**NIH State-of-the-Science Conference, June 12-14, 2006**
**Statement presented on behalf of the Society for Research on Nicotine and Tobacco (SRNT)**

The Society for Research on Nicotine and Tobacco (SRNT) is the single largest professional research society devoted to the study of nicotine and tobacco. The mission of the Society is to stimulate the generation of new knowledge concerning nicotine in all its manifestations - from molecular to societal. SRNT attempts to accomplish this mission by:

1. sponsoring scientific meetings and publications fostering the exchange of information on the biological, behavioral, social, and economic effects of nicotine; these activities shall include basic research and research on mechanisms of action and the use of nicotine as a probe for studying nervous systems function as well as applied research on the behavioral and pharmacological aspects of tobacco use, nicotine dependence, the therapeutic uses of nicotine, and related areas;
2. encouraging scientific research on public health efforts for the prevention and treatment of cigarette and tobacco use; and
3. providing the means by which various legislative, governmental, regulatory, and other public agencies and the ethical drug industry can obtain expert advice and consultation on critical issues concerning tobacco use, nicotine dependence, and the therapeutic uses of nicotine.

SRNT has been in existence for 12 years, and currently has over a thousand members, including many of the top experts on nicotine and tobacco from over 20 countries around the world. As the leading scientific organization in the world focused on nicotine and tobacco research, SRNT feels it is uniquely qualified to offer the panel a perspective on how it should approach the challenging task of evaluating the state of the science in tobacco use prevention, cessation, and control.

First, SRNT would like to thank NIH and all those involved in their efforts to organize this review of the science in tobacco control. We recognize this is a daunting task and we appreciate the hard work and time commitment from the panel members. We also support the guiding objective of this review process, which is to ensure that tobacco control practice is guided by the best and most current science available.

Second, SRNT believes the results from this meeting will be important in terms of the practical, real world impact on tobacco control activities throughout the United States, ranging from the funding of critical research in tobacco control to the adoption and funding of proven and effective policy interventions that prevent initiation of tobacco use and encourage people to quit using tobacco. Recommendations issued by the expert panel at the meeting will affect the practice, content, reach and funding of tobacco control throughout the United States.

Third, SRNT acknowledges, as we are sure the panel will also find, that over the past decade there has been an explosion of new knowledge about nicotine as an addictive drug, its mechanisms of action across the bio-behavioral spectrum and strategies to reduce the harms caused by tobacco use. NIH funding of tobacco related research has been critical to advancing our thinking of how to translate new knowledge about nicotine into practical solutions to reduce the harms caused by tobacco across the population. We urge the panel to build upon several excellent summaries of this research that already exist. The most pertinent of these reviews are listed below.

- 1991, National Cancer Institute Smoking and Tobacco Control Monograph 1: *Strategies to Control Tobacco Use In the United States: A Blueprint for Public Health Action in the 1990s*
- 1994, Report of the Surgeon General: *Preventing Tobacco Use Among Young People*
- 1994, Report of the National Academy of Sciences, Institute of Medicine: *Growing Up Tobacco-Free: Preventing Nicotine Addiction in Children and Youths*
- 1998, Report of the National Academy of Sciences, Institute of Medicine: *Taking Action to Reduce Tobacco Use*
- 1999, Centers for Disease Control and Prevention, *Best Practices for Comprehensive Tobacco Control Programs* [also, see: Fielding JE, Briss PA, Carande-Kulis VG, Hopkins DP, Husten CG, Pechacek TF, Glynn TJ. Tobacco. In, Zaza S, Briss PA, Harris KW (Eds.). The Guide to Community Preventive Services, New York, NY: Oxford University Press, 2005.]
- 2000, Report of the Surgeon General: *Reducing Tobacco Use*
- 2000, U.S. Department of Health Human Services, Public Health Service, *Treating Tobacco Use and Dependence. Clinical Practice Guideline*.
- 2000, National Cancer Institute Smoking and Tobacco Control Monograph 12: *Population Based Smoking Cessation.*
- 2003, Interagency Committee on Smoking and Health, *Helping 5 Million Smokers Quit: A National Action Plan for Tobacco Cessation.*

SRNT considers these peer-reviewed summaries of the scientific literature on tobacco control prevention, cessation, and practice highly credible and useful for identifying gaps in our

research knowledge and guiding the translation of science into policy and programmatic interventions to address the tobacco problem in the United States.

Fourth, SRNT feels that it is critical that the panel use a "weight of evidence" approach for assessing the science in tobacco use prevention, cessation, and control. While the randomized control trial (RCT) is a gold standard for testing causal relationships, this design is not practical for evaluating many areas of tobacco control science. For example, it is not possible to conduct in vivo experiments to evaluate the effects of tobacco control policies. Governments, not researchers, control the implementation of the policy, and governments are generally precluded from systematically varying the implementation of the policy in a way that would allow for more internally valid tests of the effects (e.g., delaying the introduction of warning labels to some provinces) because this would violate the principle of equal protection. In short, RCTs are not possible in the evaluation of tobacco control policies and population based interventions. The panel should feel comfortable in relying upon studies utilizing quasi-experimental designs and econometric methods when evaluating the body of evidence on the impact of various tobacco control policies and population based interventions. SRNT is concerned that over reliance on evidence from RCTs to judge the state of the science in tobacco control will cause the panel to eliminate a significant body of peer-reviewed science and could undermine efforts to make credible interpretations of what is known and not known in tobacco prevention, cessation and control. This is why SRNT urges the panel to utilize a "weight of evidence" approach for judging the strength of evidence that exists to support the significance of the association between a given policy or program intervention and tobacco use behavior. The following criteria should be the basis for judging the evidence:

1. The consistency of the association across different studies
2. The strength of the association and evidence of a dose response relationship
3. The specificity of the association with the intervention
4. The temporal relationship of the association
5. The coherence of the association

Fifth, SRNT believes that NIH needs to continue to support research on ways to improve our knowledge of how to prevent and control tobacco use in the population. The tobacco problem is far from being solved. While tobacco consumption continues to decline in developed countries due mainly to concerns about health and price, in developing countries consumption is increasing due to demographics. In the United States today, 1 in 5 adults continues to use

tobacco in some form, and the resulting epidemic of tobacco related disease is predicted to continue for several decades to come. NIH has contributed significantly to our knowledge about the health risks of tobacco. However, despite the well-documented health effects of tobacco, consumers remain confused about these risks and research is sorely needed to find more effective ways to communicate these risks to the public. We know that people get addicted to tobacco products and have learned an enormous amount about the biobehavioral effects of nicotine which has led to the first generation of pharmacotherapies for tobacco dependence. More, of course, needs to be done to refine and improve upon existing tobacco dependence treatments. Yet, despite the availability of efficacious medications to treat nicotine dependence, current therapies remain underutilized across the population. NIH needs to devote research attention to find cost-effective strategies to speed up the adoption of evidence-based treatments for nicotine dependence. SRNT believes that tobacco products should be regulated. Yet, we don't really have a clear understanding of how and what to regulate when it comes to tobacco. For example, we do not know very much about how the changing design of tobacco products that has taken place over the past half century has influenced their toxicity and their addictiveness. This is especially true for the latest generation of so-called "harm reduction" products. We do not know enough about consumer perceptions of risk, about behaviors relating to initiation of or quitting tobacco use. We've not done the obvious experiments to guide how tobacco products should be regulated and determine the most appropriate role for the bio-medical expertise that NIH can bring to bear on that process. We know a lot about what policies and programs will reduce tobacco use, but we do not really understand how to accelerate the adoption of evidenced-based tobacco control interventions.

Sixth, SRNT believes that NIH needs to be spending more of its resources on relevant tobacco related research. Currently, NIH is spending only a tiny fraction of its total budget on tobacco-related research and much of this spending is only remotely related to the basic problem of understanding how to alter tobacco use behaviors. The panel needs to recognize that the tobacco industry spends billions annually on product marketing and marketing research that contributes to keeping people addicted to tobacco. NIH needs to continue to make a strong commitment to support research that will counter the influence of the tobacco industry. SRNT was disappointed to learn that NCI has chosen not to include tobacco control funding in its recently announced lung cancer initiative [NCI Cancer Bulletin dated May 23, 2006]. SRNT

believes that NCI must make tobacco control a cornerstone of its research effort for any effort to improve the science of lung cancer control to be successful. SRNT believes that relevant NIH agencies need to improve coordination of resources on the important science questions in tobacco control. Tobacco related issues should be more seamlessly integrated into the NIH Directors Road Map initiative so that all the key institutes within NIH that focus on diseases disproportionately related to tobacco use (e.g., NCI, NHLBI, NIDA, NIAAA) better integrate tobacco-related research into their mission and funding priorities and better communicate and exchange information among the institutes. SRNT also believes that NIH would be well served by establishing tobacco-only review committees with experts capable of assessing the science in tobacco control so the money is directed into areas that will impact the problem.

Conclusion

SRNT would like to again thank NIH and all those involved in their efforts to organize this review of the science in tobacco control. SRNT urges the panel to build upon excellent summaries of this research that already exist and to use a weight of evidence approach to judging the evidence of what works in tobacco use prevention, cessation and control. While the RCT is a gold standard for testing causal relationships, this design is not practical for evaluating many domains of tobacco control science. SRNT is concerned that over reliance on RCTs to judge the state of the science in tobacco control will cause the panel to eliminate a significant body of peer-reviewed science and could undermine the panel's effort to make credible interpretations of what we know and don't know about what works in tobacco control. SRNT believes that relevant NIH agencies need to further coordinate and focus resources on the important science questions in tobacco control. Finally, SRNT strongly urges the panel to make a clear and incontrovertible statement about the need for continued and expanded NIH support of tobacco control science especially in the important area of translating of what we know works in tobacco control into practice.

## Supplemental Evidence

*Comprehensive statewide tobacco prevention and control programs reduce tobacco use and disease*

Smoking and other tobacco use can be effectively reduced through public education efforts, counter-marketing, community and school-based programs, helping smokers quit, and strictly enforcing laws that establish smoke-free areas and restrict youth access to tobacco products [1]. But research and experience also shows that these individual elements work much more effectively when they are all integrated into a comprehensive program. States that have implemented comprehensive tobacco control programs have achieved significant reductions in tobacco use among both adults and youth [2, 3].

A 2005 study published in the *American Journal of Public Health* concluded that if every state had spent the minimum amount recommended by the Centers for Disease Control and Prevention (CDC) for tobacco prevention, youth smoking rates nationally would have been between three and fourteen percent lower during the study period, from 1991 to 2000. Further, if every state funded tobacco prevention at CDC minimum levels, states would prevent nearly two million kids alive today from becoming smokers, save more than 600,000 of them from premature, smoking-caused deaths, and save $23.4 billion in long-term, smoking-related health care costs [4].

A 2003 study published in the *Journal of Health Economics* found that states with the best funded and most sustained tobacco prevention programs during the 1990s – Arizona, California, Massachusetts and Oregon – reduced cigarette sales more than twice as much as the country as a whole (43 percent compared to 20 percent). This study, the first to compare cigarette sales data from all the states and to isolate the impact of tobacco control program expenditures from other factors that affect cigarette sales, demonstrates that the more states spend on tobacco prevention, the greater the reductions in smoking, and the longer states invest in such programs, the larger the impact. The study concludes that cigarette sales would have declined by 18 percent instead of nine percent between 1994 and 2000 had all states fully funded tobacco prevention programs [5].

A 2006 study published in the March issue of the *American Journal of Health Promotion* found that well-funded tobacco control programs combined with strong tobacco control policies increase cessation rates. Quit rates in communities that experienced both policy and programmatic interventions were higher than quit rates in communities that had only experienced policy interventions (excise tax increases or secondhand smoke regulations) [6].

Reducing the number of smokers, decreasing cigarette consumption and protecting non-smokers from secondhand smoke exposure have translated into health benefits for Californians. Accelerated reductions have been documented in California for lung cancer incidence rates [7, 8]. From 1988-2001, lung and bronchus cancer rates in California declined at three times the rate of decline in non-California Surveillance, Epidemiology, and End Results (SEER) regions (1.5% and 0.5%, respectively) [8]. Also using SEER data, research associated lower lung cancer incidence with the California Tobacco Control Program [9]. Greater declines in smoking-

related morbidity and mortality are likely to be seen in the future when the full impact of reductions in smoking in the 1990s takes effect.

*Public education campaigns reduce tobacco use*

The U.S. Centers for Disease Control and Prevention's (CDC), Best Practices for Comprehensive Tobacco Control Programs concludes that public education (counter-marketing campaigns) are an integral part of efforts to both prevent initiation of tobacco use and to encourage tobacco cessation [10]. In addition, the Task Force on Community Preventive Services, an independent expert advisory committee created by CDC, ( http://www.thecommunityguide.org/tobacco/tobac-int-mass-media.pdf) studied the impact of mass media campaigns and other tobacco prevention and cessation methods on prevention of tobacco use and tobacco cessation. The Task Force found "strong evidence" that mass media campaigns, combined with other interventions, are effective in reducing tobacco use initiation, in reducing consumption of tobacco products, and in increasing cessation among tobacco users [11]. Further, the 2000 Surgeon General's report, *"Reducing Tobacco Use"*, suggests that counter-marketing efforts that include pro-health messages and messages about the tobacco industry's marketing and promotional tactics are required to counter the tobacco industry's efforts to promote misleading messages and images about tobacco to young people and adults. The report concludes that the evidence indicates that mass media campaigns are effective at informing the public, including youth, about the hazards of smoking and at promoting specific cessation actions and services [12].

Multiple studies have concluded that raising cigarette taxes reduces smoking, especially among kids:

- The 2000 U.S. Surgeon General's Report, *Reducing Tobacco Use*, found that increasing the price of tobacco products would decrease the prevalence of tobacco use, particularly among kids and young adults, and that tobacco tax increases would lead to "substantial long-term improvements in health." Its review of existing research concluded that raising tobacco taxes is one of the most effective tobacco prevention and control strategies [12]

- The 1999 World Bank report *Curbing the Tobacco Epidemic: Governments and the Economics of Tobacco Control* carefully evaluated existing research and data, worldwide, and concluded that "the most effective way to deter children from taking up smoking is to increase taxes on tobacco. High prices prevent some children and adolescents from starting and encourage those who already smoke to reduce their consumption." [13]

- In its 1998 report, *Taking Action to Reduce Tobacco Use*, the National Academy of Sciences' Institute of Medicine concluded that "the single most direct and reliable method for reducing consumption is to increase the price of tobacco products, thus encouraging the cessation and reducing the level of initiation of tobacco use."[14]

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