Nicotine Replacement Guidelines

(Guidelines on the prescribing, supply and administration of smoking cessation and nicotine replacement pharmacotherapy for service users and staff of inpatient wards)

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**Contents**

| **Page Paragraph** |  |
| --- | --- |
| 4 | 1. Introduction
 |  |
| 4 | 1. Purpose
 |  |
| 4 | 1. Responsibilities
 |  |
| 5  | 1. Training
 |  |
| 5 | 1. Nicotine replacement therapy (NRT)
 |  |
| 6 | 1. Special patient groups
 |  |
| 7 | 1. Contraindications
 |  |
| 7 | 1. Access to smoking cessation pharmacotherapy for patients and staff
 |  |
| 8 | 1. Effect of smoking cessation on drug metabolism
 |  |
| 8 | 1. Choice of NRT
 |  |
| 12 | 1. Supply of NRT
 |  |
| 13 | 1. Guidance for the use of Buproprion
 |  |
| 14 | 1. Guidance for the use of Varenicline
 |  |
| 16 | 1. Smoking cessation on discharge
 |  |
| 17 | 1. References
 |  |
| **Appendices** |  |
| Appendix 1  | Supply of NRT to ELFT staff working on smokefree wards |  |
| Appendix 2 | Psychotropic drugs affected by smoking status (Maudsley, 13th Ed, page 761) |  |
| Appendix 3 | NRT formulations: Doses, use, how it works and side effects |  |
|  |  |  |
|  |  |  |

1. **Introduction**
	1. The following documents should be used alongside this guideline document:
		* Nicotine management policy.
		* Nicotine replacement therapy protocol.
		* Tobacco dependence treatment pathway (inpatient).
		* E-Cigarette policy.
	2. Pharmacotherapy plays a vital role in enabling service users to maintain abstinence from tobacco products. These guidelines have been developed in line with NICE guidance to ensure the correct treatments are used for the purposes of smoking cessation or nicotine maintenance therapy.
	3. This guideline will not discuss the use of E-cigarettes. Directorates have local procedures in place for service users who use E-cigarettes. The use of E-cigarettes is bound by the E-cigarette policy; seek advice from the Ward Manager and/or borough Lead Nurse.
2. **Purpose**
	1. These guidelines cover the prescribing, supply and administration of NRT and smoking cessation pharmacotherapy.
	2. To ensure the safe and effective use of smoking cessation pharmacotherapy and nicotine maintenance in smokers.
	3. To establish how smoking cessation pharmacotherapy and products for nicotine maintenance should be prescribed, issued and administered to service users on inpatient wards in line with the NRT protocol.
	4. To highlight the specific risks when stopping smoking cigarettes when prescribed certain psychiatric medicines and to explain how to manage this risk.
3. **Responsibilities**
	1. Doctors and non-medical prescribers
		* Prescribing NRT to service users for maintaining nicotine levels in inpatients.
		* Reviewing and monitoring service users prescribed NRT including plasma level drug monitoring where appropriate.
		* Prescribe Buproprion and Varenicline to service users who want to make a quit attempt and chose to use these as an alternative treatment to NRT.
	2. Nurses authorised to work under the protocol.
		* Supplying NRT products.
	3. Ward Managers
		* Authorising appropriately qualified ward staff members to supply NRT under the protocol.
		* Managing the process for staff access to NRT on inpatient wards (appendix 1).
	4. Pharmacists
		* Supporting Ward Managers in the authorising of appropriately qualified ward staff members to supply NRT under the protocol.
		* Provide training to ward staff members on pharmacological products available.
4. **Training**
	1. Trust staff members have access to level-1 and level-2 training.
		* Level 1 – All staff. Enables staff to provide advice and referral (very brief intervention of Ask, Advise, Act). Training is available from local smokefree services as face-to-face training, and also via the trust OLM e-learning site.
		* Level 2 – identified individuals. Stop smoking advisor training enables staff to provide specific smoking cessation support to service users. Training for level-2 may vary in each directorate, so contact your Directorate's smoking cessation advisor.
	2. National on-line training and information is available at <http://www.ncsct.co.uk/>
5. **Nicotine Replacement Therapy (NRT)**
	1. Nicotine replacement therapy (NRT) is an effective aid to smoking cessation.
	2. NRT is safe in therapeutic doses.
	3. NRT is also used where service users may not be motivated to quit, but who are not able to smoke due to being detained on a smoke free ward.
	4. NRT is also used where service users continue to smoke, in order to reduce smoking rate (harm reduction).
	5. NRT is licensed to be used by individuals aged over 12 years of age.
	6. Available formulations that may be used on inpatient wards in ELFT are:
		* Patches, Inhalator, Lozenges, Mouth Spray and Nasal Spray.
		* Nicotine gum will not be used due to security and health and safety.
	7. Under-use of NRT is often a problem and can lead to smokers relapsing.
	8. Smokers should be encouraged to use it unless medically contraindicated.
	9. Smokers should receive full instruction and follow-up to maximise efficacy and compliance.
	10. NRT products are equally effective as each other and at least double the chance of quitting compared to having no medication. The choice of products should be guided by service user preferences
	11. Combining two NRT products (e.g. patch and mouth spray) is more effective than using one product alone. There are no safety concerns with combining two products.
	12. NRT products give the user less nicotine than tobacco cigarettes and at a much slower rate. This makes NRT much less addictive than the nicotine derived from smoking tobacco.
	13. The effectiveness of NRT can be improved by repeatedly providing assessment and advice on how to use the NRT products correctly; what side effects to expect and how to manage them, use the maximum dose; how long to use the product for and reiterating the importance of adherence.
	14. The effects of cigarette smoking in conjunction with NRT are similar to those of cigarette smoking alone32. Excessive use of NRT by those who have not been in the habit of inhaling tobacco smoke could possibly lead to nausea, or headaches.
	15. NRT can be prescribed for up to 9 months if patients show evidence of a continued need for NRT beyond the initial 8-12 week treatment phase31. NRT has been found to be safe to use for at least 5 years31. There is reason to believe that lifetime use of NRT will be considerably less harmful than tobacco31.
6. **Special patient groups**
	1. Pregnant or breast feeding (NICE guidance ph26)
		* All pregnant or breast feeding women should receive smoking cessation support.
		* NRT is licensed for pregnant and breastfeeding women who would otherwise continue to smoke. Ideally, smoking cessation in pregnancy should be achieved without NRT. However if the mother cannot (or is unlikely to quit without NRT support), NRT is recommended as the risk to the unborn baby is far lower compared to continuing to smoke. Those prescribing or supplying NRT should ensure that the potential risks and benefits are understood by the mother. The 24-hour patch should be taken off at night.
		* Advise pregnant women who are using patches to remove them prior to bed (16 hour option is recommended where available).
		* Nicotinell Liquorice Gum should not be used during pregnancy and lactation; however ELFT does not offer this product.
		* Pregnant women are advised to avoid Nasal Spray.
		* A discussion on passive smoking should be held with the mother, a summary can be found here: <http://www.nhs.uk/conditions/pregnancy-and-baby/pages/smoking-pregnant.aspx>
		* Use of Varenicline or Buproprion is excluded.
	2. Cardiovascular event or hospitalisation for a cardiovascular complaint in the previous four weeks or uncontrolled hypertension.
		* Caution is advised due to limited evidence.
		* Should be encouraged to stop smoking with non-pharmacological interventions such as counselling, however NRT products are less harmful than smoking and can be used. It is safer to use licensed nicotine-containing products than to smoke. Any risks associated with NRT are substantially outweighed by the well-established dangers of continued smoking NICE (2013).
		* NRT is safe in patients with stable cardiovascular disease32. Smokers currently hospitalised for a myocardial infarction, severe dysrhythmia (irregular heartbeat) or stroke and who are haemodynamically unstable (e.g. have a very low blood pressure), should initially be encouraged to quit without NRT. They should then be offered NRT under medical supervision.
	3. Smoking increases the risk for developing type 2 diabetes and is associated with complications of type 1 and type 2. Nicotine increases the release of catecholamines (e.g. adrenaline and noradrenaline), which can affect carbohydrate metabolism. Glucose levels should be monitored more closely in smokers and people using NRT.
	4. Swallowed nicotine (e.g. from gum or lozenges) may exacerbate oesophagitis, gastritis or peptic ulcers, therefore oral NRT preparations should be used with caution in these conditions.
	5. NRT should be used with caution in patients with moderate to severe hepatic impairment and/or severe renal impairment as the clearance of nicotine and its metabolites may be decreased with the potential for increased adverse effects.
	6. NRT should be used with caution in patients with phaeochromocytoma (tumour of the adrenal glands) and uncontrolled hyperthyroidism due to the nicotine causing the release of catecholamines).
	7. Caution should also be taken for patients with Peripheral Vascular Disease and Occlusive peripheral Arterial disease.
	8. Renal or hepatic impairment: NRT should be used with caution in patients with moderate to severe hepatic impairment and/or severe renal impairment as the clearance of nicotine and its metabolites may be decreased with the potential for increased adverse effects.
7. **Contraindications**
	1. Hypersensitivity to NRT.
	2. Under 12 years old.
	3. Patients with obstructive lung disease may find use of the inhalator difficult, so the lozenge may be preferable.
	4. Patients with chronic throat disease and bronchospastic disease may find use of the inhalator difficult, so the lozenge may be preferable.
	5. History of recent cerebrovascular disease with an unstable episode within the past two weeks. Smokers with a recent myocardial infarction, unstable or worsening angina including Prinzmetal's angina, severe cardiac arrhythmias, uncontrolled hypertensions or recent cerebrovascular accident should be encouraged to stop smoking with non-pharmacological interventions.
8. **Access to smoking cessation pharmacotherapy for service users and staff**
	1. All directorates should have access to the full range of smoking cessation pharmacotherapy listed within these guidelines.
	2. In many cases, a service user’s first exposure to NRT may not be for the purposes of smoking cessation but to maintain plasma nicotine levels when the service user is unable to smoke. Therefore, on admission, it is essential that the service users smoking status is confirmed by the admitting Doctor / Nurse. Service users who are smokers should be prescribed appropriate NRT to maintain nicotine plasma levels when they cannot smoke.
	3. How service users and staff will access NRT:
		* Inpatients
			+ Prescribed by ELFT medical doctor or non-medical prescriber.
			+ Supplied under protocol by authorised Nurse until the prescription is written by a Doctor.
		* Community
			+ By referral to their GP, Pharmacist or the local community stop smoking services.
		* Staff
			+ Appendix 1 is available for use according to the inpatient ward process.
9. **Effects of smoking cessation on drug metabolism**
	1. Smoking cessation may alter the metabolism of a number of commonly prescribed psychotropic medicines, for a list of medicines that are affected and what to do see appendix 2.
	2. The effect is unrelated to nicotine and is caused by polycyclic aromatic hydrocarbons (PAHs) present in tobacco smoke. PAHs increase the activity of liver enzymes (P450) that is responsible for metabolising some psychotropics.
	3. Following smoking cessation the service user is no longer exposed to PAHs and therefore the metabolism of medicines decreases, resulting in increased plasma levels. Plasma levels will rise regardless of whether the service user is using NRT, Buproprion or Varencicline.
	4. When prescribing smoking cessation therapy, prescribers must consider the service user's other medicines and monitor for signs of increase plasma levels (e.g. side effects). In some cases, i.e. those prescribed clozapine, it may be necessary to check plasma levels.
	5. Extreme caution must be taken in those service users taking theophylline. Smoking cessation may cause plasma levels of this narrow therapeutic index drug to rise. Those taking theophylline should be supplied with NRT as appropriate, whilst informing the service user’s doctor.
10. **Choice of NRT**
	1. All NRT formulations should be explained and offered to the service user for them to choose the most appropriate product for them taking into account previous treatments, contraindications, cautions and adverse drug reactions.
	2. For people who show a high level of dependence to nicotine or people who found single forms of NRT inadequate in the past,consider offering a combination of the nicotine patch and another form of NRT (for example inhalator or lozenge).
	3. For those wanting to smoke during unescorted leave off the ward, consider intermittent dose forms (such as inhalator or lozenges) for temporary abstinence.
	4. Side Effects and Adverse Reactions
		* + These are usually transient but may include the following, some of which are consequences of stopping smoking: nausea, dizziness, headache, cold and flu like symptoms, palpitations, dyspepsia and other gastro-intestinal disturbances, hiccups, insomnia and vivid dreams, myalgia, chest pain, blood pressure changes, anxiety and irritability, somnolence and impaired concentration and dysmenorrhoea.
	5. Nicotine Patches

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| Formulation | Dose | How to use | Notes |
| 10mg/16h15mg/16h25mg/16h | Initially 25mg patch daily for 8 weeks. If abstinence maintained, then 15mg patch daily for 2 weeks, then 10mg patch daily for 2 weeks, then stop | Apply once a day, normally on waking to dry, clean, non-hairy area of skin on hip, chest or upper arm and hold in place for 10-20 seconds. Remove **16 hours** later, usually before bedtime. | The 24hour patch maybe more appropriate for those who require a cigarette within 30mins of waking in the morning. The 24 hour patch is not advised to patients who are pregnant or breastfeeding.Patches should not be applied to broken or inflamed skin. Patches may cause skin irritation/redness. Therefore, service users should allow several days before replacing the patch on the previously used area. If skin irritation/redness is severe, then the product should be changed. Once the patch is spent it should be folded in half and disposed of carefully. Clients should not try to alter the dose by cutting it up.  |
| 7mg/24h14mg/24h21mg/24h | Initially 21mg patch daily for 3 to 6 weeks. If abstinence maintained, then 14mg patch for 2 weeks, then 7mg patch for 2 weeks. Review treatment if abstinence not achieved within 9 months. | Apply once a day on waking to dry, clean non-hairy area of skin on hip, chest or upper arm and hold in place for 10-20 seconds. Remove **24 hours** later, prior to applying the next patch. |

* + - Nicotine patches should be prescribed on the regular prescriptions section of the medication drug chart. The strength and duration of the patch (i.e. 16 or 24 hours) needs to be specified. Figure 1 is provided as an example of how to write such a prescription.

**Figure 1:** Example of how to write a prescription for a Nicotine Patch



* 1. Nicotine Oral Spray (Mouth spray)

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| Formulation | Dose | How to use | Notes |
| 1 mg/metered spray | 1–2 sprays in the mouth when the urge to smoke occurs or to prevent cravings. Individuals should not exceed 2 sprays per episode (up to 4 sprays every hour), and a maximum of 64 sprays daily. | Prime the spray before use by pressing the top of the spray with your index finger 3 times until a fine spray appears. After priming, point the spray nozzle as close to the open mouth as possible. Press the top of the dispenser and release one spray into your mouth, avoiding the lips. Do not inhale while spraying to avoid getting spray down your throat. Do not eat or drink during or immediately after use.  | For best results, do not swallow for a few seconds after spraying.The service user should not eat or drink when administering the spray. During the first few days, treatment irritation to the mouth and throat may be experienced and hiccups are particularly common. Tolerance is normal with continued use. |

* + - Nicotine oral spray should be prescribed on the (PRN) as required section of the drug chart. The maximum dose in 24 hours needs to be specified.
	1. Nicotine Lozenges

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| Formulation | Dose | How to use | Notes |
| 1mg, 2mg or 4mg lozenge | One lozenge should be used every 1 – 2 hours when the urge to smoke occurs.Individuals who smoke ≤20 cigarettes each day usually use the lower strength lozenges.Do not exceed 15 lozenges daily. | Suck lozenge until slightly dissolved and the taste is strong. Periodically move the lozenge from one side of the mouth to the other. | Lozenges last 10 – 30 minutesLozenges may cause throat irritation or hiccups. In rare cases they may cause mouth ulceration and increase salivation. If any of these become intolerable, then switch therapy. |

* + - Nicotine lozenges should be prescribed on the (PRN) as required section of the drug chart. The maximum dose in 24 hours needs to be specified.
	1. Nicotine Inhalator

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| Formulation | Dose | How to use | Notes |
| 15mg cartridges  | The cartridges can be used when the urge to smoke occurs or to prevent cravings. Patients should not exceed 6 cartridges of the 15 mg strength daily.  | Insert the cartridge into the device and draw in air through the mouthpiece; each session can last for approximately 5 minutes. A single 15mg cartridge lasts for approximately 40 minutes of intense use.Inhalators require more effort to inhale than a cigarette and that less nicotine is delivered per inhalation. The inhalator is best used at room temperature.  | The amount of nicotine from 1 puff of the cartridge is less than that from a cigarette; therefore it is necessary to inhale more often than when smoking a cigarette.Inhalator may cause throat irritation, cough and rhinitis. If any of these become intolerable, then therapy should be changed. Used cartridges should be disposed of in a safe manner. |

* + - Nicotine inhalators should be prescribed on the (PRN) as required section of the drug chart. The maximum dose in 24 hours needs to be specified according to BNF criteria. Figure 4 is provided as an example of how to write such a prescription.

**Figure 4:** Example of How to Write a PRN Prescription for a Nicotine Inhalator



* 1. Nicotine Nasal Spray

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| Formulation | Dose | How to use | Notes |
| 10mg/ml spray delivering 0.5mg of nicotine per spray. | Spray once into both nostrils when urge to smoke occurs. This should be repeated up to twice every hour for 16 hours daily (maximum 64 sprays daily). Initially 1 spray should be used in both nostrils but when withdrawing from therapy, the dose can be gradually reduced to 1 spray in 1 nostril.  | Need to prime spray before use. Place the nozzle between first and second finger with the thumb on the bottom of the bottle. Press several times firmly and quickly until a fine spray appears (up to 7-8 strokes). Point the spray safely away when priming it. Do not prime it near children or petsInsert the spray tip into one nostril, pointing the top towards the back of the nose. Press firmly and quickly. Repeat this process for the other nostril.  | Nasal Spray is not recommended for pregnant patients.Nasal irritation, sneezing, running nose, watering eyes and cough occur in nearly all users of this nicotine preparation for the first two days. However, these side effects are transient and are likely to decrease with continued use.  |

* + - Nicotine nasal spray should be prescribed on the (PRN) as required section of the drug chart. The maximum dose in 24 hours needs to be specified. Figure 5 is provided as an example of how to write such a prescription.

**Figure 5:** Example of How to Write a PRN Prescription for a Nicotine Nasal Spray



1. **Supply of NRT**
	1. NRT may be supplied to a service user either against a prescription written by an ELFT prescriber or supplied under protocol by an authorised Nurse until the prescription is written by a prescriber.
	2. The NRT protocol is designed to ensure inpatients will have access to NRT at admission.
	3. Supplies of required nicotine replacement therapy may be given to the service user as long as the total quantity received during the day does not exceed the maximum dose stated on the prescription.
	4. Further details on NRT products can be found in Appendix 3.
2. **Guidance for the Use of Bupropion**
	1. NICE guidance advocates the use of Bupropion as a treatment option in those service users who require smoking cessation therapy2.
	2. It is recommended that it is prescribed in combination with a programme of behavioural support.
	3. Bupropion should only be prescribed as part of an abstinent-contingent treatment in which the smoker makes a commitment to stop smoking on or before a particular date.
	4. When prescribed, these treatments should be prescribed exclusively and not in combination with any other form of smoking cessation pharmacotherapy.
	5. Criteria for inclusion
		* Tobacco users identified as sufficiently motivated to quit i.e. willing to set a quit date and receive support.
	6. Criteria for Exclusion
		* Bupropion is not recommended for those under 18 years of age and is contraindicated in those who are pregnant or breastfeeding.
		* Bupropion is contraindicated in those with a history of bipolar disorder.
		* Bupropion should not be prescribed if the service user is already being treated with Varenicline.
		* Use of NRT should be stopped if Bupropion is used.
		* The Committee on Safety of Medicines (CSM) has issued a reminder that bupropion is contraindicated in service users with a history of seizures or of eating disorders, a CNS tumour, or who are experiencing acute symptoms of alcohol or benzodiazepine withdrawal.
		* Bupropion should not be prescribed to service users with other risk factors for seizures unless the potential benefit of smoking cessation clearly outweighs the risk.
		* Factors that increase the risk of seizures include concomitant administration of drugs that can lower seizure threshold e.g. antidepressants, antimalarials, antipsychotics, quinolones, sedating antihistamines, systemic corticosteroids, theophyline, tramadol, alcohol abuse, history of head trauma and the use of stimulants and anorectics.
	7. Prescribing of Bupropion

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| Drug | Tablets strengths | Dose and instructions |
| Bupropion(Zyban®) | 150mg MR | Start 1 – 2 weeks before target stop dateInitially 150mg OD for 6 days, then 150mg BD for a treatment period of 7 – 9 weeks. Max dose 150mg OD in the elderly and patients with risk factors |

* + - Bupropion must be prescribed on the regular prescriptions section of the inpatient medication chart. Treatment needs to be initiated a minimum of 1 week before the target stop date and the dose needs to be titrated over this first week.
		- The initial prescription for Bupropion should not be for more than 3-4 weeks after which it should only be prescribed to those who continue to attempt to quit. Refer to the British National Formulary for full dosing schedule.
	1. Side Effects and Adverse Drug Reactions
		+ These may include the following, some of which are consequences of stopping smoking:
		+ Dry mouth, gastro-intestinal disturbances, insomnia (reduced by avoiding dose at bed time), tremor, impaired concentration, headache, dizziness, depression, agitation, anxiety, fever, rash, pruritis and sweating.
		+ Although uncommon, Bupropion can cause hypertension, tachycardia and chest pains. It is recommended that blood pressure is monitored before and during treatment in all service users.
		+ Any serious side effects should be reported by a doctor or pharmacist using the ‘Yellow Card Reporting Scheme’ to inform the Medicines and Healthcare Products Regulatory authority.
		+ Details of the adverse drug reaction should be recorded and an incident should be logged on Datix.
	2. Supply of Bupropion
		+ All strengths of this treatment will be available from pharmacy. It should be ordered through the pharmacy service via the normal procedure.
	3. Administration of Bupropion
		+ Both preparations should be administered in an identical fashion to all other prescribed medicines on the drug chart.
1. **Guidance for the use of Varenicline**
	1. NICE guidance advocates the use of Varenicline as a treatment option in those service users who require smoking cessation therapy.
	2. It is recommended that it is prescribed in combination with a programme of behavioural support.
	3. Varenicline should be prescribed as part of an abstinent-contingent treatment in which the smoker makes a commitment to stop smoking on or before a particular date.
	4. Varenicline can be prescribed exclusively and not in combination with any other form of smoking cessation pharmacotherapy, however some users have stated that the use of an inhalator helps them in the initial stages of the treatment. This could be true in a smokefree environment where the service user is unable to smoke.
	5. Criteria for inclusion
		* Tobacco users identified as sufficiently motivated to quit i.e. willing to set a quit date and receive support.
	6. Criteria for Exclusion
		* Varenicline is not recommended for use in those under 18 years of age and is contraindicated in those who are pregnant or breastfeeding.
		* Varenicline should not be prescribed if the patient is already being treated with Bupropion.
	7. Prescribing of Varenicline

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| drug | Tablets strengths | Dose and instructions |
| Varenicline(Champix®) | 500microgram, 1mg | Start 1 – 2 weeks before target stop dateInitially 500micrograms OD for 3 days then increased to 500micrograms BD for 4 days (as per starter pack), then 1mg BD for 11 weeks (maintenance dose).May be decreased to 500micrograms BD if not tolerated.Treatment can be continued in those who remain abstinent to reduce the risk of relapse. |

* + - Varenicline must be prescribed on the regular prescriptions section of the inpatient medication chart. Treatment needs to be initiated a minimum of one week before the target quit date and the dose needs to be titrated over this first week.
		- The initial prescription for Varenicline should not be for more than two weeks (starter pack) after which it should only be prescribed to those who continue to attempt to quit. See the British National Formulary for the full dosing schedule.
	1. Side Effects and Adverse Drug Reactions
		+ These may include the following, some of which are consequences of stopping smoking:
		+ Gastro-intestinal disturbances, appetite changes, dry mouth, taste disturbance, headache, drowsiness, dizziness, sleep disorders and abnormal dreams.
		+ Overall, Varenicline is a generally safe and well-tolerated medication which has been proven to increase rates of smoking cessation in psychiatric and non-psychiatric populations, including at reduced dosage, and as a medication is more effective than NRT or Bupropion.
		+ In 2009, a cohort study published in the BMJ – which utilised 80,660 men and women aged 18−95 years from the General Practice database determined that there was no clear evidence found for Varenicline being associated with self-harm, increased depression or suicidal ideation. In 2016 a double-blind, randomised, placebo controlled clinical trial which, in part, studied the neuropsychiatric safety and efficacy of Varenicline – concluded that there was no significant increase in neuropsychiatric adverse events in those prescribed Varenicline.
	2. Any serious incident should be reported by the doctor or pharmacist using the ‘Yellow Card Reporting Scheme’ to inform the Medicines and Healthcare Products Regulatory authority.
	3. The prescriber should record details of the adverse drug reaction and an incident should be logged on Datix.
	4. Supply of Varenicline
		+ All strengths of this treatment will be available from pharmacy. This treatment should be ordered through the pharmacy service via the normal procedure.
	5. Administration of Varenicline
		+ Both preparations should be administered in an identical fashion to all other prescribed medicines on the drug chart.
1. **Smoking Cessation on discharge**
	1. Where a service user wants to continue the use of medication they should be discharged with up to two weeks supply of smoking cessation pharmacotherapy along with their regular prescription and this should be noted on the 'To Take Away' (TTA) section of their drug chart.
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**Appendix 1: Supply of NRT to ELFT staff working on smokefree wards**

1. ELFT staff may have access to all available NRT formulations.
2. Staff who require NRT must request from the senior nurse in charge on the ward and this must be signed out using the log below.
3. Information must be retained on the ward.

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| --- | --- | --- | --- |
| **Date** | **NRT product supplied****(strength, formulation, amount)** | **Staff member receiving**  | **Staff member supplying signature** |
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**Appendix 2 Psychotropic drugs affected by smoking status (Maudsley, 13th Ed, page 761)**

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| **Drug** | **Effect of Smoking** | **Action on stopping smoking** | **Action on restarting smoking** |
| Agomelatine | Plasma levels reduced | Monitor closely. Dose may need to be reduced | Consider re-introducing previous smoking dose |
| Benzodiazepines | Plasma levels reduced by 0 – 50% (depends on drug and smoking status) | Monitor closely. Consider reducing dose by up to 25% over one week | Monitor closely. Consider restarting ‘normal’ smoking dose |
| Carbamazepine | Unclear, but smoking may reduce carbamazepine plasma levels to a small extent | Monitor for changes in severity of adverse effects | Monitor plasma levels  |
| Chlorpromazine  | Plasma levels reduced. Varied estimates of exact effect | Monitor closely, consider dose reduction. | Monitor closely. Consider restarting previous smoking dose. |
| Clozapine | Reduces plasma levels by up to 50%. Plasma level reduction may be greater in those receiving valproate | Take plasma level before stopping. On stopping, reduce dose gradually (over a week) until around 75% dose reached (ie reduce by 25%). Repeat plasma level one week after stopping. Anticipate further dose reductions. | Take plasma level before re-starting. Increase dose to previous smoking dose over one week. Repeat plasma level. |
| Duloxetine | Plasma levels may be reduced by up to 50% | Monitor closely. Dose may need to be reduced  | Consider re-introducing previous smoking dose |
| Fluphenazine | Reduces plasma levels by up to 50%  | On stopping, reduce dose by 25%. Monitor carefully over following 4-8 weeks. Consider further dose reductions.  | On restarting, increase dose to previous smoking dose. |
| Fluvoxamine | Plasma levels decreased by around one-third | Monitor closely. Dose may need to be reduced | Dose may need to be increased to previous level |
| Haloperidol | Reduces plasma levels by around 20%  | Reduce dose by around 10%. Monitor carefully. Consider further dose reductions. | On restarting, increase dose to previous smoking dose. |
| LithiumPatients with ‘heavy’ caffeine consumption  | Smoking induces metabolism of caffeine, therefore theoretically smoking can reduce xanthine levels, which could reduce lithium excretion (↑ plasma level)  | Take plasma level before stopping. Repeat plasma level one week after stopping and consider need for dose increase. | Take plasma level before restarting. Repeat plasma levelOne week after stopping and consider need for dose reduction. |
| Mirtazapine | Unclear, but effect probably minimal | Monitor | Monitor |
| Olanzapine | Reduces plasma levels by up to 50%  | Take plasma level before stopping. On stopping, reduce dose by 25%. After one week, repeat plasma level. Consider further dose reductions. | Take plasma level before restarting. Increase dose to previous smoking dose over one week. Repeat plasma level. |
| Tricyclic antidepressants | Plasma levels reduced by 25-50%  | Monitor closely. Consider reducing dose by 10-25% over one week. Consider further dose reductions. | Monitor closely, consider restarting previous smoking dose. |
| Zuclopenthixol | Unclear but effect probably minimal  | Monitor | Monitor |

**Appendix 3: NRT formulations: Doses, use, how it works and side effects**

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| **Product** | **Dose**  | **How to use** | **How it works** | **Minimising side effects** |
| Patch | 1 x 16-hour or 24-hour patch per day. 16-hour are 5mg, 10mg, 15mg and 25mg.24-hour are 7mg, 14mg, 21mg. | Apply to a clean, dry, hairless area of skin (hip, chest, or upper arm - not over any organs). Hold in place for 10-20 seconds.Remove and change at the end of the day (16-hours) or the next day (24-hours).  | Delivers a steady dose of nicotine to the blood stream via the skin. Peak levels are reached approx. 9 hours after first patch and steady state approx. a week.  | Very common side effects: Skin irritation - helped by daily rotation of the site. Possible insomnia with 24 hour patch.  |
| Lozenges | 1mg, 1.5mg, 2mg, 4mg. 1 lozenge every hour.Use up to 15 per day. | Not to be sucked like a throat lozenge. The nicotine has to be absorbed through the lining of the cheeks. Advise user to allow it to dissolve in the mouth moving it from side-to-side then stop and rest between the gum and cheek until the taste fades, then repeat for about 20 mins. Do not chew or swallow whole. Do not eat or drink anything whilst using the lozenge.  | Delivers a steady dose of nicotine via the lining of the cheeks. Peak levels are reached after approx. 30 mins.Avoid eating or drinking anything acidic (e.g. coffee, fruit juices, fizzy drinks) 15 mins before and after chewing as this affects absorption. | Very common side effects: Hiccups, sore mouth and throat, nausea. |
| Inhalator | 15mg per cartridge - use maximum of 6 cartridges per day.  | Open the white mouthpiece, insert cartridge, draw air in through the mouthpiece advise to experiment either by inhaling deeply or take shallow puffs, until they find their personal technique. Suggest the user experiments with what suits them best e.g. four 10 minute inhalation periods, eight 5 minute inhalation periods.  | A single 15mg cartridge lasts for approximately 40 minutes of intense use. Peak plasma levels occur within 15 minutes after the end of inhalation. There are approx. 80 puffs per cartridge. When used like a cigarette the inhalator on average delivers 1mg in 80 puffs (e.g. 8 puffs per minute for 10 minutes), this results in a degree of nicotine substitution of about 50% compared to hourly smoking. | Very common side effects: Headache, coughing, mouth, throat and tongue irritation.  |
| Nicotine Mouthspray 1mg/spray | 1-2 sprays every 30 minutes to 1 hour. Max of 64 sprays per 24-hour period.One bottle contains at least 150 sprays. | If using a new bottle or if you have not used the spray for 2 days, prime pump by pointing the spray away, press the top of the pump 3 times until the fine spray appears. To get a dose of the spray, point the spray nozzle as close to the open mouth as possible. Press the top of the dispenser and release one spray into the side of the cheek, avoiding the lips. Avoid swallowing for a few seconds after spraying. Repeat spray on the inside of the other cheek if required.The mouth spray is particularly good for heavier smokers, because of its faster onset of action compared to other products (e.g. lozenges). | More rapidly absorbed than other oral products - usually within 2 minutes, with peak plasma levels in approximately 10 minutes. | Very common side effects include mouth, throat and tongue irritation, hiccups and nausea. Distortion of taste, headaches, dry mouth, burning lips, indigestion. Contains ethanol (less than 100mg of ethanol / spray dose). |
| Nasal Spray | 10mg/ml (500mcg/spray) nasal spray. Max use: 64 sprays/day (or max.1 spray to each nostril twice an hour for 16hrs/day).  | Use one spray in each nostril when needed.Prime spray by placing the nozzle between first and second finger with the thumb on the bottom of the bottle. Press several times and quickly until a fine spray appears (up to 7-8 strokes). Point the spray safely when priming it. Do not prime near other people. Insert the spray tip into one nostril, pointing towards the back of the nose. Press firmly and quickly. Then spray into the other nostril.The nasal spray is particularly good for heavier smokers, because of its faster onset of action. If the full recommended dose is used, one bottle lasts around 3 days. | Most rapidly acting form of NRT. Provides fast relief for cravings, easy to adjust dose. | May cause nasal and throat irritation, including nose bleeds. Running nose, sneezing, watering eyes. Avoid in patients with hyperactive airways e.g. asthma. |
| *Oral strips*  | *Not on formulary*  | *Not on formulary* | *Not on formulary* | *Not on formulary* |
| *Microtabs* | *Not recommended* | *Not recommended*  | *Not recommended*  | *Not recommended*  |
| *Gum* | *Not on formulary*  | *Not on formulary* | *Not on formulary* | *Not on formulary* |