the gum The results also showed that there were no significant differences in signs and symptoms of withdrawal between placebo gum and 2 mg nicotine gum The second study involved a comparison of signs and symptoms of withdrawal from placebo, 2, and 4 mg gum, and a comparison of these findings to those obtained in studies of tobacco cigarette withdrawal We also examined whether the dose of gum or severity of withdrawal subjects experienced following abstinence from gum use was a determinant of whether subjects continued to use the gum or relapsed to cigarette smoking Subjects were withdrawn from cigarettes for four days during which previously validated signs and symptom of withdrawal were measured Subjects were then randomly assigned to either placebo, 2 or 4 mg nicotine gum in a double-blind manner for a period of one month They were then withdrawn from the gum and signs and symptoms of withdrawal were measured again over the course of four days Gum was made available to subjects if they chose to continue use of gum, and follow-up was conducted at one, three and six months to determine smoking and gum use status Thus far, the results indicate that subjects experienced more severe withdrawal symptoms during cigarette deprivation that nicotine gum deprivation Interestingly, there were no differences in severity of withdrawal between those subjects who were prescribed placebo, 2 and 4 mg gum with exception of a measure of craving for tobacco No differences were found in spite the fact that we asked all subjects to chew at least six pieces of gum per day Preliminary results also showed that the dose of the gum did not predispose further use of the gum Data regarding relapse to smoking is pending In summary, the results show that among subjects who quit smoking, there is a relatively high prevalence of persistence of gum use However, this continued use may not be a simple function of avoiding signs and symptoms of withdrawal from nicotine gum or dose of the gum

OPTIMAL COMBINATIONS OF NICOTINE DOSAGE FORM AND BEHAVIORAL INTERVENTION John Grabowski, Ph D Tufts University

Tobacco dependence constitutes a prototypic form of drug dependence but also represents well the most complex form of biobehavioral and behavioral medicine disorder There is ample evidence from the behavioral pharmacology laboratory and clinic that the use of nicotine polarcrilex, gum, can effectively produce the pharmacological effects that are also obtained when tobacco cigarettes are smoked Behavioral and physiological abstinence symptoms can be reversed by readministration of nicotine in this form Maintenance of tobacco cessation can thus be assisted with this pharmacological adjunct Behavioral intervention techniques have been implemented to reduce tobacco use As in the case of nicotine polarcrilex, some advantage emerges in the maintenance of smoking cessation, even when nicotine replacement is also maintained In combination, behavioral and pharmacological strategies have proven variably effective at reducing smoking The results to date suggest that there is a need to reexamine the basic behavioral-pharmacological models and common strategies in treatment and to determine whether improved combinations of pharmacological adjuncts and behavioral intervention strategies will improve success rates A three-stage model of cessation is proposed Consideration is given to the natural history of acquisition of tobacco use, duration of treatment, optimal behavioral strategies and optimal dosage preparation forms of pharmacological adjuncts

PROBLEMS AND CHALLENGES FOR NICOTINE REPLACEMENT John D Slade, M D University of Medicine and Dentistry of New Jersey St Peters Medical Center

The basis for our knowledge of the clinical utility of nicotine replacement has depended upon studies of volunteers participating in controlled trials These settings sometimes differ from typical clinical settings in a number of ways which may have important effects on the efficacy of the nicotine replacement in clinical practice The level of motivation and expectations about therapy are obvious patient variables which may be different The interest level, understanding and support of the provider has both positive and negative influences upon the probability of achieving a stable abstinence, and these are expecteed to vary in important ways as well These issues can be specifically addressed in post-marketing surveillance programs and focused studies which consider problems such as the following Most people who try to quit fail What factors improve the chances of their making further quit attempts? Is failure after nicotine replacement more likely to lead to postponing the next quit attempt than failure after other therapies? Consideration of the over-the-counter (OTC) availability of nicotine raises additional questions about efficacy and safety, including possible increase in the use of nicotine gum by people who continue to smoke Might pharmacist prescription of nicotine provide better results than either physician prescription or OTC availability because of convenience and better follow-up? Pharmacist prescription could also form the basis of sound post-marketing surveillance, while this would be difficult with OTC marketing Other challenges for nicotine replacement include questions about nicotine maintenance versus nicotine withdrawal, and the general policy question of nicotine's regulatory status, and the possible implications of regulatory status of nicotine replacement modalities for therapeutic intervention

PUBLIC POLICY ISSUES ASSOCIATED WITH NICOTINE Gregory N Connolly, D M D , M P H Division of Dental Health, Massachusetts Department of Public Health

This presentation will discuss public policy issues associated with the promotion and sale of three types of non-smoked nicotine replacement products that have been recently developed The products include low-nicotine containing pouches of moist snuff, nicotine vapor inhalers (smokeless cigarettes or nicotine tubes), and nicotine polacrilex (gum) All of these products have been recently developed and have been marketed in different ways as nicotine replacement devices Marketing practices including product design, distribution, promotion and advertising will be reviewed, and comparisons made among the products The target audiences for the devices will also be described, and, to the extent that data are available, user demographics will be discussed Based on industry marketing strategies and trends in product use, it appears that the pouches of moist snuff have become popular among young males and serve as initiating devices into nicotine use by persons with no previ-