## Medication Recommendations

The following medication recommendations are for use across all sectors of the Winnipeg Health Region. Some of the medications recommended are not available on the WRHA Acute Care Formulary and the WRHA Geriatrics and Long Term Care Formulary; all the medications are available for use in the community.

**Nicotine Replacement Therapy (NRT)**

The dose of nicotine replacement should be made on the basis of the usual number of cigarettes smoked and titrated to effect. Table 1 below shows general dosing recommendations for NRT patch and gum based on the number of cigarettes typically smoked; however, clinical judgment for individual variation should always be used. Table 2 shows NRT lozenge dosing. Table 3 identifies clinical situations in which NRT use may be contraindicated, or where additional risk/benefit considerations may be needed prior to making a prescribing decision. Table 4 provides a summary of common drug interactions. Once a person has been established on an adequate NRT dose, this dose should be maintained for a minimum of 4 weeks, followed by a gradual tapering of dose (again titrating for adequate symptom management) until NRT use is discontinued. In some instances, particularly in patients with persistent and severe mental illnesses, NRT use may need to be considered for longer than the usual duration of 12 – 14 weeks in order to prevent relapse to tobacco use.

It should be noted that anyone receiving more than 21 mg nicotine patch, or patch with gum as needed, is being **prescribed NRT "off-label"**. This is becoming the practice norm for most persons who smoke more than 30 cigarettes per day, as the 21 mg patch does not adequately manage nicotine withdrawal for these persons.[24, 27, 28]

Historically, NRT was contraindicated if people were also using tobacco (i.e. if a person is smoking, she/he should not also use NRT). Health Canada now has approved NRT gum for a "reduce to quit" approach to smoking cessation. The aim is to reduce the number of cigarettes smoked per day, and replace some cigarettes with NRT gum. In fact, the risk of harm from cigarette smoking in conjunction with NRT use is minimal/non-existent- people tend to smoke and use NRT until they feel comfortable (i.e. until they have reached a therapeutically effective dose), and will stop smoking if they begin to experience symptoms of nicotine toxicity. Therefore, **concern that someone might smoke against medical advice while using NRT should not be a deterrent from prescribing NRT**.[29, 30]

**TABLE 1: GENERAL DOSING RECOMMENDATIONS***

| Cigarettes per day (cpd) | NRT Patch* | NRT Gum* |
|---|---|---|
| If patient smokes less than 10 cigarettes per day<br>OR<br>If patient weigs less than 45 kg | 7 mg | 2 mg one piece every 1-2 hours as needed<br>(max: 15 pieces per day)<br><br>If using as monotherapy:<br>2 mg one piece every 1-2 hours as needed<br>(max: 20 pieces per day) |
| If patient smokes 10-20 cigarettes per day | 14 mg | |
| If patient smokes 21-30 cigarettes per day | 21 mg | If using as adjunct to patch:<br>2 mg one piece every 1-2 hours as needed<br>(max: 15 pieces per day)<br><br>If using as monotherapy:<br>4 mg one piece every 1-2 hours as needed<br>(max: 20 pieces per day) |
| If patient smokes 31-40 cigarettes per day | 28 mg<br>(21 mg + 7 mg patch) | |
| If patient smokes greater than 40 cigarettes per day | 42mg<br>(21 mg patch x 2) | |

*NOTE: Dosing is based on using patch in combination with gum. The patch provides long-acting nicotine to manage nicotine withdrawal, and the gum is used as an adjunct to address withdrawal symptoms not managed by the patch. If patient requests gum only after understanding rationale for patch, order as per patient preference using monotherapy dosing.

The above dosing pertains to adults. Generally NRT use is avoided with adolescents, although clinical judgment needs to be used with individual adolescent patients.

**NRT Gum – Prescribing Considerations**[16]

**Side Effects** – Common side effects include mouth soreness, hiccups, dyspepsia, and jaw ache. These effects are generally mild and transient and often can be alleviated by correcting the patient's chewing technique.

**Chewing Technique** – Gum should be chewed slowly until a peppery or flavoured taste emerges, then "park" the gum between cheek and gum to facilitate nicotine absorption through the oral (buccal) mucosa. Gum should be slowly and intermittently chewed and parked for about 30 minutes or until taste dissipates.

**Absorption** – Acidic beverages (eg. coffee, juices, soft drinks) interfere with buccal absorption of nicotine, so eating and drinking anything except water should be avoided for 15 minutes before and during chewing.

**Dosing** – NRT is often not used in an adequate dose to obtain optimal clinical effects. Instructions to chew the gum on a fixed schedule (one piece q1-2h) may be more beneficial than ad lib use.

For hospitalized patients, consider leaving a small supply of gum at the bedside to ensure patient access to the medication when needed.

*Patients who are recumbent, sedated, dysphagic, and/or obtunded should be evaluated to determine safety of NRT gum (risk of aspiration, not able to use appropriately). Patch alone may be indicated.
Please refer to Table 4 below for common drug interactions with smoking cessation.

**NRT Patch – Prescribing Considerations**[16]

**Location** – At the start of each day, the individual should place a new patch on a relatively hairless location, typically between the neck and waist, rotating the site to reduce local skin irritation.
**Activities** – No restrictions while using the patch.
**Dosing** – Patch should be applied upon waking on the quit day, and on each subsequent day. For those who experience sleep disruption, remove the 24-hour patch prior to bedtime.
**Skin Reactions** – Up to 50% of people using the nicotine patch will experience a local skin reaction. These are usually mild and self-limiting, but occasionally worsen with the course of therapy. Local treatment with hydrocortisone cream (0.5% or 1%) or triamcinolone cream (0.5%) and rotating patch sites may ameliorate such local reactions. In fewer than 5% of people, such reactions require the discontinuation of nicotine patch treatment.
Please refer to Table 4 below for common drug interactions with smoking cessation.

**TABLE 2: NRT LOZENGE DOSING**[16]

| Patient | Dose | Time |
|---|---|---|
| If patient smokes first cigarette more than 30 minutes after waking | 2 mg lozenge | Weeks 1 – 6 : one lozenge q 1-2h (Min. 9 / Max. 20 lozenges/day)<br><br>Weeks 7 – 9 : one lozenge q 2-4 h<br><br>Weeks 10 – 12 : one lozenge q 4-8h |
| If patient smokes first cigarette within 30 minutes of waking | 4 mg lozenge | |

**NRT Lozenge – Prescribing Considerations**[16]

**Side Effects** – Common side effects include nausea, hiccups, headache, coughing and heartburn.
**Use** – The lozenge should be allowed to dissolve in the mouth rather than chewing or swallowing it.
**Absorption** – Acidic beverages (e.g. coffee, juices, soft drinks) interfere with buccal absorption of nicotine, so eating and drinking anything except water should be avoided for 15 minutes before and during use.
**Dosing** – Patients often do not use enough prn NRT to obtain optimal clinical effects. Instructions to use the lozenge on a fixed schedule (one piece q1-2h) may be more beneficial than ad lib use. For hospitalized patients, consider leaving a small supply of lozenges at the bedside to ensure patient access to the medication when needed.
*Patients who are recumbent should be evaluated to determine safety of NRT lozenges (risk of aspiration, not able to use appropriately).
Please refer to Table 4 below for common drug interactions with smoking cessation.

## NRT Oral Mist – Prescribing Considerations[29, 30]

**Side Effects** – Tingling of the lips, hiccups, strong taste in mouth.
**Absorption** – Absorbed by the oral mucosa. Median time to maximum blood concentration is 10- 12 minutes, but starts within 60 seconds.
**Use** – Upon first use, prime the spray bottle by spraying it into the air until a fine mist appears. Point spray bottle into mouth and press down on spray bottle once, avoiding lips. A second spray should be given a few minutes after the first if cravings remain. Avoid spraying down the throat by not inhaling when spraying. Avoid swallowing for a few seconds after spraying.
**Dosing** – One or two sprays every 30-60 minutes as needed when cravings arise. Maximum dosing is 4 sprays per hour or 64 sprays per day.
Please refer to Table 4 below for common drug interactions with smoking cessation.

## Nicotine Inhaler – Prescribing Considerations[16, 33]

**Side Effects** – Local irritation in the mouth and throat, cough, and rhinitis. Side effects decline with continued use.
**Use** – Frequent, continuous puffing of the inhaler for 20 min should be undertaken. Delivery of nicotine declines significantly at temperatures below 4°C. In cold weather, the inhaler and cartridges should be kept in an inside pocket or other warm area.
**Absorption** – Acidic beverages (e.g. coffee, juices, soft drinks) interfere with buccal absorption of nicotine, so eating and drinking anything except water should be avoided for 15 minutes before and during use.
**Dosing** – A dose from the nicotine inhaler consists of a puff or inhalation. Each cartridge delivers 4 mg of nicotine over a total of 80 inhalations. Recommended dosage is 6-16 cartridges per day, for up to 6 months. Taper the dosage during the final 3 months of treatment.
Please refer to Table 4 below for common drug interactions with smoking cessation.

## Considerations, Cautions, Contraindications of NRT Products

Nicotine use is low risk for most healthy adults and the goal of NRT is to remove the exposure to harmful combustion products while withdrawing from nicotine addiction. However, in some health conditions, nicotine itself poses or exacerbates health risks, particularly cardiovascular. Additionally, NRT use has not been well studied in some patient populations such as adolescents, frail elderly, and pregnant and breastfeeding women. In these situations, additional considerations and cautions should be applied; but in many if not most cases, NRT can and should still be used if that presents less risk than the alternative of continued tobacco use.

There are very few absolute contraindications to the use of NRT. In rare and specific clinical situations nicotine **is strongly contraindicated** through either patient tobacco use or nicotine replacement therapy.

More commonly, **relative contraindications** may occur which should be considered in comparison to the likelihood of continued tobacco use without NRT. If abstinence or cessation is achievable without NRT then that is preferred. However, if continued tobacco use is occurring or very likely to occur, clinical judgment should be used to achieve the lowest feasible nicotine risk.

In the past, NRT was too often withheld if there was even minimal concern about nicotine adverse effects. An overly cautious approach to nicotine prescribing can inadvertently result in higher patient nicotine exposure if withdrawal symptoms are self-medicated by continued tobacco use instead of NRT.

Below is a summary of absolute and relative contraindications for NRT. Table 3 provides additional clinical considerations within key service areas. Table 4 summarizes common drug interactions with smoking and cessation. **These resources are intended to assist the individual clinical judgment that is needed to achieve the lowest tobacco and nicotine exposure possible for every patient.**

## Absolute Contraindications

- All free flap patients: NRT and tobacco products must not be used by these patients for at least 2 weeks before and 2 weeks after free flap surgery. For planned procedures involving face and breast, tobacco and NRT use should be avoided 4 weeks before and 4 weeks after surgery. The plastic surgeon managing the patient should decide the timing of NRT.[34-36, 47]

- Patients who due to the severity of illness and circumstances of care do not have the option to use tobacco products (i.e. would not be otherwise exposed to nicotine if not prescribed NRT) and are comfortable without NRT and:
    - are in the immediate (within 2 weeks) post myocardial infarction period[16] or
    - have serious arrhythmias or
    - have unstable angina pectoris[16] or
    - are hemodynamically or electrically unstable[37- 41] or
    - have had orthopedic surgery or a serious fracture(s).[42-45]

## Relative Contraindications

Patients who may continue to use tobacco if not prescribed NRT but:

- are in the immediate (within 2 weeks) post myocardial infarction period[16] or
- have serious arrhythmias or
- have unstable angina pectoris[16] or
- are hemodynamically or electrically unstable[37-41] or
- have had orthopedic surgery or serious fractures.[42-45]

Abstinence without NRT is preferred, but NRT may be safer than continued use of tobacco in the above circumstances - individual clinical judgment required.

## Cautions

- Women who are pregnant or breastfeeding

  Abstinence or cessation without NRT is preferred since NRT in pregnant and lactating women has not been well studied. However, NRT is safer than continued use of tobacco in the above circumstances - individual clinical judgment required[46]. Shorter-acting forms of NRT (i.e. gum, lozenge, inhaler, mist) are preferred over the longer-acting NRT patch as a means of reducing fetal exposure to nicotine.

- Adolescents

  Although nicotine replacement has been shown to be safe in adolescents, there is little evidence that NRT is effective in promoting long-term abstinence among adolescent smokers[16]. Abstinence or cessation without NRT is preferred. For some physically mature youth who are continuing to use tobacco despite attempts to support them to be abstinent or quit without NRT, NRT can be considered.

**TABLE 3: NRT USE - CLINICAL CONSIDERATIONS**

| SERVICE AREA | KEY CLINICAL CONSIDERATIONS |
|---|---|
| Anesthesia | • General prescribing guidelines can be followed, and following fasting guidelines where required. |
| Child Health/Adolescent Medicine | • NRT is safe in adolescents but little evidence for long-term cessation.<br>• NRT use has not been studied in children.<br>• Generally NRT use is avoided with adolescents, but clinical judgment needs to be used with individual adolescent patients.<br>• For some physically mature youth who are continuing to use tobacco despite attempts to support them to be abstinent or quit without NRT, NRT can be considered. |
| Cardiac | • NRT is safe and effective in smokers with stable coronary artery disease.<br>• NRT may be used in hospitalized patients with acute coronary syndromes when necessary; however, NRT should be used with caution among particular cardiovascular patient groups:<br>o those in the immediate (within 2 weeks) post myocardial infarction period,<br>o those with serious arrhythmias and<br>o those with unstable angina pectoris |
| Critical Care | • Use in critical care units should be determined on an individual patient basis rather than routinely ordered.<br>• Due to the severity of illness, critical care patients do not generally have the option to use tobacco products against advice, so the risk of NRT is not relative to continued (and higher risk) tobacco use.<br>• Critical care patients often have reduced consciousness due to illness or sedation so may experience less nicotine withdrawal symptoms.<br>• Select subgroups of patients may benefit from NRT, such as those with restlessness refractory to usual management.<br>• NRT use will be considered on the daily goals sheet in situations where NRT may be helpful. |
| Delirium, Dementia | • Safety of NRT in the setting of delirium or dementia has not been studied.<br>• Nicotine withdrawal may contribute to agitation in |

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| | delirious or demented patients. In the appropriate setting, consider the cautious use of NRT in agitated, cognitively impaired patients who were recent smokers and who have no other apparent cause of agitation.<br>• Continued smoking significantly limits the choice of Personal Care Home. Advise patients and families about the pros and cons of smoking cessation when paneling for PCH. |
| Emergency | • For most patients, general prescribing guidelines can be followed.<br>• If differential diagnosis includes conditions associated with relative contraindications (eg. cardiac) the applicable considerations should be followed. |
| Frail Elderly | • Dose response has not been studied.<br>• Depending on life expectancy, long term benefits of smoking cessation (cancer, COPD prevention) may not be relevant. Short term benefits may well make cessation worthwhile (improvement in cardiovascular symptoms and outcomes).<br>• Consider starting NRT at lower doses in frail, low-body-mass elderly. Increase to usual doses if nicotine withdrawal symptoms persist. |
| General Surgery | • For most patients, general prescribing guidelines can be followed.<br>• If differential diagnosis includes conditions associated with contraindications (such acute MI or serious arrhythmia) the applicable considerations should be followed. |
| Internal Medicine | • NRT should be routinely offered to all patients who smoke and are admitted to respiratory medicine, internal medicine and coronary care units unless there are specific contraindications.<br>• Patients who are hemodynamically or electrically unstable should have NRT deferred until stabilized and off vasopressors and/or inotropes.<br>• If differential diagnosis includes conditions associated with relative contraindications (eg. cardiac) the applicable considerations should be followed. |
| Mental Health/Psychiatry (15) | • The use of NRT is safe for patients/clients with mental illnesses.<br>• Patients/clients can smoke while using NRT.<br>• Combination therapy (i.e. patch and gum simultaneously) can be used.<br>• If the patient/client reports nightmares, remove the patch at night.<br>• Patients/clients with mental illness often engage in high levels of smoking and therefore may require higher dose of NRT. Exceeding the usual maximum dose (i.e. double patching) and duration requires cautious titration upwards and |

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| | consultation with pharmacy.<br>• Maintenance (≥10 weeks) may have some benefit but must be considered on the individualized basis.<br>• There are several psychotropic drugs whose levels are increased with smoking cessation/abstinence (in particular, Clozapine).<br>• More frequent monitoring of serum levels of these medications is advised.[48] |
| Orthopedic Surgery | • Non-nicotine cessation medications and/or cessation counselling should be routinely offered to all orthopaedic inpatients who use tobacco. Abstinence or cessation should be attempted without the use of NRT if at all possible.<br>• Nicotine markedly increases complications of fractures, especially non-union.[42-45]<br>• Trauma patients confined to bed do not generally have the option to use tobacco products against advice, so the risk of NRT is not relative to continued (and higher risk) tobacco use.<br>• If orthopaedic patients not confined to bed are continuing to use tobacco products, the lesser risk of NRT could be considered with the goal being to achieve the lowest possible exposure to nicotine. |
| Plastic Surgery | • Given the complexity of plastic surgery and reconstructive procedures, NRT should always be a deliberate decision by the plastic surgeon as to when it can be safely used. This includes the preoperative phase of care as some authors recommend abstinence from nicotine (both tobacco and NRT use) for at least 4 weeks prior to planned plastic surgical procedures.<br>• All free flap patients must stop smoking before surgery; they are advised that one cigarette may cause flap necrosis. NRT and tobacco products must not be used by these patients for at least 2 weeks before and 2 weeks after free flap surgery. For planned procedures involving face and breast, tobacco and NRT use should be avoided 4 weeks before and 4 weeks after surgery.[47]<br>• Smokers who stop smoking for 4 weeks prior to reduction mammoplasty have similar complication rates to non-smokers.[49]<br>• Smokers who stop smoking for 3 weeks prior to Head and Neck Reconstructive surgery have similar wound healing to non-smokers.[50]<br>• The face lift operation is an excellent model of flap surgery. A face lift patient who smokes is 12.46 X more likely to suffer skin sloughing than a non-smoker.[36] |
| Vascular Surgery | • General prescribing guidelines can be followed<br>• **Note** – particular emphasis on smoking |

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| | abstinence and/or cessation with vascular patients is warranted due to the detrimental effects of smoking on bypass graft patency rates, abdominal aortic aneurysm (AAA) growth, and amputation rates compared to non-smokers. |
| Women's Health | • Women who are pregnant and smoke should be encouraged to stop tobacco use without medication.<br>• Nicotine patch and gum have not been studied adequately in women who are pregnant and smoke.<br>• Nicotine patch and gum have also not been evaluated in breastfeeding patients.<br>• NRT, especially short-acting NRT (i.e. gum, lozenge, inhaler), is safer than smoking for the pregnant woman and the fetus if she is unable to stop smoking with a behavioural intervention.[46]<br>• A discussion regarding the risks and benefits of any form of nicotine to the developing fetus should be had with the patient. It should be stressed that NRT removes the risk of other highly toxic chemicals from the developing fetus.[46] |

## TABLE 4: TABLE OF COMMON DRUG INTERACTIONS WITH SMOKING AND CESSATION

Potential drug interactions with smoking and quitting
(Current as of September 2011)

Many drug interactions have been reported with cigarette smoking.[1-4] Smoking induces drug metabolizing enzymes (primarily CYP1A2) in the liver. As a result, smokers have higher clearance of certain drugs and require higher doses to achieve clinical response. Conversely, when smokers quit smoking, their induced enzyme levels revert to normal. This may result in toxic drug levels in these patients whose drug doses were established while smoking.

Some potential drug interactions associated with cigarette smoking and quitting are depicted below. Although available information was based on case reports and small studies, clinicians should be aware of such potentials and monitor their patients closely for drug efficacy and toxicity.

| Drug | Reported effects of smoking | Possible strategies after smoking cessation* |
|---|---|---|
| caffeine[1,3] | • ↑ clearance (by 56%) | • Assess total caffeine intake from all sources; ↓ intake by half; monitor for caffeine toxicity (e.g., irritability & insomnia) |
| clozapine[5,6] | • ↓ plasma concentrations (by 18% | • Monitor for clazapine toxicity; ↓ dose (by a factor of ☐ .5) may be requred |
| flecainide[1,4] | • ↑ clearance (by 61%), ↓ trough serum concentrations (by 25%); ↑ dose requirements (by 17%) | • May need to ↓ dose, but no specific recommendation available. Monitor for clinical response |
| fluvoxamine[1,4,7] | • ↑ clearance (by 24%), ↓ AUC (by 31%), ↓ $C_{max}$ (by 32%), ↓ $C_{ss}$ (by 12-39%) | • Dosage adjustment not routinely recommended; close monitoring for adverse events |
| insulin[1,3,4] (subcutaneours) | • ↑ insulin requirement possible due to nicotine-induced insulin resistance & vasoconstriction (i.e., ↓ adsorption) | • Close monitoring of blood glucose, especially for patients prone to hypoglycemia or when tight glucose control is needed |
| mexiletine[1,4,8] | • ↑ oral clearance (by 25%); ↓ $t_{1/2}$ (by 36%) | • May need to ↓ dose, but no specific recommendation available. Monitor for clinical response. Use caution with older adults |

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|---|---|---|
| olanzapine[1,3,5] | • ↑ clearance (by 98%), ↓ plasma levels (by 12%) | • May need to ↓ dose, but no specific recommendation available. Monitor for excessive adverse effects |
| propranolol[1,4] | • ↑ clearance (by 77%) | • Blood levels may ↑ but clinical implication is unclear due to wide dosage range; closely monitor for adverse events |
| theophyline[1,4] | • ↑ clearance (by 58-100%); ↓ $t_{1/2}$ (by 63%); ↑ volume of distribution (by 31%) | • Monitor levels and adjust dose accordingly; ↓ dose (by 25-33%) may be needed to maintain therapeutic drug levels |
| warfarin[1,4] | • INR prolongation has been reported | • Closely monitor INRs; ↓ dose (by 14-23%) may be needed |

*The relationship between the amount of cigarette smoking and the extent of drug interaction is unclear. The information in the table is based on current available literature and should not replace sound clinical judgments. Dosages should be individualized to achieve optimal therapeutic response with minimal toxicities. Abbreviations: AUC area under concentration-time curve; $C_{max}$ peak concentrations; $C_{ss}$ steady-state concentrations; $t_{1/2}$ half-life


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Note: INR = International Normalized Ratio, a blood test measuring the time it takes for blood to clot and comparing it to an average. 

## Non-Nicotine Medication Recommendations

Both bupropion SR (Zyban) and varenicline (Champix) are prescription medications which can double or triple the likelihood of long-term abstinence from tobacco use compared to placebo. The possible mechanisms of action for bupropion include blockade of neuronal re-uptake of dopamine and norepinephrine and blockade of nicotinic acetylcholinergic receptors. The presumed mechanism of action for varenicline is partial nicotine receptor agonist and antagonist effects.[16]

### Bupropion SR (Zyban) – Prescribing Considerations

**Side Effects** – Headache, insomnia, weight loss and dry mouth.[16, 51]
If insomnia is marked, take the PM dose earlier in the afternoon, but at least 8 hours after the first daily dose.[16]

**Dose** – Begin bupropion SR treatment 1-2 weeks before stopping cigarette use. Starting dose is 150 mg every morning for three days, which is increased to 150 mg twice daily for 7-12 weeks. Long term therapy is required in some individuals for up to 6 months.[16]

**Pregnancy** – Bupropion SR has not been shown to be effective as a therapy for treating tobacco dependence in pregnant smokers. In addition it has not been evaluated in breastfeeding patients.[16]

### Contraindications[16, 51]

Bupropion SR is contraindicated in the following individuals:

- history of seizure disorder
- history of eating disorder
- those taking another form of bupropion

- those who have used an MAO inhibitor in the past 14 days
- those who have undergone abrupt discontinuation of ethanol or sedatives
- hypersensitivity to Bupropion SR in the past

**Cautions**

Reports of increased rates of depressed mood, agitation, changes in behaviour, suicidal thoughts and behaviour while using Bupropion SR exist. Clinicians should elicit a psychiatric history prior to using this medication and monitor any changes in mood and behaviour during use.[51]

Hypertension has been reported in some individuals using bupropion alone or in combination with nicotine transdermal systems.[16, 51]

Reduced dose and/or frequency is recommended in those with hepatic impairment.[51] Consider a reduction in dosing frequency for those with renal impairment.[51]

Use alcohol only in moderation.[51]

**Varenicline (Champix) - Prescribing Considerations**[16]

**Side Effects** – Nausea, insomnia, abnormal dreams.

For those with gastrointestinal upset, consider taking medication after eating or with a large glass of water.

For those with insomnia, consider taking medication earlier in the day.

**Dose** – Begin therapy one week before quit date at 0.5 mg once daily for three days, followed by 0.5 mg twice daily for 4 days, followed by 1 mg twice daily for 3 months. May use for up to six months. For those who experience side effects, consider reduced dosage (0.5 mg twice daily).

**Pregnancy** – Varenicline has not been shown to be effective as a therapy for treating tobacco dependence in pregnant smokers. In addition it has not been evaluated in breastfeeding patients.

**Contraindications**

Known history of hypersensitivity or severe skin reactions to varenicline.[52]

**Cautions**

Reports of increased rates of depressed mood, agitation, changes in behaviour, suicidal thoughts and behaviour exist with use of varenicline. Clinicians should elicit a psychiatric history prior to using this medication and monitor any changes in mood and behaviour during use.[16, 52]

From the information available to date, it is not possible to determine whether varenicline increases the risk of heart or stroke events in people who have cardiovascular disease.[52, 53]

Use with caution in those with kidney disease or who are on dialysis. A reduced dose is recommended in these patients.[16]

Patients may experience an impairment of the ability to drive or operate heavy machinery.[16] Alcohol may enhance the adverse effects of varenicline, including psychiatric events. Use alcohol only in moderation.[52]