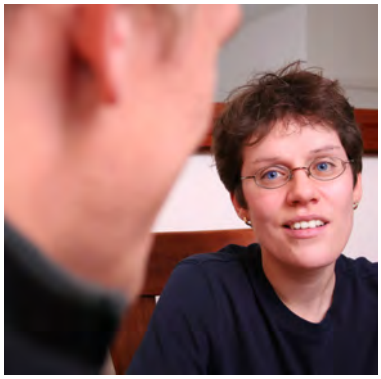
Tobacco Reduction in the Context of Mental Illness and Addictions

A Review of the Evidence

May 1, 2006



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Acknowledgement to the Tobacco Advisory Committee and the Tobacco, Mental Health and Addictions Steering Committee for their support and dedication to this project.

This is a Prevention, Promotion and Protection Project.

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Executive Summary

This literature review was undertaken to synthesize the current state of knowledge related to tobacco use in the context of mental illness and addictions. Conflicting information about the benefits and limitations of encouraging people with addictions and mental illness to stop smoking was identified as a barrier to moving forward with tobacco reduction programs and strategies for these populations. In this review, we consider the complex reasons why persons with mental health and addictions continue to smoke. We explore the evidence related to whether nicotine has a therapeutic benefit for these clinical populations, and we examine the approaches that might be used to address the harmful effects of their tobacco smoking. A thorough understanding of the pharmacological, physiological, psychological and social factors that influence tobacco use is required to develop appropriate strategies to address tobacco use by people with mental health challenges and substance use problems.

Tobacco use is prevalent among persons with mental illness or addictions and the effects of tobacco use are inequitably distributed to these populations. Because of this high tobacco consumption rate, thousands of smokers with mental illness or addictions die each year due to smoking. They experience greater physical health consequences and deaths related to tobacco compared with the general population. Additional costs of tobacco addiction include the financial burden associated with buying tobacco products. Because of their strong tobacco addiction, people with mental illness and other addictions sometimes choose tobacco products instead of purchasing food and satisfying their other basic needs. Finally, smoking can affect a person's ability to secure housing and employment.

There are many factors contributing to the high rates of tobacco use among those with mental illness or addictions. Nicotine is known to trigger several biochemical events, including enhanced release of the neurotransmitters dopamine, norepinephrine, and serotonin. These neurotransmitters are implicated in many psychiatric disorders and are involved in the reward systems associated with other addictive substances. Not surprisingly persons with mental illness have used tobacco to cope with the effects of their illness. Those with addictions have used nicotine as a replacement when withdrawing from other drugs. While biological factors are powerful, social factors continue to reinforce tobacco use among people with mental illness or addictions. Tobacco use has traditionally been part of the culture of mental health and addictions services. Cigarettes have been used reinforce behaviour, and tobacco use has been seen as an acceptable substitute for other substance use.

The positive health benefits of smoking cessation are well known. Smoking cessation dramatically reduces the risk of heart disease and cancer and prevents continuation of the impairment of lung function in those with chronic obstructive pulmonary disease. There are a number of potential negative sequelae that must be balanced with these outcomes. Nicotine withdrawal can include symptoms of depressed mood, insomnia, irritability, frustration or anger, anxiety, difficulty concentrating, restlessness, and increased appetite or weight gain. Some of these symptoms might become particularly aggravated among persons with mental illness or addictions. For example, nicotine withdrawal may aggravate some psychiatric disorders, mimic or worsen medication side effects, and increase blood levels of several medications. The evidence suggests that in general smoking cessation does not increase the risk of relapse among individuals who use other substances.

When it comes to smoking cessation those with mental illness or addictions have many of the same concerns as other smokers. Much like the general population, common barriers for smoking cessation in these populations include addiction and fear of withdrawal, weight gain, and failure. They also face additional challenges. They tend to have more extensive learning histories with cigarettes, more severe tobacco dependence, express attitudes reflecting less readiness to quit, and have higher rates of comorbid psychological problems. They can experience symptom exacerbation during their smoking cessation attempts and may lack the focus and motivation to be successful with cessation. Because of these challenges these populations represent a subset of smokers for whom specialized, population-specific smoking treatments are needed.

Based on the evidence reviewed the following approaches can be strongly endorsed:

- Tobacco treatment for persons with mental illness or addictions should be integrated into existing mental health and addictions services.
- Counselors and health care providers need support and training to incorporate brief interventions into their practices,
- Nicotine replacement therapy should be provided to all individuals with mental illness or addictions who are wanting to quit or reduce their smoking,
- Individuals who are taking anti-psychotic medications and quit smoking should have their medication dosages monitored in the first months following cessation.
- Smoke free spaces support and encourage individuals with mental illness and addictions to remain smoke free.

Introduction

An objective of the Provincial Health Services Authority (PHSA) is to encourage and develop health promotion and prevention practices in British Columbia (BC). One priority area for disease prevention is reducing the impact of tobacco smoking. Tobacco use remains the leading underlying cause of preventable death and disease in the developed world. There is a profound burden of disease and harm associated with tobacco smoking in BC with consequent suffering, economic loss, disability and death. After decades of health warnings and social pressure, millions of smokers have quit smoking. Despite this success there are segments of the population for which rates of tobacco smoking remain very high. To date, tobacco control activities have focused largely on people who can be easily reached and who do not face complex health issues. The prevalence rate of smoking among individuals living with mental illness and addictions remains high; the reasons for this high rate are multifaceted (Carosella, Ossip-Klein, & Owens, 1999).

This literature review was undertaken to synthesize the current state of knowledge related to tobacco use in the context of mental illness and addictions. Conflicting information about the benefits and limitations of encouraging individuals with addictions and mental illness to stop smoking is a barrier to moving forward with tobacco reduction programs and strategies for these populations. In this review, we consider the complex reasons why persons with mental illness and addictions continue to smoke. We explore the evidence related to whether nicotine has a therapeutic benefit for these clinical populations, and we examine the approaches that might be used to address the harmful effects of their tobacco smoking. A thorough understanding of the pharmacological, physiological, psychological and social factors that influence tobacco use is required to develop appropriate strategies to address tobacco use by people with mental health challenges and substance use problems.

Review of the Evidence

The primary findings from the literature reviewed are outlined in relation to the following:

1. The prevalence of tobacco use among people with mental illness or addictions,
2. The factors associated with tobacco use by people with mental illness or addictions,
3. The effects of smoking cessation for people with mental illness or addictions,
4. The challenges of smoking cessation for people with mental illness or addictions, and
5. Strategies and approaches to facilitate smoking cessation by people with mental illness or addictions.

1. The Prevalence of Tobacco Use Among People with Mental Illness or Addictions

Tobacco use is the single most preventable cause of morbidity and mortality in Canada. According to the latest results from the Canadian Tobacco Use Monitoring Survey (CTUMS), for data collected between February and June 2005, just over 5 million people, representing 20% of the population aged 15 years and older, are current smokers, and 16% report smoking daily. Approximately 22% of men are current smokers, and 17% of women report current smoking (Health Canada, 2005). The prevalence rate of tobacco use is considerably higher among those with mental illness or addictions (other than tobacco). The evidence that is available suggests that tobacco smoking prevalence among people with mental illness is twice that of the general population (Lasser et al., 2000). The prevalence of smoking in people with schizophrenia may be as high as 90% (Glassman, 1993), and for people with major depressive disorder about 50% (Adlaf, Paglia & Ivis, 1999; Poirier et al., 2002). Tobacco use is also very prevalent among those with addictions to substances other than tobacco. Among alcohol and drug dependent patient populations, the rates of smoking ranges from 70% to 90% (Battjes, 1988; Berger & Schweigler, 1972; Glassman et al., 1990; Richter, Gibson, Ahluwalia, & Schmelzle, 2001; Stark & Campbell, 1993; Sussman, 2002; Williams et al., 2005; Zickler, 2000). A recent American report suggests that among those with substance dependence, smoking rates are three times higher, and quit rates four times lower, than the rates seen in the US population (Richter, Gibson, Ahluwalia & Schmelzle, 2001; Williams & Ziedonis, 2004). For many individuals with substance use problems, nicotine is the first drug ever used and the last one stopped (Falkowski, 2006). There also are strong links between mental illness, dependence, and tobacco use. Alcohol and drug use disorders are more prevalent among people with a psychiatric illness (Kessler et al., 1997), and co-occurring substance use is a strong predictor of smoking status among psychiatric patients (Farrell et al., 2001; Glassman et al., 1990; Vanable, Carey, Carey & Maisto, 2003).

Regardless of the exact rates, the effects of tobacco use are inequitably distributed to people with mental illness or addictions. Tobacco use clearly contributes significantly to the leading causes of morbidity and mortality in these populations. People with mental illness in the US consume nearly one half of all tobacco sold (Lasser et al., 2000). Because of this high tobacco consumption rate tens of thousands smokers with mental illness or addiction die each year due to smoking. They experience greater physical health consequences and deaths compared with the general population (Brown et al., 2000; Dixon, Postrado, Delahanty, Fischer, & Lehman, 1999; Hurt et al., 1996; Williams & Ziedonis, 2004). For example, it has been documented that people with schizophrenia are at higher risk of developing heart disease and lung cancer and are more likely to die prematurely from these diseases than from suicide (ASH, 2001; Osby, Correia, Brandt, Ekbom & Sparen, 2000). In addition to greater medical comorbidity, smokers with schizophrenia experience greater psychiatric symptoms, numbers of hospitalizations, and need higher medication doses (Dalack & Glassman, 1992; Desai, Seabolt & Jann, 2001; Goff, Henderson & Amico, 1992; Williams & Ziedonis, 2004; Ziedonis, Kosten, Glazer, & Frances, 1994). In Canada, tobacco smoking accounts for about 80% of all deaths attributed to dependent substance use, compared with alcohol, which accounts for 16% of deaths from substance use (Currie, Nesbitt, Wood & Lawson, 2003; Single, Robson, Rehm & Xie, 1999). Individuals previously treated for alcohol or other non-nicotine drug dependence have a higher

cumulative mortality due more to tobacco-related than to alcohol-related causes (Hurt et al., 1996; MMWR, 1995). Hurt et al. conducted an 11-year study of 845 patients with addictions and found that in the cohort, 51% of deaths were related to tobacco use. Compared to the general population, they found almost a three-fold increased risk of death for the cohort. Substance users are more likely to die from tobacco-related illnesses (e.g., coronary artery disease and lung cancer) than alcohol-related illnesses (Fogg & Borody, 2001). Hser, McCarthy, and Anglin (1994) reported that after controlling for a wide array of health-risk behaviours in a sample of individuals with long-term narcotic dependence, tobacco use was clearly one of the two most distinctive lifestyle markers (the other being disability) that was strongly correlated with subsequent mortality. In a 3-year longitudinal study of 254 polydrug users, smokers had higher rates of disability than did nonsmokers (McCarthy, Zhou, Hser & Collins, 2002).

In the case of some illnesses, tobacco and alcohol appear to act synergistically to increase the risk of morbidity and mortality (Hughes, 1995). For example, alcohol and tobacco use in combination increases the risk of developing pancreatitis, cirrhosis, and oropharyngeal and esophageal cancers (U.S. Department of Health and Human Services, 1982; Williams & Ziedonis, 2004). Indeed, the risk of death from smoking and heavy drinking appears to be even greater than what would be predicted from their additive effects. The risks of cancer of the mouth, throat, and esophagus for the alcohol drinker that smokes are more than the sum of the risks posed by these drugs individually (Blot, 1992; Patten, Martin & Owen, 1996).

Tobacco smoking has been shown to be a predictor of greater problem severity and poorer treatment responses in patients undergoing outpatient substance-use treatment (Krejci, Steinberg, & Ziedonis, 2003; Stark & Campbell, 1993; Vanable et al., 2003). People who are mentally ill or who have substance dependence tend to smoke much more heavily than do smokers in the general population (Lasser et al., 2000), and people with mental health problems tend to be more highly dependent on nicotine as indicated by the number of cigarettes consumed, time to first cigarette of the day, and perceived difficulty in stopping (Brown, 2004).

The reasons for such great tobacco use by people with mental illness or addictions likely include neurological, psychological, behavioural, and environmental factors, along with the increasing evidence that links schizophrenia to biochemical vulnerability for nicotine addiction (Lucksted, McGuire, Postrado, Kreyenbuhl, & Dixon, 2002). Cigarettes are often the first substance used in a progression that can eventually include the use of (or dependence upon) alcohol and illicit drugs. It is not the case that smoking causes people to use other substances, but the association between tobacco use and the use of other mood-altering substances is strong and irrefutable. Although the underlying reasons for tobacco use may differ for people with mental health problems and people with substance use problems, there are many common elements contributing to their use of tobacco. In this literature review, we treat these two populations together, and highlight differences where they arise. We recognize that some individuals with mental illness also have addictions to substances other than tobacco. We do not directly address the issue of concurrent disorders and tobacco use in this review.

Summary

Tobacco use is prevalent among persons with mental illness or addictions and the effects of tobacco use are inequitably distributed to these populations. Because of this high tobacco consumption rate tens of thousands of smokers with mental illness or addiction die each year due to smoking. They experience greater physical health consequences and deaths related to tobacco compared with the general population.

2. The Factors Associated with Tobacco Use by People with Mental Illness or Addictions

There are several factors that account for the high rates of smoking among people with mental illness and addiction. Most controversially, it has been hypothesized that smoking could actually cause mental illness and other addictions (McNeill, 2001). Although few scientists or clinicians accept this explanation, there is some evidence to suggest that smoking can affect the body in such a way as to increase vulnerability to some mental health disorders, particularly anxiety syndromes (McNeill, 2001). More widely accepted explanations of the high prevalence of tobacco use among those experiencing mental illness or addictions include *biological factors, the therapeutic benefits of nicotine, deprivation and social exchange, and the culture of mental health and addiction services*. Each of these explanations is discussed in detail.

Biological Factors

Cigarette smoke contains thousands of substances. One of the most important is nicotine, which forms a strong physical and psychological dependence (addiction). Nicotine is known to stimulate dopamine release in the nucleus accumbens of the brain, which is the neurobiologic hallmark of dependence. Nicotine readily crosses the blood brain barrier and reaches the brain within 7 seconds of inhalation (Brown, 2004). It binds to nicotine cholinergic receptors, triggering several biochemical events, including enhanced release of the neurotransmitters dopamine, norepinephrine, and serotonin. These neurotransmitters are implicated in many psychiatric disorders including schizophrenia and affective states such as anxiety and depression (Farnam, 1999); they also are involved in the reward systems associated with other addictive substances (Blum et al., 2000). Nicotine stimulates the dopamine reward system much like heroin and cocaine do (Gardner, 1992; Pontieri, Tanda, Orzi, & Di Chiara, 1996; Wise, 1996). Substances or activities that are rewarding are reinforced through the stimulation of this system and are more likely to occur because of this reinforcement (Conner, Stein, Longshore, & Stacy, 1999; Pontieri, Tanda, Orzi, & Di Chiara, 1996; Wise & Rompre, 1989). The interaction of nicotine with dopamine in central reward system activity plays an important role in reinforcing continued cigarette smoking in the presence of mental illness or other addictions (Blum et al., 2000; Lavin, Siris, & Mason, 1996).

Long-term cigarette smoking is also associated with neurochemical abnormalities in the noradrenergic locus coeruleus. Smoking-induced neurochemical "corrections" of biological abnormalities associated with this disorder might be the reason for the high prevalence of tobacco smoking in patients with major depression (Klimek et al., 2001).

Advances in neuroscience have shown that there are important neurochemical pharmacodynamic interactions between alcohol and nicotine that might summate to increase codependency on both (Johnson, 2004). The use of both alcohol and nicotine also is determined in part by genetic influences (True et al., 1997). The Collaborative Study on the Genetics of Alcoholism (COGA), which is investigating the genetic factors contributing to alcohol dependence, found that both alcohol dependence and habitual smoking were transmitted within families. This familial transmission resulted from both common and drug-specific influences, which likely include genetic factors (Bierut, Schuckit, Hesselbrock, & Reich, 2000).

The Therapeutic Benefits of Nicotine

Although smoking tobacco is a major hazard to health, nicotine has been recognized to offer particular benefits to people with mental illness or addictions. There is strong evidence to support the claim that nicotine is used to manage symptoms associated with mental illness and addictions. Nicotine immediately stimulates relaxed and pleasurable feelings and reduces negative affect states such as anxiety, anger, and depression. These effects may have greater importance among people with a major mental illness because their sources of pleasure and satisfaction are diminished. People with schizophrenia also may have particular difficulties dealing with stressful situations and negative feelings, and nicotine may help with this (Strasser et al., 2002). The pleasurable feelings caused by nicotine quickly give way to withdrawal symptoms, increased cravings, and agitation, which then leads to further smoking to calm the associated anxiety. This cycle has led some to question whether nicotine is assisting with withdrawal symptom management or the management of affective states (Brown, 2004).

Nicotine increases alertness by stimulating the dopaminergic pathways to the prefrontal cortex. This enhances concentration, information processing and learning, which is of particular benefit to people with schizophrenia, in whom cognitive dysfunction may occur as part of the illness or as a side effect of antipsychotic medications (Levin, Wilson, Rose, & McEvoy, 1996).

Nicotine and the Symptoms of Schizophrenia

Nicotine has been found to mediate some of the symptoms of schizophrenia. Symptoms of schizophrenia are typically classified as positive (e.g., hallucinations, delusions) or negative (e.g., lack of energy, lack of motivation). The negative (deficit) symptoms of schizophrenia such as lack of motivation, lack of energy and affective blunting, are thought to be due to decreased dopamine activity in the prefrontal cortex. Nicotine stimulates the presynaptic nicotinic receptors on glutaminergic neurons, increasing prefrontal cortex levels of glutamate and enhancing the

glutaminergic input to the midbrain. Prefrontal cortical dysfunction and its association with negative symptoms have been increasingly recognized as an important phenomenon in schizophrenia. The positive symptoms tend to be more responsive than the negative symptoms to psychiatric medications. Relief from negative symptoms may be a powerful motivation for smoking (Forchuk et al., 2002). Smoking in schizophrenia may represent a self- medication effort to restore a dysregulated cortical- mesolimbic system and to minimize negative symptoms (Dalack & Meador-Woodruff, 1996; Glassman, 1993).

Nicotinic acetylcholine receptors (nAChRs) also are implicated in the pathophysiology of schizophrenia. A dysfunction in nAChRs may be responsible for abnormal sensory gating, such as diminished attention, difficulty with attention, and poor memory (Desai et al., 2001). Individuals with schizophrenia have long been known to have a deficit in this sensory-gating function so that their response to a second stimulus is significantly greater than normal. Patients' impaired ability to filter out background noise in the environment interferes with attention and with the processing of sensory stimuli. Nicotine can temporarily normalize the impairment of auditory gating in people with schizophrenia (Leonard et al., 2001).

Nicotine and Depressive Symptoms

There are strong links between tobacco use and depression. The American National Longitudinal Study of Adolescent Health revealed that current cigarette smoking is the strongest predictor of the development of depressive symptoms (Goodman & Capitman, 2000; Williams & Ziedonis, 2004). An American study of adults revealed that about 70% of men and 80% of women with a history of major depression are current or past smokers, and 25% to 40% of psychiatric patients seeking smoking cessation treatment have a past history of major depression (Covey, 1994; Williams & Ziedonis, 2004). It has been postulated that continued smoking elicits changes in the hippocampus that protect people from experiencing depressive symptoms. It follows that people with depression might use tobacco to manage their symptoms. The link between depression and nicotine dependence has been explained by two self-medication strategies (negative affect regulation and stimulation smoking). Higher levels of depression correspond to higher levels of negative affect smoking. Negative affect smoking, in turn, leads to higher levels of stimulation smoking (Lerman et al., 1996).

Studies that have examined whether smoking precedes depression have thus far been contradictory. Prospective data suggest that the association between nicotine dependence and major depression probably reflects common factors that predispose people to both disorders. For example, Breslau and colleagues' longitudinal five-year study found that a history of major depression at baseline significantly increased the risk of daily smoking (although it did not significantly decrease the rate of quitting). A history of daily smoking at baseline significantly increased the risk of major depression. The authors suggested that shared etiologies might be important. However, in a US study of nearly 2,000 youths Wu and Anthony (1999) found that tobacco smoking predicted a slight increase in the risk of a subsequent onset of depressed mood, but depressed mood was not associated with a later risk of initiating cigarette smoking. This supported a possible causal link from tobacco smoking to later depressed mood during childhood and early adolescence but not vice versa.

Nicotine and the Management of Medications

There is evidence to support the notion that at least some schizophrenic patients smoke to alleviate their medication side effects (Lavin et al., 1996). Nicotine may reduce side effects through the modulation of dopamine (Forchuk et al., 2002). Nicotine, however, also reduces the bioavailability of the medication and therefore reduces effectiveness as well as side effects (Desai et al., 2001; Forchuk et al., 2002). The metabolism of tobacco (not nicotine) can appreciably affect psychiatric medication dosing requirements and blood levels by inducing P-450 liver cytochrome enzymes. Tobacco use can result in a 40% reduced serum level of some medications. Many commonly prescribed psychiatric medications are metabolized through this pathway, including antipsychotics (clozapine, olanzapine, haloperidol, and fluphenazine), antidepressants (amitriptyline, nortriptyline, imipramine, clomipramine, fluvoxamine, and trazodone), and several other over-the-counter and prescribed medications ((Hardman, 1995; Jarvik, 1992; Zevin & Benowitz, 1999). Increased dosages usually lead to increased costs because many medications are priced higher at higher doses (Williams & Ziedonis, 2004; Ziedonis et al., 2003).

Nicotine and Drug Withdrawal

Factors affecting initiation, abstinence, and relapse to the use of tobacco, alcohol, and opioids are similar in nature. There are similarities in the addictive processes underlying the use of these substances. Not surprisingly it has been noted that some individuals use nicotine to compensate when withdrawing from other drugs. Tobacco smoking can act as a replacement for illicit drugs, especially during the course of substance use treatment (Burling et al., 1997).

Deprivation and Social Exchange

The relationships between smoking, mental health and other addictions are not wholly biological. Environmental and social factors may explain the increased use of tobacco in these populations. People living in economically, educationally, and socially deprived and marginalized circumstances are more likely to smoke. These factors are also associated with higher rates of mental illness and substance use disorders (Brown, 2004). Smoking is increasingly becoming a phenomenon of those with lower economic standing, of which educational attainment is a marker (Ferry, 1999). It is possible that those with less education and fewer resources have less access to smoking cessation services. More daily stressors and worries among people with low levels of education may also contribute to their smoking (Eriksen, 2005). Cost is an important factor that determines the frequency and severity of smoking, especially among the poor. While the general population might modify their smoking, people with mental illness and addictions who often subsist on limited incomes can spend a large proportion of their money on cigarettes or other tobacco products, meaning less money to spend on things that could improve their quality of life (Brown, 2004).

The social environment plays a significant role in reinforcing smoking patterns and behaviour. Broad social environmental factors that contribute to tobacco and other drug use include community

disorganization, lack of community bonding, community attitudes favorable to drug use, inadequate services and opportunities for youth, and pro-drug messages in the media (Rockville, 2001). Smoking is used as a 'coping mechanism' to help deal with the stresses of living with mental illness or financial hardship, or as a means of control in an otherwise uncontrollable environment (Brown, 2004; Lawn, Pols, & Barber, 2002). Smoking is part of the culture in most mental health and residential facilities. It has been noted that boredom can be a major problem for people suffering with schizophrenia and smoking can provide a framework for the day (Smith, 1996). Those coping with persistent symptoms and reduced social and occupational functioning often resort to smoking to cope with loneliness or to make social contact (Goldberg, Moll, & Washington, 1996; Strasser et al., 2002). As smoking becomes increasingly less acceptable, however, it can become an additional barrier to achieving relationships, employment, housing, and other mainstream activities (Williams & Ziedonis, 2004).

Common social, situational and intra-personal factors are also thought to contribute to the relationship between alcohol and tobacco use (Fogg et al., 2001). People who use substances tend to associate with people who have more positive views about smoking and more negative views about quitting. These specific environmental factors have been shown to negatively affect smoking cessation and maintenance efforts (Burling, Ramsey, Seidner, & Kondo, 1997; Orleans, Rimer, Cristinzio, Keintz, & Fleisher, 1991).

Social factors do not operate in isolation they likely interact with biological factors. The context can alter the extent to which various factors influence tobacco use. For example, genetic factors might predispose a person to nicotine dependence, but social factors might prevent a person with the genetic predisposition from ever trying tobacco. Thus, the social context could be construed as a moderator of other influences on tobacco use at the micro, meso, and macro levels of investigation (Unger et al., 2003).

The Culture of Mental Health and Addictions Services

It is important to note that cigarette smoking has played an important role in the delivery of care in the field of mental health and addictions. One can easily conjure up the image of smoke-filled psychiatric hospital wards and smoked filled Alcoholics Anonymous meetings. In the addictions field cigarettes have been viewed as an "acceptable" substitute for other "more harmful" addictions (Williams & Ziedonis, 2004). It is estimated that 70 to 80 percent of psychiatric hospital patients smoke, (as opposed to 22 percent of the adult population in Canada) (McNeill, 2001). Those who are admitted to treatment as nonsmokers are at high risk of becoming smokers (Lawn et al., 2002). Smoking has traditionally been used as a behavioural reward in psychiatric inpatient units and continues to serve as a shared social activity for many individuals with mental illness (Williams & Ziedonis, 2004).

Historically, a substantial number of health care personnel working in the addictions and mental health field smoked cigarettes (Mester, Toren, Ben Moshe, & Weizman, 1993; Tagliacozzo & Vaughn, 1982; Wagner, 1985; Williams et al., 2005). Their rates of tobacco use were higher than that of health

providers working in other fields (Trinkoff & Storr, 1998). Of note is that health professionals who smoke are less likely to incorporate tobacco control strategies into their practice (Gorin, 2001). Staff members working in addictions-treatment settings have often received little or no training in treating tobacco dependence and many are smokers themselves

Mental health professionals rarely discuss smoking with their patients. This may be because they lack the skills and knowledge, because they do not think that their patients can quit, or because they believe that smoking is one of the few pleasures that people with severe mental health problems can have (McNeill, 2001). Many chemical dependency professionals and participants in mutual support groups discourage smokers from quitting because they believe that it will undermine sobriety (Bobo & Gilchrist, 1983; Hughes, 2002).

Persons with mental health and addictions are unlikely to be offered appropriate information or support to help them change their tobacco usage (Brown, 2004). While spontaneous cessation rates for people with mental illness and addictions are extremely low (Ziedonis & George, 1997), there is evidence that many people with mental illness and addictions want to reduce the amount that they smoke, or stop smoking altogether (Addington, el-Guebaly, Addington, & Hodgins, 1997; Carosella, Ossip-Klein, & Owens, 1999; Forchuk et al., 2002; Goldberg et al., 1996). Even though smoking is recognized as a major public health problem, a tradition of systematic, opportunistic professional intervention directed as smoking cessation in these populations is generally lacking (AHCPR, 1996; Graff, Madsen, Nielsen, & Andersen, 1991; Raw, McNeill, & West, 1999; Willaing & Ladelund, 2004; Mullen & Holcomb, 1990; Willaing, Jorgensen, & Iversen, 2003). The evidence suggests that a significant barrier that limits tobacco counseling in addiction services is the persistence of treatment dogma that smoking cessation should be discouraged until abstinence from other substances is well established (Bobo, Anderson, & Bowman, 1997; Burling et al., 1997; Hughes, 1993). The attitude of treatment providers about smoking cessation has been noted to pose a significant barrier to effective smoking cessation (AHCPR, 1996; Burling et al., 1997; Fogg et al., 2001). There is wide agreement in the literature that mental health systems need to eliminate current practices that promote tobacco use, including its use as a reward and allowing staff to smoke with patients.

Summary

There are many factors contributing to the high rates of tobacco use among those with mental illness or addictions. Nicotine is known to trigger several biochemical events, including enhanced release of the neurotransmitters dopamine, norepinephrine, and serotonin. These neurotransmitters are implicated in many psychiatric disorders; they also are involved in the reward systems associated with other addictive substances. Not surprisingly persons with mental illness have used tobacco to cope with the effects of their illness. Those with addictions have used nicotine as a replacement when withdrawing from other drugs. While biological factors are powerful, social factors continue to reinforce tobacco use among people with mental illness or addictions. Tobacco use has traditionally been part of the culture of mental health and addictions services. Cigarettes have been used to reinforce behaviour or has been seen as an acceptable substitute for other drug use. Health care providers working in mental health and addictions are unlikely to incorporate tobacco cessation into their treatment.

3. The Effects of Smoking Cessation for People with Mental Illness or Addictions

Many individuals with mental illness and addictions have made attempts to quit smoking. In this section we consider the evidence related to possible negative and positive sequelae associated smoking cessation in these populations. The positive health benefits of smoking cessation are well known. Smoking cessation dramatically reduces the risk of heart disease and cancer and prevents continuation of the impairment of lung function in those with chronic obstructive pulmonary disease (Lopes et al., 2002). Additional costs of tobacco addiction include the financial burden of buying tobacco products, especially for those people who are permanently disabled with mental illness and who lack discretionary income. Because of their strong tobacco addiction, many people with mental illness choose tobacco products instead of purchasing food and satisfying their other basic needs (Ziedonis, Kosten, Glazer & Frances, 1994). In addition, quitting smoking can improve an individual's economic status because of the availability of funds usually used for tobacco. Smoking cessation can also lead to a sense of personal accomplishment and reduce feelings of stigma that persons who continue to smoke are increasingly experiencing.

There are a number of negative sequelae that must be balanced with the positive outcomes described above. Nicotine withdrawal can include symptoms of depressed mood, insomnia, irritability, frustration or anger, anxiety, difficulty concentrating, restlessness, bradycardia, and increased appetite or weight gain (Cataldo, 2001). Some of these symptoms might become particularly aggravated among persons with mental illness or addictions. Nicotine withdrawal may aggravate some psychiatric disorders, cause relapse, mimic or worsen medication side effects, and increase blood levels of several medications (Lopes et al., 2002). Smokers with a major depressive disorder history may be especially vulnerable to affective disturbance when they abstain from smoking (Kahler et al., 2002; Kalman, Morissette, & George, 2005).

There is fairly strong evidence to suggest that in relation to addictions treatment, smokers have poorer treatment outcomes than nonsmokers (Stuyt, 1997). Conner et al. found that it may be especially difficult to quit using both cigarettes and drugs simultaneously (Conner, Stein, Longshore, & Stacy, 1999). Nicotine has been found to be more reinforcing to subjects with a past history of alcohol dependence than those without this history (Hughes, Rose, & Callas, 2000; Williams & Ziedonis, 2004). Shiffman and Balabanis (1995) maintained that continued smoking in recovery may help to cue relapse. Sobel and Sobel (1996) examined data from the Canadian National Alcohol and Other Drug Survey (Statistics Canada 1990) and found that continued smoking in longer-term recovery (5 years) was associated with increased risk of relapse to drinking. Based on their study on the effects of smoking cessation on clients discharged from Toronto alcohol and drug rehabilitation, Toneatto, Sobell, Sobell, and Kozlowski (1995) concluded that there is no empirical evidence to suggest that reducing or stopping smoking has a significant impact on 12-month alcohol recovery outcomes.

Some studies have specifically attempted to identify the effect of treating nicotine dependence during concomitant substance use treatment. Although there has been some reluctance to treat tobacco dependence in addictions-treatment settings, recent studies suggest treatment is effective, does not jeopardize recovery, and may even improve sobriety from drugs and alcohol (Hughes, 1996; Hughes, Novy, Hatsukami, Jensen, & Callas, 2003; Hurt, Eberman, Slade, & Karan, 1993). In general, quitting smoking does not appear to negatively affect abstinence from other substances (Burling, Burling, & Latini, 2001; Rustin, 1998) and can even enhance recovery (Bobo, Walker, Lando, & McIlvain, 1995; Pletcher, 1993). The concurrent treatment of smoking and other substance use problems does not appear to significantly improve smoking outcomes compared to treating one after the other (i.e., sequential interventions), although either approach is superior to no smoking cessation treatment (Bobo et al., 1995; Burling, Burling, & Latini, 2001; Burling, Marshall, & Seidner, 1991; Campbell, Krumenacker, & Stark, 1998; Currie, Nesbitt, Wood, & Lawson, 2003). On balance the recent evidence suggests that substance users can successfully quit smoking along with, or shortly after, quitting other substances (Hurt et al., 1994; Martin et al., 1997). Furthermore, concurrent treatment of nicotine and other dependencies can contribute to fewer relapses with alcohol and drugs (Bobo et al., 1995; Bobo, McIlvain, Lando, Walker, & Leed-Kelly, 1998; Currie, Nesbitt, Wood, & Lawson, 2003; Martin et al., 1997; Patten & Martin, 1996; Patten, Martin, Myers, Calfas, & Williams, 1998; Patten et al., 1999).

Summary

The positive health benefits of smoking cessation are well known. Smoking cessation dramatically reduces the risk of heart disease and cancer and prevents continuation of the impairment of lung function in those with chronic obstructive pulmonary disease. There are a number of potential negative sequelae that must be balanced with these outcomes. Nicotine withdrawal can include symptoms of depressed mood, insomnia, irritability, frustration or anger, anxiety, difficulty concentrating, restlessness, and increased appetite or weight gain. Some of these symptoms might become particularly aggravated among persons with mental illness or addictions. For example, nicotine withdrawal may aggravate some psychiatric disorders, cause relapse, mimic or worsen medication side effects, and increase blood levels of several medications. The evidence suggests that in general, smoking cessation does not increase the risk of relapse among individuals who use other substances.

4. The Challenges of Smoking Cessation for People with Mental Illness or Addictions

One of the strongest indicators of the effect of nicotine is the discrepancy between the desire to quit and quitting success rates. Nicotine is an addictive drug and cigarettes become an integral part of many smokers' daily routine making cessation very difficult. People with mental illness or addictions begin to and continue to smoke for many of the same reasons as other smokers, and like most smokers, they can find it difficult to quit. Surveys have shown that the majority of smokers (around 70 per cent) want to stop smoking yet quit rates remain very low. Among persons with mental illness and addictions there is evidence of a desire or motivation to quit smoking, however, the cessation rates among these individuals are particularly low. Those experiencing mental illness and addictions have many of the same concerns as other smokers when it comes to quitting – such as not being ready to quit smoking (Gottlieb, 2003). Much like the general population, common barriers for smoking cessation in these populations include addiction and fear of withdrawal, weight gain, and failure (Goldberg et al., 1996; Killen et al., 1996; Orleans & Hutchinson, 1993). They also face additional challenges.

The common experience of depressive symptoms during the earlier acute and protracted withdrawal phases from tobacco is associated with failed quit attempts and increased probability of returning to smoking. In a case series, smokers with mental illness experienced an exacerbation of psychiatric symptoms while trying to quit or cut down, (Dalack & Meador-Woodruff, 1996), although most controlled studies have reported no change in level of psychosis during treatment (Evins et al., 2001; Weiner, Ball, Summerfelt, Gold, & Buchanan, 2001; Ziedonis et al., 2003) . The results of a study by Dolan et al. suggest that neuropsychological deficits are associated with smoking cessation treatment failure in patients with schizophrenia (Dolan et al., 2004). Loss of the cognitive-enhancing effects of nicotine may contribute to an inability to concentrate during nicotine withdrawal, thus contributing to the difficulty smokers find in quitting. In addition, it might be possible that the cognitive-enhancing and reinforcing properties of nicotine combine to reinforce an association with the motor patterns, as well as the contextual cues, involved in smoking, thereby making it difficult to stop both the smoking and the reinforced motor patterns associated with smoking (Picciotto, 1998).

Existing research indicates that those with addictions have more extensive learning histories with cigarettes, express attitudes reflecting less readiness to quit, and have higher rates of comorbid psychological problems than those without addictions (Burling et al., 1997; Fogg et al., 2001). More than half of addictions clients who smoke state that it would be as hard or harder for them to give up their tobacco, as it would be for them to give up the substance for which they were primarily seeking treatment (Foulds & Doverty, 2003). A potential explanation for the poor smoking cessation rates achieved with individuals newly recovering from substance use disorders is that this population represents a qualitatively or quantitatively different subset of smokers for whom specialized, population-specific smoking treatments are needed (Burling et al., 1997).

Lack of progress in the development of treatments for persons with co-occurring mental-health or substance use disorders is cited in the literature as one of the challenges in this area. There are

probably differences among subtypes of tobacco smokers with regards to worsening prognosis (Williams & Ziedonis, 2004). Individuals with dual diagnoses might experience particular barriers to cessation. For example, alcohol dependent individuals with a history of depressive disorders have been found to be generally less successful at smoking cessation than are alcohol dependent persons without such a history (Covey, Glassman, Stetner, & Becker, 1993). Smoking may diminish the chances of recurring depression in some people, and a major depressive episode may follow smoking cessation in these subjects (Glassman et al., 1990). Smoking cessation treatment may be negatively affected by the fact that people who use psychoactive substances in problematic ways frequently have co-occurring psychological illnesses, such as high rates of depression (Kosten & Rounsaville, 1986). In fact the incidence of co-occurring psychological illness may be even higher among substance users who smoke (Burling et al., 1997).

Summary

When it comes to smoking cessation those with mental illness or addictions have many of the same concerns as other smokers. Much like the general population, common barriers for smoking cessation in these populations include addiction and fear of withdrawal, weight gain, and failure. They also face additional challenges. They tend to have more extensive learning histories with cigarettes, more severe tobacco dependence, express attitudes reflecting less readiness to quit, and have higher rates of comorbid psychological problems. They can experience symptom exacerbation during their smoking cessation attempts and may lack the focus and motivation to be successful with cessation. Because of these challenges these populations represent a subset of smokers for whom specialized, population-specific smoking treatments are needed.

5. Strategies and Approaches to Facilitate Smoking Cessation by People with Mental Illness or Addictions

The reasons that persons with mental illness and addictions use tobacco are complex and there are many barriers to facilitating cessation. In this section we review evidence related to the best practices for smoking cessation interventions for this population. There is no evidence to suggest that the approaches used with the general population will not work for those with mental illness and addictions (Seidner, Burling, Gaither, & Thomas, 1996). In the general population there is strong evidence that the most effective components of smoking cessation programming are clinician-provided support and advice, pharmacologic treatments, and skills training regarding techniques to achieve and maintain abstinence. In general, more comprehensive treatments are more effective in producing long-term abstinence from tobacco, and combined therapies raise the absolute percentage of smokers who remain abstinent. These components need to be tailored for the specific needs of those with mental illness and addictions. Specifically, while many individuals with mental illness and addictions want to quit smoking, they may require treatments that are more intensive, that focus on motivational strategies to increase readiness to quit, and that stress healthy coping skills training to bolster confidence and prevent relapse (Burling et al., 1997). In addition, strategies are required that can manage the possible negative sequelae associated with nicotine withdrawal.

Nicotine Replacement Therapies and other Pharmacologic Treatments

Nicotine Replacement Therapy (NRT) is a proven tool that helps individuals quit smoking. NRT suppresses smoking and significantly attenuates nicotine withdrawal and craving symptoms. It also abates mood related withdrawal symptoms while causing very few side effects. There is evidence those with mental illness and addictions might require higher doses or longer periods of NRT (Hurt et al., 1995).

Preliminary work suggests that treatments such as nicotine replacement, although safe and generally well tolerated, have lower than expected success rates in patients with schizophrenia and schizoaffective disorder (Williams & Ziedonis, 2004; Ziedonis & George, 1997). Alternative forms of nicotine replacement (besides the patch and gum) may offer promise. In a case study by Williams et al. (2004), smokers with schizophrenia responded well to nicotine nasal spray (note the spray is currently not available in Canada), with good tolerability, few side effects, and high satisfaction. The nasal spray has unique features, such as a rapid onset of action, intermittent dosing, and more immediate craving relief (Ziedonis et al., 2005). Williams et al, found that patients immediately liked the product and wanted to continue using it, with one remarking that it "felt good in his brain." Many expressed a preference for the spray, having already tried other nicotine medications. Increased use of the spray, that is, more doses per day, seems to be correlated with better outcomes (Schneider et al., 2003; Williams, Ziedonis, & Foulds, 2004).

The antidepressant agent buproprion (Zyban) has been shown to help individuals stop smoking. It may prove to be a useful smoking cessation intervention for smokers with a history of depression or dysphoria and those for whom cessation either causes or intensifies depression (Farnam, 1999). Bupropion has been helpful in more than one trial in reducing smoking in patients with schizophrenia. In addition, despite its dopaminergic properties, bupropion has been well tolerated in individuals with schizophrenia, with no evidence that it worsens psychotic symptoms.

Some of the new antipsychotic medications may play an important role in smoking cessation among persons with mental illness. Clozapine, risperidone, and olanzapine may increase cortical dopamine release in a manner similar to that of nicotine. They may reduce negative symptoms of schizophrenia. This finding strengthens the position that the newer antipsychotics may reduce nicotine dependence among patients with schizophrenia (Lyon, 1999). It is recommended that smokers with mental illness have greater success in quitting tobacco when they are taking an atypical antipsychotic versus a traditional antipsychotic medication while also receiving nicotine replacement therapy (NRT) and behavioral therapy to stop smoking (George et al., 2000; Ziedonis et al., 2003).

Clinician-Provided Support and Advice

The best treatment outcomes occur when both medication and psychosocial treatments are integrated into the provision of routine care. Indeed, integrated treatment is considered the new standard for evidence-based treatment for those with mental illness and addictions, and there is strong evidence supporting its effectiveness (Drake et al., 2001; Ziedonis et al., 2005). In the most general sense, integrated treatment describes a flexible combination of treatments from the mental health and addictions fields that are blended together in the treatment of an individual with mental illness or addictions. The term is used by some practitioners to refer to a simple combination of medications and psychosocial treatments for both mental illness and addictions, but it can also describe a more complex, philosophically and structurally seamless integration of mental health and addictions treatment approaches and levels of care. It is highly preferable that integrated treatment be implemented existing treatment programs and practices. Thus, integrated treatment practitioners need an understanding of tobacco dependence, as well as access to the resources needed to integrate and modify these treatment approaches which have historically been taught and provided separately (Ziedonis et al., 2005).

Integrated medication and behavioral therapies have been adapted for use with smokers with schizophrenia (Ziedonis et al., 1997), depression (Hall, Munoz, & Reus, 1994), and substance use disorders (Bobo, McIlvain, Lando, Walker, & Leed-Kelly, 1998; Clemmey, Brooner, Chutuape, Kidorf, & Stitzer, 1997; Ziedonis, Williams, & Smelson, 2003). A smoker's likelihood of quitting increases when he or she hears the message from a number of health care providers from a variety of disciplines. The US guidelines published by the American Psychiatric Association recommend the routine treatment of smoking for patients with psychiatric diagnoses. Clinical practice guidelines, practice tools, quick reference guides and other resources are available to health professionals to help them counsel on smoking (Cataldo, 2001; Fiore et al., 1996). Those working in the fields of mental illness and addictions need to be motivated to take the initiative and encourage clients to evaluate their smoking behaviour (Abrams, Monti, Niaura, Rohsenow, Colby, 1996).

In relation to tobacco treatment during treatment for other addictions, there is a growing consensus that tobacco dependence is another addiction that should be addressed as part of the recovery process. There are several reasons why it may be advantageous to address tobacco during residential addictions treatment. Residential treatment is a protected time when clients are in a structured environment focused on recovery and staff and peer support are readily available. Patients may be more motivated and interested in tobacco treatment during a residential or inpatient stay, believing this is the best time to quit (Foulds, Burke, Richardson, & Kazimir, 2002; Irving, Seidner, Burling, Thomas, & Brenner, 1994; Joseph, Nichol, Willenbring, Korn, & Lysaght, 1990; Joseph, Willenbring, Nelson, & Nugent, 2002; Saxon, McGuffin, & Walker, 1997; Sees & Clark, 1993; Seidner et al., 1996). Success rates for quitting smoking in early recovery from substance use disorders are comparable to those achieved when treatment is delayed for 6 months (Joseph, 2003). There are also financial advantages to treating tobacco in the residential addictions setting. Clients with substance-use disorders may lack income or medical insurance, creating barriers both to psychosocial treatments and the use of both prescription and over-the-counter (OTC) tobacco-treatment medications (Williams et al., 2005).

In general smoking cessation counseling is a highly cost-effective intervention (Currie, Nesbitt, Wood, & Lawson, 2003; Gilbert et al., 2004; Niaura & Abrams, 2002; Ziedonis et al., 1997). Lack of reimbursement and time may be the greatest disincentives to the provision of cessation advice in practice (Young & Ward, 2001). There is often no reward or incentive for offering smoking cessation services. Smoking cessation is perceived as an additional activity that is beyond the provision of treatment for mental health and "more serious" addictions. This can pose a significant barrier to clinicians wanting to provide treatment. Nicotine replacement products have the advantage of being available without a prescription but remain expensive and are not generally covered by medical plans (Currie, Nesbitt, Wood, & Lawson, 2003).

In Canada we have not yet met the standard of integrated care. In a recent survey of Canadian addictions-treatment programs, most facilities stated their program placed "little emphasis" on smoking, which was relatively unrestricted in the 125 residential programs surveyed (Currie, Nesbitt, Wood, & Lawson, 2003; Williams et al., 2005). Despite the scope of the tobacco problem, tobacco use is largely ignored, and smoking cessation is delayed, or discouraged in the mental-health and addictions-treatment settings (Foulds, 1999; Rustin, 1998; Williams & Ziedonis, 2004). The literature suggests that treatment provider and program attitudes about smoking cessation represent a potential obstacle to developing effective smoking cessation treatments for those with mental illness and addictions. One of the most significant barriers of smoking cessation is the perception that addressing cigarette smoking will interfere with and have a negative impact on treatment for other addictions or mental illness. Another barrier is resistance by staff members who may be smokers themselves to the creation of a smoke-free environment (Bobo & Davis, 1993). Resistance within addictions treatment programs mirrors societal resistance in term of accepting tobacco as a problem substance (Gottlieb, 2003). Therefore, considerable attention needs to be given to educating staff, reinforcing positive attitudes and behaviours related to smoking cessation, and helping staff quit smoking themselves (Hahn, Warnick, & Plemmons, 1999). Ideally, efforts to affect staff attitudes and behaviours should be introduced as proactive staff training issues rather than as responses to blanket smoke-free policies (Burling et al., 1997). Training providers in the use of brief interventions can enhance client motivation to address their smoking (Fogg et al., 2001; McIlvain & Bobo, 1999).

Exemplar: Integrating Tobacco Treatment in Addiction Services

In 2003 the Nova Scotia the Capital Health Region introduced smoking cessation to its Addiction Prevention and Treatment Services. A 100% smoke-free policy was implemented and smoking cessation supports provided. The programs took on a number of activities prior to the introduction of the policies including educating clients and staff and ensuring that nicotine replacement therapy and cessation support would be made available. While staff initially believed that the program would result in behaviour problems and preclude the effective treatment of other addictions, the program evaluation indicated that this was not the case (Heath, 2004).

Program Approaches

Group approaches are being widely used to support those with addictions and mental illness to quit smoking. Addington et al. have reported use of a modified version of the 7-week behavioral program offered by the American Lung Association "Freedom From Smoking Program." This group therapy program emphasizes psychoeducation, positive reinforcement, anxiety reduction, and adjunctive use of the nicotine transdermal patch (Rosen-Chase & Dyson, 1999); the endpoint smoking abstinence rate in Addington et al.'s study was 42% (Addington, el-Guebaly, Campbell, Hodgins, & Addington, 1998).

Behavioural interventions such as contingency management may improve smoking cessation outcomes among those with other addictions (Addington, 1998; Shoptaw, Jarvik, Ling, & Rawson, 1996) and in smokers with schizophrenia (Shoptaw, Jarvik, Ling, & Rawson, 1996). Preliminary work has suggested that combining supportive interventions (e.g., psychoeducation, social skills training) with smoking cessation interventions (e.g., motivational enhancement therapy, relapse prevention therapy) may improve treatment outcomes and tolerability of treatment (George et al., 2000; Ziedonis et al., 1997). Motivational interviewing (MI) has enjoyed strong empirical support in treating addictive behaviors (Miller & Rollnick, 2002; Steinberg, Ziedonis, Krejci, & Brandon, 2004). As compared with treatment as usual, one (Daley & Zuckoff, 1998) or two (Swanson, Pantalon, & Cohen, 1999) sessions of MI has been found to be more effective in motivating patients with co-occurring psychiatric and substance-use disorders to follow through on a referral to aftercare treatment (Steinberg et al., 2004). Ziedonis et al. (2005) remind us that those facilitating smoking cessation among persons with schizophrenia must understand the multidimensional aspects of schizophrenia, the ways in which substance use can affects symptoms and can create new behavioral and emotional problems.

Several clinical therapy manuals have been developed and tested for efficacy in the treatment of co-occurring schizophrenia and addiction. The four that are widely available are the Dual Recovery Therapy (DRT) approach (Ziedonis & Stern, 2001) modified cognitive-behavioral therapy (CBT) (Bellack & DiClemente, 1999), modified MET (Carey, 1996; Ziedonis et al., 2001), and the Substance Abuse Management Module (SAMM) (Shaner, Eckman, Roberts, & Fuller, 2003; Ziedonis et al., 2005).

Monitoring Psychiatric Medications

As discussed above the tar in cigarette smoke induces certain liver enzymes resulting in increased metabolism of some antipsychotic medications. Smokers thus require larger doses of these antipsychotic medications for treatment. When smoking status changes, this may affect the dose of antipsychotic required. It is important to document the current psychiatric medication and the presence of any side effects prior to smoking cessation (Strasser et al., 2002). Psychiatric patients who reduce or quit smoking may have to have their medication dosages adjusted. It is generally suggested that patients should be seen one to three days after smoking cessation to monitor withdrawal symptoms and any other difficulties as well as providing encouragement and support.

After initial monitoring, it is recommended that patients be monitored weekly for the first four weeks to watch for signs of psychotic relapse, onset of depressive illness and need to change medication levels (for example, lower antipsychotic medication if increased side effects apparent). Thereafter monthly review is suggested for approximately six months (Strasser et al., 2002).

Harm Reduction

Given the high rates of smoking and the low rates of stopping among persons with mental illness or addiction a harm reduction approach might be appropriate in parallel with encouraging cessation. There is good evidence that smoking-related morbidity and mortality are related to the dose or amount of smoking, so that if some cigarettes could be replaced with less harmful forms of nicotine delivery, there might be an overall benefit to the smoker's health. There is some evidence to suggest that by being able to control their smoking, using a less harmful form of nicotine delivery might actually encourage the smokers to quit. It can be argued that smokers who are unable or unwilling to quit should at least be given the choice of which form of nicotine delivery to use (McNeill, 2001).

Whether smoking fewer cigarettes is a healthier practice remains unknown. One reason for this is that when smokers cut down, they often unknowingly compensate by taking more and deeper puffs on each cigarette. This can result in breathing in the same amount of toxin and carcinogen through smoke as before and thus has no health benefit. One area in which the experts are in agreement concerns the use of NRT (including patch and gum). A model of nicotine replacement in which consumers replace tobacco with these nicotine-containing products is many times less harmful than tobacco use. Use of NRT seems to be safe even with some limited concurrent smoking (Ziedonis, Williams, & Smelson, 2003).

Smokefree Policies

Residing or associating with smokers can be a major trigger for relapse (Ziedonis, Williams, & Smelson, 2003). Smokefree policies reduce the harmful effects of secondhand tobacco smoke, encourage smokers to quit and help to make non-smoking the norm. Research from Canada and the United States shows that a smokefree policy can be implemented with careful planning and consistency by all staff. One study in the US concluded that a smokefree policy produced significantly fewer adverse effects than the staff anticipated. Staff attitudes also changed to favour a smokefree environment (McNeill, 2001).

In 2003 in Nova Scotia, the Capital Health implemented a tobacco-free policy. The staff members of the program were concerned that the smoke-free policy would negatively impact their services and clients in terms of both admission rates
and length of stay. Further, staff believed that the new policy would also result in behaviour problems among clients and preclude effective treatment of other addictions. However, the qualitative data indicated that there have been improvements to treatment services and outcomes, and enhanced overall client and staff health as a result of implementation of the policy (Heath, 2005).

An important barrier to achieving tobacco-free residential addictions-treatment programs is the belief that such a policy implementation will result in a decrease in the number of clients that enroll and an increase in clients who leave prematurely. Kotz (1993) found the opposite to be true. Although facilities studied experienced some initial patient and staff resistance after going tobacco-free, the number of clients enrolled in treatment actually increased.

Exemplar: Smoke Free Addictions Facilities

New Jersey was the first state to implement a licensure standard for all residential addictions treatment programs to assess and treat tobacco dependence in the context of entirely tobacco-free facilities (including grounds). A program evaluation of the first year of the policy (2001–2002) assessed the impact on programs, clients, and staff. At 1-year follow-up, all 30 residential programs surveyed provided some tobacco dependence treatment and 50% had tobacco-free grounds. Eighty-five percent of the programs accepted the state's offer to provide free NRT, reaching more than 2,326 clients. Seventy-seven percent of all clients were smokers, and 65% of the smokers reported they wanted to stop or cut down tobacco use. Forty-one percent of the smokers reported that they did not use any tobacco during their entire residential stay. There was no increase in irregular discharges, or reduction in proportion of smokers among those entering residential treatment, compared with prior years. Licensure standards regulation can be an effective mechanism for increasing the quantity and quality of tobacco dependence treatment in residential addictions programs (Williams et al., 2005).

Residential programs provide the optimal setting for concurrent treatment of smoking with other substances. In addition to benefits such as 24-hour support for withdrawal symptoms, it makes practical, cost-effective sense for clients to address all addictions in one program. Several problems have been associated with providing a smoking cessation intervention to clients staying on a chemical dependency unit that was not completely smoke-free (Currie, Nesbitt, Wood, & Lawson, 2003; Hurt et al., 1994).

Exemplar: A Smoke Free Psychiatric Unit

"Vancouver General Hospital implemented a complete indoor smokefree policy in its psychiatric assessment and inpatient psychiatry units. It is reported that workplace conditions notably improved and some long-standing beliefs about psychiatric patients were disproved. The major concern was whether psychiatric patients could be prevented from smoking without major behavioural consequences: 'there seemed to be a long standing belief in the hospital community that psychiatric patients could not tolerate a non-smoking policy: many staff anticipated a resultant increase in violence and elopement and widespread surreptitious smoking.' Nurses formed a committee and facilitated the implementation of the ban. Materials on smoking cessation were gathered and doctors were introduced to prescribing nicotine gum and clonidine hydrochloride to reduce withdrawal symptoms. The impending change was advertised to patients, other departments and other hospitals. Numerous signs were put up initially designed and produced by the patients themselves. The hospital found that open discussion was an effective way of addressing the ethical differences. 'The approach of policy implementation seemed to produce more anxiety in the staff than in the patients: policy implementation itself was considerably less dramatic. Arguments over cigarettes continue to occur, but staff almost universally agree that problems overall have been fewer than before the policy" (McNeill, 2001).

Summary

Based on the evidence reviewed the following approaches can be strongly endorsed:

- **Tobacco treatment for persons with mental illness or addictions should be integrated into existing mental health and addictions services.**
- **Counselors and health care providers need support and training to incorporate brief interventions into their practices,**
- **Nicotine replacement therapy should be provided to all individuals with mental illness or addictions who are wanting to quit or reduce their smoking,**
- **Individuals who are taking anti-psychotic medications and quit smoking should have their medication dosages monitored in the first months following cessation.**
- **Smoke free spaces support and encourage individuals with mental illness and addictions to remain smoke free.**

Conclusion

Despite the fact that persons with a mental illness or substance use disorder account for nearly half of the tobacco market, there have been virtually no specific tobacco control activities directed towards reducing tobacco use in these groups. A website search of key terms, like depression, mental illness, or mental health, yields no matches (or subsequent links to information) on homepages for leading tobacco control organizations and journals and to date, the needs of these groups have been, ''off the radar screen.'' Stigma and lack of advocacy for these populations may contribute to this effect. Families and treatment providers have been ambivalent about tobacco and have not demanded tobacco control efforts on behalf of their loved ones and clients. Despite low disposable income and increased tobacco costs, persons with a mental illness or addictions continue to buy tobacco, at the expense of food and other essential daily needs. Access to treatment is important because patients on disability or who have a fixed income may not be able to purchase treatments, like nicotine patches and gum, which have a high out-of-pocket cost. The current health care system does not reimburse for nicotine replacement. (Williams & Ziedonis, 2004).

A comprehensive tobacco control program should not only encourage smokers with mental illness or other addictions to quit but also help them to do it. In fact, many smokers want to quit but have a very difficult time because nicotine is so powerfully addictive. To help smokers with mental illness and other addictions, the barriers outlined above must be addressed. Clinicians must be encouraged and trained to assess patients' smoking status and deliver appropriate interventions. Cessation products and services should be made more readily available and more affordable. Staff training and technical assistance should be a part of all programs to treat tobacco dependence, and should follow accepted cessation guidelines.

There are significant organizational barriers to systematically disseminating and implementing evidence-based interventions; these include fragmented services, and a lack of cross-training among the front-line treatment providers. Coordinated efforts will be required to remove these barriers and to provide optimal care for these vulnerable populations (Ziedonis et al., 2000).

There are a number of programs and initiatives that we can learn from as we continue to consider how to address tobacco reduction or cessation in the context of mental illness and addictions. Some of these initiatives are taking place in British Columbia.

- The Aurora Centre's residential addictions treatment program in Vancouver is integrating treatment for tobacco use into its programming.
- The Centre for Addiction and Mental Health is currently piloting a program in which NRT is being made available to persons in Ontario without charge.
- The Capital Health Addiction Prevention and Treatment Services in Halifax, Nova Scotia, offers smokefree facilities and smoking cessation services.
- The University of Medicine and Dentistry of New Jersey (UMDNJ) Tobacco Dependence Program, has developed an effective model for treating tobacco in persons with mental illness and a model for instituting changes to better address tobacco in other mental health settings.

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