Americans.²⁸ Studies also suggest that Native Americans begin using smokeless tobacco products at much earlier ages than non-Native Americans. A 1986 survey at the Rosebud Sioux Reservation in South Dakota revealed that 21 percent of kindergarten children used smokeless tobacco products,²⁹ and a survey of Native Americans in the state of Washington indicated that 33 percent of former users and 57 percent of current users started using smokeless tobacco products before the age of 10.³⁰

The recent and very large increase in the use of smokeless tobacco products by young people and the addictive nature of these products has persuaded the agency that these products must be included in any regulatory approach that is designed to help prevent future generations of young people from becoming addicted to nicotine-containing tobacco products.

B. The Health Effects Associated With Cigarettes and Smokeless Tobacco Products

Over 400,000 Americans die each year from smoking-related illnesses. This equates to more than one of every five deaths in the United States.31 If an adolescent's tobacco use continues for a lifetime, there is a 50 percent chance that the person will die prematurely as a direct result of smoking." 32 Moreover, the earlier a young person's smoking habit begins, the more likely he or she will become a heavy smoker and therefore suffer a greater risk of smoking related diseases.33 Smoking is responsible for about 30 percent of all cancer deaths,34 including 87 percent of all lung cancer deaths; 82 percent of deaths from chronic obstructive pulmonary disease (COPD); 35 21 percent of deaths from coronary heart disease; 36 and 18 percent of deaths from stroke.37 Further, a causal relationship exists between cigarette smoking and cancers of the larvnx, mouth, esophagus, and bladder; and atherosclerotic peripheral vascular disease, cerebrovascular disease (stroke), and low-birth weight babies.38 Cigarette smoking is also a probable cause of infertility and peptic ulcer disease and contributes to, or is associated with, cancers of the pancreas, kidney, cervix, and stomach.39

Much of the following brief discussion is abstracted from several Surgeon General's reports. The Surgeon General's reports summarize thousands of peer-reviewed scientific studies and are themselves peer-reviewed and subjected to significant scientific scrutiny.

1. Health Effects of Cigarette Smoking

Epidemiologic studies provide overwhelming evidence that smoking causes lung cancer.⁴⁰ The risk of getting lung cancer may be more than 20 times greater for heavy smokers than nonsmokers.⁴¹ The relationship between smoking and lung cancer is due to the numerous carcinogens in cigarette smoke.⁴² Cigarette smoking caused an estimated 117,000 deaths from lung cancer in 1990.⁴³

The risk of getting lung cancer increases with the number of cigarettes smoked and the duration of smoking, and decreases after cessation of smoking.⁴⁴ Starting smoking at an earlier age increases the potential years of smoking and increases the risk of lung cancer.⁴⁵ Studies have shown that lung cancer mortality is highest among adults who began smoking before the age of 15.⁴⁶

Cigarette smoking also causes cancer of the larynx, mouth, and esophagus.47 According to current estimates, 82 percent of laryngeal cancers are due to smoking and about 80 percent of the 10,200 deaths from esophageal cancer in 1993 can be attributed to smoking.⁴⁸ The risk of oral cancer among current smokers ranges from 2.0 to 18.1 times the risk in people who have never smoked and can be reduced more than 50 percent after quitting.49 The risk of esophageal cancer among current smokers ranges from 1.7 to 6.4 times the risk in people who have never smoked and can also be reduced by about 50 percent after quitting.50

Epidemiologic studies demonstrate that cigarette smoking contributes to the development of pancreatic cancer.⁵¹ The reason for this relationship is unclear, but may be due to carcinogens or metabolites present in the bile or blood.⁵² In 1985, the proportion of pancreatic cancer deaths in the United States attributable to smoking was estimated to be 29 percent in men and 34 percent in women.⁵³

Cigarette smoking accounts for an estimated 30 to 40 percent of all bladder cancers and is a contributing factor for kidney cancer.⁵⁴ The increased risk of kidney and bladder cancer may be related to the number of cigarettes smoked per day, and the risk decreases following smoking cessation.⁵⁵

Smoking appears to be a contributing factor for cancer of the cervix. The association between cigarette smoking and cervical cancer persists after control is made for risk factors, such as age at first intercourse and the number of sexual partners, that predispose a woman to developing sexually-transmitted diseases. The inclusion of

these risk factors, however, may not completely rule out confounding by sexually-transmitted diseases. However, the findings that components of tobacco smoke can be found in the cervical mucus of smokers, that the mucus of smokers is mutagenic, and that former smokers have a lower risk of getting cervical cancer than current smokers are consistent with the hypothesis that smoking is a contributing cause of cervical cancer.⁵⁶

The 1982 Surgeon General's Report concluded that stomach cancer is associated with cigarette smoking.⁵⁷ Studies show a slight increase in mortality from stomach cancer in smokers compared with nonsmokers.⁵⁸

Smoking is a leading cause of heart disease. The 1964 Surgeon General's Report noted that male cigarette smokers had higher death rates from coronary heart disease than nonsmokers. 59 Subsequent reports have concluded that cigarette smoking contributes to the risk of heart attacks, chest pain, and even sudden death. 60 Overall, smokers have a 70 percent greater death rate from coronary heart disease than nonsmokers. 61

Ischemic heart disease resulting from cigarette smoking claimed nearly 99,000 lives in 1990.⁶² One study estimates that 30 to 40 percent of all coronary heart disease deaths are attributable to smoking.⁶³ Smokers between the ages of 40 and 64, who smoked more than one pack a day, were shown to have a risk of coronary heart disease that is 3.2 times higher than people who do not smoke.⁶⁴

Several processes that are likely to contribute to heart attacks are influenced or caused by smoking: atherosclerosis, thrombosis, coronary artery spasm, cardiac arrhythmia, and reduced capacity of the blood to deliver oxygen. The nicotine and carbon monoxide in cigarette smoke are believed to be responsible for heart disease, but other components, such as cadmium, nitric oxide, hydrogen cyanide, and carbon disulfide, have also been implicated. Female smokers who also use oral contraceptives increase their risk of heart attacks tenfold.

Smoking also increases a person's risk of atherosclerotic peripheral vascular disease, especially if the smoker is diabetic.⁶⁷ Complications of this disease include decreased blood delivery to the peripheral tissues, gangrene, and ultimately loss of the affected limb. Smoking cessation is the most important intervention in the management of peripheral vascular disease.⁶⁸

Smoking is a cause of stroke.⁶⁹ Stroke is the third leading cause of death in the United States.⁷⁰ The association of