- Tobacco users with multiple failed self-attempts.
- Tobacco users unable to abstain with brief intervention alone.

It may be suggested to all persons with lower levels of dependence who feel the need for some external help. For this group, lower doses of pharmacotherapy may be effective.

However, it is important to note that "no form of pharmacotherapy is a substitute for motivation".

Nicotine replacement therapies

Nicotine replacement therapies increase the rate of long-term quitting by 50%–70%.

NRTs are a valuable cessation aid. Using NRT is always safer than continuing to smoke or chew tobacco.

NRT users were twice as likely to remain off tobacco compared to NRT non-users four years after treatment. All forms of NRT appear to be as equally effective.

There are six forms of NRT available in different parts of the world:

- Nicotine chewing gums.
- Nicotine skin patches.
- Nicotine lozenges.
- Nicotine inhalers.
- Nicotine sublingual tablets.
- Nicotine nasal spray.

According to World Bank estimates, increasing the availability of NRT could lead to millions of lives being saved. Using conservative estimates of quit rates among NRT users, the World Bank estimated that if 6% of smokers used NRT six million smokers alive in 1995 would be enabled to quit, averting an estimated one million deaths. If 25% of smokers used NRT, 29 million smokers alive in 1995 would be enabled to quit, averting an estimated seven million early deaths.[74]

Nicotine gums

These are the commonest form of nicotine replacement now available in some countries in the Region. The advantage of oral tobacco substitution is that the person can control the craving more effectively by using the gum.

Strength: 2-mg and 4-mg chewing gums

Dosing: The 2-mg gums are recommended for low-dependent users and 4-mg for high-dependent users. In some countries like India, separate

products are available for smoking and chewing forms of tobacco, the latter with flavouring that may appeal to chewers.

Prescribing practice: Since the gum substitutes for tobacco, advise the tobacco user to stop all tobacco products once the gum is started.

Pharmacotherapy for tobacco cessation

Advantages:

- Increases quit rates.
- Helps the person to effectively make life changes to quit tobacco.

Disadvantages:

- Limited availability.
- Cost.
- Side-effects.

Total daily dose: For smokers, one gum every 1–2 hours for the first 6 weeks, 2–4 hours for 3 weeks, and 4–8 hours for 3 weeks. In our experience, about 10–12 mg a day is adequate for a person who smokes about 2 packets (20–25 cigarettes/bidis) per day. Instruct the person to also use it inbetween doses if there is still an urge to use. In some countries, 18–20 mg/day is used.

Chewers need about half or a quarter of the dose for smokers, and more often report side-effects of NRT compared with smokers.

Duration of treatment: 8–16 weeks. In addition to reducing the frequency after six weeks, the user can also cut the gum into smaller pieces, or use non-nicotine gums in between, to taper and stop. Durations of less than four weeks have not been found useful. For strongly dependent users, advise a longer period of NRT to prevent relapse.

Let the individual guide you because the user is the best person to help decide an increase or decrease in the quantity and frequency of use.

Directions for use (verbatim):

Nicotine gums are effective in helping you to deal with withdrawal. I recommend that you use the – mg gum. To start with, you can use one gum every 1 or 2 hours of the day and inbetween whenever you have the urge to use tobacco. Here is how to use the gum:

> *Take out a gum from the pack and start chewing it slowly.*
>
> *Continue chewing slowly until you feel a peppery taste in about 5 minutes.*
>
> *Stop chewing and keep the gum between your gum and cheek.*

Leave it there for about 10 minutes so that the released nicotine can get absorbed.

Then shift the gum to the other side of the mouth and chew slowly again for 5 minutes.

Again stop chewing and keep the gum between the gum and cheek.

Repeat it once or twice.

Once the peppery taste on chewing stops occurring, dispose the gum in a safe place away from children or animals.

While using the gum avoid eating or drinking coffee, juice or soda as they can reduce the absorption of nicotine.

Side-effects of nicotine gums: Soreness of the mouth and jaw, burning in the mouth, throat irritation, nausea, vomiting, hiccups and excess salivation. Tolerance usually develops to these symptoms. Gums are contraindicated in those who have gastric ulcers.

Advise the person as follows:

You may experience some minor side-effects such as … Remember that these symptoms will usually reduce after a few days of use. You can avoid this by chewing the gum slowly.

Nicotine patches

These are simple to use and compliance rates are better than for other NRT products. However, they deliver nicotine more slowly and may not adequately protect against craving.

Strength: Two patch strengths are commonly available:

21 mg/day, 15 mg/day and 7 mg/day patches are available. Some patches last 16 hours and are worn during waking hours. Others last for 24 hours.

Dosing: For persons smoking more than 20 sticks/day, the 21-mg patch is recommended. The user gradually steps down to the lower dose patch and then to no patch.

Prescribing practice: The patch is applied once daily to a clean, dry, hairless area. For some persons, wearing the patch at night can disturb sleep and cause vivid dreams. In such cases the day patch is more suitable.

The most common side-effects of the patch are a skin rash where applied and sleep disturbance.

Other nicotine replacement treatments

The box below summarizes other nicotine replacement treatments. Most of these products are currently not readily available in most countries in the Region.

Nicotine inhaler: This resembles a cigarette. Nicotine cartridges are inserted into it and inhaled like a cigarette. Each cartridge provides up to 3- to 20-minute sessions. The usual recommended daily dose is 6–12 cartridges a day for 8 weeks, with gradual reduction over the subsequent 4 weeks. It is said to be particularly suitable for those smokers who miss the hand-to-mouth action of smoking.

Nicotine tablets and lozenges: These are dissolved under the tongue. They come in two strengths: a 2-mg high-dose lozenge and a low-dose 1-mg lozenge. They are easy to use and facilitate rapid nicotine absorption.

Nasal spray: This allows rapid nicotine absorption through the nose. It mimics the rapid nicotine levels achieved from smoking and may help to relieve sudden urges. Side-effects include irritation of the nose and throat, coughing and watering of the eyes.

Some recent evidence regarding NRTs

- Combining different forms of NRT may be more useful than a single NRT for smokers.
- There is low addiction potential to NRTs.
- With oral NRTs, some patients may also smoke but in a reduced manner in the initial phases of treatment. This does not seem to produce nicotine toxicity. Thus a "cut down and quit method" may also be useful, where smokers cut down the number of cigarettes or *bidis* they use over a six-week period while taking oral NRT and then stop smoking completely. Research suggests that the addition of this method to the approved uses of NRT may increase the number of smokers who quit altogether. However, with the patches on, users need to be strongly counselled not to smoke.

Special cases

Cardiovascular disease: NRT can be prescribed to persons with underlying stable cardiovascular disease, including angina and previous myocardial infarction. However, in a person who has had a myocardial infarction or stroke in the past two weeks or has poorly controlled cardiovascular disease, it is best to consult a physician/cardiologist before prescribing the same. Oral NRT is generally preferred to patches in this group. The guiding principle is that NRT is safer than smoking.

Pregnancy: Although there are concerns about fetal risks, some studies indicate that NRTs may be prescribed to pregnant and lactating mothers to help them quit under medical supervision. For this group, shorter-acting NRTs such as gums are recommended instead of longer-acting preparations.

Bupropion

Bupropion is an antidepressant drug. It is believed to act as an antagonist by blocking nicotine receptors in the brain and affecting the brain's reward/ pleasure system. Bupropion approximately doubles the odds of success in quitting. It is useful in tobacco users with or without a history of depression. It also relieves withdrawal symptoms and may reduce depression.

Strength: 150-mg and 300-mg tablets.

Dosing: 150-mg as a single morning dose for the first three days, followed by 150-mg twice daily from the fourth day with an interval of at least 8 hours between the two doses.

Prescribing practice: Bupropion is started while the person is still using tobacco. The person can completely quit two weeks after initiating bupropion (quit date)

Side-effects: Agitation, restlessness, insomnia, gastrointestinal upset, anorexia, weight loss, headache and lowering of seizure threshold (at doses above 600 mg/day). Rarely, allergic reactions can occur, including skin rashes, fever, muscle and joint pain.

Precautions: Bupropion is contraindicated when there is a history of allergy in persons who have tumours of the central nervous system or severe liver disease, who are undergoing unsupervised withdrawal of alcohol or benzodiazepines, those with uncontrolled seizures, pregnant and lactating women, those below 18 years, and persons on monoamine oxidase inhibitors.

Advice for bupropion

This medicine, called bupropion (available as…), has been found to double a tobacco user's chance of quitting. You need to start it while you are still using tobacco. You can start one tablet in the morning from tomorrow, and after three days you can take one tablet twice daily – one in the morning and one at bedtime. Please make sure you leave at least an 8-hour gap between the two doses. After 2 weeks, on … (mention quit date), you should stop using tobacco. You will not have any unpleasant withdrawal symptoms. If you do, I will advise you on how to deal with them.

In the first few days some people can have nausea and other stomach disturbances, headaches, poor appetite or disturbed sleep. These side-effects, if they occur at all, go away in 4–5 days. If you feel drowsy, please do not use a vehicle or operate any machinery till this settles down. Rarely do some develop an allergy. With higher doses seizures have been reported, but I will not be increasing the dose. If you have any problems, please contact my staff and we will advise you on what you must do.

Varenicline

Varenicline is a partial agonist of the nicotine receptor α4β2. It acts by (i) releasing dopamine and creating similar reinforcing effects (against action), but not to the full extent that nicotine does because of its partial binding of the receptor; and (ii) binding to the nicotine receptor (antagonist action) and blocking the effects of nicotine.

It maintains moderate levels of dopamine to counter withdrawal symptoms, and reduces both the urge to smoke and the negative mood. In trials so far, smokers using varenicline are three times more likely to succeed in short- and longer-term cessation compared with those using no medication.

Side-effects: Agitation, depression, restlessness, insomnia, bad dreams, gastrointestinal upset and headaches. Allergic reactions can occur on rare occasions.

Varenicline is not recommended for pregnant women, children or people with a mental illness.

Dose adjustments are recommended for the elderly and persons with renal insufficiency. There are a few studies which report using varenciline successfully in smokers with stable cardiovascular disease. For patients at risk for psychiatric illness, medication needs to be monitored by a psychiatrist.

This medicine, called varenicline (available as…), has been found to triple a tobacco user's chance of quitting. You need to start it while you are still using tobacco. The recommended dose is initially 0.5 mg once daily for the first three days, increased to 0.5 mg twice daily for the next four days, and then increased to 1 mg twice daily as per the instructions available on the pack. After one week, i.e. on … (mention quit date), you can suddenly stop smoking and you will not have any unpleasant withdrawal symptoms. If you do, I will advise you on how to deal with them.

In the first few days some people can have nausea and other stomach disturbances, headaches or disturbed sleep. These side-effects may be mild and temporary. If you feel drowsy, please do not use a vehicle or operate any machinery till this settles down. Rarely do some develop an allergy. If you do, please stop the medicine immediately and get medical attention. In a few persons changes in mood and behaviour, agitation and suicidal ideations have been known to occur. If this happens please discontinue the medicine and get in touch with us immediately.

Which pharmacotherapy to use and for how long?

The choice of pharmacotherapy would depend on:

- Any contraindications or precautions for use.
- The tobacco user's preference.
- Cost of the treatment (particularly where the cost is out-of-pocket).
- The clinicians' experience with recommending and supervising the pharmacotherapy.
- Generally, pharmacotherapy is advised for 3 to 4 months. However, some studies suggest using pharmacotherapy for longer periods of upto six months or more.

The recommended duration of treatment is 12 weeks. In persons with a high risk of relapse, tapering the dose while stopping is recommended.

Other medications

Several other antidepressants have been investigated for efficacy in smoking cessation.

Nortriptyline has been found to double the quit rates. While the mechanism is uncertain, the effectiveness is said to be independent of its antidepressant effects. Common side-effects include light-headedness, constipation, blurring of vision, dry mouth, urinary retention, sleepiness and hand tremors. Arrhythmias are a more serious side-effect. In Thailand, nortryptiline has been recommended as a first-line treatment because of its lower cost. In many other countries, nortryptiline is now recommended as a second-line treatment on account of its side-effects.

Clonidine is a central alpha adrenergic agonist that has been used mostly as an anti-hypertensive. Doses of 0.1 to 0.45 mg/day have been used for

cessation. The major side-effects are postural hypotension, dry mouth, sedation and dizziness. In addition, abruptly stopping clonidine can cause rebound withdrawal and hypertension. Discontinuations due to adverse events occurred in about 10% of participants, and serious adverse events were very rare.

Vaccination is an approach regarding which several companies are conducting advanced trials. The trial vaccines promote proliferation of nicotine-specific antibodies that bind to nicotine in the bloodstream and reduce its uptake in the brain, thus reducing the rewards of smoking. The strength of the immune system's response varies among individuals. To date, results have shown the effect to be temporary and that the vaccinations do not confer long-term immunity as with most other vaccinations.

Methoxsalen is a medication undergoing trials. It blocks the enzyme that breaks down nicotine in the body thereby slowing elimination, thus postponing the onset of withdrawal symptoms and presumably making cessation easier.

Other drugs and treatment modalities which have been tested are summarized below:

Rimonabant, a drug that targets the cannabinoid receptor system and was found to be beneficial for treating obesity as well as for tobacco cessation **but has been withdrawn** by the original manufacturer and from treatment guidelines because of a reported suicide risk.

Combined interventions

Quit rates are highest when NRT or other approved pharmacotherapy is combined with more intensive behavioural support, such as group counselling or the use of quit helplines. As a general rule, the more intensive the intervention, the better the outcomes. Long-term quit rates are as high as 15% to 20% compared with the 3% to 5% success rates for self-maintained abstinence.

Summary of all interventions currently available for tobacco cessation

Intervention	Odds ratio for successful quitting
Doctor's brief advice	1.3–1.74
Non-doctor health professional's advice	1.47–1.7
Individual counselling by non-doctor health professional	1.56–1.7
Self-help, with or without, provided material	1.1–1.24
Group interventions	2.17
Telephone interventions	1.56
Multiple interventions	1.9
Nicotine replacement therapy (NRT) (any type)	1.5–1.77
Bupropion	2.06–2.1
Nortryptiline	2.1–2.79
Varenicline	2.33–3

- The above summary has been prepared from various meta-analyses and more recent large randomized studies.[75-82] All results have been in comparison with placebo/no intervention.
- All interventions show benefits.
- Any comparison between interventions should be interpreted with caution because of the large differences in the number of trials suitable for the meta-analysis (e.g. 5 evaluable trials with nortryptiline versus 96 with NRT).
- These other treatments have been evaluated, but the results are inconclusive:
  - appetite suppressants
  - benzodiazepines
  - beta-blockers
  - buspirone
  - caffeine/ephedrine
  - cimetidine
  - dextrose tablets (food supplement)
  - lobeline
  - moclobemide (monoamine oxidase inhibitor).
- Hypnotherapy and acupuncture have been evaluated, and show no significant benefits compared with placebo.

In India tobacco cessation services were formally initiated in 2002 by the World Health Organization's Country Office and the Ministry of Health and Family Welfare, Government of India, through tobacco cessation clinics. Thirteen clinics were initially started in cancer, cardiology, respiratory, surgical, psychiatry and NGO settings and subsequently expanded.

The experience with treating more than 34 000 tobacco users, primarily chewers (65%) showed that behavioural forms of intervention, which included health education, simple tips for quitting and counselling to improve motivation and prevent relapse produced good results. Of those who maintained follow-up, nearly one third had been abstinent at the six-week follow-up and nearly half had reduced tobacco consumption by 50% or more. Less than a third of treatment seekers had received pharmacotherapy and those who received combined pharmacotherapy and counselling did significantly better than those receiving only counselling.[73]

Key learning points:

- Medication combined with brief counselling has been found to be effective across a broad range of populations.
- Doctors, dentists and other health professionals should encourage every patient using tobacco to make a quit attempt through counselling and offer medication to all those who find it difficult to stop.
- Tobacco dependence treatments are both clinically effective and highly cost-effective.
- Barriers to the use of pharmacotherapy include a lack of availability, inadequate training to clinicians on how to prescribe and monitor the same, and the cost of the medications.
- Subsidizing treatments/providing coverage for these treatments has been found to increase quit rates. Insurance plans should include counselling and medication that has been identified as effective.
- Choice of pharmacotherapy should take into account potential adverse effects as well as benefits. Few studies have been published directly comparing the effectiveness of available drug therapies.

Chapter 9

Relapse counselling

Learning objectives:

At the end of this chapter you should know how to:

- Educate the patient about the possibility of relapse.
- Counsel the person who has quit tobacco about common cues and triggers for relapse.
- Assess the likelihood of relapse in the individual person, educate about relapse, and how to anticipate, prevent and handle relapses when they occur.

> "To cease smoking is the easiest thing I ever did; I ought to know because I've done it a thousand times": Mark Twain

Step 1:

Understanding that relapses are possible and do not imply a personal failure

It is generally said that a tobacco user needs 4–5 attempts before finally quitting. In fact, some studies even suggest that it takes 12 attempts to finally quit. Relapse is thus a common feature of tobacco addiction. This is no reason to be discouraged. All chronic diseases like hypertension, asthma and diabetes are also relapsing and recurrent illnesses. The key lies in understanding and preventing factors that may result in a potential relapse, knowing

how to deal with and what to do during a relapse, and trying to quit again following a relapse.

Relapse prevention counselling essentially focuses on:

Identifying and handling situations where the tobacco user may be tempted to reuse.

Counselling can help to achieve these objectives. The clinician must know about the rationale and objectives of relapse prevention. If the clinician has other staff in the health team trained to counsel for relapse prevention and is not personally inclined to provide the counselling, it would still be important to know how it is done so that the clinician's interventions can complement the relapse counselling.

If the clinician is inclined to carry out such counselling or does not have other staff to provide such an intervention, he/she can quite easily pick up the knowledge and skills to undertake such counselling. For a more detailed instruction on motivational and relapse counselling we recommend that you refer the *Manual of Tobacco Cessation for Nursing and Other Professionals*, which is a companion to this manual.

What you might say:

It is important for you to know that most people face the possibility of starting tobacco use again after quitting and returning to using tobacco. This is called relapse. It is also important for you to know how you can prevent yourself from going back to using tobacco. So you must understand the situations that make you want to use tobacco and prepare yourself to handle such situations differently to ensure that you don't go back to tobacco consumption.

Step 2:

Knowing about the situations that can lead to using tobacco again and handling them differently

Danger situations

These can be external situations (seeing others smoking or chewing tobacco; passing by a shop selling tobacco; a social function where many persons are using tobacco; contact with tobacco accessories such as matchboxes or lighters, seeing an empty pouch or sachet on the road) or internal situations (feeling lonely, sad, anxious, irritated, dull or angry) which bring on the urge or craving.

Dealing with danger situations

Try and avoid situations that can bring on the urge or put pressure on you to use tobacco. Avoid being with others who smoke or chew. Do not try to test

whether you get craving or not. It is not worth doing that. Avoiding friends does not mean you are ending a friendship. If your friends know you are trying hard not to use tobacco again, they will respect you for your effort. A friend who tries to tempt you in spite of knowing that you are very serious about giving up is best avoided.

When anyone offers you a smoke or a packet say "No!" firmly. If they offer you again, say "No!" again. If you feel you will not be able to resist, make your excuse and leave before the urge to use becomes too strong. If you see a shop selling your favourite smoking/smokeless brand, cross over to the other side of the road. Avoid buying your other requirements at this shop if possible.

Avoid using alcohol and excess tea or coffee. Avoid aerated drinks.

Step 3:

Dealing with urges or cravings

The urge or craving is never there all the time. It comes like a sea wave, suddenly increases for a few minutes and then reduces again. Remember that the craving will go away.

When the craving comes, and distract yourself by thinking about something else, drinking some water or eating something healthy, talking to someone, or washing your face with cold water. It will definitely go away. If this does not work, learn to counter the urge with another thought/image.*

***What the clinician can say:**

When the urge comes, you should counter it with another thought/visual image:

Thought:

I must quit if I want to prevent a heart attack.

My child will be so happy if I stay away from tobacco.

Visual image:

For some persons, imagining a beautiful and peaceful scene will calm them down and reduce craving.

For others, remembering a picture of a horrible disfiguration from tobacco use, or a picture of someone collapsing from a heart attack can serve as reminders.

Religious or spiritual methods

Chanting, counting beads, praying, yoga or other forms of meditation can be helpful for many to overcome unpleasant withdrawal states.

Decide what may work for you

Step 4:

Learn how to handle tensions, irritation and low moods

Many of these emotions are also temporary. They are often related to situations. Know what situations can bring on these reactions and learn to deal with them differently. For example, if a situation has made you angry or irritated, try and walk away from that situation or count 10 to one backward in your mind. The anger will settle down.

Step 5:

Develop a healthy lifestyle and a healthy outlook

Developing a healthy routine involves having a healthy and balanced diet, getting adequate exercise, maintaining healthy family rituals (eating together, going out together), ways of relaxing or calming yourself (listening to music, going to the cinema, meditation), going on a pilgrimage, learning to discuss your problems with someone who will be supportive, and similar processes.

Step 6:

Increasing support to prevent relapse

Family members can be very important sources of support to the person trying to give up tobacco in the long term. Their understanding of the nature of tobacco addiction, and their support for the person when he/she is making the effort and also when the person experiences a relapse is very important for him/her to remain tobacco-free. Friends and colleagues from the workplace can also be sources of support. One of the best sources of support is another friend or family member who has quit.

> Family members need to understand that support includes appreciating the abstinent tobacco user openly for the efforts he/she is making.
>
> Nagging and complaining is never helpful and has been shown to be associated with early relapse.

Step 7:

Handling a lapse or a relapse

A **lapse** means using tobacco again after a period of quitting.

A **relapse** means going back to the earlier patterns of using tobacco.

Tobacco quitters must remember that every lapse need not end in a relapse. It is important that the person and the family are told not to be disheartened if there is a lapse but quickly regain control, either by using the methods described earlier or by getting help from a support person or health professional.

Experience of TCCs in India

Retaining patients in follow-up improves quit rates over time. Thus with follow-up at 3, 6 and 9 months a successively greater proportion of tobacco users moved from the "using tobacco" category to "abstinence" or "significant reduction in use by 50% or more". [73]

Relapses are extremely distressing both for the ex-user and family members. It can cause a lot of guilt, shame and sense of hopelessness for the ex-user and trigger blame from the family members.

Anyone, including a highly motivated person, can experience a relapse. If it happens, don't panic. Many people feel ashamed to come and tell us that they have relapsed. There is no need to feel bad. It is important to seek help as soon as possible. We will help you to deal with the relapse and learn effective methods of coping.

Encourage tobacco users who have relapsed either to keep on trying old methods that have worked in the past, or switch to new methods which might be effective.

Crisis support

Relapses often occur when an ex-user is faced with a crisis, and when all the methods personally known do not seem to work. Such crises include problems in the family (psychological, social or legal problems), sudden attacks of panic, or the development or exacerbation of a physical illness. Part of the relapse treatment advice is to contact the treatment provider during a crisis, and particularly before the crisis leads to using tobacco again. Telephonic counselling can be very effective in providing immediate crisis support.

Some other barriers to effective tobacco cessation

Weight gain: Some smokers report an average weight gain of 5–6 kg after quitting tobacco, usually in the first year of cessation. This has been attributed to lower average weight of smokers when they were actively smoking (3–4 kgs lower than non-smokers), increased food intake due to the better perceived aroma and taste of food after quitting, as well as changes in the metabolic rate. The advantages of cessation far outweigh the disadvantage of weight gain and this must be clearly communicated to the person. Practical ways of

preventing weight gain are having a healthy diet and adequate exercise and avoiding alcohol use.

Depression: Depression and tobacco use, particularly smoking, are closely related. Smokers report more episodes of depression, suicidal ideas and instances of suicide than non-smokers. Among smokers with a history of depression, there is a greater likelihood of having another episode of depression after quitting tobacco. Thus it is useful to ask for a history of depression in all tobacco users and help them to handle such depression effectively.

Persisting pain and discomfort: For some people tobacco use helps to mask chronic pain. This is specially noticed in women chewing tobacco. In a UK study of resident Bangladeshi women chewing pan who were provided brief advice, encouragement and NRT, oral pain was reported to be a barrier to the successful cessation of chewing tobacco intake by 62% of the women surveyed.[83]

Tobacco chewing has been reported to cause gum recession and loss of attachment which can, in turn, lead to dentine sensitivity. Nicotine has been reported to have an analgesic effect. Chewing *paan* with tobacco may mask the pain symptomatic of dental disease and their sequelae. Such persons will not only need adequate pharmacotherapy for cessation but also evaluation and relief of the underlying pain.

Telephonic follow-up

In countries of the South-East Asia Region many people drop out of treatment for tobacco addiction, as indeed they do for many medical or psychological illnesses. Lack of time, lack of resources, doing well or doing badly may all be causes for not coming for follow-up. However, follow-up contact is very important to improve treatment outcome.

This can be achieved by telephonic follow-up, wherein a member of the health team (nurse, counsellor, or any other staff) can call the person, enquire about his/her status, provide support and remind about follow-up. Mobile technology has made telephonic follow-up a reality in many developing countries. A comprehensive review of telephone counselling services throughout the world concluded that multiple sessions were more effective than single sessions.

One barrier with telephonic follow-up is that most people nowadays provide mobile numbers and it is our experience that they frequently change their numbers and are thus not available for follow-up contact.

Quit lines

Many countries have developed quit lines for persons with tobacco addiction.

Quit lines are dedicated telephone information and counselling services for people interested in tobacco cessation. Quit lines are inexpensive to operate, easily accessible, confidential and can be available 24x7. Many tobacco users may be unable or unwilling to call during working hours.

Quit lines also help to introduce users to other tobacco dependence treatment such as counselling or nicotine replacement therapy. Additionally quit lines can reach individuals in remote places and can be tailored to specific population groups. For example, in the UK the Asian Quit Line reports receiving 20 000 calls a year and reaching 10% of all tobacco users of South-East Asian origin in that country. [84]

Traditionally quit lines only answer incoming calls; yet they can show significant results. The best and most effective quit lines assign staff members to call people back and follow up on their progress, in effect providing counselling services. Some quit lines have expanded on the Internet, providing continuous availability of free support materials and links to other services.

Quitline 1600 Thailand

The ASH Quit Line is a telephone counselling service for smokers and operates with the support of the Telephone Authority of Thailand. The quit line provides information, advice and positive motivation to smokers who want to quit.

Quit lines should be accessible to a country's entire population through toll-free numbers and waivers of access charges for mobile phone users. Quit lines need to have well publicized numbers which people can call. Counsellors answering the quit lines need to be trained in providing education, brief intervention and relapse counselling.

There are the quit line programmes of callbacks for tobacco users during their quit period, group programmes that have multiple sessions, and individual counselling involving multiple sessions with a doctor, nurse or psychologist. The effectiveness of all levels of intervention is improved by concurrent use of proven quitting medications.

Group programmes

Group programmes have been shown to be effective in diverse settings, particularly rural settings, where the participants do not have to travel long distances to come together. The advantages of group programmes are that they are low-cost and often help each person learn from the other.

There are different models of group intervention. One model involves a trained counsellor imparting education to a group of people and providing counselling and support. The other is more on the lines of a self-help group, where the counsellor plays a moderating role and the group members participate more actively and themselves generate methods of how to prevent relapse, how to solve problems, deal with withdrawals, and so on. Group therapy has been shown to double quit rates compared to no intervention or providing only self-help materials.

Referral to specialized tobacco centres and other facilities

Some of the countries in the Region have specialized tobacco centres which have specially trained staff to deliver both counselling and pharmacotherapy. However, these are few in number and cannot by themselves cater to the large numbers of tobacco users. Moreover, a significant number of tobacco users can be helped by the general health-care clinician. Referral to a specialized tobacco centre can be considered when having to help a tobacco user who:

- Has had multiple relapses in the past.
- Relapses despite treatment, and is not helped by the services available in the centre.
- Needs more intensive counseling.
- Requests referral to a specialized treatment centre.

Such referral may also be considered until the range of pharmacotherapy and other treatment methods become readily available in general health-care settings. However, many specialized tobacco centres in some countries have been formally training clinicians to provide tobacco cessation, and clinicians, pharmaceutical companies and governments should make tobacco cessation products more freely available for use.

Tobacco cessation in the South-East Asia Region

Bangladesh, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka and Thailand have established tobacco cessation clinics in some of their health-care facilities and hospitals. In addition, Bangladesh, India, Indonesia, Maldives, Myanmar and Thailand have some cessation services at the community level.

In Sri Lanka and Thailand the health insurance or the national health service covers the cost of this support entirely or partially.

Nicotine replacement therapy (NRT) is available over-the-counter only in India and Thailand.

Pharmacotherapy is available with a physician's prescription in Myanmar, Sri Lanka and Thailand (bupropion) and India (bupropion and varenicline),[86] largely in the private sector.

The specialized centres offer more intensive counselling. One of the effective and more intensive approaches is cognitive-behavioural therapy (CBT). In simple terms, CBT helps in changing addictive behaviours by improving the control of the psychological processes involved in developing and maintaining the behaviour (tobacco use). It attempts to identify the benefits for the user (reinforcers), situations which have been associated with use (conditioning factors), and cue for use including negative mood states, and employs the use of suggestions, imagery and handling of feelings.

Some specific steps of CBT include educating about the methods of cessation including pharmacological products, making a situational analysis of tobacco use to identify triggers (by keeping a behavioural diary), problem-solving approaches to develop different ways of responding and eliminating tobacco use, using cognitive strategies to combat mood changes (relaxation, positive self-thoughts), and improving social support (helping family members, friends or colleagues to support cessation).

Setting up a tobacco cessation clinic [85]

A tobacco cessation clinic is a facility offering specialized tobacco cessation services. Ideally, it should have staff trained in both psychosocial and pharmacological interventions. The staff should have good counselling skills and a sympathetic attitude. Ideally, the clinic should have multidisciplinary staff. The clinic should be located in an accessible area with proper signage so that people can locate it easily.

A waiting area, where material on tobacco cessation and audiovisual educational material are available, can alert persons about the importance of quitting tobacco. There should be adequate space to provide counselling in an undisturbed and confidential manner. Space and facilities must be provided to carry out a detailed physical (including oral) examination.

A tobacco cessation clinic in Gujarat, India.

A carbonmonoxide monitor can be useful to provide feedback to smokers. Some cessation clinics are also equipped with a spirometer (to assess lung function) and urine and saliva cotinine estimation for follow-up monitoring. Arrangements must be made to document intake details of the patients seeking help, assessment details, treatment plans, clinical reports, progress notes and follow-up information.

It is very important to publicize tobacco cessation services through the media, health services and professional bodies so that people are educated about this facility and can seek help easily.

Networking to provide optimal care

Tobacco users come in a broad range: from those with no manifest health problem but a difficulty in giving up tobacco themselves because of addiction to those who have oral and/or medical diseases caused by tobacco or have independent medical disorders. The clinician must be able to recognize these problems and network with appropriate specialists to provide optimal care.

The addicted health professional

It is heartening to note that more and more health professionals are now actively seeking treatment for their tobacco addiction. Everyone needs to understand that tobacco addiction can potentially occur to anyone exposed to tobacco. Health professionals are not immune to cultural practices, peer pressure and myths that surround tobacco use. The same vulnerabilities also produce addiction in the health professional. It is thus important for health professionals addicted to tobacco use to recognize the power of addiction.

If their addiction is mild, using self-help tips may be useful. But for moderate and severe addiction we recommend getting professional help from a trained colleague or from a tobacco cessation centre. A health professional who has successfully quit tobacco can be an exemplary role model to his patients to give up tobacco use.

Addiction in persons with psychiatric problems

Many psychiatric patients with psychotic illness, depression, anxiety disorders and adjustment disorders tend to use tobacco to deal with psychological distress. It is also increasingly recognized that children with behavioural problems, impulsive behaviour, attention difficulties and emotional problems are also at greater risk for tobacco and other drug use.

Tobacco cessation services in antenatal care

Exposure to tobacco among pregnant women in multiple developing countries was studied by the National Institutes of Health, USA. In the Indian survey site, one third of all pregnant women in the state of Orissa used tobacco, and 20% of women in the state of Karnataka were exposed to tobacco smoke.[87] An analysis of the National Household Survey in India found no difference in tobacco use between pregnant and non-pregnant women, clearly demonstrating the complete lack of attention to tobacco use in pregnancy in reproductive health-care programmes.[88] Current international literature

suggests that behavioural interventions have a relatively better outcome than pharmacotherapy in this group.[89]

Key learning points:

- Lapses and relapses are common when attempting to quit smoking, and the failed quit attempt should not evoke guilt in the tobacco user or blame from family members and the health professional.
- Every lapse need not end in a relapse.
- There are various strategies to anticipate, prevent and deal effectively with relapse.

Chapter 10

Beyond the clinic

Learning objectives:

At the end of this chapter, you should:

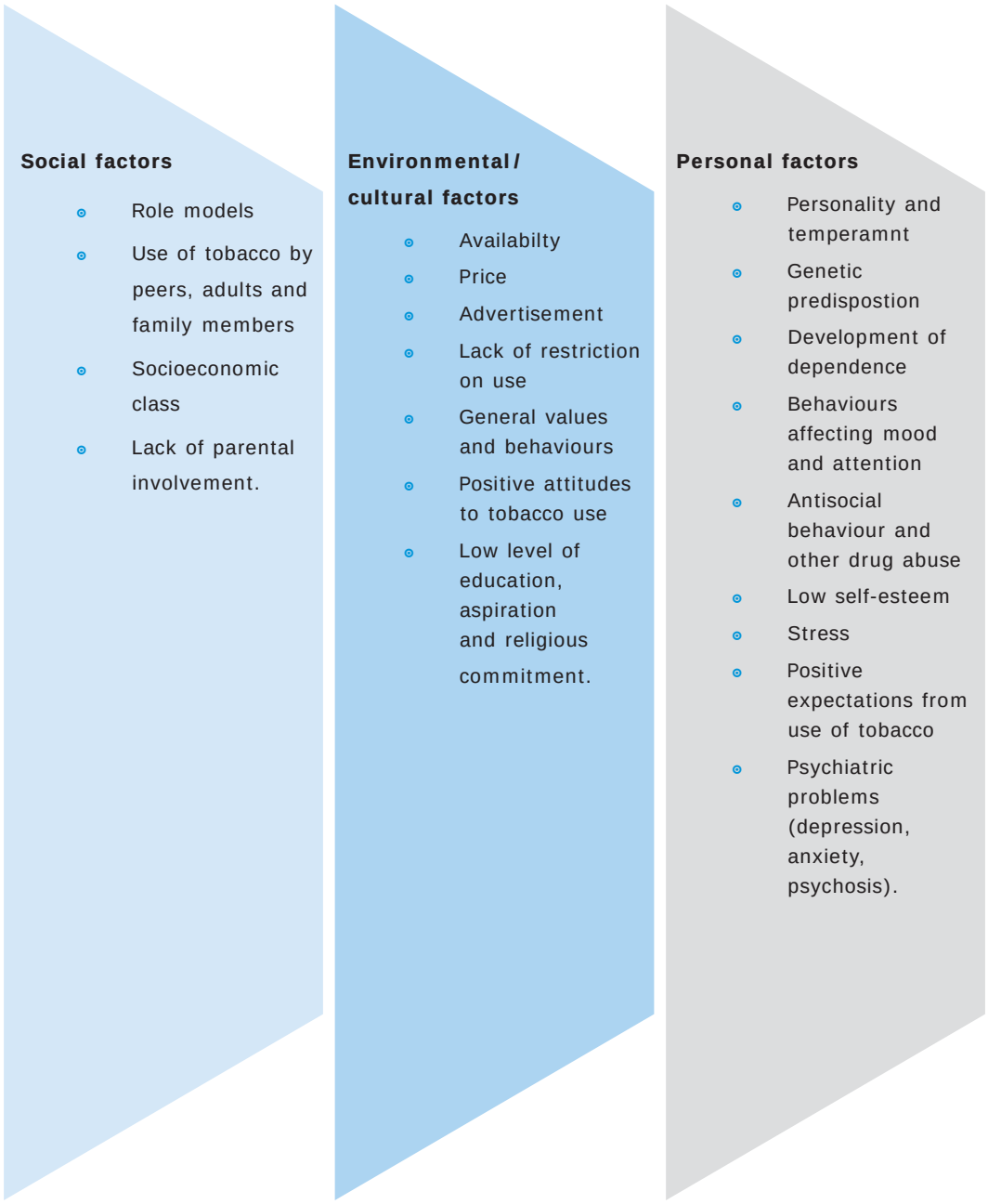
- Understand that tobacco use initiation and maintenance involves the complex interplay of social, cultural, environmental and personal factors.
- Recognize that effective prevention will need to address these issues comprehensively.
- Be aware of your wider role in the context of tobacco control.
- Be inspired to play a role in advocacy against tobacco use.

Tobacco use initiation and maintenance

Any comprehensive preventive approach to tobacco will need to consider the interplay of various factors in both tobacco use initiation and maintenance. Many tobacco use practices represent centuries of ingrained cultural behaviour that are often resistant to change.

We need to change the cultural perceptions on tobacco, which is seen as "normalized" behaviour in many countries. This can be done only through continuous and consistent education, awareness and change in people's attitudes.

Many of the environmental factors that facilitate tobacco use can also be effectively addressed by measures broadly referred to as “tobacco control”.



Let’s educate ourselves about tobacco control

Having become familiar with the why and how to offer help to quit tobacco use, and understanding the complex interaction between various factors and the need to denormalize tobacco use in the community, let us now look at the other components of MPOWER.

Self-answered questionnaire

Try and answer this questionnaire to assess your own level of knowledge about tobacco control.

(1) Is my country a signatory to the Framework Convention on Tobacco Control? Yes/No/Don't know

(2) When did my country become party to the Framework Convention _____

(3) Has my country enacted any law for tobacco control? Yes/No/Don't know

(4) When was this law enacted? _____

(5) What are the laws in my country that promote smoke-free environments? _____

(6) What are the measures in place in my country to ban advertising, promotion and sponsorship by tobacco companies? _____

(7) What have been the efforts made to increase tobacco taxation in my country in the last 10 years? _____

(8) What facilities exist for tobacco cessation in my country? _____

What is the WHO Framework Convention on Tobacco Control (WHO FCTC) [90]

The WHO Framework Convention, which entered into force on 27 February 2005, is a multilateral treaty with more than 150 parties or signatories. It is the first step in the global fight against the tobacco epidemic. This treaty presents a blueprint for countries to reduce both the supply of and the demand for tobacco. The Framework Convention establishes that international law has a vital role to play in preventing disease and promoting health.

Understanding tobacco cessation in the context of tobacco control

Tobacco cessation efforts are likely to be more successful when carried out in the wider context of tobacco control, which attempts to discourage all forms of tobacco use. Clinicians must be aware of the state of tobacco control in their respective countries as well as be ambassadors for tobacco control by widely disseminating information on the

> Cessation services will not decrease tobacco use prevalence unless combined with tax and price rises, bans on advertising, promotion and sponsorship, anti-tobacco advertising, and the establishment of smoke-free public places.

harms from tobacco use, the benefits of quitting and the help available for quitting in different settings.

Workplace interventions

Smoke-free policies in workplaces in several industrialized nations have reduced total tobacco consumption among workers by nearly a third.

Workplaces are also an effective place to deliver awareness about tobacco-related harm and facilities for tobacco cessation. In-house counselling or treatment is likely to be more effective here as regular follow-up is relatively easier.[52]

Some common approaches to tobacco control that work in different settings:

Ban on advertising tobacco products and tobacco sponsorship.

Ban on tobacco in workplaces.

Improving access to tobacco cessation.

Mass media campaigns.

Price mechanisms – increasing the cost of and taxes on tobacco products.

Declaration of health professionals

In 2004, participants at the WHO Informal Meeting on Health Professionals and Tobacco Control in Geneva adopted and signed the following **Declaration**:[91]

In order to contribute actively to the reduction of tobacco consumption and include tobacco control in the public health agenda at the national, regional and global levels, it is hereby agreed that health professional organizations will:

Thailand alliance for tobacco control

A Thai Health Professional Alliance Against Tobacco (THPAAT) has been formed with 17 allies from medical, nursing, traditional medicine and other health professional organizations in Thailand.

(1) Encourage and support their members to be role models by not using tobacco and by promoting a tobacco-free culture.

(2) Assess and address the tobacco consumption patterns and tobacco control attitudes of their members through surveys and the introduction of appropriate policies.

(3) Make their own organizations' premises and events tobacco-free and encourage their members to do the same.

(4) Include tobacco control in the agenda of all relevant health-related congresses and conferences.

(5) Advise their members to routinely ask patients and clients about tobacco consumption and exposure to tobacco smoke, using evidence-

based approaches and best practices, give advice on how to quit smoking and ensure appropriate follow-up of their cessation goals.

(6) Influence health institutions and educational centres to include tobacco control in their health professionals' curricula through continued education and other training programmes.

(7) Actively participate in World No-Tobacco Day events on 31 May.

Training of health professionals in tobacco cessation – A critical need in the Region

Participants at the first Training of Trainers Workshop for Tobacco Cessation in the SEA Region in Bangkok, Thailand, in November 2009.

(8) Refrain from accepting any kind of tobacco industry support – financial or otherwise – and from investing in the tobacco industry, and encourage their members to do the same.

(9) Ensure that their organization has a stated policy on any commercial or other kind of relationship with partners who interact with or have interests in the tobacco industry through a declaration of interest.

(10) Prohibit the sale or promotion of tobacco products on their premises, and encourage their members to do the same.

(11) Actively support governments in the process leading to the signature, ratification and implementation of the WHO Framework Convention on Tobacco Control.

(12) Dedicate financial and/or other resources to tobacco control, including dedicating resources to the implementation of this code of practice.

A model for preventive action[92]

- Learn about the factors that promote tobacco.
- Influence the community to change.
- Help the community to change.
- Join the community in celebrating success.
- Create community vigilance so that efforts are not undermined.
- Work out ways to achieve results faster.
- Ensure sustained progress.

(13) Participate in the tobacco-control activities of health professional networks.

(14) Support campaigns of tobacco-free public places.

Leadership of doctors and dentists in community tobacco cessation

Tobacco cessation is an essential component of tobacco control. However, the small numbers of doctors and dentists in the Region can deliver only limited clinic-based tobacco cessation. A wide range of health professionals need to be involved in providing tobacco cessation in primary care and community care settings. Trained doctors and dentists need to take the responsibility to train other health professionals in providing tobacco cessation.

Doctors and dentists are highly respected, trusted and influential community leaders. As community and opinion leaders, they need to be actively involved in delivering anti-tobacco and tobacco cessation awareness messages regularly to the public.

Summary

The clinician can thus play a vital role in both individual tobacco cessation and the larger agenda of tobacco control:

- as a medical care provider.
- as a resource to disseminate factual information on the harm from tobacco use and highlight the benefits of cessation.
- as a spokesperson for tobacco control through public lectures, programmes in educational institutions, schools and colleges, workplaces and voluntary organizations.
- as an advocate for policy change.
- as a role model for tobacco control.

Key learning points:

- Initiation and maintenance of tobacco use is influenced by a variety of social, cultural, environmental and personal factors.
- It is very important to denormalize tobacco use in the community.
- The clinician must be aware of the major elements of tobacco control and play a role in advocacy for tobacco control measures.
- Tobacco use prevention is an important component of workplace health and safety.
- The clinician can also be involved in tobacco prevention through educational and community awareness programmes.

Chapter 11

Frequently asked questions (FAQs)

Q: What level of smoking is safe?

A: Any smoking increases the risk of death. Studies have shown that the relationship between smoking and mortality is linear, starting at one cigarette a day. This means that a person who smokes two cigarettes a day is at higher risk than a person who smokes only one cigarette a day, and so on. Whether it is cigarettes, *bidis or hookahs,* there is evidence of harm with any form of smoking.

Q. What about chewing tobacco?

A. Several studies have shown that the risks for smokeless tobacco users are not very different from those for smokers. The type of diseases involved are different, e.g. chewing increases the risks of mouth cancers and other diseases while lung cancer is commoner among smokers. However, health effects overall are equally bad for any type of tobacco use.

All tobacco, including smokeless tobacco, contains nicotine, which is the substance that causes addiction. In fact, the amount of nicotine absorbed from smokeless tobacco is 3–4 times that absorbed from a cigarette. Though nicotine is absorbed more slowly from smokeless tobacco than from cigarettes, its level in the blood remains elevated for a longer period of time.

Q: What about pipes and cigars? Are they less or more harmful than cigarettes?

Pipe and cigar smokers do not inhale much of the smoke into their lungs; instead the nicotine is absorbed through the oral mucous membranes. Therefore, pipe and cigar smokers have a greater risk for oral, laryngeal and oesophageal cancer but a lesser degree of risk for lung cancer than cigarette smokers. They have a higher COPD risk than non-smokers but less than that of cigarette smokers. Ultimately, the development of COPD is related to depth and frequency of inhalation of smoke.

Q: Is tobacco cessation really so important?

A. There are currently two major causes of death that are growing worldwide: HIV and tobacco. The number of preventable deaths due to tobacco exceeds by far the number of deaths due to HIV/AIDS. Tobacco has its impact on a variety of noncommunicable diseases and also on one major communicable disease: tuberculosis. Quitting tobacco is the single most important intervention than can improve the duration and quality of life of every tobacco user.

Q: What about using smokeless tobacco to quit cigarettes?

A. All tobacco use, whether smoking or smokeless tobacco, is addictive and causes disease. There are several methods such as nicotine replacement therapy and pharmacotherapy, as well as counseling (individual and group), that are far more effective and safe than using smokeless tobacco in an attempt to quit smoking.

Q: What harmful chemicals are found in smokeless tobacco?

A. Several! Chewing tobacco and snuff contain 28 carcinogens, most importantly, tobacco-specific nitrosamines, which are formed during the tobacco production process. Other carcinogens in smokeless tobacco include *N*-nitrosamino acids, several aldehydes, hydrazine, arsenic, nickel, cadmium, polycyclic aromatic hydrocarbons like benzo(a)pyrene, and polonium-210, a radioactive substance. In addition, there are several non-carcinogenic compounds that have harmful health effects other than cancer.

Q: If I quit smoking now, how soon can I expect to benefit?

Within 20 minutes!

It has been proven that:

- 20 minutes after smoking the last cigarette the heart rate drops towards normal.

- The carbon monoxide level in your blood returns to normal within 12 hours.
- Lung function begins to improve within two weeks to three months but never returns completely to normal in a person with COPD.
- Risk of heart attack begins to drop within two weeks to three months.
- Cough and breathlessness decrease within one to nine months.
- The excess risk of coronary artery disease reduces to is half that of a smoker's within one year.
- Quitting smoking reduces by half the risk of oral and oesophageal cancers within five years.
- The risk of developing lung cancer is halved in about 10 years.

Q: Apart from the other chemicals, does carbon monoxide also contribute to the health risks?

Yes. Carbon monoxide (CO) is harmful is because it binds firmly to the haemoglobin in your blood, preventing it from carrying the all-important oxygen. All your organs – especially the brain and heart – need oxygen to function normally. When you smoke, CO prevents these organs from getting all the oxygen they need. All your organ systems are strained, and work at less than their usual efficiency.

Q: Does nicotine cause cancer?

No, nicotine does not cause cancer. However, it is the chemical that causes tobacco addiction, and thereby causes continued exposure to the other cancer-causing chemicals as well as the other harmful substances in tobacco smoke or smokeless tobacco. Hence, nicotine replacement therapy whether in the form of patches, gums or sprays, is safe as it comes without the other harmful chemicals. However, remember that nicotine by itself in large quantities is a poison and so should be used in prescribed amounts like any other medication.

Q: Is nicotine as addictive as cocaine or other "hard drugs"?

Yes! Nicotine is the chemical in tobacco that is addictive, and is as addictive as the harder drugs. A cigarette or *bidi* is one of the most effective drug delivery devices – it delivers nicotine to the brain very rapidly and in large quantities. Smokeless tobacco does so a little more slowly but perhaps more effectively in terms of the quantity of nicotine that is delivered – more slowly but over a longer time. Nicotine increases the release of a brain chemical

called dopamine, which makes the smoker feel good. Getting that dopamine boost is part of the addiction process. When the level of nicotine in the blood decreases below a certain level the person begins to experience withdrawal symptoms, which are relieved when the person uses tobacco again. This cycle of withdrawal symptoms and relief/reward on reusing is typical of all addictive drugs.

Q: Is it true that smoking may affect fertility in women but not in men?

No. Smoking not only increases the risk of infertility and miscarriage in women but also increases the risk of impotence and infertility in men. In addition, it causes various problems in the fetus, and prenatal parental smoking is known to have health consequences for the child in later life.

Q: Are low-tar, low-nicotine or "light" cigarettes safe? Do filters take away the risk of cigarettes?

A. No. While advertising makes it appear that low-tar, low-nicotine or "light" cigarettes are safer. This claim is untrue. Filters do not significantly reduce the exposure to the harmful substances in tobacco. Their nicotine addiction dictates that the smoker must get to his/her nicotine level.

Consequently, the brain of a nicotine addict controls his/her smoking behaviour to compensate for the diluted smoke. Smokers will take more frequent puffs, inhale more deeply or simply smoke more cigarettes. The result may actually be that they inhale more of all the dangerous chemicals, increasing and not reducing their risk of lung cancer, COPD and other diseases.

Q. What is tar?

"Tar" refers to the mixture of toxic chemicals found in cigarette smoke. It is the brownish, sticky material that is left in the end of a cigarette filter after a smoke.

Cigarettes are classified as high, medium or low-tar depending on the tar content.

- High-tar cigarettes contain at least 22 mg of tar.
- Low-tar cigarettes contain 7 mg or less of tar.
- Medium-tar cigarettes have tar in between this range.

As a cigarette is smoked the tar content of the smoke increases; hence the last few puffs may have double the tar content of the first few puffs.

The content of many local brands of *bidis* and cigarettes are not known or specified, and thus the smoker will not even know which toxins and how much of them is being inhaled.

Q: Smoking the *hookah* is an age-old practice. *Hookah* smoking is now becoming popular again with the impression that it is safer since water filters out the dangerous chemicals. Is this true?

This is again a myth. *Hookah* smokers actually inhale more tobacco smoke than cigarette smokers because of the massive volumes they inhale. The *hookah* or *narghile* is a water-pipe that has been used for centuries in Asia.

Unfortunately, contrary to popular belief, the water in the *hookah* does not filter out all the harmful substances in tobacco smoke. According to a WHO advisory on the subject, a typical one-hour *hookah* smoking session exposes the user to more than 100 times the volume of smoke inhaled from a single cigarette. The inhaled tobacco smoke still contains high levels of toxic compounds as well as significant levels of nicotine. This is obvious because if there were no nicotine the *hookah* would not be addictive!

Q: My family has been using tobacco for generations. Surely someone would have known if it was dangerous and stopped?

Unfortunately, tobacco use has culturally become a part of our society. Therefore, people have not realized and attributed many of their problems to tobacco. This is unfortunate and has been responsible for the continued use. We now realise that all forms of tobacco are unsafe. Perhaps one member in the family giving up tobacco will inspire others to quit!

Q: Many persons hesitate to quit smoking as they experienced weight gain during previous quit attempts. Is this inevitable? if so, how does one overcome this?

Nicotine suppresses the appetite and tobacco decreases the person's ability to smell and taste. Nicotine also increases the metabolic rate. When one stops using tobacco the appetite and metabolism return to normal and food smells and tastes better. A quitter may end up eating more and burning less calories. Also, some quitters tend to snack more as a substitute for smoking, which further increases the tendency to gain weight.

When quitting smoking, it is wise to be aware of this tendency to gain weight and pro-actively take action to prevent it from occurring. This can be done by:

(1) Dieting consciously, and choosing lower-calorie foods and snacks.

(2) Exercising regularly.

(3) Drinking more water.

The health benefits of stopping tobacco far outweigh the health consequences of gaining weight.

Q: My cough has got worse after I quit smoking. Why?

It is true that some people notice an increase in their cough and sputum after they quit smoking. There are many reasons for this.

(1) Cough in a smoker is often dismissed as just that – a "smoker's cough" which is seen as a part of the normal response to smoking. But cough and sputum occurring after quitting is seen as abnormal, and is noticed and complained about.

(2) Smoking affects the ciliary function in the respiratory tract paralysing the "mucociliary escalator". There is also the instance of mucous gland hyperplasia and hypertrophy, which lasts for a long time even after quitting leading to high levels of mucus production. Mucus tends to build up within the airways, but is not cleared out. When ciliary function recovers slowly over the weeks following quitting, more mucus tends to be cleared out of the respiratory tract.

The cough may last for several weeks or months and, if COPD has developed, may even be a permanent feature. It may be wise for the treating physician to anticipate this, offer appropriate advice to the quitter, and prescribe a broncho-dilator and/or a mucolytic to relieve this symptom.

Q: My grandfather/uncle/Sir Winston Churchill smoked all his life, but never developed a problem. Why did I have to get this problem? Is it tobacco or something else that has affected me?

The health consequences of tobacco use are partly due to the tobacco and partly due to genetic and other "host" factors. For instance, only about half of all smokers are susceptible to developing COPD. This is also true of other lifestyle diseases, including alcoholic liver disease or diabetes. Overall, however, most tobacco users are susceptible to one or other tobacco-related disease, and most smokers do have a combination of shorter life expectancy and poorer quality of life. Non-smokers tend to live longer and more healthy, productive lives.

Q: I have tried to give up smoking several times, but some stress or the other makes me start again when I have almost succeeded in quitting. What do I do?

Clearly, you have two major problems. A tobacco addiction as well as difficulty coping with stress. Tobacco helps only temporarily, and your stress returns. It is better that you learn safer and longer-lasting methods of dealing with stress, including relaxation, problem solving and improving your support systems.

Q: Do my several unsuccessful attempts to quit indicate that I am a weak person and lack will power?

No! On the other hand, it indicates how powerful addiction is. Withdrawal is the result of biological changes that occur in your brain and other parts of the body. Help and professional support will definitely assist; so does support from your family and friends. You also have a major responsibility in making a determined effort to quit and being prepared to deal with craving and the pressure to use so that you will be more successful. You must also be willing to make changes in your lifestyle.

Q: My creative powers are at their best after I smoke. How do I retain my creativity if I quit smoking?

This is what is called a state-dependent phenomenon. Your brain has got so accustomed to smoking that it does not seem to work in its absence. Just think, did your brain not work before you started using tobacco? For a while you will continue to have this feeling when you quit; and not just feel less creative but also dull and disinterested. Learn to distract yourself, to break up large tasks into smaller ones, and look to other avenues for inspiration. Creativity is an innate ability which you can't just lose permanently.

Q: I have quit. I will never have a craving!

When you pass by a restaurant or hotel and smell the aroma of cooking, does it not trigger your appetite? When you get up in the morning and smell coffee or tea being made, does it not bring on an urge? Craving is caused by stimulation of the reward centre in your brain and can, therefore, occur suddenly even if you don't anticipate it. I hope you do not get craving, but it is better to be prepared by knowing what factors bring on craving and how to handle them.

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Helping People Quit Tobacco: A Manual for Doctors and Dentists is a comprehensive dossier on tobacco cessation with the help of intervention from doctors and dentists. The document begins with the premise that the core responsibility of any doctor or dentist includes reducing the use of tobacco among his patients and in the community, and encouraging tobacco cessation. The importance of the TEACH tool to meet the MPOWER goals of the World Health Organization are also enunciated.

The *Manual* cites relevant statistics from the apex global tobacco surveys to highlight the extent and enormity of the tobacco epidemic in the South-East Asia Region, and also outlines the nature of harm caused by tobacco use, its inherent links with several debilitating diseases and the manifold risks of using smoking and smokeless tobacco products.

The *Manual* encourages doctors and dentists to identify at the earliest possible stage tobacco use in a patient, and provides step-by-step guidelines on intervention and assisted cessation through counselling, motivational tools and medication or pharmacotherapy. A concluding section provides details on 'lapse' and 'relapse' and how to overcome the same.

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