These two suggestions have not been incorporated into the present version, largely because much of the information is covered already in this and other sections of the database. There will be hyperlinks to other parts of the database that cover the material in more depth. In addition, some brief material has been presented on the different stages of the tobacco epidemic globally. We are concerned that presenting information about lower risk in those countries who are at an earlier stage of the epidemic may, in fact, be misleading, i.e., the erroneous conclusion will be reached that tobacco is not harmful in those countries. We also know that in those countries where nicotine dependence is not in the form of traditional cigarettes, there may be elevated risks of other diseases.

My main recommendation is that a point be made (in the health effects section) and an ancillary recommendation drawn along the following lines – please note that what I propose is not intended as final wording but rather a suggestion that I would like to see considered by the subcommittee which developed this section because they may have already considered and rejected this for reasons that are not clear to me.

Addition to Health Effects subsection:

The adverse effects, including mortality, and probably addiction, are related to the factors such as the age of onset of use, the amount of tobacco which people are able to self-administer, and the toxicity of the products. Thus, for example, in populations in which few cigarettes are smoked per day and/or smoking did not begin until adulthood, or in which the tobacco epidemic is in its infancy (e.g., men and women in many developing countries or women in some developed countries), the observed risk of premature mortality may be substantially lower than in populations which begin smoking at an early age and smoke more heavily (cf Peto et al). Similarly, the nature and risk of premature mortality appears lower in countries in which major forms of nicotine dependence are not conventional cigarettes. With respect to addiction as well, it has been well established for a broad range of drugs, including nicotine, heroin and cocaine, that the risk of addiction is related to the availability and cost of the drug.

Ancillary Recommendation:
Because the risk of adverse effects, including addiction, is related to the level of exposure to tobacco toxins and nicotine, every effort should be made to complement efforts to eliminate any level of tobacco use with efforts to minimize exposure among users to the lowest degree possible with proven approaches such as increased taxation of tobacco products, establishing and enforcing restrictions on tobacco procurement by youth, and workplace restrictions on tobacco use.

WHO/SRNT Treatment Database
Demographics and Health Effects Subcommittee
Executive Summary
October 2000

I. Purpose

The purpose of the health effects database is to provide information about the morbidity and mortality costs of tobacco use, and the health benefits of stopping smoking. The key findings are based on reviews of the subject published by the U.S. Federal Government and the World Health Organization.

II. Key findings

Prevalence of tobacco use

- In 1998, it was estimated that there were over 1.2 billion smokers in the world, approximately one third of the global population aged 15 or older. 800 million of these smokers are in developing countries.

- Globally, about 47% of men and 12% of women smoke. In developing countries, it is estimated that 48% of men and 7% of women smoke, while in developed countries, 42% of men and 24% of women smoke, indicating that different countries are at different stages in the tobacco epidemic.

- Cessation of smoking correlates with socioeconomic status, but the exact relationship depends upon the maturity of the tobacco epidemic.

- Assessment of tobacco use is weakened by the paucity of data in most countries, particularly those in developing regions.

Health effects of regular smoking

- Tobacco smoke contains more than 4000 chemical compounds. Many of these agents are toxic, and at least 43 can cause cancer.

- Tobacco is a known or probable cause of at least 25 diseases, including lung and other cancers, heart disease, stroke, emphysema and other chronic lung diseases. On average, lifelong smokers have a 50% chance of dying from a tobacco-related disease, and half of these deaths occur in middle age (45-54 years). In 1990, smoking was responsible for 35% of all deaths among middle-aged men in developed countries.

- In developed countries, smoking is estimated to cause 87% of lung cancer deaths, 82% of emphysema deaths, 40% of heart disease deaths among people less than age 65, 21% of all heart disease deaths, 33% of all cancers, and 10% of infant deaths.

- Before the widespread use of cigarettes, lung cancer was a rare disease. In 1912, only 374 cases of lung cancer were reported in the world literature. Now

more than 150,000 deaths from cancer of the lung and bronchus per year are reported in the United States alone. Globally, smoking caused 29% of all cancer deaths among men and 6% among women in 1990.

- Tobacco use is also a major cause of morbidity and disability. In high-income countries, smoking-related diseases account for between 6% and 15% of all annual healthcare costs. These figures may not necessarily apply to low- and middle-income countries, whose epidemics of smoking-related diseases are at earlier stages. There have been few reliable studies of the economic costs of smoking in these countries.

- Tobacco use does not cause health problems only for adults. In adolescence, smoking is associated with increased susceptibility to, and severity of, respiratory infections; reduced lung function and rate of lung growth; increased likelihood of coughing spells and coughing up phlegm or blood; increased likelihood of wheezing and gasping; increased likelihood of shortness of breath when not exercising; decreased physical activity; and decreased endurance.

- Currently, an estimated four million deaths per year worldwide are attributed to tobacco use (about 7% of all deaths). It is estimated that by the year 2020, tobacco will cause 18% of all deaths in developed countries, and 11% of all deaths in developing countries.

- If current smoking patterns continue, it is projected that by 2030, ten million deaths per year will occur because of tobacco use, and that 70% of these deaths will occur in developing countries. Tobacco will then be the leading cause of fatal disease in the world, responsible for one of every eight deaths.

- It is also estimated that, if current smoking patterns continue, 250 million children alive in the world today will eventually die from tobacco use.

Tobacco dependence

- Many smokers become dependent on nicotine, an addictive drug found in all tobacco products. Nicotine addiction has been classified as a substance abuse disorder by the World Health Organization ICD-10 disease classification system, which lists the disorder as tobacco dependence, and by the American Psychological Association DSM-4 classification system, which lists the disorder as “nicotine dependence”. Nicotine, like cocaine, affects the brain dopamine reward system.

- Most people who become regular smokers become physically, behaviorally, and psychologically dependent on continued smoking and have difficulty quitting even when seriously motivated to stop. The relapse rates for smokers making unassisted quit attempts are comparable to those of persons quitting heroin use. Fortunately, treatment can help people achieve lasting abstinence from tobacco.

- Most regular smokers in the United States are dependent on nicotine, including most adolescent smokers. The frequency of reporting symptoms of nicotine dependence increases as the number of cigarettes smoked per day increases. Even among persons smoking five or fewer cigarettes per day, more than half

report at least one indicator of nicotine dependence. Similar patterns are found for young smokers: 80% of young people who smoke five or fewer cigarettes per day report at least one indicator of nicotine dependence.

Environmental tobacco smoke

- Besides the adverse health effects to the smoker, there are also harmful effects to others from environmental tobacco smoke (ETS). ETS is often referred to as "secondhand smoke" and exposure to ETS is often called "passive smoking". ETS contains most of the same toxic and cancer-causing agents as mainstream smoke inhaled by smokers.

- ETS causes lung cancer and heart disease in adults and causes and aggravates asthma in children. It has been estimated that in the United States, 5%–14% of lung cancers in lifetime nonsmokers are potentially preventable by eliminating ETS exposure.

- Parental smoking is also associated with sudden infant death syndrome (crib death or cot death). Children exposed to ETS are more likely to develop bronchitis, pneumonia, and middle ear disease. Exposed children with asthma have more frequent and severe asthma attacks, and exposure to ETS increases the chances of a child's developing asthma.

- A national study in the United States found that even with an adult smoking prevalence rate of 25%, almost 90% of nonsmokers had some exposure to ETS.

Benefits of quitting

- The good news is that quitting smoking has substantial and immediate health benefits for smokers of all ages. Former smokers live longer than continuing smokers, no matter what age they stop smoking. The excess risk of death from smoking begins to decrease shortly after cessation and continues to decrease for at least 10–15 years.

- Smokers who quit before age 50 have half the risk of dying within the next 15 years compared to those who continue to smoke. Former smokers experience better health than continuing smokers.

- One to two years after quitting, the excess risk of death from heart disease caused by smoking is halved, and within 15 years, the risk of cardiovascular death is nearly that of never smokers. The excess risk of lung and other cancers, chronic lung disease, and stroke and other vascular diseases also decreases after quitting but more slowly.

- Ten years after quitting, former smokers' risk of lung cancer is 30%–50% that of continuing smokers, but the risk does remain higher than for never smokers for many years after quitting. The excess risk of oral and esophageal cancer caused by smoking is halved within five years after cessation.

- Mortality from chronic lung disease is also reduced by stopping smoking.

- An estimated 17%–26% of low-birth-weight births could be prevented by eliminating smoking during pregnancy.

III. Recommendations

- Comprehensive tobacco prevention and control programs should include treatment of tobacco-use dependence as one component of the program.

- Policy and environmental changes that have been shown to increase quitting should be implemented. These include: increases in price, clean indoor air policies, and decreasing the cost of proven treatments. .

- Healthcare professionals have the opportunity and obligation to improve the health of their patients by encouraging and helping tobacco users to stop. Fortunately, effective clinical interventions (such as clinician advice to quit, providing social support and practical advice on how to quit, and pharmacologic aids) are now available to help smokers quit.

- Standard surveillance systems are needed worldwide so that comparable information is available on adult and youth prevalence, on national and local tobacco control programs and policies, and on cessation and prevention programs.

U.S. Department of Health and Human Services. Reducing the health consequences of smoking: 25 years of progress. A report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control. Office on Smoking and Health, 1989. DHHS publication no. (CDC)89-8411.

U.S. Department of Health and Human Services. The health benefits of smoking cessation: Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Office on Smoking and Health, 1990 DHHS publication no. (CDC)90-8416.

U.S. Department of Health and Human Services. The health consequences of smoking: nicotine addiction: Report of the Surgeon General. Washington, DC: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Office on Smoking and Health, 1988.

U.S. Department of Health and Human Services. Preventing tobacco use among young people: Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Office on Smoking and Health, 1994.

U.S. Department of Health and Human Services. Reducing tobacco use: Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2000.

U.S. Department of Health and Human Services. Smoking in the Americas: Report of the Surgeon General: Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1992; DHHS publication no. (CDC) 92-8419.

Environmental Protection Agency. Respiratory health effects of possible smoking: lung cancer and other disorders. Washington, DC: U.S. Environmental Protection Agency, Office on Air and Radiation, 1992. Environmental Protection Agency publication EPA/600/6-90/006F.

National Cancer Institute. Health effects of exposure to environmental tobacco smoke: report of the California Environmental Protection Agency. Smoking and Tobacco Control Monograph no. 10. Washington, DC: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, 1999 (NIH publication no. 99-4645).

National Cancer Institute. Changes in cigarette-related disease risks and their implication for prevention and control. Smoking and Tobacco Control Monograph No. 8. Washington, DC: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, 1997 (NIH publication no. 97-4213).

Fiore MC, Bailey WC, Cohen SJ, et al. Treating tobacco use and dependence. Clinical practice guideline. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service: AHRQ publication no. 00-0032, June 2000.

Murray CJL, Lopez AD. Global health statistics: a compendium of incidence, prevalence, and morality estimates for over 200 conditions. Geneva: World Health Organization, 1996.

Peto R, Lopez AD, Boreham J, Thun M, Heath C. Mortality from smoking in developed countries, 1950-2000. New York: Oxford University Press, 1994.

Peto R, Darby S, Deo H,. Silcocks P, Whitley E, Doll R. Smoking, smoking cessation, and lung cancer in the UK since 1950: combination of national statistics with two case control studies. BMJ 2000;321:323-329.

Pirkle JL, Flegal KM, Bernert JT, Brody DJ, Etzel RA, Maurer KR. Exposure of the U.S. population to environmental tobacco smoke: the Third National Health and Nutrition Examination Survey, 1988 to 1991. JAMA. 1996;275(16):1233-40.

Doll R, Peto R, Wheatley K, Gray R, Sutherland I. Mortality in relation to smoking: 40 Years: observations on male British doctors. BMJ 1994;309:901-11.

Arday DR, Giovino GA, Schulman J, Nelson DE, Mowery P, Samet JM. Cigarette smoking and self-reported health problems among U.S. high school seniors, 1982-1989. Am Health Promot 1995;10(2):111-6.

Greenlee RT, Murray T, Bolden S, Wingo PA. Cancer Statistics, 2000. CA(Cancer J Clin) Jan/Feb 2000; 50 (1): 7-33.

Carrao MA, Guindon GE, Cokkinides V, Sharma N. Tobacco control country profiles: building the evidence base for global tobacco control. Bull World Health Organ 200; 78(7) (in press).

The World Bank. Curbing the epidemic: governments and the economics of tobacco control. Washington, DC: The World Bank, 1999

www.cdc.gov/tobacco

www.who.int/toh

NATIONS (National Tobacco Information Online System)

I. Purpose

NATIONS is an electronically integrated information system containing country-specific information on a wide variety of tobacco control issues.

II. Key findings

- NATIONS is being developed by the Centers for Disease Control and Prevention (CDC) in the Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, in collaboration with the World Health Organization Tobacco Free Initiative (WHO-TFI), the American Cancer Society (ACS), The World Bank (WB), the United Nations Children's Fund (UNICEF) and the International Union Against Cancer (UICC).

- NATIONS integrates several sources of data to provide comprehensive summaries of national-level information on tobacco use prevalence and tobacco-attributable mortality, tobacco control laws and regulations, tobacco economics, industrial organization, and programmatic interventions.

- The system is designed to provide a standardized and reliable structure and capacity to track and assess the tobacco situation within and across countries and disseminate this information to policy decision makers, tobacco prevention and control program staff, researchers, and other global partners.

- Users of the system will be able to browse the data and view or print preformatted reports. Upon completion, NATIONS will be made available to the public via the Internet, through the CDC's Office on Smoking and Health Web site (http://www.cdc.gov/tobacco).

- At present, data collection and technical development of the global system is in process, with priority being given to laws and regulations, prevalence and consumption, and tobacco economics.

III. Recommendations

Clinicians and policy makers can use NATIONS to compare tobacco use in their own country with other countries. Policy makers can also use the database to determine the status of tobacco prevention and control efforts in their own country and to learn about strategies being used in other countries. This information will be useful to develop tobacco control programs and policies at all levels and to design future tobacco surveillance and evaluation research.

The World Health Organization's Tobacco Treatment Database is a joint effort of the Centers for Disease Control and Prevention (CDC) and other organizations and entities. Other contributing partners include The World Health Organization, the Society for Research on Nicotine and Tobacco, the University of California San Francisco, the Cochrane Group, the United Kingdom, the World Bank, and the Henry Ford Health System. Inclusion of information in the database does not imply endorsement or recommendation by the CDC or the U.S. Government and none should be inferred. CDC is not responsible for the content of the information developed by individual organizations or entities.