ash fact sheet
action on smoking and health

Stopping smoking
The benefits and aids to quitting

Introduction
This fact sheet reviews the health benefits of stopping smoking and aids to quitting. Stopping smoking is always beneficial to heath and it is never too late. Every cigarette smoked damages the lungs in a way that may not show up until later in life. After the age of 35-40 years, for every year of continued smoking a person loses 3 months of life expectancy.[1] Many smokers think that they will be more miserable when they stop but the evidence is that they will have better mental health and be happier.[2,3] Using licensed medication such as nicotine replacement therapy doubles the chances of successfully quitting[4] while using a combination of behavioural support and medication further increases success rates.[5]

For tips on quitting smoking see also: ASH Fact sheet: Stopping smoking: ASH's top tips

Stop Smoking Services
The NHS Stop Smoking Services in England and Wales were established in 2000 and since then the number of people using them has grown year on year, rising to over 800,000 in 2011-12.[6,7] An evaluation of the effectiveness of the services found four-week validated quit rates of 53% and 15% at one year.[8] By comparison the 12-month quit rate among people who attempt to quit unaided is estimated to be about 4%.[9] A review of the English stop smoking services found that over the first ten years of operation they helped an estimated 20,000 people to achieve long term abstinence.[10]

The NHS website offers advice on quitting together with details of your local Stop Smoking Service. People seeking help in quitting smoking may also wish to examine the NCSCT register of Certified Practitioners to check whether the advisor they are seeing has the core knowledge and skills necessary to help them with their quit attempt.

The desire to stop smoking
Many smokers continue smoking not by choice but because they are addicted. A large part of this addiction arises from dependence on the nicotine delivered rapidly to the brain with each inhalation. A report by the Royal College of Physicians concluded that nicotine is an addictive substance.[11] For further information see ASH Fact sheet: Nicotine & Addiction.

Addiction does not make it impossible to stop doing something, it just means that there are powerful urges and needs that have to be overcome in order to do so. Anything that can strengthen the resolve to resist these urges and needs or reduce their frequency or intensity can help in overcoming the addiction.

Surveys consistently find that a majority of smokers want to quit.[12,13,14] In 2008, 68% of current smokers in Great Britain reported that they wanted to quit, with 22% saying they would very much like to give up and a further 23% saying they wanted to stop "quite a lot".[14] Eighty-three per cent of respondents gave at least one health reason for wanting to stop smoking. The cost

of smoking was the next most common reason people gave for wanting to quit with 31% saying smoking was too expensive and a waste of money.

More than a third of all smokers make at least one attempt to stop in a given year but only about 2-3% of smokers succeed long term.[15] It is not clear why some attempts to stop succeed and others do not, though smoking fewer cigarettes per day, not needing to smoke first thing in the morning and not suffering from mental health problems or other addictions are favourable factors for success.

Increase in life-span

Two major longitudinal studies have demonstrated the benefits of stopping smoking at an early age. The 50 year follow up of the British doctors' study revealed that if smokers quit before the age of 30 they can avoid more than 90% of the smoking-attributable risk of lung cancer. The authors concluded that stopping smoking at age 60, 50, 40, or 30 gains, respectively, about 3, 6, 9, or 10 years of life expectancy.[16] A similar study of British women also found that stopping smoking before the age of 40 avoids more than 90% of the increased risk of dying caused by continuing to smoke, while stopping before the age of 30 avoid over 97% of the increased risk.[17]

Health benefits after stopping smoking

Some of the health benefits from stopping smoking can occur quite quickly as the table below shows. Other health improvements are seen over the course of a number of years, depending on how long a person has smoked.[18]

Time since quitting	Health benefits to quitting
20 minutes	Pulse return to normal.
8 hours	Nicotine is reduced by 90% and carbon monoxide levels in blood reduce by 75%. Circulation improves.
24 hours	Carbon monoxide and nicotine almost eliminated from the body. Lungs start to clear out smoking debris.
48 hours	All traces of nicotine are removed from the body. The ability to taste and smell improves.
72 hours	Breathing is easier. Bronchial tubes begin to relax and energy levels increase.
2-12 weeks	Circulation improves.
1 month	Physical appearance improves – skin loses its grey pallor and becomes less wrinkled.
3-9 months	Coughing and wheezing declines.
1 year	Excess risk of a heart attack reduces by half.
10 years	Risk of lung cancer falls to about half that of a continuing smoker.
15 years	Risk of a heart attack falls to the same as someone who has never smoked.

Source: Smokefree NHS website.

Withdrawal symptoms

Withdrawal symptoms are the unpleasant physical and mental effects on the body and mind which occur following interruption or termination of drug use. They are temporary and will cease when the body has become accustomed to no longer ingesting the drug. Not all smokers experience withdrawal symptoms. The main withdrawal symptoms which may be experienced by those quitting smoking are listed below.[19]

Withdrawal Symptom	Duration	Proportion of quitters affected
Nicotine Cravings	Longer than 2 weeks	70%
Increased appetite	More than 10 weeks	70%
Depression	Less than 4 weeks	60%
Restlessness	Less than 4 weeks	60%
Poor concentration	Less than 2 weeks	60%
Irritability/ aggression	Less than 4 weeks	50%
Disturbed sleep	Less than 1 week	25%
Light-headedness	Less than 48 hours	10%

Other less common withdrawal symptoms experienced vy smokers who stop are:

- Mouth ulcers (can last for more than a month); and
- Constipation (can last for more than a month).

Weight gain

The possibility of weight gain is one reason cited by smokers for not quitting smoking, especially among women.[20] Weight gain can be progressive for a number of years following cessation and, on average, ex-smokers will gain between 5 and 9 kilograms in weight.[12 13] However, this is weight gain made without recourse to any special attempts at dieting or exercise. A number of interventions have been developed to control weight gain following cessation. These include behavioural interventions, such as exercise and energy restriction or healthy eating advice.[13] Whether or not these interventions are successful or if they, in fact, undermine a quit attempt is unclear. However, weight gain presents a minor health risk when compared to the substantial risks of continued smoking. In addition, improved lung function and some of the other health benefits of giving up smoking are likely to make exercise both easier and more beneficial.

Switching to other types of tobacco: pipes, cigars and shisha

Some smokers switch to pipes or cigars in the belief that they are less dangerous forms of smoking. However, there is no safe level of use of any tobacco product. Some smokers may incur the same risks as smoking cigarettes and may even increase them, especially if they inhale the pipe or cigar smoke.[21,22] For further information on pipes and cigars see ASH Fact Sheet: Pipe & cigar smoking.

Similarly, waterpipes (also known as shisha or hookah pipes) are potentially just as hazardous as smoking other forms of tobacco. For further information see the ASH Fact Sheet on Waterpipes.

Switching to other sources of nicotine

Electronic cigarettes are increasing in popularity[23] as an alternative to conventional smoked tobacco products but there is currently little research[24] and no official guidance on their safety in the United Kingdom.[25] Furthermore there is no clear evidence yet that e-cigarettes are effective as a stop smoking aid although survey data suggests that quitting smoking is one of the main reasons why smokers and ex-smokers say they use the devices.[26]

On 12th June 2013, the Medicines and Healthcare products Regulatory Agency (MHRA) announced that it would regulate e-cigarettes.[27] Products that are currently on the market will be allowed to continue to be sold until 2016 by which time only those that have received a medicines licence will be allowed on sale.

To complement the MHRA ruling, guidance on tobacco harm reduction issued by the National Institute for Health and Care Excellence (NICE) published in May 2013 advises health professionals to inform people seeking help in stopping smoking that although their safety and quality cannot be assured, e-cigarettes are likely to be less harmful than cigarettes. However, the guidance stresses that smokers should be encouraged to quit or reduce consumption by using established licensed nicotine containing products.[28] The World Health Organisation is also expected to publish guidance on e-cigarettes in 2013.[29] For further information see also the ASH webpage on regulating nicotine products.

Smoking cessation aids

The chances of success of any given quit attempt are low but the chances of stopping are high if smokers keep trying. Most smokers take several attempts to quit before they finally succeed.[30,31,32] However, there are many things that smokers can do to improve their chances of quitting. These fall into two categories: medication and psychological support.

Medication

Medications aim to help smokers quit smoking by reducing the chemically-driven need to smoke and/or blocking the pleasure associated with smoking. Nicotine Replacement Therapy (NRT) works by replacing the nicotine provided in cigarettes and allowing smokers to slowly reduce their dependence on nicotine. Varenicline (Champix) works by alleviating nicotine withdrawal and reducing the "rewards" of smoking.[33] Bupropion (Zyban) works by reducing withdrawal symptoms and nicotine cravings. There is evidence to suggest that using a combination of NRT medications (e.g. combining the nicotine patch with gum or lozenges) is more effective than using them in isolation.[34] See below for further details about smoking cessation medications.

Nicotine replacement therapy (NRT)

Nicotine replacement therapy (NRT) includes nicotine chewing gum, patches, lozenges, mouth spray, inhalator and nasal spray and is usually taken for 8 to 12 weeks. NRT products can be purchased from a pharmacist and in some shops or obtained on prescription from a GP or qualified NHS Stop Smoking Advisor. NRT is designed to reduce the motivation to smoke by replacing nicotine from cigarettes. By alleviating nicotine withdrawal symptoms, the transition from cigarette smoking to complete abstinence is easier. Clinical trials have consistently found that NRT increases the success of quitting smoking by 50–70%.[35] The National Institute for Health and Care Excellence (NICE) recommends that smokers who are committed to quitting should be offered NRT to support their quit attempt and that more heavily addicted smokers may be offered a combination of NRT products if required.[36]

There is a commonly held belief amongst many smokers that nicotine causes cancer and that NRT is therefore also unsafe.[37,38] But it is the tar in cigarette smoke along with other toxins which causes lung cancer and other smoking-related illnesses.[39] Some smokers express concern about becoming addicted to NRT.[40,41] However, this is rare, a better alternative to smoking, and in studies looking at NRT use for up to five years there have been no health concerns.[42,43]

Varenicline (Champix)

Varenicline (Champix) is a prescription only medication which comes as a course of tablets lasting 12 weeks, sometimes with the option of a further 12 weeks for those that are not smoking at the end of the initial treatment. Varenicline works by preventing nicotine from reaching nicotine receptors in the brain, and by stimulating dopamine production both of which make cigarettes less satisfying.[44]

Clinical trials have found varenicline to be more effective in helping people stop smoking than either bupropion or placebo.[37] A Cochrane review of varenicline trials concluded that the drug doubled the chances of successfully quitting compared to unassisted quitting.[45]

The National Institute for Health and Clinical Excellence issued Guidance for prescribing varenicline in July 2007. ASH has also published Guidance Notes on Varenicline.

Bupropion (Zyban)

Bupropion (Zyban) is a prescription-only medication which comes as a course of tablets lasting around 8 weeks. It does not contain any nicotine but works by reducing (or entirely alleviating) cravings and nicotine withdrawal by blocking the pleasure smokers feel when using tobacco.[36,46] Bupropion is safe for most healthy adults but there are some documented side effects including insomnia, dry mouth and headaches. The most serious side effect is the risk of seizures (fits) but this only occurs in 1 in 1000 people, or 0.1%. Clinical trials have found that bupropion significantly increase a smoker's chance of quitting.[39,47]

Other Stop Smoking Medications

Mecamylamine is a drug which was originally marketed for lowering blood pressure but found to block the effects of nicotine. High doses of the drug are needed for it to be an effective smoking cessation aid but this brings significant side effects including constipation, drowsiness and hypotension. There is limited research about the effectiveness of the drug in lower doses. However the research which does exist suggests that the drug would work best when used in combination with NRT.[48]

Cytisine has been on the market in Eastern Europe for at least forty years but is not licensed for use in the United Kingdom. There is evidence that it is effective but it may be that further research will be required before it can be licensed in the UK.[49,50]

Nortriptyline is an anti-depressant used to treat serious depression but has been found to be as effective as bupropion and NRT as an aid to smoking cessation. However there are a number of side effects including increased risk of suicide ideation.[51] The drug is not currently prescribed solely for smoking cessation in the United Kingdom.

Clonidine was licensed for the treatment of hypertension but also reduces the symptoms of nicotine withdrawal so it is listed as a second-line treatment for smoking cessation in the United States.[36,52]

None of these medications are currently available through the NHS Stop Smoking Services or endorsed by NICE as smoking cessation aids.

Behavioural support

Behavioural support aims to strengthen the smoker's motivation not to smoke and advise on ways on avoiding, escaping from or minimising urges to smoke with simple practical strategies.

Specialist Stop Smoking Practitioners

Most Stop Smoking Services offer closed groups, 'rolling' groups and drop-in sessions as well as individual appointments, facilitated by fully trained advisors. Clinical trials have found that stop smoking groups double a smoker's chance of quitting successfully. There is some evidence that groups are more effective than individual counselling).[53,54,55] Most smokers attending groups will also use medication to maximise their chances of success.

For details of your local Stop Smoking Service, please see the NHS Smokefree website. People seeking help in quitting smoking may also wish to examine the NCSCT register of Certified Practitioners to check whether the advisor they are seeing has the core knowledge and skills necessary to help them with their quit attempt.

Community Stop Smoking Practitioners

Most GP surgeries, pharmacies, hospitals, midwifery services and mental health facilities will provide a free Stop Smoking Advisor to assist smokers who wish to quit. Clinical trials have found that one-to-one support doubles a smoker's chance of quitting successfully.[56] The majority of smokers seeing an advisor will also use medication to maximise their chances of success.

Telephone support

The National NHS Stop Smoking Helpline (0800 022 4 332) is a free service for smokers who wish to stop smoking but do not require the more intensive support offered by the Stop Smoking Services. In addition to this, some NHS Stop Smoking Services will provide psychological support over the telephone for smokers who are mobility impaired or unable to attend face to face services.

QUIT is a national charity with a free-phone number for smokers who would like telephone support. QUIT provides advice in a number of languages. Clinical trials have found that this kind of support can help smokers to stop.[57]

Unproven aids to stopping smoking

The above quit smoking programmes have been evaluated in controlled clinical trials in which success rates in smokers using the aid have been compared with similar smokers using a placebo, nothing or something else. There are a number of commercial companies selling materials, devices and treatments, often claiming higher levels of effectiveness, which have not be evaluated in this way. Success at stopping smoking is somewhat unpredictable and many people will report having succeeded after using one of these treatments but unless the aid has been subjected to comparative trials that are either independent of the company or audited by an independent agency, smokers would be advised to treat claims of effectiveness with caution.

Hypnotherapy and acupuncture are amongst numerous alternative therapies offered as smoking cessation aids and used by some smokers attempting to quit.[58]

A 2011 review by the Cochrane Collaboration found no evidence that acupuncture or associated forms of acupressure were helpful in assisting smokers to quit but noted that a lack of consistent evidence meant no firm conclusions could be drawn. Further research is needed before a definitive position can be taken.[59] However, an analysis of studies published in the American Journal of Medicine in 2011 found that acupuncture may be helpful in assisting smokers to quit along with hypnotherapy and aversion therapy.[51]

Hypnotherapy is another alternative treatments for quitting smoking.[60] The evidence about its effectiveness is inconclusive with studies reporting conflicting results.[51,53,61]

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