I. INTRODUCTION

Tobacco use is the second leading cause of worldwide mortality and imposes tremendous costs on society both in terms of negative health consequences and economic losses. **It is the single largest preventable factor contributing to the burden of disease, disability and death in Jamaica.** Nonusers are also affected by tobacco. Environmental tobacco smoke has been identified as a human carcinogen (1). The morbidity and mortality due to tobacco use are fully preventable (2).

In spite of the negative consequences of smoking, tobacco use disorders have not been consistently and effectively treated. Chronic smoking reduces longevity by an average of 13.2 years among male smokers and 14.5 years among female smokers (3). These findings are disappointing given abundant evidence that smoking cessation treatments are both efficacious and cost-effective (4, 5, 6).

Tobacco Dependence; chronic disease

Nicotine dependence is a biobehavioural disorder and is fundamentally a neurobiologically mediated brain disorder. The development of tobacco dependence is a gradual process, beginning with experimentation, progressing to regular use, abuse and finally dependence. Nicotine, like other drugs of abuse has the common denominator of action on the mesolimbic dopamine system. Activation of the mesolimbic dopamine system leads to increases in dopamine in the Nucleus Accumbens (NA), which plays a part in the reward system and reinforcement, resulting in the establishment of dependence. Withdrawal is also an important component of addiction and is mediated by norepinephrine, focused in the neurons of the Locus Ceruleus (LC). With abstinence from smoking, nicotine levels in the addicted person decline, leading to abnormally high firing rates of noradrenergic neurons in the Locus Ceruleus, the basis of nicotine withdrawal symptoms (7). The addicted brain is abnormally conditioned such that

environmental cues associated with nicotine use are an important part of the addiction.

Medical impact of smoking

Smoking has been recognized as a serious medical problem and, in the last 20 years, has been linked irrefutably to many serious diseases, including cancer, heart disease, stroke, lung disease, complications of diabetes, and ulcers and COPD. Tar, a toxic particulate of cigarette smoke, is considered a complete carcinogen, causing and promoting malignant changes. Smoke from the burning end of cigarettes, side stream smoke, contains carcinogenic aromatic amines which have a negative effect on the health of passive or involuntary smokers present in the smoker's environment. The development of lung cancer is 10 times more likely for smokers than non-smokers and 15-25 times greater for heavy smokers (2 or more packs per day). Smokers have 2-4 times greater risk of dying from Coronary Heart Disease (CHD) than non-smokers, depending on their rate of smoking (8). In the diabetic client, nicotine is a factor in both acute and chronic reduction of blood flow to the limbs, contributing to death of tissue and amputation. Smoking accounts for 90% of the development of chronic bronchitis and emphysema (9) and toxic gases in cigarette smoke are responsible changes leading to COPD. In the United States of America (U.S.A) one-third of all cancers, 25 percent of all heart attacks and strokes and 90 % of all cases of COPD are directly caused by tobacco use (10).

The presence of other risk factors acting synergistically in smokers to cause CHD, COPD and cancer must be considered. The risk for individuals with hypercholesterolaemia and hypertension is greater than just the additive effect of each risk factor. Attention has also been given to the synergistic effect of smoking and alcohol use on mortality (11).

Benefits of quitting

Smoking cessation has major and immediate health benefits for men and women of all ages. Benefits apply to persons with and without smoking-related disease (12). The health benefits of quitting smoking include decreased risk of lung cancer, other cancers, cardiovascular disease, chronic lung disease, infertility, peptic ulcer disease and slowed wound healing (13). It is important to dispel the belief of clients that the damage caused by smoking has already been done and that quitting has little value.

Effect of social, demographic and medical factors on smoking cessation

The social and cultural environments of smokers have been shown to affect their ability to stop smoking. Individuals who receive more social support for cessation and have fewer smokers in their environment are more successful at cessation attempts (14). Smokers, who are older, better educated, and at a higher occupational level are more likely to be able to stop smoking than the younger, less educated smoker who is at the lower end of the occupational scale (15). Individuals, who present with more severe disease, at least with regards to CHD, have shown a greater likelihood of cessation (16).

II. SCREENING FOR TOBACCO USE

Research shows that seven out of ten smokers see a physician at least once a year and most of them want to stop smoking (17). One report found that only half of smokers who saw a physician over a one year period reported being asked about their smoking behaviour, with as few as 21% of smokers offered cessation help in health care settings (18). Reasons clinicians avoid helping smokers quit include:

- time constraints
- lack of expertise
- lack of financial incentives
- respect for a smoker's privacy
- fear that a negative message might lose customers
- pessimism because most smokers are unable to quit
- clinicians being smokers

Including smoking status as a new vital sign

A small investment of time by primary care physicians can play a significant role in smoking cessation. Physician-delivered smoking cessation interventions can have a tremendous public health impact. Smokers cite a physician's advice to quit as an important motivator for attempting to quit (19). Brief advice to quit by a clinician results in greater quit rates (20). Identification of smokers and providing support for smoking cessation in medical practice are effective methods of addressing tobacco dependence (21).

Currently physicians in Jamaica do not routinely screen for tobacco use.

Smoking status should become a routine **vital sign** (22) for clients in Jamaica. Tobacco use status (current, former or never user) of all clients attending outpatient clinics in Jamaica, in particular those with Cardiovascular Disease, Cerebrovascular Disease, Diabetes Mellitus, Malignant Neoplasms, Asthma,

COPD and Emphysema should be **assessed and documented** at every visit. "**Asking"** is the first component of a Brief Cessation Intervention (Page 10), followed by "**Advising"** clients to quit and **"Assessing"** the client's stage of motivation to quit and level of nicotine dependence (Figure 1). Research findings suggest that using chart reminders increases the proportion of physicians who ask, advise and assess smoking clients (Figure 1), (23, 24, 25, 26, 27).

Asking, advising and assessing should be routinely done at all visits to the physician.

People who have never smoked or those who have been abstinent for an extended period do not need an intervention. Recent quitters should receive an intervention to prevent relapse. Those unwilling to quit should be advised to consider quitting. Although a minority of tobacco users (5%) achieves permanent abstinence in an initial *cold turkey* quit attempt, the majority persists in tobacco use for many years and typically cycle through multiple periods of relapse and remission. Treatment should be commenced in those willing to quit.

SMOKING STATUS AS A VITAL SIGN

(Ask and document at **every** visit)

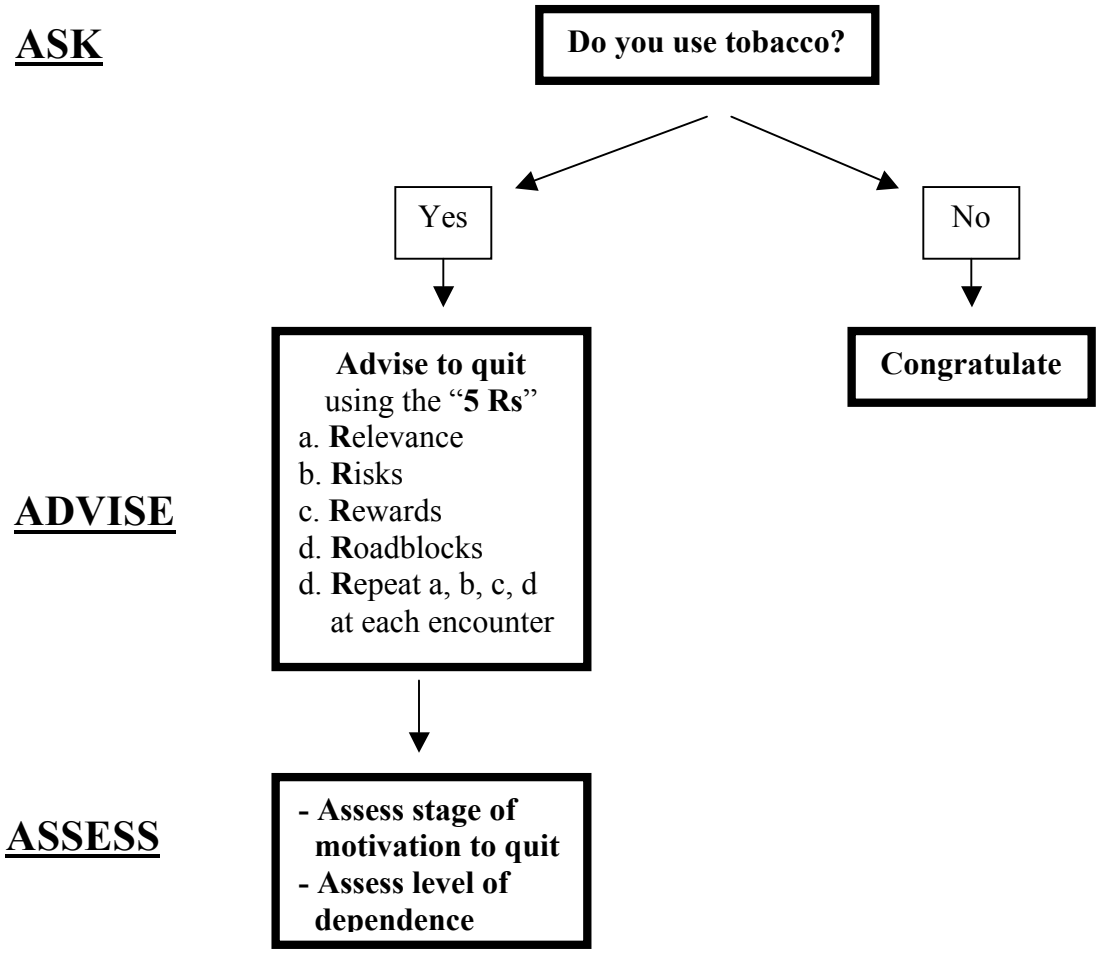

Figure 1

- **ASK** all clients about their smoking status. Clients should be told that you ask because you care. Avoid being judgmental.

- **ADVISE** all smokers to quit and deliver a message about the importance of quitting.

Advise to quit using the "**5 Rs":**

1) **Relevance** - tailor advice and discussion to each client. Clinicians should encourage the client to indicate why quitting is personally relevant, being as specific as possible. Motivational information has the greatest impact if it is relevant to a client's disease status or risk, family or social situation (e.g., having children in the home), health concerns, age, gender, and other important patient characteristics (e.g. prior quitting experience, personal barriers to cessation).

2) **Risks** - outline risks of continued smoking. Clinicians should ask the client to identify potential negative consequences of tobacco use.

- *Acute risks* include shortness of breath, exacerbation of asthma, harm to pregnancy, impotence, and increased serum carbon monoxide.
- *Long-term risks* include heart attacks and strokes, lung and other cancers (larynx, oral cavity, pharynx, esophagus, pancreas, bladder, cervix), chronic obstructive pulmonary disease (chronic bronchitis and emphysema), long-term disability and need for extended care.
- *Environmental risks* include increased risk of lung cancer and heart disease in spouses higher rates of smoking by children of tobacco users; increased risk for low birth weight, asthma, middle ear disease, and respiratory infections in children of smokers. Clinicians may suggest and highlight those that seem most relevant to the client.

3) **Rewards** - outline the benefits of quitting. Clinicians should ask the client to identify potential benefits of stopping tobacco use. Clinicians may suggest and highlight those that seem most relevant to the client, such as improved health, improved sense of smell, food will taste better, saving money, improved self-

esteem, home, car, clothing, breath will smell better. No more worrying about quitting, setting a good example for kids, have healthier babies and children, no more worrying about exposing others to smoke, feel better physically, perform better in physical activities, and reduced wrinkling/ aging of skin.

4) **Roadblocks** - identify barriers to quitting. Clinicians should ask the client to identify barriers or impediments to quitting and note elements of treatment (problem-solving, pharmacotherapy) that could address barriers. Typical barriers might include withdrawal symptoms, fear of failure, weight gain, lack of support, depression, and enjoyment of tobacco.

5) **Repeat** - reinforce the motivational message at each encounter for those not ready to quit. Motivational interventions should be repeated every time an undecided or continuing smoker visits the clinic setting. This advice should be clear and strong. For example**, "As your physician, I must tell you that the most important thing you can do to improve your health is to stop smoking."**

- **ASSESS** stage of motivation to quit smoking.

As with any behaviour change process, motivation to quit smoking is critical to the process of treatment. Treatment of nicotine dependence should have a stage-based approach. The Stages of Change Theory (Transtheoretical Model of Intentional Behaviour Change) indicates that the process leading to clients engaging in treatment for nicotine addiction involves progression through 7 stages. The Stages of Change and treatment provider's task are described below (28, 29).

Transtheoretical model of intentional behaviour change

Precontemplation – The client thinks smoking is not a problem and does not intend to quit in the next 6 months. The treatment provider's task is to raise

doubt; educate on the negative effects of tobacco, increase the client's perception of risks and problems with current behaviour. Recommend quitting.

Contemplation – The client is thinking about change and intends to quit in the next 6 months. The treatment provider's task is to tip the decisional balance. Evoke reasons for change, risks of not changing; strengthen client's self-efficacy for change of current behaviour.

Preparation - The client is getting ready to change and intends to quit in the next 30 days. The treatment provider's task is to help the client to determine the best course of action to take in seeking change, develop a quit plan, and encourage social support.

Action - The client is making the change and stopped smoking less than 6 months ago. The treatment provider's task is to help the client implement the plan, use skills, troubleshoot triggers, problem solve and to support self efficacy.

Maintenance - The client is sustaining change and quit more than 6 months ago. The treatment provider's task is to help the client identify and use strategies to prevent relapse. Continue behaviour support and resolve associated problems.

Relapse/Recycling – The client has relapsed. The treatment provider's task is to help the client recycle through the stages without becoming stuck or demoralized because of relapse. Offer additional intervention

Termination – The client has been abstinent for 2-5 years

- **ASSESS** level of Dependence

The Fagerstrom Test for Nicotine Dependence (FTND) is a widely used screening tool for assessing levels of nicotine dependence (30). The test is can be self administered and consists of 6 short questions with a maximum score of

ten points and can be completed in one minute (Appendix 2). A score of 5-6 points is considered heavy nicotine dependence, 3-4 points moderate nicotine dependence and 0-2 points light nicotine dependence. Scores on the FTND may be used as a guide to dosing in pharmacotherapy (Appendix 4).

GUIDELINE: SCREENING FOR TOBACCO USE		
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III. TREATMENT OF TOBACCO USE DISORDERS (ABUSE AND DEPENDENCE)

Effective therapies include both pharmacological and behavioural approaches. Treatment for tobacco dependence works best when combined in multicomponent packages, including both behavioural (counseling) and pharmacological elements (31). Pharmacotherapy is a vital component.

Assisting the client in his or her quit attempt can be done using either a **brief** or an **intensive cessation intervention**. Level of intensity of the intervention has a strong dose response effect. Current smokers motivated to quit should receive a brief cessation intervention and/or a referral to an intensive treatment.

GUIDELINE: TREATMENT OF TOBACCO USE DISORDERS		
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IV. BRIEF CESSATION INTERVENTION

All smokers should be offered a brief cessation intervention. The gold standard for a brief cessation intervention is the "**5 As" (ask, advise, assess, assist, and arrange),** (32), (Appendix 1).

- **ASK** (page 7)
- **ADVISE** (page 7)
- **ASSESS** the client's stage of motivation to quit smoking (page 8). Assess their level of nicotine dependence using the FTND (Appendix 2) as well as their behaviour (page 9).
- **ASSIST** him or her in making a quit attempt.

Clients not willing to quit (Precontemplation/Contemplation Stages):

Should be assisted to think about quitting in the future:

- Offer literature about the effects of tobacco use
- Advise to think about quitting
- Let the client know that you're available should they decide to quit.
- Inform the client that, because it is so important, you will continue to ask about their tobacco use

Clients willing to quit (Preparation/Action stages):

- **Assessment of behaviour -**The smoker should be asked about past attempts at quitting, resources that helped, factors that hindered and factors that may have led to relapse. The smoker should be asked to record time, place, mood, need and thoughts associated with each cigarette smoked for the week prior to discontinuation of smoking ("wrap sheet" - placed around the box of cigarettes, this facilitates documentation, delayed recall being unreliable). This gives the client and provider an understanding of what behaviours, cognitions and environmental factors are related to smoking. Clients uncomfortable or resistant to keeping behavioural records should not be unduly pressured to do so. In these

cases questions such as: "In what situations do you tend to smoke?" can be a reasonable replacement. Self monitoring should be encouraged.

- **Counseling** - It is recommended that counseling include the following components:
  - providing basic information about smoking and successful quitting
  - provision of practical counseling (problem-solving/skills training) such as helping the client identify events, internal states, or activities that increase the risk of smoking or relapse
  - identifying and practicing coping or problem-solving skills
- **Set** a **quit date** - In preparation for quitting the client should set a quit date within 1 month of their decision to quit smoking, ideally within 2 weeks of initiating pharmacotherapy in the case of Bupropion SR. **Clients being treated with a nicoderm patch must discontinue smoking on commencing treatment** (Appendix 3, 4).
- Stress the need for **total abstinence** - The client should be advised to tell their family, friends, and coworkers about the quit attempt and request understanding and support.
- **Remove tobacco products** - Prior to quitting, clients should remove tobacco products from their environment and avoid smoking in places where he or she spends a lot of time (e.g., work, home, car). In addition, if a spouse or significant other is continuing to smoke, specific strategies to limit that risk should be established.
- Review **past quit attempt** experiences - Urge the client to consider reusing strategies that were helpful in avoiding cigarettes in previous attempts to quit. Help the client identify triggers and to avoid situations that may have contributed to their relapse.
- **Anticipate challenges** - It is important for the client to anticipate challenges to the planned quit attempt, particularly during the critical first few weeks (e.g., withdrawal symptoms such as negative mood, urges to smoke, and difficulty concentrating).

- **Tobacco and alcohol** - Alcohol use is strongly associated with relapse. Smokers who try to quit and relapse often have their first drag of smoke with some alcohol in their bloodstream. The use of alcohol should be avoided in the first few weeks after a quit attempt.
- **Self-help tips**

  At home

  - When getting up ……. Take several deep breaths
  - After a meal …… Brush your teeth immediately
  - Watching TV …….. Call a friend, go for a walk, go to the movies

  At work

  - When trying to concentrate …… Take several deep breaths
  - When answering the phone …… Hold a pen in your hand

  During your free time

  - In a party …….. Go outdoors and take several deep breaths
  - In a bar ……. Go to the movies instead

Pharmacotherapy

Two first-line pharmacotherapies have been identified for smoking cessation, **sustained-release Bupropion (Bupropion SR) tablets** and **nicotine replacement therapy (NRT)** (31). Bupropion SR and nicotine patch (nicoderm) are available in Jamaican pharmacies. Smokers attempting to quit should be prescribed a form of pharmacotherapy (Appendix 3 & 4). **Combined pharmacotherapy should be provided by addiction specialists**. The dosing schedules for Bupropion SR and the nicotine patch are outlined in Appendix 3 & 4. If pharmacotherapy is used with l**ighter smokers (**based on Fagerstrom score, or less than 10 cigarettes per day**)** clinicians should consider reducing the dose. The dose of nicotine patch should also be reduced in the case of moderate and light nicotine dependence as outlined in appendix 4. This results in a shorter duration of pharmacotherapy for moderate and light nicotine dependence.

****Special consideration** should be given before using pharmacotherapy with selected populations: those with medical contraindications, pregnant and adolescent smokers.

Bupropion SR is contraindicated in individuals with a history of seizure disorder, a history of an eating disorder, already using Bupropion SR (Wellbutrin), or who have used a Mono Amino Oxidase Inhibitor (MAOI) in the past 14 days. NRTs are safe and have not been shown to cause adverse cardiovascular effects. However, the safety of these products has not been established for the immediate post-MI period, those with serious arrhythmias or in clients with severe or unstable angina.

Tobacco dependence pharmacotherapies may be used for longer periods (≥ 6 months) in smokers who report persistent withdrawal symptoms during the course of pharmacotherapy.

Choice of a specific first-line pharmacotherapy

Choice of a specific first-line pharmacotherapy must be guided by factors such as clinician familiarity with the medications, contraindications for selected clients, client preference, previous client experience with a specific pharmacotherapy (positive or negative), and client characteristics (e.g. history of depression). Treatment with Bupropion SR alone or in combination with a nicotine patch results in significantly higher long-term rates of smoking cessation than use of either the nicotine patch alone or placebo (33). The ability to use Bupropion SR in combination with nicotine replacement therapy makes the drug a useful treatment option for smoking cessation (34).

- **ARRANGE FOLLOW-UP**.

For clients unwilling to make a quit attempt the **"5 Rs"** should be repeated at each encounter (page 7). For clients willing to make a quit attempt follow-up should be included in their treatment intervention. Weekly follow-up visits are recommended during the first month of cessation (or at the time of stopping pharmacologic measures). Thereafter visits should be monthly for the remainder of the twelve week treatment period or longer if necessary (≥ 6 months).

GUIDELINE: BRIEF CESSATION INTERVENTION		
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V. INTENSIVE CESSATION INTERVENTION

Intensive interventions are usually provided by addiction specialists and are required for individuals with high nicotine dependence and failed brief cessation interventions. Pharmacological treatment options should always be offered as part of an intensive programme and combined pharmacotherapy can also be considered. The intensity of treatment varies from one programme to another, but there should be no fewer than six sessions of at least 15-minute duration, and total contact time should be no less than 60 minutes in the first month of treatment. Effective formats include individual face-to-face and group counseling.

Intensive interventions usually include developing a quit plan, coping skills training, provision of intra-treatment support and facilitation of extra-treatment support. Intensive interventions should include a follow-up scheduled within 1 month of the last session. The longer the session, the more overall person-to-person contact and the greater the number of visits, the more successful the treatment outcome. A strong dose-response relationship exists between treatment intensity and efficacy. Given adequate time and resources, every smoker willing to participate should be offered more intensive treatment.

GUIDELINE: INTENSIVE CESSATION INTERVENTION		
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VI. ADJUNCTIVE TREATMENT

Relaxation techniques (deep breathing exercises) can be a valuable adjunct to smoking cessation. One of the most common reasons that clients give for relapse is an inability to handle stressful situations (35). Emphasize the importance of a **healthy diet** and **physical activity**.

Post-cessation weight gain

Clients concerned about weight gain associated with quitting their smoking habit should be informed that some weight gain is common but self-limiting. The importance of a healthy diet and exercise should be emphasized. Clients should be informed that pharmacotherapeutic agents such as Bupropion SR or NRT can delay weight gain.

GUIDELINE: ADJUNCTIVE TREATMENT		
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VII. RELAPSE PREVENTION

Due to the chronic relapsing nature of tobacco dependence, clinicians should provide brief, effective relapse prevention treatment to all clients who have recently quit tobacco use. With the extraordinarily high rates of relapse to smoking, clinicians must assist their clients in staying quit. Although most relapse occurs early in the quitting process, some relapse occurs months or even years after the quit date. Therefore, clinicians should continue to engage in relapse prevention interventions even with former tobacco users who no longer consider themselves actively engaged in the quitting process.

Minimal relapse prevention consists of:

- Congratulating success
- Encouraging continued abstinence
- Discussing with the client the benefits of quitting, the problems encountered during quitting and the anticipated challenges to staying quit **(**e.g., alcohol, weight gain, stress, and other tobacco users in the household).
- If the client relapses, discuss the circumstances surrounding the relapse and attempt to elicit a recommitment to quitting.
- Remind the client that a relapse should be viewed as a learning experience. It may take the tobacco user multiple attempts to successfully quit smoking. Each time the client relapses he or she learns more about what will help and what will be harmful for the next quit attempt.
- Remind the client that relapse is consistent with the chronic nature of tobacco dependence; it is not a sign of personal failure of the tobacco user or the clinician.

Individualized Relapse Prevention

A more intensive prescriptive relapse prevention intervention, individualized to address the problems and concerns of the individual client, can also be utilized by clinicians.

- Some clients report feeling a lack of support for their cessation attempt. In response to this concern, clinicians can schedule closer follow-up visits or telephone calls, help the client identify sources of support within his or her environment, work to increase his or her extra-treatment social support, or refer to the client for intensive cessation intervention.
- If the client reports negative mood or depression, the clinician should provide

  Counselling, and if appropriate, prescribe medication or refer the client to an addiction specialist.
- If the client reports extended or severe withdrawal symptoms such as cravings, the clinician should consider extending the use of approved pharmacotherapy or combining pharmacotherapies to reduce the nicotine withdrawal. **Combined pharmacotherapy should be provided by addiction specialists**.
- Weight gain is a common concern among smokers who are trying to quit. It is important that the clinician be honest and informs the client that some weight gain is quite common but it is usually self-limiting. Emphasize the importance of a healthy diet and physical activity. The clinician may also choose to maintain the client on pharmacotherapy known to delay weight gain (e.g. Bupropion SR, and NRT).
- If clients report flagging motivation and feelings of deprivation, the clinician

  Should reassure the client that these feelings are common and recommend rewarding activities. The client should also be reminded that beginning to smoke (even a puff) will increase urges and make quitting more difficult.

VIII. SUMMARY

The treatment of tobacco dependence is a critical part of chronic disease prevention. Moreover, tobacco dependence itself should be viewed as a chronic disease, and clinicians should take advantage of every opportunity to treat it. This can be achieved by assessing each client's smoking status, advising smokers to quit, assessing level of motivation to quit and offering suitable treatment options. A smoking cessation program needs to be seen by the smoker as efficacious and the smoker must perceive quitting as being beneficial. Effective treatments are available and can be incorporated into any clinical context. From the behavioural perspective, the smoker must learn new skills or enhance old skills that can be used in place of tobacco to deal with problems as they arise. From the pharmacological perspective, a smoker with physiological dependency on nicotine would benefit from Bupropion SR or NRT. This technique would allow him or her to work on the behavioural aspects without needing to deal with the physiological withdrawal at the same time, at least for a short period. Finally the client will benefit from relapse prevention training and learning alternative ways to respond to stressful situations. The assessment outcome points the way toward different treatment options, allowing the clinician to tailor a multicomponent treatment program to the needs of each client.

<table>
<tr><td colspan="3">GUIDELINE: ADJUNCTIVE TREATMENT, SUMMARY</td></tr>
<tr><td>Date Revised:</td><td>Distribution to Clinicians in ambulatory settings e.g. primary care centres and outpatient clinics</td><td>Index: VII & VIII</td></tr>
<tr><td colspan="3">Approved by: Health Promotion and Protection Division</td></tr>
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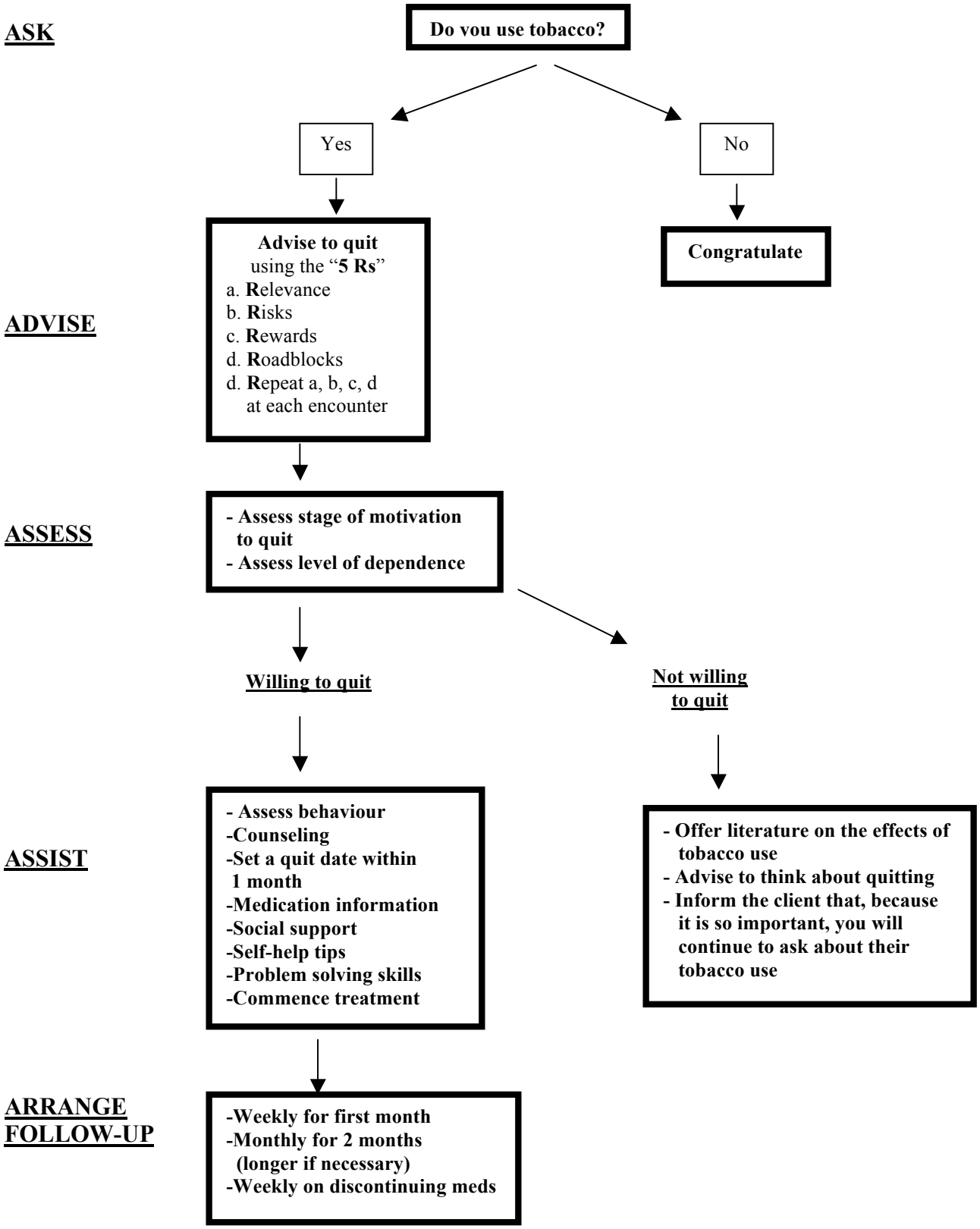
APPENDIX 1

TOBACCO CESSATION INTERVENTION GUIDELINE
(Ask and document at **every** visit)



APPENDIX 2

FAGERSTROM TEST FOR NICOTINE DEPENDENCE (FTND)

1. How soon after you wake up do you smoke your first cigarette?

- Within 5 minutes - 3 points
- 6 - 30 minutes - 2 points
- 31 to 60 minutes - 1 point
- Over 60 minutes - 0 points

2. Do you find it difficult to refrain from smoking in places where it is forbidden?

- Yes - 1 point
- No - 0 points

3. Which cigarette would you most hate to give up?

- First cigarette of the day - 1 point
- Any other cigarette during the day - 0 points

4. How many cigarettes do you smoke per day?

- 10 or fewer - 0 points
- 11 to 20 - 1 point
- 21 to 30 - 2 points
- 31 or more - 3 points

5. Do you smoke more in the first hours after waking than during the rest of the day?

- Yes - 1 point
- No - 0 points

6. Do you smoke when you are so ill that you are in bed?

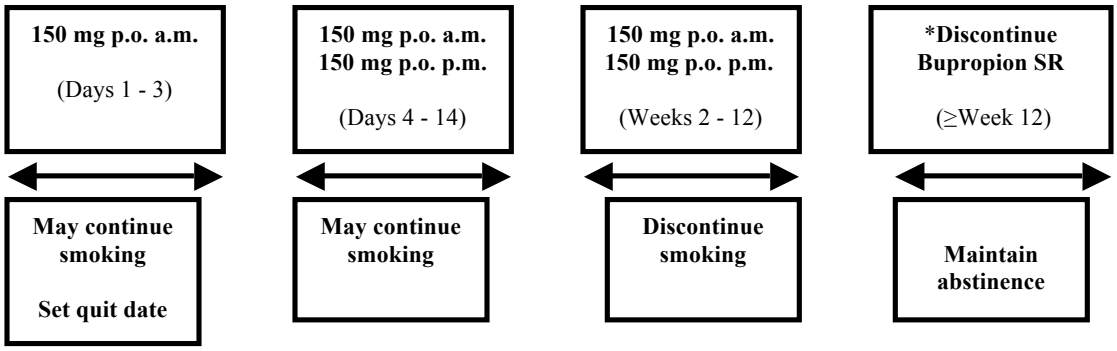
- Yes - 1 point
- No - 0 points

Interpretation of scores:

- **Low Nicotine Dependence** - 0 to 3 points
- **Medium Nicotine Dependence** - 4 to 5 points
- **High Nicotine Dependence** - 6 to 10 points

APPENDIX 3

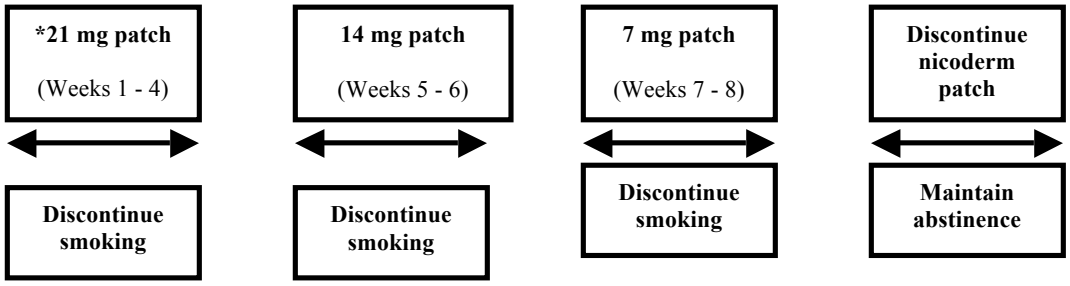
BUPROPION SR DOSING SCHEDULE



* may be used for longer periods (≥ 6 months) in smokers who report persistent withdrawal symptoms during the course of pharmacotherapy.

APPENDIX 4

NICODERM PATCH DOSING SCHEDULE



Moderate dependence - * Commence with 14 mg patch for 2 weeks and continue with 7 mg patch for 4 more weeks

Light dependence - * Commence with 7 mg patch for a total of 4 weeks