

# SMOKING Cessation ROUNDS

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## Tobacco Dependence Treatment for Hospitalized Smokers: “The Ottawa Model”

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Tobacco use causes numerous health problems and leads to hospitalization, particularly for cardiovascular disease, respiratory illness, and cancer. Not surprisingly, tobacco users have higher hospitalization rates than nonusers.<sup>1</sup> Ironically, the identification of admitted smokers and offers of assistance with the management of nicotine withdrawal and smoking cessation have not been accorded a priority or even considered an element of basic practice in most hospital settings. With many other medical problems, hospitals have implemented policies to deal with significant public health issues (eg, the screening of newborns for phenylketonuria). Such approaches are systematized, automatic, and reflect established policy and a recognized standard of care. Sadly, until recently, smoking – Canada’s leading cause of preventable disease, disability, and death – received scant attention in the hospital environment.

Canadian hospitals are increasingly implementing a “smoke-free” campus policy. Most hospitalized smokers are addicted to nicotine and will experience characteristic and significant withdrawal symptoms (including anger, anxiety, depression, difficulty concentrating, impatience, insomnia, and restlessness) when abstinent from tobacco,<sup>2,3</sup> including the time when they are confined to hospital. Whether admitted for a fracture or a myocardial infarction, the typical smoker will, in all likelihood, have been exposed to nicotine multiple times a day for many years. The symptoms of withdrawal emerge within hours of their admission and persist, unless treated, during the course of their hospital stay. (The average length of stay in Canadian hospitals is 6.9 days).<sup>4</sup> Patients who are unable to refrain from smoking during hospitalization must not only exit hospital buildings, they must also leave hospital property, often with IV poles and other medical equipment in tow in order to sate their need for nicotine. Such drug-seeking behaviour, evident on hospital sidewalks at any time of day or night, provides vivid, stark, and incontrovertible evidence of the addictive nature of nicotine and our failure to address our patients’ discomfort. The phenomenon of patients leaving the hospital to satisfy nicotine cravings has created understandable concerns about patient safety and also underscores the need for hospitals to have adequate procedures in place to identify and assist nicotine-dependent patients admitted to their institutions.

Hospitalization provides a unique, efficient, and effective way to identify and treat tobacco users and hospitalized patients may be particularly motivated to make an attempt at quitting for several reasons.<sup>5</sup>

- First, the illness resulting in the hospitalization may have been caused or exacerbated by smoking, thereby heightening the patient’s perceived vulnerability to the health effects of smoking and their interest in quitting.
- Secondly, the smoke-free environment reduces the triggers to smoke and supports non-smoking behaviour.

Available on the Internet at [www.smokingcessationrounds.ca](http://www.smokingcessationrounds.ca)



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- Thirdly, patients have access to health professionals who can provide distinct assistance with tobacco withdrawal and deliver specific, relevant smoking cessation advice and support.

Unfortunately, few Canadian hospitals have systems, policies, and environmental prompts in place that encourage and support the consistent and effective identification and treatment of tobacco users. Over the past 5 years, however, the University of Ottawa Heart Institute has developed and refined a systematic approach to the identification and treatment of all tobacco users admitted to their hospital.<sup>6</sup> This approach has been dubbed the “Ottawa Model” and has led to an absolute 15% improvement in the long-term quit rate for tobacco users admitted to our institution (from 35% to 50% at 6 months; the 1-year quit rate is 46%). During the past 2 years, we have introduced and commenced the implementation of the Ottawa Model in 36 hospitals in Ontario, New Brunswick, and British Columbia.

This issue of *Smoking Cessation Rounds* provides a brief description of the details of the Ottawa Model for the treatment of tobacco-dependent hospitalized patients and discusses some of our experiences introducing the Ottawa Model to other Canadian hospitals.

### What is the Ottawa Model?

The Ottawa Model is a variation on the “5 A’s” approach: Ask, Advice, Assess, Assist, and Arrange,<sup>7</sup> specifically adapted to the hospital setting. Below is a summary of how each of the 5 A’s are applied in this model.

- At the time of admission, patients are asked about their tobacco use over the preceding 6 months (eg, “Have you used any form of tobacco in the past six months?”). Those who have recently quit smoking are congratulated on their success, encouraged to remain smoke-free, and provided with a list of community resources and phone numbers for cessation assistance if they experience any difficulties in the future. The smoking status of all smoking patients is carefully documented at the time of admission and data relating to their smoking history and previous quit attempts is methodically collected and entered into a smoking cessation database. (A consult form has been developed to cue clinicians about appropriate forms of assistance for patients who are interested and those who are not interested in quitting and to standardize data collection for process and outcome evaluation.)
- All current smokers are advised to quit in a clear, unambiguous, personalized and non-judgemental manner (eg, “Quitting smoking is the single most important thing you can do to prevent having another heart attack and I strongly advise you to

stop smoking immediately... I know that this can be difficult, but we are very much interested in trying to help you quit while you are in hospital”).

- Interest in quitting is assessed by asking patients to describe their intentions with respect to quitting smoking (eg, “If you are interested in quitting smoking, we have materials and medications that can help you in your quit attempt. Which of the following statements would you say best describes your interest in quitting smoking at the present time? (I am not interested in quitting in the next 6 months; I am interested in quitting in the next 6 months, but not the next 30 days; I am interested in quitting in the next 30 days; or; I am interested in quitting during this hospital stay.”).
- Assistance is provided in the form of brief counseling and pharmacotherapy and is tailored to the patient’s interest in quitting smoking.

For patients who are interested in quitting, the brief counseling focuses on managing urges and cravings and on strategies for remaining smoke-free after hospital discharge (eg, “Are there any situations in which you think you might be particularly tempted to smoke after you leave the hospital? What do you think might help you in these situations? What has worked for you in the past? What has worked for other people you know?”). Pharmacotherapy is offered for the duration of the hospital stay and is also prescribed for 10-12 weeks after hospital discharge. Self-help material designed specifically for smokers interested in quitting is provided.

For those patients who are not interested in quitting, brief counseling focuses on the pros and cons of continued smoking from the patient’s perspective and considering the reason for hospitalization (eg, “What do you see as some of the advantages and disadvantages of smoking for you?”). Pharmacotherapy is offered for the duration of the hospital stay to help patients forestall the development of withdrawal symptoms and increase comfort. Self-help material designed specifically for smokers not interested in quitting is provided, along with a list of community resources and phone numbers for cessation assistance if the patient decides to quit smoking in the future.

Nicotine replacement therapy (NRT) is a mainstay of the pharmacological treatment of tobacco dependence at the University of Ottawa Heart Institute. NRT reaches therapeutic levels faster (in minutes to hours) than other medications indicated for smoking cessation (ie, bupropion and varenicline) and can profoundly assist in eliminating the symptoms of withdrawal, and addressing the irritation and frustration that frequently develop within hours of admission. Sadly, nicotine withdrawal is seldom identified as a significant factor in the conduct of the aggressive, uncooperative, or belligerent patient.

NRT is started at standard doses, but titrated upwards, as necessary, to meet the individual nicotine needs of the smoker in order to completely forestall the development of withdrawal and craving. At our institution, the use of the nicotine patch is frequently accompanied by use of the nicotine ‘inhaler,’ which may be more correctly described as a vaporizer that permits absorption of aerosolized nicotine via the oral mucosae. A growing literature attests to the safety of NRT use in cardiac and other patients who would otherwise continue to smoke.<sup>8-11</sup>

Bupropion therapy (Zyban™) is also used effectively at the Ottawa Heart Institute, but in a minority of our patient population. The recent introduction of varenicline (Champix™), an  $\alpha 4\beta 2$  nicotinic acetylcholine receptor agonist, will undoubtedly afford new opportunities to assist smokers in the hospital setting.

Follow-up after hospitalization is offered to all smokers and is **arranged** by registering the patient into an interactive voice response (IVR)-mediated telephony system and database.<sup>12</sup> The IVR system places automated telephone follow-up calls to patients inquiring about their smoking status and confidence in remaining smoke-free 3, 14, 30, 60, 90, 120, 150, and 180 days after discharge. The IVR system recognizes patients’ verbal responses to a series of questions and records these responses in a data base. Nurse counselors can efficiently scan the results of all IVR calls and respond appropriately to particular patient needs or requests.

Implementation of the Ottawa Model is supported through the adoption of “10 best practices for tobacco dependence treatment for hospitalized smokers,” that have been identified from published guidelines and systematic reviews.<sup>5,7,13,14</sup> The practices relate to hospital policies, human resource deployment, staff training, quality control and improvement procedures, and infrastructure supports that help to create a practice environment supportive of tobacco dependence treatment. They include:

1. documenting the smoking status of all patients admitted to hospital
2. designating staff responsible for providing tobacco dependence treatment
3. including tobacco dependence treatment on clinical pathways, care maps, or Kardex systems used for quality management
4. having pharmacotherapy for smoking cessation readily available on the hospital formulary
5. having processes in place to follow tobacco users for >30 days after hospital discharge and to provide additional counseling as necessary
6. providing training for tobacco dependence treatment to healthcare providers
7. having patient self-help materials readily available

8. having referral links established to community cessation programs and to Smokers’ Help Lines
9. having processes in place to evaluate the provision of tobacco dependence treatment by healthcare providers
10. having processes in place to provide feedback to healthcare providers about their performance in providing tobacco dependence treatment.

All of the 10 elements are in place in every hospital where the Ottawa Model has been introduced and implemented.

### **What have we learned in introducing the Ottawa Model to other hospitals in Canada?**

Below are some practical observations about tobacco dependence treatment in the hospital setting and the process of transforming clinical practice in these organizations.

#### ***Over 19% of hospitalized patients are tobacco users***

We determined the prevalence of tobacco use at baseline (ie, prior to the implementation of the Ottawa Model) in a survey of 5354 consecutive patients admitted to 23 hospitals. Tobacco users were defined in two ways: those who had used any form of tobacco in the 6 months prior to hospital admission (6-month prevalence) and those who had used any form of tobacco in the 7 days prior to hospital admission (7-day prevalence). Overall, 19.4% of the patients surveyed had used tobacco in the 6-month period prior to hospital admission and 14.4% had used tobacco in the 7 days prior to hospitalization. Rates of tobacco use in the past 7 days were considerably lower than the rates for smoking in the past 6 months, particularly in the large teaching hospitals. This is likely a reflection of the fact that these patients were frequently transferred into the teaching hospitals from other hospitals where they have been unable to smoke. The prevalence of tobacco use varied widely between hospital departments; rates were particularly high among psychiatric, vascular surgery, acute coronary syndrome, and respiratory patients.

#### ***Before the Ottawa Model, the long-term quit rate among hospitalized smokers was 24%***

We are currently evaluating the impact of the introduction of the Ottawa Model on quit rates among hospitalized smokers at several hospitals in Ontario, British Columbia, and New Brunswick (excluding the original site at the University of Ottawa Heart Institute). Quit rates 6 months after hospitalization are being assessed in a cohort of smokers followed prior to the implementation of the Model and being compared to quit rates in a cohort of smokers followed after

introduction of the Model. Patients who reported they were smokers at the time of admission are contacted by telephone and self-reported smoking status is queried. A 'quit' is defined in 2 ways:

- the continuous, self-reported, 6-month quit rate refers to the proportion of individuals who report that they have not used any form of tobacco since their hospitalization;
- the self-reported 7-day point prevalence quit rate refers to the proportion of individuals who report that they have not used any form of tobacco in the 7 days preceding the follow-up telephone contact.

Presently, only pre-program data are available. Overall, 18.6% of smokers identified at the time of hospitalization reported at follow-up that they had been continuously abstinent from tobacco in the 6 months since hospitalization, while 24.2% reported they had not used tobacco in the past 7 days. This represents the baseline level of quitting and will allow us to measure the incremental impact of the Ottawa Model once post-program data are complete.

***The majority of hospitalized tobacco users show evidence of tobacco dependence***

We have gathered detailed information concerning the characteristics of hospitalized tobacco users in a survey of 973 patients treated using the Ottawa Model at 11 hospitals in the Champlain region of Ontario. Results are summarized in Table 1. Cigarette smoking is the main form of tobacco use among the vast majority of these patients. They have typically had long smoking careers (30+ years) and the majority exhibit evidence of tobacco dependence, based on the average number of cigarettes smoked each day and the fact that they smoke their first cigarette within 30 minutes of awakening.<sup>15</sup> Almost half of

**Table 1. Characteristics of hospitalized tobacco users (N=973)**

Percentage of tobacco users whose main form of tobacco use is cigarette smoking	97%
Average number of years smoked	32
Average number of cigarettes per day	17
Percentage of tobacco users who smoke their first cigarette within 30 minutes of awakening	64%
Percentage of tobacco users who have other tobacco users living in the same household	49%

hospitalized tobacco users have other tobacco users living in the same household.

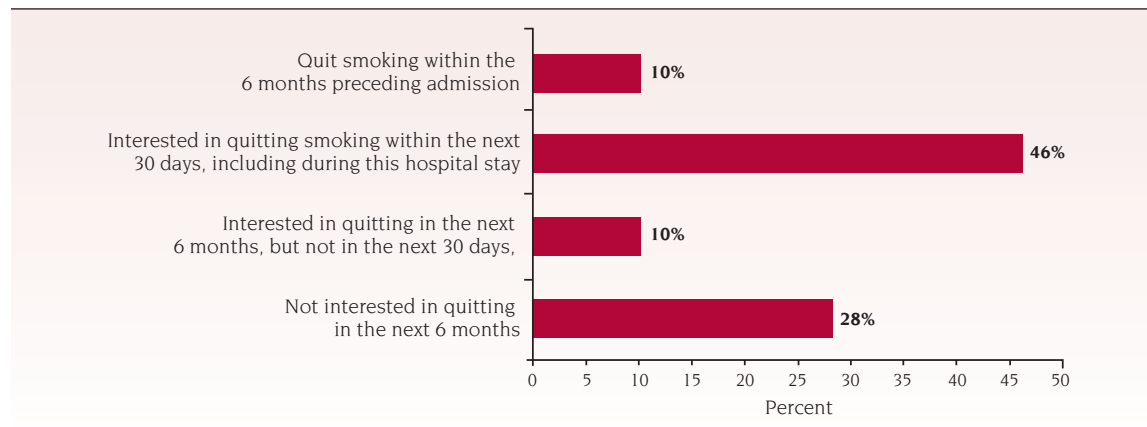
***Most hospitalized tobacco users are interested in quitting***

Data concerning the interest of hospitalized tobacco users in quitting were also gathered in the survey described in the preceding paragraph. The results are summarized in Figure 1. Almost half of all tobacco users said they were interested in quitting smoking within the next 30 days, including during their current hospital stay. Another 10% were interested in quitting within the next 6 months. Only 3/10 smokers said they had no interest in quitting in the foreseeable future. Ten percent had already quit within the past 6 months.

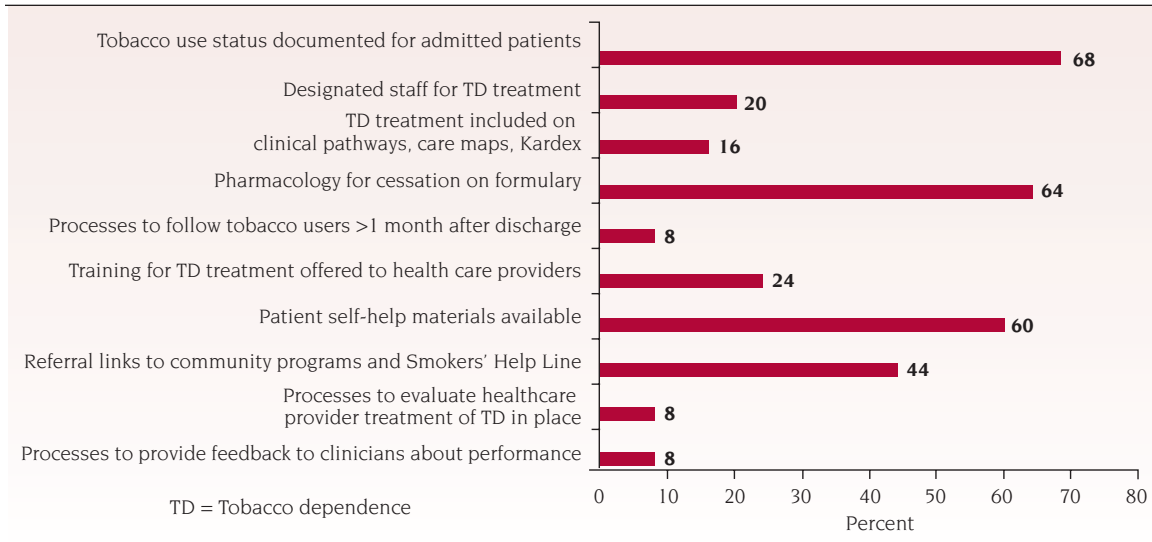
***Most hospitals can improve their supportive practice environment for tobacco dependence treatment***

Prior to introducing the Ottawa Model in other hospitals in Ontario, New Brunswick, and British Columbia, we assessed the degree to which best practices for tobacco dependence treatment

**Figure 1. Interest in quitting smoking among hospitalized smokers (N=973)**



**Figure 2. Best practices for tobacco dependence treatment reported by 36 hospitals**



were already present in the implementing hospitals. The results are shown in Figure 2. On average, hospitals had only 3 of 10 best practices for tobacco dependence treatment in place at baseline. The most frequently identified best practice was querying and documenting the tobacco use status of admitted patients (68% of hospitals) – although no standardized methods for defining smoking status were consistently applied. Other best practices included the availability of pharmacotherapy (64%), self-help material (60%), and referral links to community cessation resources (44%). Few hospitals (<10%) had processes in place to evaluate the degree to which healthcare providers were providing tobacco dependence treatment to patients, following-up tobacco users after hospital discharge, or providing feedback to clinicians about performance.

### Conclusions

According to the Canadian Institute for Health Information, there were almost 2.2 million inpatient hospitalizations in 2004-2005.<sup>4</sup> The greatest proportion of these hospitalizations was for adult patients being treated for chronic disease conditions such as respiratory disease, cardiovascular disease, and diabetes. If we consider that 19% of all hospitalized patients are tobacco users, it becomes obvious that the hospital is an important setting for the delivery of efficient, effective approaches to cessation to a large number of smokers (whose health has, in all likelihood, already been compromised by their nicotine addiction). Our experiences suggest that hospitalized patients are very interested in quitting smoking and institutional approaches such as the Ottawa Model can assist many of these smokers

to quit for good, improving their prognosis and reducing re-hospitalization. Given the movement towards smoke-free campus policies at Canadian hospitals, providing assistance to hospitalized smokers enhances patient comfort and safety, while significantly enhancing the likelihood of cessation. We believe that the systematic provision of assistance to hospitalized smokers is an idea whose time has come. There is growing evidence that hospitals in Canada are ready, willing, and able to make this happen. Physicians and nurses can play significant leadership roles in ensuring that their hospitals develop and apply 'best practice' approaches in this important area of preventive practice.

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### References

1. US Department of Health and Human Services: The Health Consequences of Smoking: A Report of the Surgeon General. Rockville, MD, US Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2004.
2. Hughes JR. Clinical significance of tobacco withdrawal. *Nicotine Tob Res* 2006;8:153-6.
3. Hughes JR. Effects of abstinence from tobacco: valid symptoms and time course. *Nicotine Tob Res* 2007;9:315-27.
4. Canadian Institute for Health Information: Inpatient hospitalizations in Canada increase slightly after many years of decline. Ottawa, Canadian Institute for Health Information, 2005.
5. Rigotti NA, Munafo MR, Murphy MFG, et al. Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev* 2006;1-24.
6. Reid R, Pipe A, Quinlan B. Promoting smoking cessation during hospitalization for coronary artery disease. *Can J Cardiol* 2006;22:775-80.
7. Fiore M, Bailey W, Cohen S, et al. Clinical Practice Guideline: Treating Tobacco Use and Dependence, U.S. Department of Health and Human Services, Public Health Service, 2000.
8. Nicotine replacement therapy for patients with coronary artery disease. Working Group for the Study of Transdermal Nicotine in Patients with Coronary artery disease. *Arch Intern Med* 1994;154: 989-95.

9. Joseph AM, Norman SM, Ferry LH, et al. The safety of transdermal nicotine as an aid to smoking cessation in patients with cardiac disease. *N Engl J Med* 1996;335:1792-8.
10. Tzivoni D, Keren A, Meyler S, et al. Cardiovascular safety of transdermal nicotine patches in patients with coronary artery disease who try to quit smoking. *Cardiovasc Drugs Ther* 1998;12:239-44.
11. Meine TJ, Patel MR, Washam JB, et al. Safety and effectiveness of transdermal nicotine patch in smokers admitted with acute coronary syndromes. *Am J Cardiol* 2005;95:976-8.
12. Reid RD, Pipe AL, Quinlan B, et al. Interactive voice response telephony to promote smoking cessation in patients with heart disease: A pilot study. *Patient Educ Couns* 2007;66:319-26.
13. Registered Nurses Association of Ontario: Integrating Smoking Cessation into Daily Nursing Practice. Toronto, ON; 2003.
14. Registered Nurses Association of Ontario: Integrating Smoking Cessation into Daily Nursing Practice. Toronto, ON; 2007.
15. Heatherton TF, Kozlowski LT, Frecker RC, et al. The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *Br J Addict* 1991;86:1119-27.

## Abstracts of Interest

### Interactive voice response telephony to promote smoking cessation in patients with heart disease: A pilot study.

REID RD, PIPE AL, QUINLAN B, ODA J. UNIVERSITY OF OTTAWA HEART INSTITUTE, OTTAWA, ONTARIO

**OBJECTIVE:** A pilot study was conducted to determine the feasibility and potential efficacy of an interactive voice response (IVR) follow-up system for smokers recently hospitalized with coronary heart disease (CHD).

**METHODS:** Ninety-nine smokers hospitalized with CHD completed a baseline questionnaire, were provided with bedside counseling, and offered nicotine replacement therapy. They were randomly assigned to a usual care (UC) or an IVR group. The IVR group received automated telephone follow-up calls 3, 14 and 30 days after discharge inquiring about their smoking status and confidence in remaining smoke-free. When deemed necessary, they were offered additional counseling. Smoking status was determined 52 weeks after hospital discharge.

**RESULTS:** The 52-week point prevalence abstinence rate in the IVR group was 46.0% compared to 34.7% in the UC group (OR=1.60, 95% CI: 0.71-3.60; P=.25). After adjustment for education, age, reason for hospitalization, length of hospitalization, and quit attempts in the past year, the odds of quitting in the IVR group compared to the UC group were 2.34 (95% CI: 0.92-5.92; P=.07).

**CONCLUSIONS:** IVR is a promising technology for following CHD patients attempting to quit smoking following discharge from hospital, however, a larger trial is required to confirm its efficacy.

**PRACTICE IMPLICATIONS:** IVR may enhance the timely provision of follow-up counseling for smoking cessation in patients with CHD.

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### Effects of abstinence from tobacco: valid symptoms and time course.

HUGHES JR, UNIVERSITY OF VERMONT, BURLINGTON, VT

This article updates a 1990 review of the effects of tobacco abstinence by reviewing (a) which symptoms are valid indicators of tobacco abstinence and (b) the time course of tobacco abstinence symptoms. The author searched several databases to locate more than 3,500 citations on tobacco abstinence effects between 1990 and 2004; 120 of these were used in this review. Data collection and interpretation were based solely on the author's subjective judgments. For brevity, the review does not evaluate craving, hunger, performance, and several other possible outcomes as withdrawal symptoms. Anger, anxiety, depression, difficulty concentrating, impatience, insomnia, and restlessness are valid withdrawal symptoms that peak within the first week and last 2-4 weeks. Constipation, cough, dizziness, increased dreaming, and mouth ulcers may be abstinence effects. Drowsiness, fatigue, and several physical symptoms are not abstinence effects. In conclusion, no major changes are suggested for DSM-IV criteria for tobacco/nicotine withdrawal, but some deletions are suggested for ICD-10 criteria. Future studies need to investigate several possible new symptoms of withdrawal and to define more clearly the time course of symptoms.

*Nicotine Tob Res* 2007;9(3):315-27.

## Upcoming Meeting

1-3 October 2007

### 5<sup>th</sup> National Conference on Tobacco or Health

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