

Smoking Cessation

Clinical Tools for Physicians

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Objectives

- Understanding the Process (Dr. Ahmadi)
- Methods in Patient Counseling (Dr. Ahmadi)
- Recognizing the Effective Approach (Dr. Kaplan)
- Pharmacotherapy Options (Dr. Kaplan)

Faculty/Presenter Disclosure

Faculty: Elaheh Ahmadi

Executive member, CFPC SIFP, Respiratory Medicine

Relationships with commercial interests:

- **Grants/Research Support:** none
- **Speakers Bureau/Honoraria:** none
- **Consulting Fees:** none
- **Other:** Employee of none

Disclosure of Commercial Support

This program has received no financial support .

This program has received no other in-kind support

- **Potential for conflict(s) of interest:**
- A) there are no organizations supporting this program

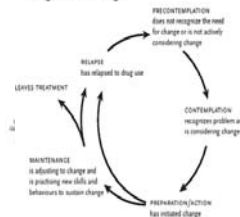
Mitigation of potential bias:

- There is no bias other than being an physician interested in respiratory medicine.

The Process



Stages of change



Source: Prochaska, J., DiClemente, C., & G. (1992). Changing to Good & Bad Habits: The Stage Process. In: Changing to Good & Bad Habits: The Stage Process. New York: Guilford Press.

Counseling



Behavioural Strategies

- Discuss past experiences
- Acknowledge associations
- **Set a quit date**
- Educate about withdrawal and side-effects
- Introduce community resources

Make a Plan

The Approach

- E-Cigarette
- Not FDA Approved
- Increasing popularity among youth
- May have carcinogens
- No significant differences in efficacy compared to nicotine patch



Electronic Cigarettes for Smoking Cessation: a randomized control trial. Bullen et al. Lancet (2013); 382 (9905):1629

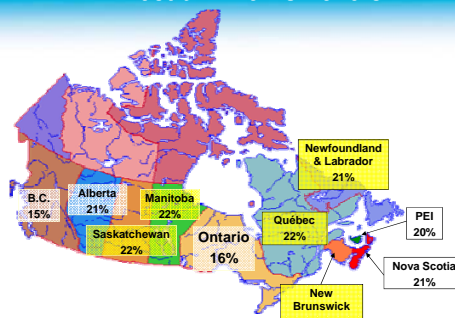
Faculty/Presenter Disclosure

- ♦ **Faculty:** Alan Kaplan MD CCFP(EM) FCFP
- ♦ Chair Family Physician Airways Group of Canada
- ♦ Chair of Special Interest Focused Practice, College of Family Physicians in Respiratory Medicine.
- ♦ Chronic pain consultant, Richmond Hill and Brampton Civic Hospital
- ♦ **Relationships with commercial interests:**
 - **Grants/Research Support:** none
 - **Speakers Bureau/Honoraria:** Astra Zeneca, Boehringer Ingelheim, Griffiths, Pfizer, Purdue, Merck Frosst, Novartis, sanofi, Takeda.
 - **Consulting Fees:** Aerocrine, Novartis, Takeda, Purdue, Pfizer
 - **Other:**
 - Member of Health Canada Section on Allergy and Respiratory Therapeutics.
 - Member of Public Health Agency of Canada section on Respiratory Surveillance

Disclosure of Commercial Support

- ♦ This program has received no financial support from .
- ♦ This program has received no other in-kind support
- **Potential for conflict(s) of interest:**
 - A) there are no organizations supporting this program
 - B) The following companies make respiratory/pain/smoking cessation products that I may mention in this talk including: Aerocrine, Astra Zeneca, Boehringer Ingelheim, Griffiths, GSK, J&J, Merck Frosst, Pfizer, Purdue, Novartis, Sanofi, Takeda,
- ♦ **Mitigation of potential bias:**
 - There is no bias other than being an anti-smoking activist!


Smoking Prevalence in Canada: 19% Almost 5 Million Smokers



Health Canada. Canadian Tobacco Use Monitoring Survey 2005. Summary of Annual Results.

Smoking: Leading Preventable Cause of Disease and Death¹

Top 3 Smoking-Attributable Causes of Death in Canada

Cancers¹ Lung, Esophagus Cervix uteri Stomach ² Leukemia ² Kidney, other urinary Cardiovascular disease¹ Ischemic heart disease Cerebrovascular disease Rheumatic heart disease Atherosclerosis Hypertension Aortic aneurysm Pulmonary heart disease Other arterial disease	#1 Lung cancer #2 Ischemic heart disease #3 Chronic airways obstruction¹ 	Respiratory disease¹ Chronic airways obstruction Asthma Bronchitis/emphysema Pneumonia/influenza Respiratory tuberculosis Paediatric disease¹ Low birth weight Respiratory conditions-newborn Respiratory distress syndrome Sudden Infant Death Syndrome Reproductive Problems² Reduced fertility Spontaneous Abortion Placental abruption
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1. Makomicki Biling EM, Kalesman, MJ. Can J Public Health 2004;95:38-44.
 2. Ghadiri, P (for Health Canada). Smoking with a Killer: The Effects of Smoking on Human Health. Health Canada. Sept. 2002.

Quitting Smoking at any Age May Increase Life Expectancy

Increased Life Expectancy

Age stop smoking by	Life years gained
<30 years	10
<40 years	9
<50 years	6
<60 years	3

Doll R et al. BMJ 2004;328:1519-1528.

Patients

70% of smokers say they want to quit¹

2% of smokers quit each year



- ◆ Fewer than 50% patients recall that their doctors advised them to quit^{2,3,4}
- ◆ People with smoking related diseases are more likely to recall their GP advice⁵
- ◆ Some patients report being irritated by the way their GP gave antismoking advice⁶

1 Britton J 2004 2. HEA UK (1995) 3 Bolling & Owen (1997)
4. Lader (2002) 5. Silagy et al (1992) 6. Stott (1990)

The "5 A's"

- ◆ Ask about tobacco use at each visit
- ◆ Advise the patient to quit
- ◆ Assess willingness to quit if they're not willing, use the "5 R's" to motivate
- ◆ Assist via counseling and referral
- ◆ Arrange for follow-up to evaluate and encourage

Tobacco Use and Dependence Clinical Practice Guideline Panel. Staff, and Consultant Representatives. JGIM. 2000;25:224-234

Should it be "the 2 A's"?

- ◆ Ask about tobacco use at each visit
- ◆ ACT!

Tobacco Use and Dependence Clinical Practice Guideline Panel. Staff, and Consultant Representatives. JGIM. 2000;25:224-234

The "5 R's"

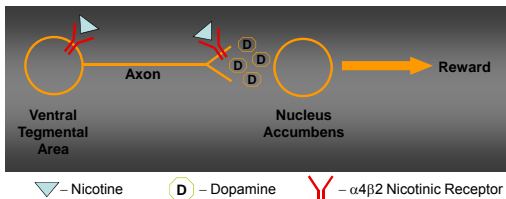
Enhancing motivation to quit

- ◆ Relevance Why is quitting important to you?
- ◆ Risks What are the negative consequences of continuing to smoke?
- ◆ Rewards What are the benefits of quitting?
- ◆ Roadblocks What will impede your attempts to quit?
- ◆ Repetition Repeat this intervention at every visit

Tobacco Use and Dependence Clinical Practice Guideline Panel. Staff, and Consultant Representatives. JGIM. 2000;25:224-234

Nicotine Stimulates Dopamine Release

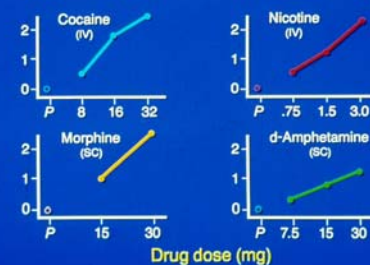
- ◆ Nicotine activates $\alpha 4 \beta 2$ nicotinic receptors in the ventral tegmental area resulting in dopamine release at the nucleus accumbens. This may result in the short-term reward/satisfaction associated with cigarette smoking.



Picciotto MR et al. Nicotine and Tob Res 1999;Suppl2:S121-S125.

NICOTINE AS A EUPHORIANT

Euphoriant scale score



From Henningfield JE, Nemeth-Coslett R: Chest 1988.

Why do people smoke? Factors in a successful quit attempt

Nicotine withdrawal

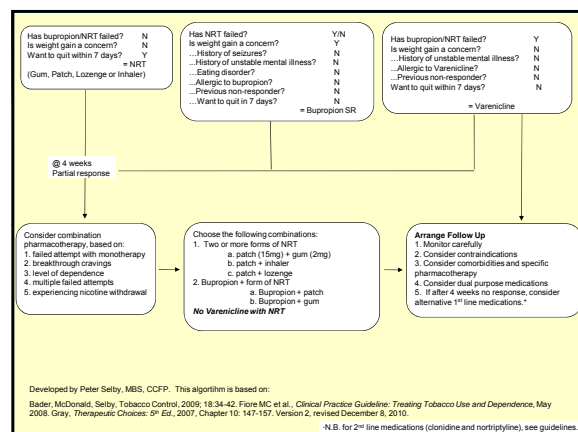
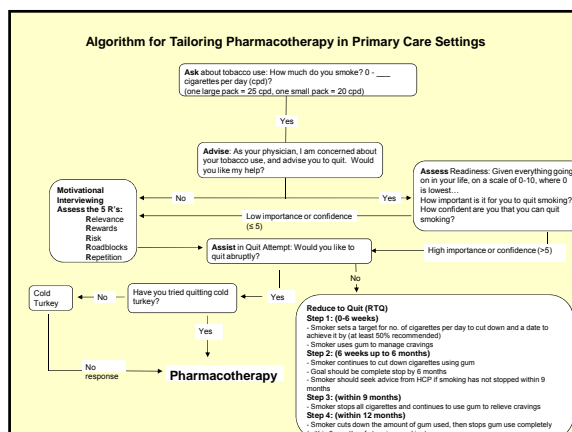
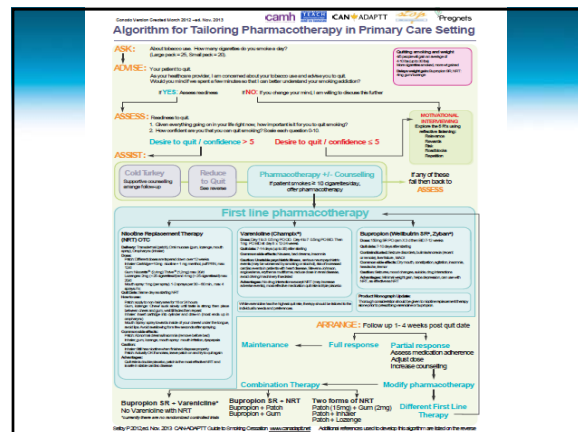
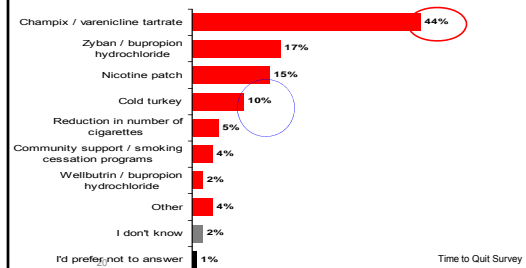
- Habit
- Association with other things..coffee, meal, sex
- Stress
- Social

Must deal with ALL of these to be successful!!

Source: National Academies of Sciences, Engineering, and Medicine. 2014. *Public Health Approaches to Tobacco Use*. Washington, DC: National Academies Press.

What Strategy Do Doctors Consider Most Effective (n=200)

- Physicians offered many reasons for choosing to suggest the various methods to quit. For all methods, patient preference is one of the top answers.



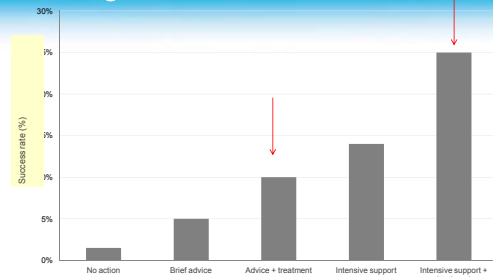
Comparing Medications

Medication	Nicotine gum	Nicotine patch	Nicotine inhaler	Bupropion	Varenicline
Treatment length	1-3 months	6-12 weeks	12-24 weeks	7-12 weeks	12 weeks
Main side effects	Upset stomach Hiccups	Headache Disturbed sleep Site rash	Irritation of throat and nasal passages Sneezing Coughing	Insomnia	Nausea
Dosage	2 mg, 4 mg	7 mg, 14 mg, 21 mg	6-12 cartridges per day	150-300 mg/day	0.5 mg qd to 1 mg bid
Effectiveness at six months or longer (OR [CI])	1.66 (1.52-1.81)	1.81 (1.63-2.02)	2.14 (1.44-3.18)	2.06 (1.77-2.40)	2.83* (1.91-4.19)

*Represents results from Weeks nine through 24 follow-up

Hughes JR et al. Cochrane Database Syst Rev 2004; 4:CD000031; Jorenby DE et al. JAMA 2006; 296(11):56-63; Slaggy C et al. Cochrane Database Syst Rev 2004; 3:CD000146.

Counselling added to medication gives the best outcomes



Sutherland, G. Smoking: Can we really make a difference? Heart May 2003; 89:425-427.

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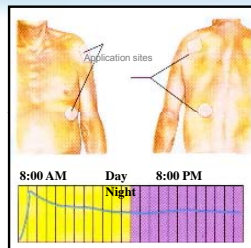
NICOTINE PATCH

► Easier to use

Brand	Dose (hours)	Duration (wks)
Habitrol	21 mg / 24	4
Nicoderm	14 mg / 24	2
	7 mg / 24	2

► Side effects:

- Localised rash up to 50%
- Vivid dreams \approx 20%



*From MC, Bailey WC, Cohen SJ, et al. Treating tobacco Use and Dependence Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, June 2000

NICOTINE GUM

If patch contraindicated, if preferred or as supplement

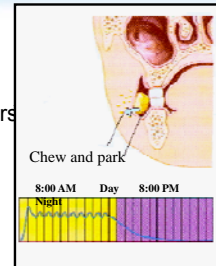
Use:

- 2 mg: \leq 25 cigarettes / day
- 4 mg : $>$ 25 cigarettes / day

- Schedule: 1 gum per 1 to 2 hours
- Maximum: 24 per day
- Duration : 1 - 3 months

► Side effects:

- Pain mouth or jaw
- Dyspepsia, hiccups



* From MC, Bailey WC, Cohen SJ, et al. Treating tobacco Use and Dependence Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, June 2000

NICOTINE INHALER

► Use

- 10 mg / cartridge / 20 min.
- 6 - 12 cartridges / day
- up to twelve weeks, longer if required then reduce gradually

► Side effects:

- mouth and throat irritation
- cough, rhinitis

-Caution: hypersensitivity to menthol.
? bronchospasm: asthma, COPD



Oral spray

► Provides a more immediate dose of nicotine. People use nicotine spray as needed through the day, when they have a strong craving for a cigarette

► Formulated to relieve cravings in about 60 seconds, faster than gum or lozenge

Possible side effects are similar to those seen with other orally delivered forms:

- Irritation in the mouth or throat and hiccups



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NICOTINE REPLACEMENT THERAPY

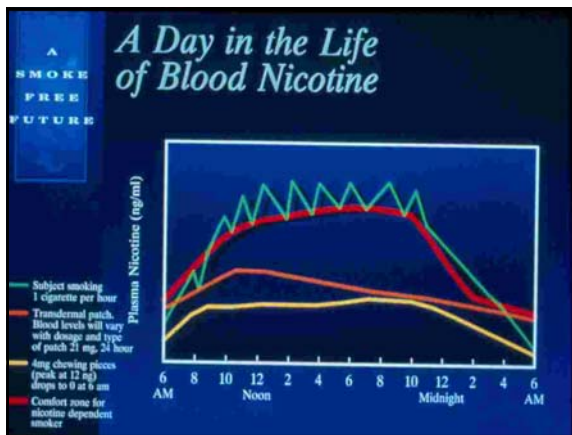
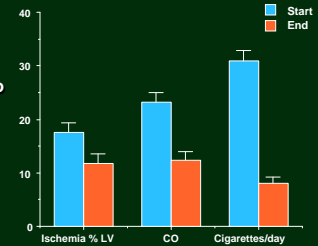
Contra-indications according to manufacturer

- ▷ Recent myocardial infarct
- ▷ Unstable angina
- ▷ Severe arrhythmias
- ▷ Recovery from stroke
- ▷ Pregnancy and breast feeding
- ▷ Children < 18 y. o.
- ▷ Patches
 - ▷ Allergy to tape
 - ▷ Generalised cutaneous diseases

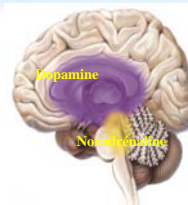
EFFECT OF NICOTINE PATCH ON CARDIAC ISCHEMIA

Mahmorian et al. J. Am. Col. Card. 30:125, 1997

- 40 smokers
- Abnormal SPECT exercise
- Patch (14 mg, escalate to 21 mg)
- Repeat SPECT >3 days after start of above
- 4 drop-outs
- 19% quit



BUPROPION HYDROCHLORIDE: ZYBAN



- ♦ Antidepressant of the aminoketone class
- ♦ Inhibition of the neuronal reuptake of dopamine and noradrenaline
- ♦ Risk of convulsions: 1 / 1 000

G. Hurt Rd et al. A comparison of sustained-release Bupropion and Placebo for smoking cessation. NEJM 1997;337:17-1195-1201
Jorenby DE et al. A controlled trial of sustained-release Bupropion, a nicotine patch, or both for smoking cessation. NEJM 1999;340:685-69

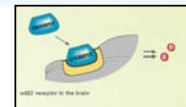
BUPROPION : CONTRAINDICATIONS

- ♦ Seizure disorders
- ♦ Current or prior diagnosis of bulimia or anorexia
- ♦ Other medication containing bupropion (WellbutrinSR)
- ♦ Use of MAOI or thioridazine in the previous 14 days
- ♦ Allergy to bupropion
- ♦ Abrupt withdrawal from alcohol or benzodiazepines or other sedatives

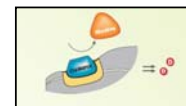
No studies in: <18 y.o.
<15 cigarettes/day,
pregnancy
breast feeding

Varenicline: An $\alpha 4 \beta 2$ Nicotinic Acetylcholine Receptor Partial Agonist and Antagonist

- ♦ **ACTIVITY 1: Partial agonist**
 - Varenicline binds to the receptor, partially stimulating dopamine release



- ♦ **ACTIVITY 2: Antagonist**
 - Because varenicline is bound to the receptor, it prevents the binding of nicotine



Activation of the central nervous mesolimbic dopamine system is believed to be the neuronal mechanism underlying reinforcement and reward experienced upon smoking

CHAMPIX Product Monograph, Pfizer Canada Inc., January 2007

Antismoking drug still recommended to Canadians despite side effects and US advisory

- ◆ Side effects reported include depression, nightmares, suicidality, CV risk...but
- ◆ "Health Canada considers that, when used as directed, the benefits associated with Champix as a smoking cessation therapy continue to outweigh the overall risks," stated Health Canada spokesperson Paul Duchesne via email.

◆ CMAJ • FEBRUARY 17, 2009 • 180(4)

Newest data: Champix plus Nicotine patch works best!

JAMA. 2014 Jul 31;312(12):155-61. doi: 10.1001/jama.2014.7195.
Efficacy of varenicline combined with nicotine replacement therapy vs varenicline alone for smoking cessation: a randomized clinical trial.
 Kuperman SA,¹ Sosa E,¹ Ballester EC,² van Zuijlen RP,³ Brouha L,³ O'Brien JA,⁴ Smith CD,⁵ Abdul-Gaffar MS,⁶ Emanuel D,⁷ Eitenmiller TE,⁸ Ivers EM,⁹

Abstract information
Abstract
IMPORTANCE: Behavioral approaches and pharmacotherapy are of proven benefit in assisting smokers to quit, but it is unclear whether combining nicotine replacement therapy (NRT) with varenicline to improve abstinence is effective and safe.
OBJECTIVE: To evaluate the efficacy and safety of combining varenicline and a nicotine patch vs varenicline alone in smoking cessation.
DESIGN, SETTING, AND PARTICIPANTS: Randomized, blinded, placebo-controlled clinical trial with a 12-week treatment period and a further 12-week follow-up conducted in 7 centers in South Africa from April 2011 to October 2012. Four hundred forty-six generally healthy smokers were randomized (171 to varenicline plus nicotine patch treatment [NRT+V] and 275 to varenicline alone [V]).
INTERVENTIONS: Nicotine or placebo patch treatment began 2 weeks before a target quit date (TQD) and continued for a further 12 weeks. Varenicline was begun 1 week prior to TQD, continued for a further 12 weeks, and tapered off during week 13.
MAIN RESULTS AND MEASURES: Tobacco abstinence was established and confirmed by exhaled carbon monoxide measurements at TQD and at intervals thereafter up to 24 weeks. The primary end point was the 4-week exhaled carbon monoxide-confirmed continuous abstinence rate for weeks 9 through 12 of treatment, ie, the proportion of participants able to maintain complete abstinence from smoking for the last 4 weeks of treatment, as assessed using multiple imputation analysis. Secondary end points included point prevalence abstinence at 6 months, continuous abstinence rate from weeks 9 through 24, and adverse events. Multiple imputation was used to address loss to follow-up.
RESULTS: The combination treatment was associated with a higher continuous abstinence rate at 12 weeks (55.4% vs 45.3%; odds ratio [OR], 1.85; 95% CI, 1.19-2.89; P = .007) and 24 weeks (49.0% vs 32.6%; OR, 1.98; 95% CI, 1.25-3.14; P = .004) and point prevalence abstinence rate at 6 months (55.1% vs 46.7%; OR, 2.13; 95% CI, 1.32-3.43; P = .002). In the combination treatment group, there was a numerically greater incidence of nausea, sleep disturbance, skin reactions, constipation, and depression, with only skin reactions reaching statistical significance (14.4% vs 7.8%, P = .02). The varenicline-alone group experienced more abnormal dreams and headaches.
CONCLUSIONS AND RELEVANCE: Varenicline in combination with NRT was more effective than varenicline alone at achieving tobacco abstinence at 12 weeks (end of treatment) and at 6 months. Further studies are needed to assess long-term efficacy and safety.
TRIAL REGISTRATION: clinicaltrials.gov Identifier: NCT01444131

How to talk about it?
 First thing we do is educate.
 How is that going for you?

Eg of CAMH FACT sheets you can use



So,

- ◆ How much time must YOU spend to make a difference in the likelihood of a smoker to quit?

Smoking Cessation Effectiveness Increases with Treatment Intensity

Level of Contact	Estimated Odds Ratio (95% CI)	Estimated Abstinence Rate ¹ (95% CI)
No Contact	1.0	10.9
Minimal Counseling (less than 3 minutes)	1.3 (1.01, 1.6)	13.4 (10.9, 16.1)
Low Intensity Counseling (3 to 10 minutes)	1.6 (1.2, 2.0)	16.0 (12.8, 19.2)
Higher Intensity Counseling (more than 10 minutes)	2.3 (2.0, 2.7)	22.1 (19.4, 24.7)

¹The abstinence rate is defined as the proportion of participants who reported no smoking.
 Fore MC, et al. US Department of Health and Human Services. Public Health Service. June 2000.

You can try this strategy: What's in a Cigarette?

- ◆ Tobacco smoke: ≥ 4000 chemicals¹, ≥ 50 carcinogenic²

Chemicals in Tobacco Smoke ¹	Also Found In...
Acetone	Paint stripper
Butane	Lighter fluid
Arsenic	Ant poison
Cadmium	Car batteries
Carbon monoxide	Car exhaust fumes
Toluene	Industrial solvent

- ◆ Nicotine is responsible for the addiction, but other chemicals are also involved.²
- ◆ Smoking cigarettes with lower tar and nicotine provides no health benefit.²

1. World Health Organization. Tobacco: deadly in any form or disguise, 2006.
 2. Health Canada. What's in a cigarette smoke?, August 2005.

Adolescents: Smoking makes you stupid!

ADOLESCENT BRAIN DEVELOPMENT & SMOKING

Key Messages for Health Care Providers and Policy Makers

Overview

Researchers are still trying to understand the links between smoking and the impact it has on adolescents. Smoking can affect the function of the prefrontal cortex, an area of the brain that continues to develop through adolescence and may therefore have a more serious and lasting impact on brain development during this critical developmental period.

The Link between Smoking and Adolescent Brain Development

- Animal studies^{1,2} found that adolescents who are exposed to nicotine demonstrated cognitive deficits resulting from nicotine exposure.
- The brain effects of tobacco on the nervous system may be most marked if smoking commences in the early adolescent years, when the main neurodevelopment involving inhibitory control occurs.³
- In adolescents, depression predicts smoking (general estimates 1.42 [95% CI: 1.33, 1.49]), and smoking predicts depression (general estimates 1.75 [95% CI: 1.52, 2.00]).⁴
- Smoking in adolescence may be influenced by the role or abuse of other substances and results in school, and by peer family rejection and low involvement in active pastimes among girls. During this time, smoking may be influenced by low religiosity and delinquency.⁵ Impulsive behaviour may play an important role in smoking initiation.⁶
- Adolescents with parents who smoke have an increased risk for substance use.⁷
- A study⁸ of adolescents found that according to the frequency of smoking index, which is a measure of smoking behaviour and dependence, smoking adversely affects neural function in the brain cortex.

Older adults: Smoking gives you dementia

OLDER ADULTS & SMOKING

Key Messages for Health Care Providers and Policy Makers

Overview

Tobacco use is the primary preventable cause of disability and death in older adults.^{1,2} Older people who smoke have double the mortality rate compared to older adults who do not smoke.³

The Link between Smoking and the Elderly

- Smoking is linked to a higher risk of cognitive impairment and dementia in the elderly,^{4,5,6,7} and has also been associated with increased risk of stroke, hypertension, coronary, heart disease, and decreased ability to smell and taste.⁸
- Smoking is an important contributing factor to loss of function, mobility, independence, and life-related benefits in the elderly.
- Smoking is associated with age-related diseases in elderly women such as osteoporosis, breast cancer, and cardiovascular disease.⁹ and has been shown to decrease physical strength and performance in this population.¹⁰
- Older adults who smoke are highly nicotine dependent, and are less likely to believe that smoking harms health.^{11,12}

Impact

- In the elderly population, tobacco use contributes to the health, social, and economic costs of smoking and continues to rise among those who smoke.
- Improved health and decreased mortality occur after people quit smoking after 45 years of age.¹³ Benefits of smoking cessation in the elderly include: reduced progression of respiratory disease and improvement in lung function, improved safety, quality and length of life,¹⁴ decreased cognitive impairment and prevention of dementia.^{15,16,17} only

Prenatal: Bad outcomes!

PRE-/POST-NATAL CARE & SMOKING

Key Messages for Health Care Providers and Policy Makers

Overview

Cigarette smoking during pregnancy and breastfeeding is associated with many negative effects on the mother and on the fetus and often, a recent survey¹ found the prevalence of Canadian women who smoked during pregnancy was 10.5% and these women consumed an average of 7 cigarettes per day.

The Link between Smoking and Pre-/Post-Natal Care

- A Canadian survey² found that smoking during pregnancy was associated with low socio-economic status, and being an immigrant, and being single during the pregnancy. Women who had with someone who smoked were also more likely to smoke during pregnancy. Not attending prenatal classes and experiencing stressful events before or during pregnancy was increased the mother's risk of smoking during pregnancy.
- Smoking during pregnancy is associated with low birth weight, which increases the risk of perinatal delivery and complications associated with prematurity, and increases the susceptibility to respiratory infections.^{3,4}
- Smoking during pregnancy is associated with premature rupture of membranes, placental abruption, placenta previa, stillbirth, and increased infant mortality.^{5,6,7}
- Compared with those who do not smoke, women who smoke during pregnancy have a 54-100% increase in the prevalence of newborn weighing < 3,500 g.⁸
- A review of studies⁹ showed that compared to those who do not smoke, for women who smoke during pregnancy:
 - The relative risk for preterm delivery is 1.3 to 2.5.
 - The risk of miscarriage is increased by 20-60%.
 - The relative risk for placental abruption is 1.4 to 2.4.
 - The relative risk for placenta previa is 1.5 to 3.5.
 - The birth weight of the newborn is, on average, 300 g lighter.
 - The mortality risk for perinatal deaths is 1.2 to 1.6.

Common comorbidity in those with Mental Health Issues

MENTAL ILLNESS & SMOKING

Key Messages for Health Care Providers and Policy Makers

Overview

People living with mental illness are more likely to smoke and be at greater risk for smoking-related health problems than the general population. Smoking and tobacco use with some psychiatric medications and therefore, people living with mental illness require clinical supervision when they quit or reduce smoking in order to address possible side effects and medication toxicity.

The Link between Smoking and Mental Illness

- Research has shown that people who have been diagnosed with a psychiatric disorder or a substance use disorder are 1.6 times more likely to smoke than those in the general population. 1.5 to 2.0% of people with schizophrenia¹ and 63.5% of people with bipolar disorder smoke.²
- People living with mental illness or substance use disorders consume 44.3% of all cigarettes sold in the U.S., although they represent only 22% of the population.³
- Nicotine and inhaling smoke can alleviate some of the symptoms of attention hyperactivity disorder and may alleviate depression. A nicotine has been found to alleviate some of the symptoms of schizophrenia and may provide relief from side effects of antipsychotic medications. 2,45.6 People living with mental health disorders may use cigarettes as a coping mechanism, although the risks of smoking greatly outweigh the benefits.^{7,8,9}

Impact

- People living with mental illness are more likely to smoke greater numbers of cigarettes, and be more heavily addicted and therefore at greater risk for smoking-related health problems than the general population.^{10,11}

Increased risk of Vision Loss!

EYE CARE & SMOKING

Key Messages for Health Care Providers and Policy Makers

Overview

Due to an increase in the incidence of age-related macular degeneration (AMD), cataracts, and diabetic retinopathy, it is expected that there will be twice the number of blind and visually impaired people in Canada in 2031, as compared to 2006.¹ Smoking increases the risk of developing these conditions. Encouraging patients to stop smoking can help prevent these diseases.

The Link between Smoking and Eye Care

- Tobacco use increases the incidence and progression of AMD.^{2,3} This progressive condition can lead to irreversible loss of vision or blindness. People who smoke have up to four times the risk of developing AMD.⁴
- There is an established link between the frequency and intensity of smoking and the incidence and severity of cataract formation.^{5,6} People who have smoked in the past and those who currently smoke are at risk for cataracts.⁷
- People who smoke heavily (20 cigarettes a day or more) are at greater risk of developing type 2 diabetes mellitus. Their people who smoke less, but people who quit smoking have a lower risk than those who currently and actively smoke.^{8,9} Diabetes retinopathy is a serious health complication of diabetes that can lead to blindness. More than 60% of people with type 2 diabetes will experience some form of diabetic retinopathy during the first 20 years of illness.¹⁰

Impact

- Vision loss is a growing and serious health issue that has direct and indirect economic costs to Canadians.
- AMD is the leading cause of blindness in Canada. More than 10,000 Canadians go blind as the result of AMD.¹¹ In

Increased risk of CV mortality!

CARDIOVASCULAR DISEASE, DIABETES & SMOKING

Key Messages for Health Care Providers and Policy Makers

Overview

Data from the National Population Health Survey and the Canadian Community Health Survey suggests that the prevalence of heart disease and the risk factors of hypertension, diabetes and obesity increased from 1994 to 2003 in all age groups in Canada.¹ Cigarette consumption declined during the period, but smoking rates remained high (about 3.1 million men and 2.7 million women still were smoking in Canada).

The Link between Smoking and Cardiovascular Disease and Diabetes

- Smoking is an important risk factor for hypertension and diabetes, and is a risk factor for death, chiefly from cardiovascular disease.
- Smoking influences atherosclerosis at every stage, right from the stage of endothelial dysfunction to the occurrence of an acute clinical event.² Smoking is associated with several ways of cardiovascular risk factors including: fibrinogen, C-reactive protein and homocysteine. Key mechanisms by which smoking contributes to atherosclerosis may include inflammation and hyperhomocysteinemia. People who currently smoke have higher levels of these risk factors than those who formerly smoked. Risk factor levels increased with the number of cigarettes smoked.³
- Smoking increases concentrations of plasma triglycerides, increases high density lipoprotein-cholesterol concentrations, and impairs glucose tolerance.⁴

Impact

- There were an estimated 17,200 tobacco-attributable deaths in Canada in 2002, amounting to 14.6% of all deaths in that year. Of these, 10,800 deaths were attributable to cardiovascular disease. Deaths due to tobacco use were associated with a loss of 513,607 potential years of life, and diseases attributed to tobacco use were responsible for 2,235,000 days of acute

Quitting Smoking: A Long and Difficult Journey

- ♦ The majority of smokers are motivated to quit²
- ♦ Most try to quit without pharmacological assistance³
- ♦ **87%** of current smokers have tried to quit smoking at least once before⁴
- ♦ 19% of smokers report craving is the most common reason why quitting smoking is considered difficult⁴

The Stages of Change Model¹



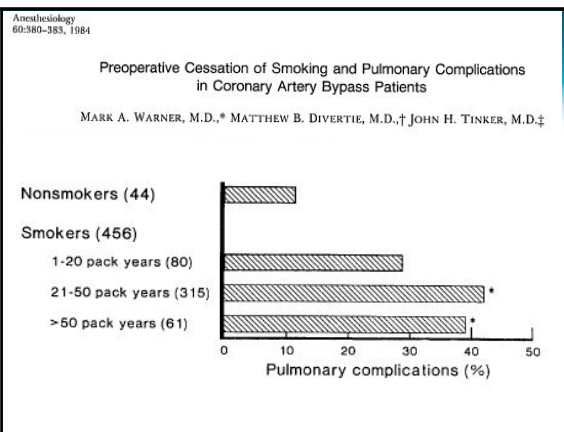
Adapted from Prochaska et al.¹

Addiction leads to relapse⁵

- ♦ Most smokers make **5-7** attempts before succeeding²
- ♦ Only ~5% succeed without help⁶

1. Prochaska JO et al. *Am Psychol* 1992;47:1102-1114.
2. Hughes JR. *CA Cancer J Clin* 2000;50:143-151.
3. Arthurs JR. *Clin Neurosci Res* 2000;5:175-183.
4. Pfizer Canada Inc. Data on file, 2006.
5. O'Donnell DE et al. *Can Respir J* 2004;11(SupplB):38-59B.
6. Fiore MC et al. *JAMA* 2002;288:1768-1771.

Smoking and surgery; do they go together?



Smokers do less well postoperatively

Short Term

- Worse wound healing (Mastectomy flap necrosis 18.9% v 9.0 in NS) (DW Chang Plastic & Reconstr Surg. 2000 p2374)
- More infections (12% in smokers, v 2% NS) (Sorensen, Ann Surg. 2003)

Long Term

- Worse outcome (more pain, poorer function) one year after ACL repair (Karim, JBJS, 2006)

"We found that smoking was the single most important risk factor for the development of postoperative complications"

(Moller JBJS 2002)

... and smokers are more likely to come back for repeat surgery

- Failure of original operation
Spinal fusion: Non-union twice as common in smokers (Glassman Spine 2000)
- Postoperative complications
Abdominal wall necrosis (Smokers 7.9% Ex-smokers 4.3% NS 1.0 %). (Padubidri Plastic & Recon Surgery: 2001: p342)
- ♦ Progression of underlying disease
Fem-pop graft -> Revision/Endarterectomy -> Sympathectomy -> Toe amputation -> BKA -> AKA

The Lancet, Volume 355, Issue 9301, Pages 114 - 117, 12 January 2002
doi:10.1016/S0140-6736(02)07369-5

Effect of preoperative smoking intervention on postoperative complications: a randomised clinical trial

Dr Ann M. Møller MD & Dr Helle Villadsen RN & Tom Pedersen MD & Hanne Tønnesen MD & S

120 patients for elective joint replacement
Randomised to control or smoking cessation intervention:

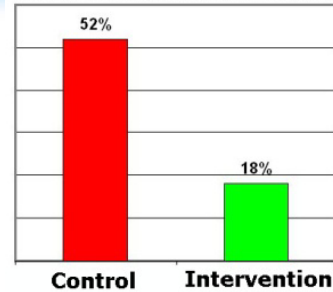
Control	Routine preoperative preparation 4 stopped smoking anyway
Intervention	Routine preoperative preparation plus weekly meetings with nurse, NRT therapy 36 stopped smoking, 14 reduced, 6 continued

Results

	Control	Intervention
Wound problems:	31%	5%
CV Insufficiency	10%	0%
Avg. days in hospital	13	11
Total days in ICU	32	2

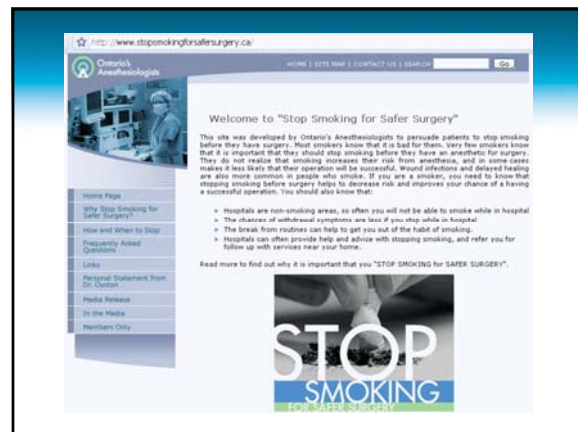
Stopping smoking reduces risk:

SURGICAL COMPLICATION RATES



When to stop?


- ♦ Ideally 6 – 8 weeks or longer
- ♦ Definite advantage of 4 weeks
- ♦ For carbon monoxide elimination, 4 -8 hours
 - “No smoking after midnight”?
 - Risk of stopping shortly before surgery?
- ♦ Postoperative quitting aids wound healing



The infographic is titled 'What is the Stop Smoking for Safer Surgery Action Plan?'. It outlines the plan and provides contact information. Key points include:

- Ontario's Anesthesiologists have developed an Action Plan to identify smokers pre-operatively and provide them with the information and tools they need to stop smoking before surgery.
- The Action Plan includes:
 - Identifying smokers pre-operatively and encouraging patients not to arrive before surgery.
 - Explaining that smoking increases risks during and after surgery.
 - Referring smokers to the excellent free smoking cessation services which are available.
 - Asking patients who are scheduled for surgery when they last smoked.
 - When appropriate, delaying surgery to allow patients to quit on the post-operative tobacco abstinence.
 - Following up with patients to encourage them to continue not smoking after surgery.
- Contact Information:
 - Telephone Number: (905) 506-0000
 - For Number: (905) 506-0000
 - Web Address: www.ontariosmokingforsafesurgery.com
 - Address Block 1: 1000 Queen Victoria Ave. (1000 Queen Victoria Ave.)
 - Address Block 2: 1000 Queen Victoria Ave. (1000 Queen Victoria Ave.)
- Logos for Ontario's Anesthesiologists and OMA (Ontario Medical Association) are shown at the bottom.

HEADING FOR SURGERY?



NOW IS A GOOD TIME TO STOP SMOKING

Smoking increases your risk of breathing problems after anesthesia. Quitting smoking before surgery improves healing and prevents infections.

Ontario's Anesthesiologists recommend you stop smoking before surgery and remain smoke-free afterwards.

Nicotine replacement therapy is a safe and effective aid to quitting.

For more information, visit www.stopsmokingforsafesurgery.ca.
Smokers' Helpline (Tel 1 877 513 5333) can help you quit.

For a free sample of Nicorette and Nicoderm, and information about how nicotine replacement therapy can help you quit, call 1 888 777 7777.

DO NOT BRING YOUR CIGARETTES INTO THE OPERATING ROOM!



STOP SMOKING BEFORE YOUR SURGERY

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SURGERY AND CIGARETTES DON'T MIX



CUT OUT CIGARETTES BEFORE YOUR SURGERY

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This poster has been funded by an unrestricted educational grant from Johnson and Johnson.

WORRIES ...	STRATEGIES
♦ Craving	♦ <u>D</u> o something else
	♦ <u>D</u> elay
	♦ <u>D</u> eep breaths
	♦ <u>D</u> rink water

WORRIES ...	STRATEGIES
♦ Weight gain	♦ Concentrate on cessation
	♦ Adopt healthy life style: exercise and good nutrition
	♦ Consider using nicotine gum
♦ Stress control	♦ Avoid or change source of stress
	♦ Change behaviour towards stress
	♦ Use relaxation techniques

WORRIES ...	STRATEGIES
♦ Triggers	♦ Alcohol and coffee
	♦ Change routine
♦ Relationship with smokers	♦ Inform smoking friends of decision
	♦ Ask support from friends
	♦ Choose non-smoking areas

What about coffee?

- ◆ Smoke speeds up the metabolism of many things, including caffeine
- ◆ Smoking cessation will then slow metabolism of caffeine
- ◆ If you drink the same amount of coffee, your caffeine levels will TRIPLE!
- ◆ The resulting caffeineism will be misinterpreted as anxiety or withdrawal
- ◆ So, cut down the caffeine intake with smoking cessation (coffee, tea, chocolate, cola)

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Quit Smoking---Save Money!

Drug	Cost		Cigarette eg	Cost		
CHAMPPIX/Varenicline		du Maurier/ Players/ Export A				
Day	12 Weeks	Small	12 weeks	Large	12 weeks	
\$4.06	\$341.04	\$8.43	\$708.12	\$9.91	\$832.44	
		Savings	\$367.08		\$491.40	
CHAMPPIX/Varenicline		du Maurier Special				
Day	12 Weeks	Small	12 weeks	Large	12 weeks	
\$4.06	\$341.04	\$8.52	\$715.68	\$10.17	\$854.28	
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[illegible][illegible]

Smoking cessation code

- ◆ E079
 - Initial discussion, add to visit fee
 - \$15.40
- ◆ K039
 - Smoking cessation follow up visit
 - \$33.45

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Smoke Free Ontario Act

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Ontario Ministry Health Promotion and Sport > Smoke-Free Ontario > Legislation > Legislation Comparison Chart

Ministry

Smoke-Free Ontario

Health Communities

Healthy Eating

Active Living

Disease & Injury Prevention

2015 Pan Am Games

Health Zone

Partners & Resources

More Government

Legislation Comparison Chart

Ontario's last anti-smoking legislation was in 1994. Find out what's new in the Smoke-Free Ontario Act.

Feature of Legislation	Tobacco Control Act 1994	Smoke-Free Ontario Act May 2008
100% smoke free public places province-wide, including casinos, bingo halls, bowling and billiard establishments, restaurants and bars.	No	Yes
Designated smoking rooms	Allowed	Not allowed
Controlled smoking areas (CSAs) at residential care facilities that protect residents and healthcare workers	No	Yes
Smoking on patios	Allowed	Restricted
Protection for Home Health Workers	Yes	Yes
Smoking at exits to health care facilities	Yes	Yes
Retail Cigarette Promotion Allowed	Yes	No
Ban on any tobacco displays	No	Yes – immediate restrictions leading up to a total ban on May 31, 2009
Minimum age to purchase tobacco	19	19
Apparent age to which identification to be provided	19	25

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Smoke Free Ontario Act

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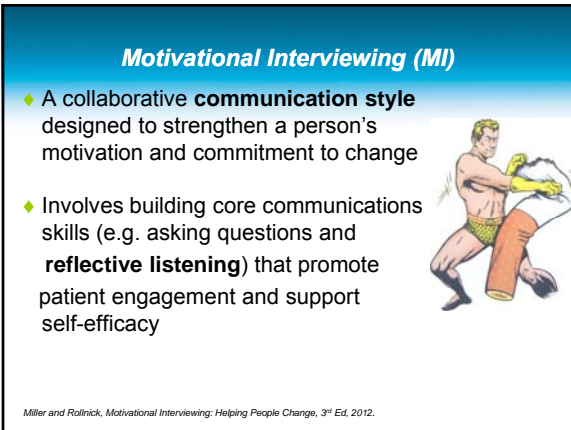
Motivational Interviewing (MI)

- ◆ A collaborative **communication style** designed to strengthen a person's motivation and commitment to change
- ◆ Involves building core communications skills (e.g. asking questions and **reflective listening**) that promote patient engagement and support self-efficacy



Miller and Rollnick, *Motivational Interviewing: Helping People Change*, 3rd Ed, 2012.

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Miller and Rollnick, *Motivational Interviewing: Helping People Change*, 3rd Ed, 2012.

Communicating in Motivational Interviewing

- **O**pen ended question
- **A**ffirmations
- **R**eflective Listening
- **S**ummaries



Exploring Ambivalence by Assessing Importance of Change « Motivation »

- ◆ Use a 0-10 scale:

« On a scale of 0-10, where 0 is not at all and 10 is extremely, how **important** is it for you to take your medication as prescribed? »

0---1---2---3---4---5---6---7---8---9---10

0---1---2---3---4---5---6---7---8---9---10

- ◆ Possible follow-up question?

- « Why are you at a 8 and not a lower #? »
- This elicits their reasons for wanting to change and what is personally motivating to them (example of how to elicit « change-talk »)

Exploring Ambivalence by Assessing Confidence

- ◆ Use the 0-10 scale:

« On a scale of 0-10, where 0 is not at all and 10 is extremely, how **confident** are you in your ability to take your asthma medication as prescribed? »

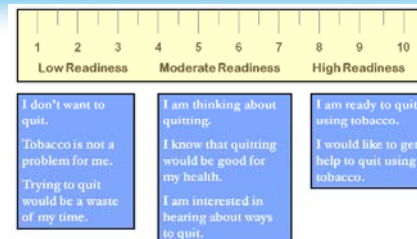
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0---1---2---3---4---5---6---7---8---9---10

- ◆ Possible follow-up question?

- « Why are you at a 7 and not a lower #? »
- This elicits their skills and resources (also an example of how to elicit « change-talk »)

Readiness Ruler

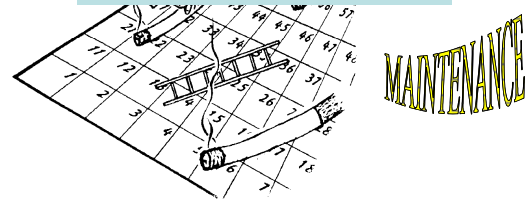


You Tube: Mike Evans on Smoking Cessation



ACTION, MAINTENANCE AND RELAPSE

No FIRST Cigarette!!



New Initiative

- ◆ College of Family Physicians Section on Respiratory Medicine
- ◆ Special interest group at CFPC
- ◆ Goals:
 - Increase level of care for patients with respiratory diseases
 - Support family physicians in giving this care
 - GPSI as per UK
 - CME/Curriculum



for4kids@gmail.com
www.fpagc.com