



## Module X: Population Health and Substance Abuse

---

### I. Purposes

The purposes of this module are to:

- Provide an overview of population health
- Describe the population health framework in relation to substance abuse
- Describe the epidemiology of substance abuse
- Identify the policies and programs in place to address substance abuse

### II. Learning Objectives

At the end of the training, the health care professional will be able to:

- Define “population health”
- Describe the *Healthy People (HP) 2010* conceptual framework
- Contextualize substance abuse within the HP 2010 framework
- Identify the relevant goals and objectives of HP 2010
- Describe the determinants of substance use, abuse, & dependence
- Describe the adverse consequences of substance use, abuse, and dependence
- Describe the key elements contained in Canada’s Population Health Template Working Tool
- Describe the policies and programs in place to address substance abuse in the U.S.

### III. Chronology

5 minutes	<b>Approximately 1 hour 50 minutes</b>
5 minutes	Introduction and Objectives
15 minutes	Population Health
30 minutes	Healthy People 2010
30 minutes	Epidemiology of Alcohol Use, Abuse, and Dependence
5 minutes	Epidemiology of Illicit Drug Use, Abuse, and Dependence
20 minutes	Substance Abuse Treatment
25 minutes	Health, Social, & Economic Impact of Substance Abuse
5 minutes	Substance Abuse Prevention, Intervention, and Policy
	Summary

### IV. Suggested Activities

- A. Investigate one of the *Healthy People 2010* focus areas related to substance abuse (or substance abuse itself) and describe one of the goals in that area and its measures and trends ([www.healthypeople.gov/Publications/](http://www.healthypeople.gov/Publications/)).
- B. Contextualize substance abuse within the HP 2010 framework by selecting a component (e.g. individual biology, policy, social environment) within the framework, provide a new example related to substance abuse, and discuss how that substance abuse-related component fits into the broader framework (or how that example might relate to the other components).
- C. Describe the differences in alcohol or illicit drug use (or abuse or dependence) by a single demographic factor (race/ethnicity, age, gender).

- D. Select and read a paper from the current literature ([www.pubmed.com](http://www.pubmed.com)) on the health, social, or economic impact of substance abuse.
- E. Research the substance policies in your state and write a brief description of one policy and the laws that support it.

**III. Facilitator Materials**

- Power Point Slides (lecture and discussion)
- Narrative (text)

**IV. Participant Materials**

- Handouts
  - Summary of Presentation
  - Classification of Alcohol Use Disorders
  - (other papers to be included)
- References

## Module X: Population Health and Substance Abuse

### Slide 1: Module X: Population Health and Substance Abuse

This is the title slide for Module X.

### Slide 2: Purposes

- Provide an overview of population health
- Describe the population health framework in relation to substance abuse
- Describe the epidemiology of substance abuse
- Identify the policies and programs in place to address substance abuse

### Slides 3-4: Learning Objectives

At the end of this training, learners will be able to:

- Define “population health”
- Describe the *Healthy People (HP) 2010* conceptual framework
- Contextualize substance abuse within the HP 2010 framework
- Identify the relevant goals and objectives of HP 2010
- Describe the determinants of substance use, abuse, & dependence
- Describe the adverse consequences of substance use, abuse, and dependence
- Describe the key elements contained in Canada’s Population Health Template Working Tool
- Describe the policies and programs in place to address substance abuse in the U.S.

### Slide 5: What is Population Health?

Population health assesses health status and health status inequities at the population level, focusing on the entire range of individual and collective factors and conditions, and the interactions among them. It also provides a key concept and an approach for program and policy development aimed at improving the population’s health.

### Slide 6: Selected Social Indicators of Health in the Americas

Life expectancy, infant mortality, and maternal mortality are some of the social indicators of health. In general, and in the Americas specifically, more developed countries have higher life expectancies and lower infant mortality and maternal mortality rates compared to less developed countries with lower life expectancies and higher infant mortality and maternal mortality rates. Note in the table provided that within sub-regions there are vast disparities.

### Slide 7: Life Expectancy in the U.S. by Gender

At the beginning of the 20th century, life expectancy at birth was 47.3 years in the U.S. Today, the average life expectancy at birth is nearly 77 years. Life expectancy for persons at every age group also has increased during the past century. Differences in life expectancy between populations, however, suggest a substantial need and opportunity for improvement. In the U.S. between 1990 and 2002, life expectancy at birth increased more for the Black than for the White population, thereby narrowing the gap in life expectancy between these two racial groups. In 1990 life expectancy at birth was 7 years longer for the White than for the Black population. By 2002 the difference had narrowed to 5.5 years. On the other hand, at

least 18 countries with populations of 1 million or more have life expectancies greater than the U.S.

**Slide 8: Leading Causes of Death in the U.S.**

The leading causes of death also are used frequently to describe the health status of a Nation. Over the past 100 years, the U.S. has seen a great deal of change in the leading causes of death. At the beginning of the 1900s, infectious diseases ran rampant in the United States and worldwide and topped the leading causes of death. A century later, with the control of many infectious agents and the increasing age of the population, chronic diseases top the list. A very different picture emerges when the leading causes of death are viewed for various population groups. HIV/AIDS, for example, is the 14th leading cause of death for the total population but the leading cause of death for African-American men aged 25 to 44 years. The leading causes of death in the U.S. generally result from a mix of behaviors; injury, violence, and other factors in the environment; and the unavailability or inaccessibility of quality health services.

[Sources: *Healthy People 2010: Understanding and Improving Health*; National Center for Health Statistics, 2004]

**Slide 9: Global Substance Use**

Psychoactive substance use poses a significant threat to the health, social and economic fabric of families, communities and nations. The extent of worldwide substance use is estimated at 2 billion alcohol users, 1.3 billion smokers and 185 million drug users. There are more than 76 million persons with alcohol use disorders worldwide and at least 15 million persons with drug use disorders. Injecting drug use (IDU) has been reported in 136 countries, of which 93 report HIV infection among this population. For every dollar invested in drug treatment, 7 dollars are saved in health and social costs.

**Slide 10: Global Burden of Disease Attributable to Alcohol**

Worldwide alcohol causes 1.8 million deaths (3.2% of total) and 58.3 million (4% of total) of Disability-Adjusted Life Years (DALYs; the sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability). Unintentional injuries alone account for about one third of the 1.8 million deaths, while neuropsychiatric conditions account for close to 40% of the 58.3 million DALYs. The burden is not equally distributed among the countries, as is shown on the map.

**Slide 11: Global Burden of Disease Attributable to Illicit Drugs**

185 million persons or 3.1 % of the global population (or 4.3% of people aged 15 years and above) were consuming drugs in the late 1990s. Globally, 0.4% of deaths (0.2 million) and 0.8% of DALYs (11.2 million) are attributed to overall illicit drug use. Attributable burden is consistently several times higher among men than women. Illicit drugs account for the highest proportion of disease burden among low mortality, industrialized countries in the Americas, Eastern Mediterranean and European regions.

[Source: WHO, 2002; UNDCP, 2002]

**Slide 12: What is *Healthy People 2010*?**

*Healthy People (HP) 2010 (#12-#13)* is a comprehensive set of national health objectives for the decade in the U.S., developed by a collaborative process and designed to measure progress

over time. HP 2010 is a public health document that is part strategic plan, part textbook on public health priorities.

**Slide 13: History of *Healthy People 2010***

- ❖ **1979** - Healthy People: Surgeon General's Report on Health Promotion and Disease Prevention
- ❖ **1980** -Promoting Health/Preventing Disease: Objectives for the Nation
- ❖ **1990** - Healthy People 2000: National Health Promotion and Disease Prevention Objectives
- ❖ **2000** -Healthy People 2010

**Slide 14: *Healthy People 2010***

It provides a systematic approach to health improvement, and includes goals (increase quality and years of healthy life & eliminate disparities), objectives (which support goals with objectives in 28 focus areas), determinants of health, and health status.

**Slide 15: Healthy People in Healthy Communities**

Topics covered by the Objectives in *Healthy People 2010* reflect the array of critical influences that determine the health of individuals and communities. Individual *biology* and *behaviors* influence health through their interaction with each other and with the individual's *social* and *physical environments*. In addition, *policies and interventions* can improve health by targeting factors related to individuals and their environments, including *access to quality health care*. The determinants of health have a profound effect on the health of individuals, communities, and the Nation. An evaluation of these determinants is an important part of developing any strategy to improve health.

**Slide 16: Substance Abuse in *Healthy People (HP) 2010***

Substance abuse is one of 28 focus areas and one of 10 leading health indicators in HP 2010.

**Slide 17: 10 Leading Health Indicators**

The substance abuse goal is to reduce substance abuse to protect the health, safety, and quality of life for all, especially children.

**Slide 18: Focus Areas of HP 2010**

Note that areas in italics are focus areas related to substance abuse.

**Slide 19: Focus Areas of HP 2010 (continued)**

Note that areas in italics are focus areas related to substance abuse.

**Slide 20: Substance Abuse Objectives in *Healthy People 2010***

The substance abuse objectives include: *substance use and abuse* (e.g. substance-free youth, adolescent and adult use of illicit substances, binge drinking, steroid use among adolescents).

**Slide 21: Substance Abuse Objectives (continued)**

The objectives include *adverse consequences* (e.g. motor vehicle crash deaths and injuries, cirrhosis deaths, drug-induced deaths, adolescents riding with a driver who has been drinking, alcohol- and drug-related violence);

**Slide 22: Substance Abuse Objectives (continued)**

Other objectives include *risk of substance use and abuse* (e.g. peer disapproval of substance abuse; perception of risk associated with substance abuse; *treatment for substance abuse* (e.g. treatment gaps; treatment in correctional institutions); *state and local efforts* (e.g. administrative license revocation laws, blood alcohol concentration [BAC] levels for motor vehicle drivers)

**Slide 23: Substance Abuse in the Context of the HP 2010 Framework**

The components of the framework with substance abuse-related examples include: *Policies and Interventions* (e.g. drinking age, needle exchange programs, brief intervention); *Individual Behavior* (e.g. binge drinking, IDU); *Individual Biology* (e.g. age, family history); *Physical Environment* (e.g. alcohol outlets, shooting galleries); *Social Environment* (e.g. peer drinking, IDU networks); and *Access to Quality Health Care* (e.g. treatment programs).

**Slide 24: Epidemiology of Alcohol Use, Abuse and Dependence in the U.S.**

**Slide 25: Alcohol Use**

Alcohol use can be measured by per capita consumption, number/proportion of current drinkers, and drinking patterns.

**Slide 26: U.S. Per Capita Consumption of Alcohol**

The long-term trends of per capita alcohol consumption provide a historical perspective on the amount of alcoholic beverage consumption in the population. Per capita ethanol consumption in the U.S. consistently increased from the mid 1880's until 1915, and decreased just prior to enactment of Prohibition in 1919. After Prohibition ended in 1934, consumption of all types of alcohol continued to increase until the 1950's. The overall per capita level of alcohol consumption peaked in 1975, and began to decline during the 1980's. The decline has continued with consumption dropping 43% since 1975.

**Slide 27: U.S. Per Capita Consumption by Beverage Type**

The greatest quantity of alcohol consumed by Americans during the past 50 years is in the form of beer, followed by spirits and wine. During the 1980's beer consumption declined, yet at a slower rate than the decline seen in spirits and wine. Between 1984 and 1995, beer and wine consumption levels were essentially unchanged, while consumption of spirits continued to decrease. U.S. per capita consumption of ethanol from all beverages in 2002 equaled 2.2 gallons.

**Slide 28: U.S. Per Capita Consumption by Region**

Consumption increased 0.9% from 2001 due to increase in wine and spirits. Increases occurred in 40 states and DC and decreased or demonstrated no change in 10 states. We would need to decrease per capita consumption by 9.1% by 2010.

**Slide 29: Standard Drink Measure**

Another measure used in the calculation of epidemiological rates is the measurement of the amount of alcohol consumed by an individual. Beer, wine, and distilled spirits contain different concentrations of absolute ethanol and are available in different size containers. Consequently, the investigation of patterns of alcohol use requires a common definition of a 'unit' of beverage alcohol. If different studies use definitions of a 'standard drink' that are unique to each study, it will be difficult to compare findings across studies. Currently, there is no universally accepted definition of a standard drink. However, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) has published this definition (see slide).

**Slide 30-31: Alcohol Drinking Patterns**

Binge drinking has been defined by the National Survey on Drug Use and Health (NSDUH) as 5+ drinks on the same occasion on at least one day in the past 30 days. The NIAAA definition published in 2004 states that "a pattern of drinking alcohol that brings blood alcohol level (BAC) to 0.08 gram percent or above.... 5+ drinks (male) or 4+ drinks (female) in about 2 hours."

**Slide 31: Alcohol Drinking Patterns (continued)**

Heavy Alcohol Use has been defined by the NSDUH as 5+ drinks on the same occasion on each of 5 or more days in the past 30 days. Heavy alcohol users are also binge drinkers (by definition).

[The following information on alcohol use, abuse and dependence is based on 2003 NSDUH data.]

**Slide 32: Current, Binge, and Heavy Alcohol Use by Age**

Fifty percent of the population (age 12 years and older) are current drinkers (had at least one drink in the 30 days prior to the survey). This represents 119 million people in the U.S. population. The proportion of current drinkers increases with age among young people: 2.9% at age 12 to 70% at 21-22 years, and decreases with age among older age groups: 61.7% among 26-29 year olds to 46.2% among 60-64 year olds, and 34.4% among 65+. Binge drinking also increases with age (0.9% at 12, 24.5% at 17) and peaks at age 21 (47.8%). Heavy alcohol use is greatest among 18-25 year olds (15.1%), peaking at 21 years of age (18.7%).

**Slide 33: Underage Drinking**

Nearly 30% of 12-20 year olds are current drinkers, representing 10.9 million underage drinkers. The proportion of current drinkers is greater among Whites (33%) than Asians and Blacks (18%), and is greater in the Northeast and Midwest (~32%) than in the South and West (~27%). The level of alcohol use was strongly associated with illicit drug use in 2003. Among the 16.1 million heavy drinkers aged 12 or older, 32.5% were current illicit drug users. Persons who did not use alcohol in the past month were least likely to use illicit drugs (3.3%).

**Slide 34: Alcohol Use by School Grade Level**

*The Monitoring the Future Survey* by the National Institute on Drug Abuse (NIDA) studies trends in substance use among students (8th 10th, 12th graders). "Lifetime" refers to use at

least once during a respondent's lifetime. "30-day" refers to an individual's use at least once during the month preceding their response to the survey. All measures increase with grade level. No significant changes observed in alcohol consumption within each grade level over the past three years (2002-2004). Among 12th-graders, however, a significant increase was seen in the percentage of students perceiving risk in taking one or two drinks nearly every day.

**Slide 35: Alcohol Use in Past 30 Days by Age Group and Gender**

Overall, alcohol use is higher in males than females (#35) with any alcohol use (57.3% vs. 43.2%), binge drinking (30.9% vs. 14.8%), and heavy use (10.4% vs. 3.4%). Gender differences become more pronounced in the 18-25 age group for binge drinking (males: 51.3% vs. females 31.7%) and for heavy use (21.2% vs. 9%). In the 26+ age group, males are also more likely to be drinkers (any use: 61.5% vs. 41.3%), to binge (30.1% vs. 12.6%), and to be heavy users (9.5% vs. 2.6%).

**Slide 36: Alcohol Use in Past 30 Days by Race/Ethnicity**

Any alcohol use in the past 30 days is higher among Whites than any other group (54.4% vs. 37.9% - 44.4%). Binge drinking is lowest among Asians (11%) compared to other groups (19% -29.8%). Heavy alcohol use is highest among Native Americans and Hispanics (~10%) and lowest among Asians (2.3%) compared to other groups.

**Slide 37: Alcohol Use, Binge, Heavy Use in Past 30 Days by Ethnicity**

In addition, Whites are more likely to consume alcohol overall and, to a lesser extent, are more likely to be heavy users than Hispanics. Binge drinking is relatively comparable between the two groups.

**Slide 38: Other Demographic Characteristics of Alcohol Use**

Any alcohol use increases, but binge and heavy use decreases, with educational level. All forms of alcohol are greater among full-time college students (18-22 year olds) compared to those not enrolled full-time or not enrolled. Any alcohol use is also greater among full-time employed persons, but binge and heavy use are greater among unemployed persons.

**Slide 39: Alcohol Use in Past 30 Days During Pregnancy**

Among pregnant women aged 15 to 44, 9.8% used alcohol and 4.1% reported binge drinking in 2003. These rates were significantly lower than the rates for nonpregnant women of that age (53.0% vs. 23.2%). Heavy alcohol use was relatively rare (0.7%) among pregnant women.

**Slide 40: Definition: Alcohol Abuse**

Alcohol abuse, as defined by DSM IV, is manifested by at least one of the following within a 12-month period (without dependence): recurrent use resulting in a failure to fulfill major role obligations; recurrent use in physically hazardous situations; recurrent alcohol-related legal problems; or continued use despite persistent/recurrent alcohol-related social or interpersonal problems



**Slide 41: Definition: Alcohol Dependence**

Alcohol dependence is manifested by 3 or more of the following 7 domains occurring within a 12-month period: tolerance; withdrawal; impaired control (to cut down or control drinking); impaired control (drinking in larger amounts); neglect of important activities because of drinking; a great deal of time spent in alcohol-related activity; continued use despite knowledge of having a persistent or recurrent alcohol-related problem.

**Slide 42: Past Year Abuse and Dependence**

An estimated 21.6 million persons aged 12 or older in 2003 were classified with substance dependence or abuse (9.1% of the total population); 3.1 million were classified with dependence on or abuse of both alcohol and illicit drugs; 3.8 million were dependent on or abused illicit drugs but not alcohol; and 14.8 million were dependent on or abused alcohol but not illicit drugs. Between 2002 and 2003, there was no change in the number of persons with substance dependence or abuse (22.0 million in 2002 and 21.6 million in 2003).

17.8 million persons (7.5%) in the U.S. are alcohol abusers or alcohol dependent; 14.8 million abuse or are dependent on alcohol only (not illicit drugs).

**Slide 43: Past Year Abuse or Dependence by Age Group**

Rates of alcohol dependence or abuse in 2003 showed substantial variation by age, with 3.7% of 12 to 17 year olds dependent on or abusing alcohol only (2.2% both alcohol and illicit drugs); 13.2% of 18 to 25 year olds are dependent on or abusing alcohol only (4% both alcohol and illicit drugs); and 5.3% of persons 26 years old or older dependent on or abusing alcohol only (0.7% both alcohol and illicit drugs).

There is an association between age at first use of alcohol and subsequent abuse or dependence, with 6.7% of adults (18+) who first tried alcohol at age 14 or younger compared to 3.7% who first used at 18+ are abusing or dependent on alcohol as adults. Adults aged 21 or older who had first used alcohol before reaching 21 also were more likely than adults who had their first drink at age 21 or older to be classified with alcohol dependence or abuse (9.2% vs. 2.6%).

**Slide 44: Past Year Abuse or Dependence by Age Group and Gender**

Males are more likely than females to abuse or be dependent on alcohol (21.8% and 12.6%, respectively, in 18-25 year age group; 8.8% and 3.4%, respectively, for 26+ age group) The exception is the 12-17 year old age group, in which prevalence is comparable (5.5% in males and 6.2% in females for alcohol).

**Slide 45: Past Year Abuse or Dependence by Race/Ethnicity**

Highest prevalence of alcohol abuse or dependence is in the Native American group [includes American Indian and Alaska Native] at 15.3%. The next highest prevalence is among the Pacific Islander group [includes Native Hawaiian] at 9.8%, followed by 2 or more races (8.5%), Hispanic (8.1%), non-Hispanic White (7.6%), Black or African American (6.2%), and Asian (5.5%) groups.

**Slide 46: Other Demographic Characteristics of Alcohol Abuse or Dependence**

Rates of alcohol abuse varied slightly by educational level, with 5.2% of adults with some college compared to other groups (4.0-4.1%) abusing alcohol. Rates of dependence varied to a greater extent with 2.1% among college graduates compared to 4.4% among non-high school graduates. Alcohol abuse and dependence were highest among unemployed (7.3% and 6.6%, respectively).

**Slide 47: Epidemiology of Illicit Drug Use, Abuse and Dependence in the U.S.**

Slides 47-68 discuss Epidemiology of illicit drug use, abuse and dependence.

[The following information on illicit drug use, abuse and dependence is based on 2003 NSDUH data.]

**Slide 48: Past Month Use of Illicit Drugs**

In 2003, an estimated 19.5 million Americans aged 12 or older were current illicit drug users, meaning they had used an illicit drug during the month prior to the (NSDUH) survey interview. This estimate represents 8.2 % of the population aged 12 years old or older. About 45% of current illicit drug users in 2003 (8.8 million Americans) used illicit drugs other than marijuana and hashish, either with or without using marijuana. In 2003, an estimated 2.3 million persons (1%) were current cocaine users, 604,000 of whom used crack during the same time period (0.3%). Hallucinogens were used by 1 million persons (0.4%). There were an estimated 119,000 current heroin users (0.1%).

The National Survey on Drug Use and Health (NSDUH) obtains information on nine different categories of illicit drug use:

- Marijuana, cocaine, heroin, hallucinogens, inhalants, and nonmedical use of prescription-type pain relievers, tranquilizers, stimulants, and sedatives. In these categories, hashish is included with marijuana, and crack is considered a form of cocaine.
- Several drugs are grouped under the hallucinogens category, including LSD, PCP, peyote, mescaline, mushrooms, and "Ecstasy" (MDMA).
- Inhalants include a variety of substances, such as amyl nitrite, cleaning fluids, gasoline, paint, and glue.
- The four categories of prescription-type drugs (pain relievers, tranquilizers, stimulants, and sedatives) cover numerous drugs available through prescriptions and sometimes illegally "on the street."
- Methamphetamine is included under stimulants
- Respondents are asked to report only uses of drugs that were not prescribed for them or drugs they took only for the experience or feeling they caused. Over-the-counter drugs and legitimate uses of prescription drugs are not included.
- NSDUH reports combine the four prescription-type drug groups into a category referred to as "any psychotherapeutics."
- Estimates of "any illicit drug use" reported from NSDUH reflect use of any of the nine substance categories listed above. Use of alcohol and tobacco products, while illegal for youths, are not included in these estimates.

- In 2003, an estimated 19.5 million Americans aged 12 or older were current illicit drug users, meaning they had used an illicit drug during the month prior to the survey interview. This estimate represents 8.2 % of the population aged 12 years old or older.
- About 45.4% of current illicit drug users in 2003 (8.8 million Americans) used illicit drugs other than marijuana and hashish, either with or without using marijuana
- In 2003, an estimated 2.3 million persons (1%) were current cocaine users, 604,000 of whom used crack during the same time period (0.3%).
- Hallucinogens were used by 1 million persons (0.4%)
- There were an estimated 119,000 current heroin users (0.1%).

**Slide 49: Past Month Illicit Drug Users 12 Years and Older**

Marijuana is the most commonly used illicit drug (14.6 million past month users). In 2003, it was used by 75% of current illicit drug users. An estimated 55% of current illicit drug users used only marijuana, 21% used marijuana and another illicit drug, and the remaining 25% used an illicit drug but not marijuana in the past month.

**Slide 50: Past Month Users of Selected Hallucinogens**

The number of current users of Ecstasy decreased between 2002 and 2003, from 676,000 (0.3%) to 470,000 (0.2%). Although there were no significant changes in the past month use of other hallucinogens, there were significant declines in past year use of LSD (from 1 million to 558,000) and in past year overall hallucinogen use (from 4.7 million to 3.9 million) between 2002 and 2003. The use of Ecstasy also declined (from 3.2 million to 2.1 million users).

**Slide 51: Lifetime Nonmedical Users of Selected Medical Users**

Of the 8.8 million current users of illicit drugs (#51) other than marijuana in 2003, 6.3 million were current users of psychotherapeutic drugs. This represents 2.7% of the population aged 12 or older. Of those who reported current use of any psychotherapeutics, 4.7 million used pain relievers, 1.8 million used tranquilizers, 1.2 million used stimulants, and 0.3 million used sedatives. These estimates are all similar to the corresponding estimates for 2002. There was a significant increase in the number of persons aged 12 or older with lifetime nonmedical use of pain relievers between 2002 and 2003, from 29.6 million to 31.2 million.

**Slide 52: Past Month Illicit Drug Use by Age**

Rates of illicit drug use showed substantial variation by age. For example, 3.8% of youths aged 12 or 13 reported current illicit drug use in 2003 compared to 23.3% in 18-20 year olds. As in other years, illicit drug use in 2003 tended to increase with age among young persons, peaking among 18 - 20 year olds and declining steadily thereafter. The rate among young adults (18 - 25 years) was 20.3%, with 17.0% using marijuana, 6.0% using prescription-type drugs nonmedically, 2.2 % using cocaine, and 1.7% using hallucinogens. Among young adults 18-25 years, past month Ecstasy use significantly declined from 1.1% in 2002 to 0.7% in 2003. However, there was a significant increase in past month nonmedical use of pain relievers in this age group, from 4.1% in 2002 to 4.7% in 2003. Past year use of hallucinogens overall declined in this age group from 8.4% in 2002 to 6.7% in 2003, with declines in the use of Ecstasy (5.8% to 3.7 %) and LSD (1.8% to 1.1%). Among adults aged 26 or older, 5.6% reported current illicit drug use: 4.0% used marijuana, and 1.9% used prescription-type drugs.

In this latter age group, less than 1% used cocaine (0.8%), hallucinogens (0.1%), and inhalants (0.1%). Rates of illicit drug use for adults aged 26 or older were unchanged between 2002 and 2003.

**Slide 53: Use of Selected Illicit Drugs among Youth**

Among all youths (#53) aged 12 to 17 in 2003, 11.2% were current illicit drug users; 7.9% used marijuana, 4.0% used prescription-type drugs, 1.3% used inhalants, 1.0% used hallucinogens, and 0.6% used cocaine. The rate of current marijuana use among youths was 8.2% in 2002 and 7.9% in 2003. However, there were decreases in rates of past year use of LSD (1.3 to 0.6%), Ecstasy (2.2 to 1.3%), and methamphetamine (0.9 to 0.7%). Among youths, the types of drugs used differed by age in 2003, as was true in prior years. Among 12 or 13 year olds, 1.8% used prescription-type drugs nonmedically, 1.4% used inhalants, and 1.0% used marijuana (a decline 1.4% in 2002). Among 14 or 15 year olds, marijuana was the dominant drug used (7.2%), followed by prescription-type drugs used nonmedically (4.1%) and inhalants (1.4%). Marijuana also was the most commonly used drug among 16 or 17 year olds (15.6%), followed by prescription-type drugs used nonmedically (6.1%), hallucinogens (1.9%), and cocaine (1.2%). Only 1.0% of youths aged 16 or 17 used inhalants (increased from 0.6% in 2002) The rate of current illicit drug use overall among youths aged 12 to 17 did not change significantly between 2002 (11.6%) and 2003 (11.2%), and there were no changes for any specific drug.

**Slides 54: Illicit Drug Use by Males and Females**

Men are more likely to report current illicit drug use overall than women (10.0% vs. 6.5%). Rates of nonmedical use of any prescription-type psychotherapeutic are similar for males (2.7%) and females (2.6%). Among youths aged 12-17, the rate of current use is similar for boys (11.4%) and girls (11.1%), but boys have a higher rate of marijuana use than girls (8.6% vs. 7.2 %).

**Slide 55: Past Illicit Drug Use by Race/Ethnicity**

Rates of current illicit drug use varied significantly among the major racial/ethnic groups in 2003. The rate was highest among American Indians or Alaska Natives (12.1%), persons reporting two or more races (12.0%), and Native Hawaiians or Other Pacific Islanders (11.1%). Rates were 8.3% for whites, 8.0% for Hispanics, and 8.7% for blacks. Asians had the lowest rate at 3.8%. There were no statistically significant changes between 2002 and 2003 in the rates of current illicit drug use for any racial/ethnic subgroup.

Although estimates of current hallucinogen use for all racial/ethnic groups combined showed a decrease between 2002 and 2003, this decrease was not evident among Hispanics. Among Hispanics aged 12 or older, the rate of past month hallucinogen use was 0.3% in 2002 and 0.5% in 2003. Although this was not a statistically significant increase, the rate of use among Hispanics aged 18 to 25 did increase significantly, from 0.7% in 2002 to 1.3% in 2003.

**Slide 56: Past Illicit Drug Use by Race/Ethnicity Among 12-17 Year Olds**

Among youths aged 12 to 17, the rate of current illicit drug use among American Indians or Alaska Natives (19.3%) was higher than the rate among all youths (11.2%), and the rate among Asian youths (6.5%) was significantly lower compared with the overall rate for all

youth. There were no statistically significant changes between 2002 and 2003 in the rates of current illicit drug use for any racial/ethnic subgroup among youths aged 12 to 17.

**Slide 57: Illicit Drug Use by County Type**

Among persons aged 12 or older, the rate of current illicit drug use in 2003 was 9.3% in the West, 8.7% in the Northeast, 7.9% in the Midwest, and 7.4% in the South. The rate of illicit drug use in metropolitan areas was higher than the rate in nonmetropolitan areas. Rates were 8.3% in large metropolitan counties, 8.6% in small metropolitan counties, and 7.0% in nonmetropolitan counties as a group. Within nonmetropolitan areas, counties that were urbanized had a rate of 7.9%, while completely rural counties had a significantly lower rate (3.1%). The rate of current illicit drug use in completely rural counties declined between 2002 and 2003, from 6.7% to 3.1%. This was largely due to a decrease from 4.1% to 0.8% in the nonmedical use of prescription-type psychotherapeutic drugs in rural areas.

**Slide 58: Past Month Illicit Drug Use – Other Demographics**

Illicit drug use was lower among college graduates (5.2%) compared to 8.3% - 9.2% among other education levels. Approximately 18% of unemployed adults were current users compared to 7.9% of those employed full-time, and 10.7% of those employed part-time. Nearly 75% of current users, however, were employed.

**Slide 59: Past Month Illicit Drug Use During Pregnancy**

Among pregnant women aged 15 to 44 years, 4.3% report using illicit drugs. This rate is significantly lower than that among women aged 15 to 44 who were not pregnant (10.4%).

**Slide 60: Illicit Drug Abuse and Dependence**

Illicit drug abuse and dependence have similar definitions as those of alcohol abuse and dependence. In the NSDUH, persons were classified as marijuana, inhalant, hallucinogen, and tranquilizer dependent if they met 3 or more of 6 dependence criteria. Persons were classified as pain reliever, cocaine, heroin, sedative, and stimulant dependent if met 3 or more of 7 dependence criteria (including withdrawal).

**Slide 61: Definition: Substance Abuse**

Definitions: Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) below:

Substance abuse (without dependence): A maladaptive pattern of use, leading to clinically significant impairment or distress as manifested by at least one of the following occurring within a 12-month period:

- Recurrent use resulting in a failure to fulfill major role obligations at work, school, or home
- Recurrent use in situations in which it is physically hazardous
- Recurrent substance use-related legal problems
- Continued use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of substance use

**Slide 62: Definition: Substance Dependence**

Definitions: Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) below:

Substance dependence: a maladaptive pattern of use, leading to clinically significant impairment or distress, as manifested by three or more of the following occurring at any time in the same 12-month period:

- Tolerance: Need for markedly increased amounts of substance to achieve intoxication or desired effect; or markedly diminished effect with continued use of the same amount of substance
- Withdrawal: The characteristic withdrawal syndrome for substance or using to relieve or avoid withdrawal symptoms
- Impaired control (a): Persistent desire or one or more unsuccessful efforts to cut down or control use;
- Impaired control (b): Using substance in larger amounts or over a longer period than intended
- Neglect of important social, occupational, or recreational activities because of substance use
- A great deal of time spent in substance-related activity
- Continued use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to be caused/exacerbated by substance use

**Slide 63: Substance Dependence or Abuse Among Persons 12 Years and Older**

An estimated 21.6 million persons aged 12 or older in 2003 were classified with substance dependence or abuse (9.1% of the total population); 3.1 million were classified with dependence on or abuse of both alcohol and illicit drugs; 3.8 million were dependent on or abused illicit drugs but not alcohol; and 14.8 million were dependent on or abused alcohol but not illicit drugs. Between 2002 and 2003, there was no change in the number of persons with substance dependence or abuse (22.0 million in 2002 and 21.6 million in 2003).

**Slide 64: Illicit Drug Abuse or Dependence by Drug Type**

Of the 6.8 million persons classified with dependence on or abuse of illicit drugs, 4.2 million were dependent on or abused marijuana. This represents 1.8% of the total population aged 12 or older and 61.4% of all those classified with illicit drug dependence or abuse.

In 2003, 57.4% of past year heroin users (0.2 million) were classified with dependence on or abuse of heroin. Among past year users of cocaine, 25.6% (1.5 million) were classified with dependence on or abuse of cocaine. Among past year users of marijuana, 16.6% (4.2 million) were classified with dependence on or abuse of marijuana. 12.2% of past year users of pain relievers (1.4 million) were classified with dependence on or abuse of pain relievers. There were no changes between 2002 and 2003 in the estimated percentages of the population with dependence on or abuse of illicit drugs (3% in 2002 and 2.9% in 2003). However, there was a decrease in the rate for dependence on or abuse of hallucinogens (0.2 to 0.1%).

**Slide 65: Past Year Illicit Drug Abuse or Dependence by Age Group**

Among persons with substance dependence or abuse, illicit drugs accounted for 58.1% of youths, 37.2% of persons aged 18 to 25, and 24.1% of persons aged 26 or older. As with alcohol, rates of illicit drug dependence or abuse in 2003 varied by age. In 2003, 3% of 12 -

17 year olds were dependent on or abusing illicit drugs only; 2.2% were dependent on or abusing both alcohol and illicit drugs. Among 18 to 25 year olds, 3.8% were dependent on or abusing illicit drugs; 4% both alcohol and illicit drugs. Only 1% of persons 26 years old or older were dependent on or abusing illicit drugs; 0.7% both alcohol and illicit drugs. A similar pattern by age was observed in 2002.

Adults who had first used substances at a younger age were more likely to be classified with dependence or abuse than adults who initiated use at a later age. Among adults aged 18 or older who first tried marijuana at age 14 or younger, 13.3% were classified with illicit drug dependence or abuse compared with 2.2% of adults who had first used marijuana at age 18 or older. This pattern of higher rates of dependence or abuse among persons initiating their use of marijuana at younger ages was observed among all demographic subgroups.

**Slide 66: Past Year Illicit Drug Abuse or Dependence by Age Group and Gender**

In 2003, males were almost twice as likely as females to be classified with any substance dependence or abuse (12.2% vs. 6.2%). Among youths aged 12 to 17, however, the rate of any substance dependence or abuse among females (9.1%) was similar to the rate among males (8.7%). Similar gender differences within and across age groups were also seen specifically with illicit drug abuse or dependence.

**Slide 67: Past Year Illicit Drug Abuse or Dependence by Race/Ethnicity**

The highest prevalence of illicit drug abuse or dependence is in the Native Hawaiian/Pacific Islander group at 5.6%. The next highest prevalence is among the group with two or more races at 5.0%, followed by American Indian/Alaska Native (4.8%), Hispanic (3.4%), Black/African American (3.1%), non-Hispanic White (2.8%), and Asian (1.5%) groups. Between 2002 and 2003, there were no statistically significant changes in the rates of substance dependence or abuse for any racial/ethnic group.

**Slide 68: Other Demographic Characteristics of Illicit Drug Abuse or Dependence**

Rates of illicit drug abuse or dependence varied with level of education; college graduates had the lowest rate of abuse (0.3%) or dependence (0.6%). Rates of illicit drug abuse and dependence were highest among the unemployed (1.4% and 4.8%, respectively).

**Slide 69: Substance Abuse Treatment (Slides 69-74)**

Slides 69-74 discuss substance abuse treatment.

[The following information on need for and receipt of treatment is based on 2003 NSDUH data.]

**Slide 70: Past Year Need for and Receipt of Specialty Treatment for Alcohol or Illicit Drugs**

In 2003, the estimated number of persons aged 12 or older needing treatment for an alcohol or illicit drug problem was 22.2 million (9.3% of the total population). An estimated 1.9 million of these people (0.8% of the total population and 8.5% of the people who needed treatment) received treatment at a specialty facility. Thus, there were 20.3 million persons (8.5% percent of the total population) who needed but did not receive treatment at a specialty substance abuse facility in 2003. The estimated number of persons needing but not receiving treatment for a substance use problem did not change between 2002 (20.5 million) and 2003 (20.3 million). However, a decline in the number receiving specialty treatment, from 2.3 million to

1.9 million, was statistically significant. This decline was driven by a decrease in treatment among adults aged 26 or older, from 1.7 million in 2002 to 1.2 million in 2003.

Of the 1.9 million people aged 12 or older who received specialty substance treatment, 595,000 persons received treatment for both alcohol and illicit drugs, 703,000 persons received treatment for alcohol only, and 508,000 persons received treatment for illicit drugs only.

**Slide 71: Past Year Need for and Receipt of Specialty Treatment for Alcohol or Illicit Drugs (continued)**

In 2003, the estimated number of persons aged 12 or older needing treatment for an illicit drug problem was 7.3 million (3.1% of the total population). An estimated 1.1 million of these people (0.5% of the total population and 15.0% of the people who needed treatment) received treatment at a specialty facility for an illicit drug problem. Thus, there were 6.2 million persons (2.6% of the total population) who needed but did not receive treatment at a specialty facility for an illicit drug problem in 2003. Among youths aged 12 to 17, an estimated 1.3 million (5.3%) needed treatment for an illicit drug abuse problem in 2003. Of this group, only 113,000 received treatment at a specialty facility (8.5% of youths aged 12 to 17 who needed treatment), leaving an estimated 1.2 million youths who needed treatment but did not receive it at a specialty facility.

The estimated number of persons needing but not receiving specialty treatment for an illicit drug problem in 2002 (6.3 million) was similar to the estimate for 2003 (6.2 million). There was a statistically significant decline in the number of persons receiving specialty treatment for an illicit drug problem, from 1.4 million to 1.1 million, driven by a decrease in specialty treatment for an illicit drug problem among adults aged 26 or older, from 1.0 million in 2002 to 0.6 million in 2003. Between 2002 and 2003, the number of persons receiving drug treatment for a cocaine problem during their most recent treatment at a specialty facility decreased from 471,000 in 2002 to 276,000 in 2003.

**Slide 72: Need for and Receipt of Alcohol Treatment**

Approximately 18 million (7.7% of the population) needed treatment for an alcohol problem in 2003. Only 1.3 million received treatment at a specialty facility. In 2003, 1.5 million (6%) of youths 12 to 17 years old needed treatment and 6.3% of those youths received treatment at a specialty facility.

Among those who needed treatment for illicit drugs or alcohol (an individual is defined as “needing” treatment for an alcohol or drug problem if he or she was dependent on or abused alcohol or drugs or received specialty treatment for alcohol or drugs in the past 12 months), 87% (19.3 million) were not treated and *did not feel* they needed treatment; 5% (1 million) were not treated and *did feel* they needed treatment; 26% made an effort to get treatment; and 8% (1.9 million) were treated.

Among those who needed treatment for alcohol, 642,000 (3.8%) of the 16.9 million who did not receive treatment reported that *they* felt they needed treatment. Of those, 27% made an effort but were unable to get treatment and 73% did not make an effort to get treatment. Of the 6.2 million people who needed but did not receive specialty treatment for illicit drugs, an



estimated 426,000 (6.8%) reported that *they* felt they needed treatment for their drug problem. Information on effort to receive treatment was not presented because of low precision.

**Slide 74: Reasons for Not Receiving Substance Abuse Treatment**

The reason most often reported for not receiving treatment among those who needed but did not receive treatment and felt they needed treatment in 2003 was 'not ready to stop using' (41.2%), followed by cost/insurance barriers (33.2%).

**Slide 75: Health, Social, & Economic Impact of Substance Abuse**

Slides 75-98 discuss health, social & economic impact of substance abuse.

**Slide 76: Ecological Model of Drinking Behavior**

Gruenewald et al. (1993) describe an ecological "model, illustrating conceptual relationships among forces that control drinking, drinking patterns, routine activities related to drinking, and adverse consequences of alcohol-related behaviors. Certain features of this model of human activity, namely routine activities related to drinking, stand out as particularly important because these activities can bring consumers into contact with potentially dangerous circumstances, such as drinking while intoxicated. As illustrated, drinking patterns moderate the relationship between routine activities and potential adverse outcomes. These drinking patterns also are shown to have a direct effect on physiological outcomes of chronic drinking-outcomes not influenced by routine activities per se. Reciprocally, adverse consequences of drinking may modify drinking patterns, through alterations in the consumer population (as a result of death) or through alterations in consumers' drinking patterns, perhaps involving behavioral changes to minimize risk."

[Source: Gruenewald et al., 1993.]

**Slide 77: Health Impact**

The health impact of substance abuse includes, among other issues, teen pregnancy, STDs/HIV, unintentional injury (e.g. MV crashes), violence (homicide/suicide/domestic violence), heart, liver, and pancreatic disease, cancer, and fetal alcohol syndrome (FAS).

**Slide 78: Oral Health Impact of Substance Abuse**

It is important to know the impact of substance abuse on oral health. Impacts include:

- ❖ Periodontitis
- ❖ Lack of \$\$ and motivation for dental treatment
- ❖ Implant failure
- ❖ STDs/HIV oral manifestations
- ❖ Unintentional facial injury (e.g. MV crashes)
- ❖ Violence-induced facial injuries:
  - Community-based or domestic violence
- ❖ Cancer
- ❖ Child neglect
- ❖ Fetal alcohol syndrome; facial deformities

**Slide 79: Fetal Alcohol Syndrome (FAS)**

FAS is one of the leading preventable causes of mental retardation and a leading cause of birth defects. Estimates of FAS range from 0.2 to 1.0 per 1,000 live births. Alcohol-related

birth defects and neurodevelopmental disorders are thought to occur 3 to 4 times more often than diagnosed cases of FAS.

[Source: *Healthy People 2010: Volume II (second edition)*, Objectives for Improving Health]

**Slide 80: Alcohol and Injuries**

Alcohol use specifically is associated with increased risk of injury in MV crashes, falls, and fires. These injuries are due mainly to reduced cognitive function, impaired physical coordination & performance, and risk-taking behavior. There is a dose-response effect between recent alcohol use and injury risk. Patterns of drinking (e.g. binge drinking) are related to relative risk of injury.

[Source: NIAAA. *10th Special Report to the U.S. Congress on Alcohol and Health*, 2000]

**Slide 81: Driving Under the Influence (DWI) Offenders in Jail**

Among driving under the influence offenders in jail, over 75% reported past drug use; 25% had arguments with family, friends, or partners under the influence; about 10% lost a job due to drug use; and 15% had been in a physical fight under the influence of drugs.

[Source: Bureau of Justice Statistics]

**Slide 82: Cocaine-Related ED Episodes 1990-2002**

Cocaine-related emergency department episodes increased from 1990 to 2002 for all ages (80,355 to 199,198), and particularly among those 35 years and older (23,054 to 111,937).

[Source: National Center for Health Statistics, 2004]

**Slide 83: AIDS Cases Among Males in the U.S. 1985-2003**

The rates of AIDS cases are highest among Black/African American males. The percentage by race/ethnicity (for all years of reporting) is highest among non-Hispanic Whites (47.1%), Blacks (35.7%) and Hispanics (15.8%).

**Slide 84: AIDS Among Females in the U.W. 1985-2003**

AIDS cases among women occur predominately among those of childbearing age and 61.4% of all cases among women occur in Black or African American women. The second largest group affected is Hispanic or Latino women (15.9%). Subsequently, pediatric AIDS cases occur mainly among these two groups (61.6% and 19.4%, respectively).

Overall, however, new pediatric AIDS cases have been declining steadily since 1994 when U.S. Public Health Service guidelines recommended testing and treatment of pregnant women and neonates to reduce perinatal HIV transmission.

[Source: National Center for Health Statistics, 2004]

**Slide 85: Age Adjusted Death Rates by Disease 1990-2002**

Between 1950 and 2002 the age-adjusted death rate for the total population declined 42% to 845 deaths per 100,000 population. This reduction was driven largely by declines in mortality from heart disease, stroke, and unintentional injury. The 2002 age-adjusted death rate for heart disease was 59% lower than the rate in 1950. Mortality from unintentional injuries, the fifth

leading cause of death, increased more than 3% in 2002. Age-adjusted death rates for unintentional injuries generally declined from 1950 until 1992 and then increased slightly.

**Slide 86: Selected Age Adjusted Death Rates by Disease 1990-2002**

Overall mortality was 31% higher for Black than for White Americans in 2002 compared with 37% higher in 1990. In 2002, age-adjusted death rates for the Black population exceeded those for the White population by 41% for stroke, 30% for heart disease, 25% for cancer, and more than 750% for HIV disease.

**Slide 87: Age Adjusted HIV Disease Death Rates 1987-2002**

Other diseases associated with substance use have not declined noticeably with the exception of HIV disease. The following are rates per 100,000 population for 1990 and 2002, respectively: chronic liver disease & cirrhosis: 11.1, 9.4; HIV disease: 10.2, 4.9; motor vehicle-related injuries: 18.5, 15.7; suicide: 12.5, 10.9; and homicide: 9.4, 6.1.

HIV disease mortality peaked in 1995 and then fell sharply with the advent of new drug therapies. However the decline in HIV disease mortality has slowed in recent years. Between 1999 and 2002, age-adjusted death rates for HIV disease declined about 3% per year on average for males and were unchanged for females.

From 1987 through 2002, the age-adjusted HIV disease death rates per 100,000 population were highest among Black males (26.2 and 33.3 for 1987 and 2002, respectively), Hispanic males (18.8, 9.1), and Black females (4.6, 13.4). Note that death rates have increased for Black/African American men and women.

[Source: National Center for Health Statistics, 2004]

**Slide 88: U.S. Alcohol-Related Traffic Fatality Rates, 1977-2002**

In 2002 the death rate for motor vehicle-related injury for young American Indian males 15–24 years of age was almost 40% higher and the suicide rate was almost 60% higher than the rates for those causes for young white males. (Death rates for the American Indian population are known to be underestimated.)

[Source: National Center for Health Statistics, 2004]

In 2002, 13,608 persons died in alcohol-related traffic crashes, which constituted 30.5% of the total traffic crash fatalities. This proportion is the same as in 2001. The number of alcohol-involved drivers in fatal traffic crashes was 10,256 for male drivers and 1,730 for female drivers, representing a 3% increase and 5% decrease from 2001, respectively. Alcohol-related traffic crash fatalities per 100 million vehicle miles traveled, 100,000 population, 100,000 registered vehicles, and 100,000 licensed drivers were 0.46, 4.54, 5.57, and 6.71, respectively, with little or slight changes from the rates in 2001. In 2002 drivers continued to constitute the largest proportion of fatalities in traffic crashes, which was 71% among alcohol-related traffic fatalities and 58% among nonalcohol-related traffic fatalities.

**Slide 89: U.S. Alcohol-Related Traffic Fatality Rates by Age, 1977-2002**

In 2002, 4,290 deaths (including driver, passenger, and pedestrian deaths) were associated with young drinking drivers ages 16 - 24, representing a 3.5% increase from 2001. In 2002

2,301 drinking drivers ages 16 to 24 were killed in traffic crashes, representing a 6.1% increase from 2001. Young drivers ages 21 to 24 continued to have the highest proportion (33.1%) of alcohol involvement among all age groups.

[Source: *NIAAA Surveillance Report 66*, 2004]

**Slide 90: Social Impact**

The social impact of substance abuse includes, among other issues, violence (homicide/suicide/domestic violence), school failure, low worker productivity, homelessness, and disruption of family, work and personal life.

**Slide 91: Victim's Perception of the Use of Alcohol and Drugs by the Violent Offender**

According to the National Crime Victimization Survey (NCVS) in 2002, there were 5.3 million violent victimizations of residents age 12 or older. Victims of violence were asked to describe whether they perceived the offender to have been drinking or using drugs. About 29% of the victims of violence reported that the offender was using drugs, alone or in combination with alcohol. Based on victim perceptions, about one million violent crimes occurred each year in which victims were certain that the offender had been drinking. For about 1 in 5 of these violent victimizations involving alcohol use by the offender, victims believed the offender was also using drugs at the time of the offense. Of victims of violent crime -- 17.0% reported that the offender was using alcohol only; 4.6% reported that the offender was using both alcohol and drugs; 1.5% reported that the offender was using alcohol or drugs; 5.6% reported that the offender was using drugs only; 27.7% reported that the offender was not using drugs or alcohol; and 43.3% responded don't know.

[Source: Bureau of Justice Statistics]

**Slide 91: Substance Use at Time of Offense Among Those Convicted for Violent Intimate Partner Crime**

Individuals in State Prisons convicted of a violent crime against an intimate partner (current or former spouse, boyfriend, girlfriend) and those convicted of a violent crime against an intimate partner and who were in jail had similar data regarding substance use at the time of the offense: about 44% used neither alcohol nor drugs; 31-36% used alcohol only; 4-8% used drugs only; and 13-20% used both.

Nearly half the female victims of partner violence report that the offender was drinking or using illegal drugs at the time of the crime. This is about the same pattern of substance use reported from these surveys of jail and prison inmates.

[Source: Greenfeld et al., 1998.]

**Slide 93: Drug-Related Homicides**

The proportion of drug-related homicides peaked in 1989 (7.4% of 18,954 homicides), with the lowest rate in 2001 (4.1%). In 2003, 4.6% of 14,408 homicides were drug-related.

[Source: Bureau of Justice Statistics]

**Slides 94-96: Intimate Partner Violence and Alcohol Abuse**

Intimate partner violence (IPV) has been found to be associated with substance abuse, particularly alcohol use. A number of studies demonstrate these links:

- Males more often drink at the time of the IPV event than females (Caetano et al., 2000; Kantor & Asdigian, 1997; Greenfeld et al., 1998).
- Women may ‘self-medicate’ to alleviate the effects of IPV (Kilpatrick et al., 1997; Testa et al., 2003; Chalk & King, 1998; Ehrensaft et al., 2003).
- Acute alcohol use may contribute to IPV perpetration by several means, including cognitive disruption, disinhibition, or aggression-related alcohol expectancies (Curtin et al., 2001; Collins & Messerschmidt, 1993; Zang et al., 2002; Quigley et al., 2002; Norris et al., 2002)
- Alcohol-related IPV may be the result of background problem drinking (Collins & Messerschmidt, 1993; Neiman, 1998).
- Studies of battered wives have found positive correlations between alcohol use, drunkenness, or drinking during the IPV event on the part of the victim and/or the perpetrator (Gelles, 1972; Pagelow, 1981; Walker, 1983; Amaro et al, 1990; Berenson et al, 1991; Coleman et al, 1980; Telch and Lindquist, 1984)
- Male & female alcoholics have higher rates of male-perpetrated IPV than controls (Miller et al., 1989; O’Farrell & Murphy, 1995)
- Male-perpetrated IPV among Black couples, but not White or Hispanic couples, has been associated with male and female alcohol problems (Cunradi et al., 1999)
- Female-perpetrated IPV among Black couples has been associated with male and female alcohol problems, and among White couples, female alcohol problems (Cunradi et al., 1999)

#### **Slides 97: Economic Impact of Substance Abuse**

Slides 97-99 provide examples of the economic impact of substance use, abuse and dependence.

#### **Slide 98: Economic Impact of Alcohol Abuse 1992-1998**

The economic impact of substance abuse covers a wide range, from low worker productivity to homelessness to the escalation of health care costs. The costs of alcohol abuse grew from \$148 billion in 1992 to \$185 billion in 1998, approximately a 25% increase, for an average annual increase of 3.8%. The component with the highest rate of growth was productivity losses of persons incarcerated for alcohol-related crimes (a subcategory of Lost Earnings due to crime/victims).

[Source: Harwood, H, 2000.]

#### **Slide 99: Economic Impact of Drug Abuse 1992-1998**

The overall cost of illicit drug abuse in the U.S. rose 5.9% annually between 1992 and 1998 increasing from \$102.2 to \$143.4 billion. This increase is greater than the combined increase in the adult population and consumer prices of 3.5% annual growth during that period. The majority of these costs are productivity losses, particularly those related to incarceration, crime careers, drug abuse related illness, and premature death.

[Source: Office of National Drug Control Policy, 2001.]

#### **Slide 100: Prevention, Intervention, and Policy for Substance Abuse**

Slides 99-114 give examples of prevention, intervention and policy for substance abuse.

**Slide 101: Population Health Key Elements**

*Health Canada: The Population Health Template Working Tool* is another example of how population health is being addressed by nations. While the goals of Canada's Population Health are basically the same as HP 2010, of particular interest here is the mapping of the 'generic process' to reach those goals. The steps include analysis of the health issue; priority setting; taking action; and evaluating results.

Some of the goals related to prevention, intervention and policy-making include: basing decisions on evidence on health status, the determinants of health, and the effectiveness of interventions to assess health, identify priorities and developing strategies to improve health; increasing 'upstream' investments to maintain health and address root causes of health and illness; applying multiple strategies of interventions; collaborating across sectors and levels; employing mechanisms for public involvement; and demonstrating accountability for health outcomes by developing tools to capture and report changes in population health status and in the determinants of health.

**Slide 102: SAMHSA Substance Abuse Prevention Goals and Strategies**

The Substance Abuse and Mental Health Services Administration's (SAMHSA) Strategic Prevention Framework (SPF) is an example of the *Health Canada: The Population Health Template Working Tool* in action. The SPF for 2004-2005 included the goals of decreasing substance use and abuse; promoting mental health; preventing mental disorders; and reducing disability, co-morbidity and relapse.

**Slide 103: Prevention Goals and Strategies (continued)**

Some examples of their outcome measures include increasing abstinence, social supports, and accessible services, while decreasing criminal justice involvement.

**Slide 104: Prevention Goals and Strategies (continued)**

Examples of their process measures include increasing the number of States/communities that use SPF, implement capacity to support effective infrastructure, use evidence-based programs, policies, and practices, and track process and outcome measures.

**Slide 105: Prevention Goals and Strategies (continued)**

Policy and Program Parameters included in the SPF include launching the Healthier U.S. Initiative, implementing SPF in every State, defining national outcome measures, and implementing reporting of prevention measures in all SAMHSA programs.

**Slide 106: Prevention Goals and Strategies (continued)**

Key activities included in the SPF are to fund SPF grants to States and territories, conduct technical assistance workshops, build staff capacity to manage grants, implement measures to assess effects of and ensure program linkages, work with other Federal agencies to implement SPF across agencies, and to implement National Outcome Measures for prevention.

**Slide 107: NIDA Strategic Plan, 2000-2005**

Another example is the National Institute on Drug Abuse (NIDA) *Strategic Plan 2000-2005*. The goal of Plan for the years 2000-2005 is to significantly reduce the health and social

consequences of drug abuse and addiction. NIDA has developed three broad strategies and several priority areas within each that it will pursue to fulfill this goal: give communities science-based tools to prevent drug abuse and addiction; develop and distribute tools to improve the quality of drug abuse treatment nationwide; and to educate the public about drug abuse and addiction.

**Slide 108: Alcohol Policies**

In terms of alcohol policy, Babor et al., 2003 have outlined two main categories: *allocative* (policies which provide a net benefit to distinct groups to achieve some public objective) such as subsidies for alcohol education in schools and training servers in responsible beverage service, and *regulatory* (those which influence through direct control) such as price controls and taxation or minimum purchasing age.

**Slide 109: Alcohol Policies (continued)**

They also provide four major criteria for evaluating policy (that may also be extended to other substance abuse), which include 1) evidence of effectiveness; 2) breadth of research support; 3) extent of cross-cultural testing; and 4) relative cost to implement.

**Slides 110-111: Alcohol Policies (continued)**

Of the policies reviewed by Babor et al. (2003), the ten best practices appear to be those under the purview of regulating physical availability (minimum legal purchase age, government monopoly of retail sales, hours and days of sale restrictions, and outlet density restrictions); taxation and pricing (alcohol taxes); drinking-driving countermeasures (sobriety check points, lower BAC limits, administrative license suspension; graduated licensing for novice drivers, treatment and early intervention, and brief intervention with at-risk drinkers).

**Slides 112: Examples of U.S. Alcohol Policies**

Examples of U.S. alcohol policies identified by NIAAA pertain to alcoholic beverage control; taxation and pricing; advertising, marketing, and mass media; transportation, crime, and public safety; health care services and financing; education; public services, functions, and programs; employment and workplace; and alcohol and pregnancy

[Source: NIAAA – Alcohol Policy Information System]

**Slide 113: Retail Spirits Distribution Systems by State**

For each beverage type (beer, wine, distilled spirits), a State may use a State-run distribution system, a system of private license sellers, or some combination of these at the wholesale or retail level. All States with a license wholesale system also have a license retail system. However, States with a State-run wholesale system may have either a State-run or license retail system. No State maintains a State-run system of retail sale for on-premises consumption.

Many States distinguish among spirits (and other beverage types) on the basis of alcohol content, usually expressed as a range (e.g., <5% Alcohol by Volume (ABV)). These categories of spirits are referred to as "beverage subtypes." Statutes and regulations may specify different retail distribution systems for different beverage subtypes.

This example addresses Retail Distribution Systems for Off-Premises Consumption of Spirits.

The comparison tables include only the 18 States with a State-run wholesale or retail system for at least one alcoholic beverage subtype. The remaining States have license wholesale and retail systems for all alcoholic beverages.

**Slide 114: Exceptions to Minimum Age of 21 for Alcohol Purchase**

In 1984, Congress enacted the National Minimum Drinking Age Act, which remains in effect. This law requires that a portion of Federal highway funds be withheld from any States that do not prohibit persons under 21 years of age from purchasing or publicly possessing alcoholic beverages. By 1988, every State had passed legislation to meet the Federal funding requirements.

**Special Considerations for Purchase**

Most States prohibit minors from purchasing alcoholic beverages. Note that a minor purchasing alcoholic beverages can be prosecuted for possession since, arguably, a sale cannot be completed until there is possession on the part of the purchaser. Purchase and possession are nevertheless separate offenses. A minor who purchases alcoholic beverages is potentially liable for two offenses in States that have both prohibitions. Many States that prohibit minors from purchasing alcoholic beverages apply various statutory exceptions.

Some States allow an exception for purchase when a family member consents and/or is present. States vary widely in terms of which relatives may consent or must be present for this exception to apply and in what circumstances the exception applies. Sometimes a reference is made simply to "family" or "family member" without further elaboration.

Two types of family member exceptions are represented here. First, is an exception for purchase with parental/guardian consent and/or parental/guardian presence. Second, is an exception for married minors whose spouses are of legal age. Like the parent/guardian exception, the legal-age spouse exception allows purchase when the minor's spouse is present and/or consents. When a statute or regulation is unclear as to which family members must be present and/or consent, it is assumed that parents, guardians, and spouses are included.

**Slide 115: Youth BAC Limit Laws by State**

•Blood alcohol concentration (BAC) is a measure of the amount of alcohol in a person's bloodstream. BAC is commonly expressed in percentage terms. For instance, having a BAC of 0.10 percent means that a person has one part alcohol per 1,000 parts blood in the body. BAC levels are measured either in milliliters (mL) or grams (g) per deciliter (dL) of blood and can be detected by breath, blood, or urine tests. The laws of each jurisdiction specify the preferred or required types of tests used for measurement.

•This map provides information on State and Federal BAC laws that apply to drivers of noncommercial automobiles, trucks, and motorcycles who have not reached the legal drinking age (21 years or older).

•BAC statutes establish criteria for determining when an operator of a vehicle is violating the law. A *per se* BAC statute establishes a BAC limit for a violation. If the operator has a BAC level at or above the *per se* limit, a violation has occurred without regard to other evidence of intoxication or sobriety. In other words, the BAC limit by itself establishes a violation.



•As of January 1, 2004, all jurisdictions had enacted *per se* BAC laws for youth operating noncommercial motor vehicles. The criteria a jurisdiction uses for determining when an operator is under the influence have an important impact on the likelihood of conviction. *Per se* laws limit the evidence that can be presented by the defendant and therefore make conviction more likely.

[Source: NIAAA Alcohol Policy Information System]

**Slide 116: Summary**

The determinants of health overall, and substance use in particular, have a profound effect on the health of individuals, communities, and on a national level. An evaluation of these determinants is an important part of developing strategies to improve health and eliminate disparities. Effective and relevant policies, programs, and interventions can improve health and eliminate disparities by targeting factors related to individuals and their environments, including access to quality health care.

## References

- Amaro H, Fried LE, Cabral H, Zuckerman B. Violence during pregnancy and substance use. *Am J Public Health* 1990; 80(5):575-579.
- American Psychiatric Association (APA). *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. Washington, DC: American Psychiatric Association; 1994.
- Babor T, Caetano R, Casswell S, Edwards G, Giesbrecht N, Graham K, et al. *Alcohol: No Ordinary Commodity, Research and Public Policy*. Oxford University Press, Inc: New York; 2003.
- Berenson AB, Stiglich NJ, Wilkinson GS, Anderson GD. Drug abuse and other risk factors for physical abuse in pregnancy among white non-Hispanic, black, and Hispanic women. *Am J Obstet Gynecol* 1991;164(6 Pt 1):1491-1496.
- Caetano R, Cunradi CB, Clark CL, and Schafer J. Intimate partner violence and drinking patterns among White, Black, and Hispanic couples in the U.S. *J Subst Abuse* 2000;11:123-138.
- Caetano R, Nelson S, Cunradi C. Intimate partner violence, dependence symptoms and social consequences from drinking among white, black and Hispanic couples in the United States. *Am J Addict* 2001;10(Suppl):60-69.
- Campbell JC and Lewandowski LA. Mental and physical health effects of intimate partner violence on women and children. *Psychiatr Clin North Am* 1997;20(2):353-374.
- Chalk R and King PA. *Violence in families: Assessing Prevention and Treatment Programs*. Washington, DC: National Academy Press, 1998.
- Coker AL, Davis KE, Arias I, Desai S, Sanderson M, Brandt HM, Smith PH. Physical and mental health effects of intimate partner violence for men and women. *Am J Prev Med* 2002;23:260-268.
- Coker AL, Smith PH, Thompson MP, McKeown RE, Bethea L, Davis, KE. Social support protects against the negative effects of partner violence on mental health. *J Womens Health Gend Based Med* 2002;11(5): 465-476.
- Coleman S and Wilson R. Psychiatric and social characteristics of homeless hostel residents in Northern Ireland. *Irish J Psychol* 1991;12(3):316-324.
- Collins JJ and Messerschmidt PM. Epidemiology of alcohol-related violence. *Alcohol Health Res World* 1993;17(2):93-100.

- Cunradi CB, Caetano R, Clark CL, Schafer J. Alcohol-related problems and intimate partner violence among White, Black and Hispanic couples in the U.S. *Alcohol Clin Exp Res* 1999;23(9):1492-1501.
- Curtin JJ, Patrick CJ, Lang AR, Cacioppo JT, Birbaumer N. Alcohol affects emotion through cognition. *Psychol Sci* 2001;12(6):527-531.
- Danielson KK, Moffitt TE, Caspi A, Silva PA. Comorbidity between abuse of an adult and DSM-III-R mental disorders: evidence from an epidemiological study. *Am J Psychiatry* 1998;155(1):131-133.
- Dawson DA. Methodological issues in measuring alcohol use. *Alcohol Res Health* 2003;27(1):18-29.
- Ehrensaft MK, Cohen P, Brown J, Smailes E, Chen H, Johnson J.G. Intergenerational transmission of partner violence: a 20-year prospective study. *J Consult Clin Psychol* 2003;71(4):741-753.
- Fals-Stewart W. The occurrence of partner physical aggression on days of alcohol consumption: a longitudinal diary study. *J Consult Clin Psychol* 2003;71:41-52.
- Gelles RJ. *The Violent Home: A Study of Physical Aggression Between Husbands and Wives*. Beverly Hills: Sage Publications, 1972.
- Grant BF, Dawson DA, Stinson FS, Chou SP, Dufour MC, Pickering RP. The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991-1992 and 2001-2002. *Drug Alcohol Depend* 2004 Jun 11;74(3):223-34.
- Greenfeld LA, Rand MR, Craven D, Klaus PA, Perkins CA, Ringel C, Warchol G, Maston C, Fox JA. *Violence by intimates. Analysis of Data on Crimes by Current or Former Spouses, Boyfriends, and Girlfriends*. Report no. NCJ-167237, Washington: Bureau of Justice Statistics, U.S. Department of Justice, 1998.
- Greenfield TK, Midanik LT, Rogers JD. A 10-year national trend study of alcohol consumption, 1984-1995: is the period of declining drinking over? *Am J Public Health* 2000 Jan;90(1):47-52.
- Gruenewald PJ, Millar AB, Trepo AJ. Alcohol availability and the ecology of drinking behavior. *Alcohol Health Res World* 1993;17(1):39(7).
- Harwood, H. *Updating Estimates of the Economic Costs of Alcohol Abuse in the United States: Estimates, Update Methods, and Data*. Report prepared by The Lewin Group for the National Institute on Alcohol Abuse and Alcoholism, 2000
- Hasin D. Classification of alcohol use disorders. *Alcohol Res Health* 2003;27(1):5-17.

Health Canada. *The Population Health Template: Key Elements and Actions That Define A Population Health Approach, July 2001 Draft*. Health Canada Population and Public Health Branch, Strategic Policy Directorate. Accessed online at [http://www.phac-aspc.gc.ca/ph-sp/phdd/pdf/discussion\\_paper.pdf](http://www.phac-aspc.gc.ca/ph-sp/phdd/pdf/discussion_paper.pdf), March 1, 2005.

U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.

U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office; November 2000.

Hegarty K, Gunn J, Chondros P, Small R. Association between depression and abuse by partners of women attending general practice: descriptive, cross sectional survey. *BMJ* 2004;328(7440):621-624.

Kantor, G.K. and Asdigian, N. When women are under the influence: Does drinking or drug use by women provoke beatings by men? *Recent Dev Alcohol* 1997;13:315-336.

Kernic MA, Wolf ME, Holt VL. Rates and relative risk of hospital admission among women in violent intimate partner relationships. *Am J Public Health* 2000;90(9):1416-1420.

Kilpatrick DG, Acierno R, Resnick HS, Saunders BE, Best CL. A 2-year longitudinal analysis of the relationships between violent assault and substance use in women. *J Consult Clin Psychol* 1997;65(5):834-847.

McCauley J, Kern DE, Kolodner K, Derogatis LR, Bass EB. Relation of low-severity violence to women's health. *J Gen Intern Med* 1998;13(10):687-691.

Miller B, Downs WR, Gondoli DM. Spousal violence among alcoholic women as compared to a random household sample of women. *J Stud Alcohol* 1989;50(6):533-540.

Murphy CM and O'Farrell TJ. Factors associated with marital aggression in male alcoholics. *J Fam Psychol* 1994;8(3):321-335.

National Center for Health Statistics. *Health, United States, 2004 With Chartbook on Trends in the Health of Americans*. Hyattsville, Maryland: National Center for Health Statistics, 2004.

National Center for Injury Prevention and Control (NCIPC). *Costs of Intimate Partner Violence Against Women in the United States*. Atlanta, GA: Centers for Disease Control and Prevention, 2003.

National Institute on Alcohol Abuse and Alcoholism (NIAAA). *10th Special Report to the U.S. Congress on Alcohol and Health, Highlights from Current Research*. Bethesda, MD: U.S. DHHS, NIH, NIAAA, June 2000.

National Institute on Alcohol Abuse and Alcoholism (NIAAA). *Surveillance Report #69, Trends in alcohol-related fatal traffic crashes, United States, 1977–2002*; Bethesda, MD: NIH, NIAAA; August 2004.

National Institute on Drug Abuse (NIDA). *NIDA Info Facts, High School and Youth Trends*. U.S. DHHS, NIH, NIDA, December 2004; accessed online at <http://www.drugabuse.gov/Infobox/HSYouthtrends.html>, March 1, 2004.

National Institute on Drug Abuse (NIDA). *Bringing the Power of Science to Bear on Drug Abuse and Addiction - Five Year Strategic Plan (2000-2005)*. U.S. DHHS, NIH, NIDA; accessed online at <http://www.drugabuse.gov/StrategicPlan/StrategicPlan.html>, March 1, 2004.

Neiman J. Alcohol as a risk factor for brain damage: Neurologic aspects. *Alcohol Clin Exp Res* 1998;22 (7Suppl):346-351S.

Norris J, Davis KC, George WH, Martell J, Heiman JR. Alcohol's direct and indirect effects on men's self-reported sexual aggression likelihood. *J Stud Alcohol* 2002;63(6):688-695.

O'Farrell TJ and Murphy CM. Marital violence before and after alcoholism treatment. *J Consult Clin Psychol* 1995;63(2):256-262.

Office of National Drug Control Policy. *The Economic Costs of Drug Abuse in the United States, 1992-1998*. Washington, DC: Executive Office of the President (Publication No. NCJ-190636), 2001.

Pagelow, M. Woman-battering: victims and their experiences. Beverly Hills: Sage Publications, 1981.

Petersen R, Gazmararian J, Andersen Clark K. Partner violence: Implications for health and community settings. *Womens Health Issues* 2001;11:116-125.

Population Division of the United Nations Secretariat. *World Population Prospects: The 2002 Revision, Volume I: Comprehensive Tables* (United Nations publication, Sales No.E.03.XIII.6), supplemented by *Demographic Yearbook 2001* (United Nations publication, Sales No. E/F.03.XIII.1). Data accessed online at: <http://unstats.un.org/unsd/demographic/products/socind/health.htm>, March 1, 2005.

Quigley BM, Corbett AB, Tedeschi JT. Desired image of power, alcohol expectancies, and alcohol-related aggression. *Psychol Addict Behav* 2002;16(4):318-324.

Roberts GL, Lawrence JM, Williams GM, Raphael B. The impact of domestic violence on women's mental health. *Aust N Z J Public Health* 1998;22(7):796-801.

Substance Abuse and Mental Health Services Administration (SAMHSA). National Survey on Drug Use & Health, 2003. USDHHS, SAMHSA. Accessed online at: <http://oas.samhsa.gov/nhsda.htm#NHSDAinfo>, March 1, 2005.

Scholle SH, Rost KM, Golding JM. Physical abuse among depressed women. *J Gen Intern Med* 1998;13(9):607-613.

Telch CF and Lindquist CU. Violent versus nonviolent couples: a comparison of patterns. *Psychotherapy* 1984;21(2):242-248.

Testa M, Livingston JA, Leonard KE. Women's substance use and experiences of intimate partner violence: a longitudinal investigation among a community sample. *Addict Behav* 2003;28(9):1649-1664.

U.S. Bureau of Justice Statistics. Drugs and Crime Facts. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. Accessed at: <http://www.ojp.usdoj.gov/bjs/DCF/duc.htm#attime>, March 1, 2005.

Walker, L. The battered woman syndrome study. In Finkelhor D, Gelles R, Hotaling G, Straus M (eds): *The Dark Side of Families*. Beverly Hills: Sage Publications, 1983: pp. 31-48.

World Health Organization (WHO). Management of Substance Abuse, Facts and Figures. Accessed online at: [http://www.who.int/substance\\_abuse/facts/en/](http://www.who.int/substance_abuse/facts/en/), March 1, 2005.

World Health Organization (WHO). *Maternal Mortality in 2000*; Estimates developed by WHO, UNICEF and UNFPA. WHO, Geneva, 2004. Accessed online at: [http://www.who.int/reproductive-health/publications/maternal\\_mortality\\_2000/mme.pdf](http://www.who.int/reproductive-health/publications/maternal_mortality_2000/mme.pdf), March 1, 2005.

Zanarini MC, Frankenburg FR, Reich DB, Marino MF, Haynes MC, Gunderson JG. Violence in the lives of adult borderline patients. *J Nerv Ment Dis* 1999;187(2):65-71.

Zang L, Welte JW, Wieczorek WW. The role of aggression-related alcohol expectancies in explaining the link between alcohol and violent behavior. *Subst Use Misuse* 2002;37(4):457-471.

## Module X: Population Health and Substance Abuse



Project MAINSTREAM  
Revised – 10/05

## Purposes

- ◆ Provide an overview of population health
- ◆ Describe the population health framework in relation to substance abuse
- ◆ Describe the epidemiology of substance abuse
- ◆ Identify the policies and programs in place to address substance abuse

## Learning Objectives

### *Health Care Professionals will be able to:*

- ◆ Define “population health”
- ◆ Describe the Healthy People (HP) 2010 conceptual framework
- ◆ Contextualize substance abuse within the HP 2010 framework
- ◆ Identify the relevant goals and objectives of HP 2010

## Learning Objectives (continued)

### *Health Care Professionals will be able to:*

- ◆ Describe the determinants of substance use, abuse, & dependence
- ◆ Describe the adverse consequences of substance use, abuse, and dependence
- ◆ Describe the key elements contained in Canada’s Population Health Template Working Tool
- ◆ Describe the policies and programs in place to address substance abuse in the U.S.

## What is Population Health?

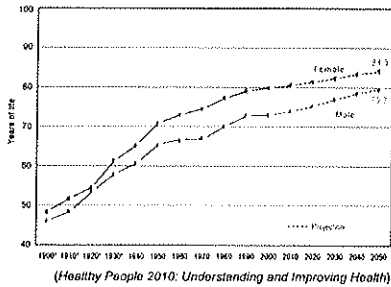
- ◆ Assesses health status and health status inequities at the population level
- ◆ Focuses on the entire range of individual and collective factors and conditions, and the interactions among them
- ◆ Provides a key concept and approach for program and policy development aimed at improving the population’s health

## Selected Social Indicators of Health in the Americas

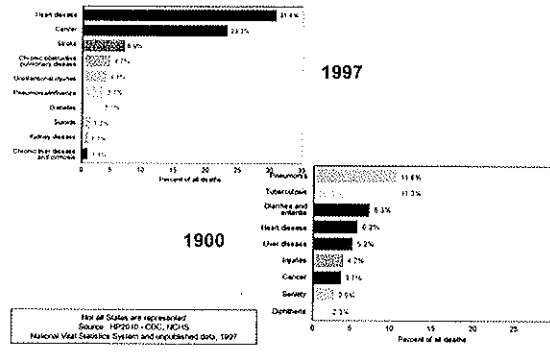
Country or Area	Life expectancy at birth (years) 2000-2005		IMR 2000-2005	MMR ~ 2000
	Male	Female		
North America				
Mexico	70.4	76.4	28	83
United States	74.3	79.9	7	17
Canada	76.7	81.9	5	6
Central America				
Guatemala	63.0	68.9	41	240
Costa Rica	75.8	80.6	10	43
South America				
Bolivia	61.8	66.0	56	420
Chile	73.0	79.0	12	31

(UN, 2002; WHO, 2002)

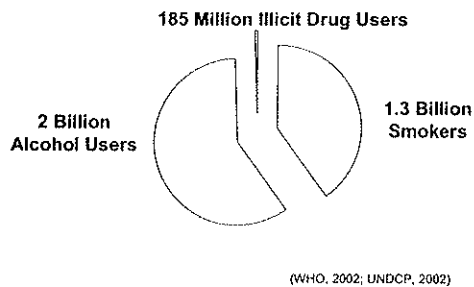
### Life expectancy in the U.S. by Gender, 1900–2050



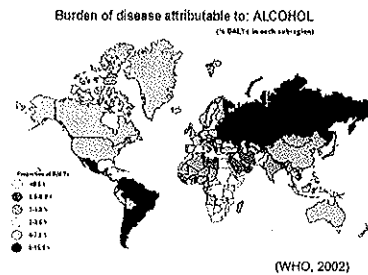
### Leading Causes of Death in the U.S.



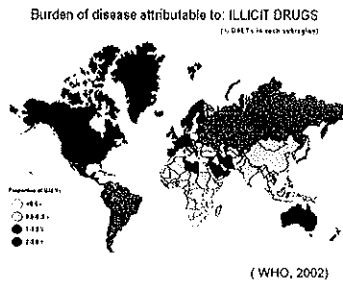
### Global Substance Use



### Global Burden of Disease Attributable to Alcohol



### Global Burden of Disease Attributable to Illicit Drugs



### What is *Healthy People 2010*?

- ◆ A comprehensive set of national health objectives for the decade in the U.S.
- ◆ Developed by a collaborative process
- ◆ Designed to measure progress over time
- ◆ A public health document that is part strategic plan, part textbook on public health priorities



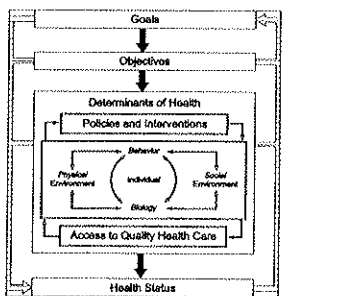
### History of *Healthy People 2010*

- ◆ 1979 - Healthy People: Surgeon General's Report on Health Promotion and Disease Prevention
- ◆ 1980 -Promoting Health/Preventing Disease: Objectives for the Nation
- ◆ 1990 - Healthy People 2000: National Health Promotion and Disease Prevention Objectives
- ◆ 2000 -Healthy People 2010

### *Healthy People 2010*

- ◆ Provides a systematic approach to health improvement, including:
  - Goals: Increase quality and years of healthy life & eliminate disparities
  - Objectives: Supports goals with objectives in 28 focus areas
  - Determinants of health
  - Health status

### Healthy People in Healthy Communities A Systematic Approach to Health Improvement



(Healthy People 2010: Understanding and Improving Health)

### Substance Abuse in *Healthy People 2010*

- ◆ One of 28 focus areas and one of 10 leading health indicators in HP 2010
- ◆ Goal: Reduce substance abuse to protect the health, safety, and quality of life for all, especially children

### 10 Leading Health Indicators of *Healthy People 2010*

- ◆ Physical activity
- ◆ Overweight and obesity
- ◆ Tobacco use
- ◆ Substance abuse
- ◆ Responsible sexual behavior
- ◆ Mental health
- ◆ Injury and violence
- ◆ Environmental quality
- ◆ Immunization
- ◆ Access to health care

### Focus Areas of HP 2010

1. Access to Quality Health Services
2. Arthritis, Osteoporosis, and Chronic Back Conditions
3. Cancer
4. Chronic Kidney Disease
5. Diabetes
6. Disability and Secondary Conditions
7. Educational and Community-Based Programs
8. Environmental Health
9. Family Planning
10. Food Safety
11. Health Communication
12. Heart Disease and Stroke
13. HIV
14. Immunization and Infectious Diseases

### Focus Areas of HP 2010 (continued)

15. Injury and Violence Prevention
16. Maternal, Infant, and Child Health
17. Medical Product Safety
18. Mental Health and Mental Disorders
19. Nutrition and Overweight
20. Occupational Safety and Health
21. Oral Health
22. Physical Activity and Fitness
23. Public Health Infrastructure
24. Respiratory Diseases
25. Sexually Transmitted Diseases
26. Substance Abuse
27. Tobacco Use
28. Vision and Hearing

### Substance Abuse Objectives in *Healthy People 2010*

- ◆ Substance Use and Abuse (examples)
  - Substance-free youth
  - Adolescent and adult use of illicit substances
  - Binge drinking
  - Steroid use among adolescents

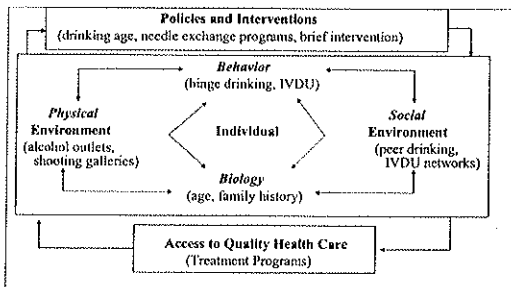
### Substance Abuse Objectives (continued)

- ◆ Adverse Consequences (examples)
  - Motor vehicle crash deaths and injuries
  - Cirrhosis deaths
  - Drug-induced deaths
  - Adolescents riding with a driver who has been drinking
  - Alcohol- and drug-related violence

### Substance Abuse Objectives (continued)

- ◆ Risk of Substance Use and Abuse
  - Peer disapproval of substance abuse
  - Perception of risk associated with substance abuse
- ◆ Treatment for Substance Abuse (examples)
  - Treatment gaps
  - Treatment in correctional institutions
- ◆ State and Local Efforts (examples)
  - Administrative license revocation laws
  - Blood alcohol concentration (BAC) levels for motor vehicle drivers

### Substance Abuse in the Context of the HP 2010 framework

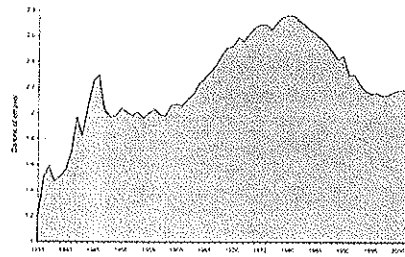


### Epidemiology of Alcohol Use, Abuse and Dependence

## Alcohol Use

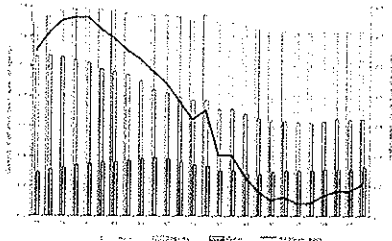
- ◆ Alcohol use can be measured by:
  - Per capita consumption
  - Number/proportion of current drinkers
  - Drinking Patterns

## U.S. Per Capita Consumption of Alcohol



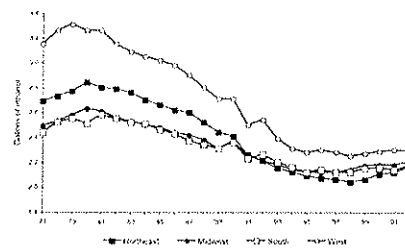
(NIAAA Surveillance Report #66, 2004)

## U.S. Per Capita Consumption by Beverage Type



(NIAAA Surveillance Report 66, 2004)

## U.S. Per Capita Consumption By Region



(NIAAA Surveillance Report 66, 2004)

## Standard Drink Measure

12 oz. of beer or cooler	8.6 oz. of 40% alcohol by volume (80 proof) liquor	6 oz. of 12% alcohol by volume (24 proof) table wine	3.4 oz. of 24% alcohol by volume (48 proof) fortified wine	2.3 oz. of 24% alcohol by volume (48 proof) cordial, liqueur, or brandy	1.6 oz. of 24% alcohol by volume (48 proof) brandy	15 oz. of 5% alcohol by volume (10 proof) malt liquor
12 oz.	8.6 oz.	6 oz.	3.4 oz.	2.5 oz.	1.5 oz.	15 oz.

Note: For many other drinks, a conversion chart is available. For example, malt liquor is sold both as 5% and 10% alcohol by volume. For 10% malt liquor, the standard drink is 7.5 oz. (15 oz. of 5% malt liquor is equal to 7.5 oz. of 10% malt liquor). For 10% malt liquor, the standard drink is 7.5 oz. (15 oz. of 5% malt liquor is equal to 7.5 oz. of 10% malt liquor).

## Alcohol Drinking Patterns

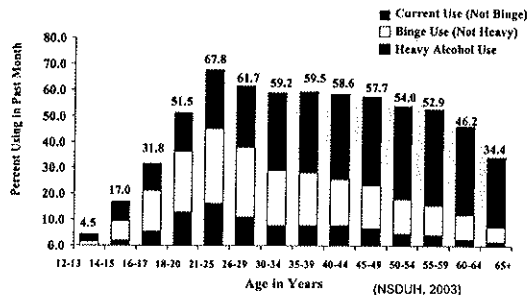
- ◆ Binge Drinking
  - NSDUH definition (2003): 5+ drinks on the same occasion on at least one day in the past 30 days.
  - NIAAA definition (2004): “a pattern of drinking alcohol that brings blood alcohol level (BAC) to 0.08 gram percent or above.... 5+ drinks (male) or 4+ drinks (female) in about 2 hours.”

## Alcohol Drinking Patterns (continued)

### ◆ Heavy Alcohol Use

- NSDUH definition (2003): 5+ drinks on the same occasion on each of 5 or more days in the past 30 days
  - Heavy alcohol users are also binge drinkers (by definition)

## Current, Binge, and Heavy Alcohol Use, by Age

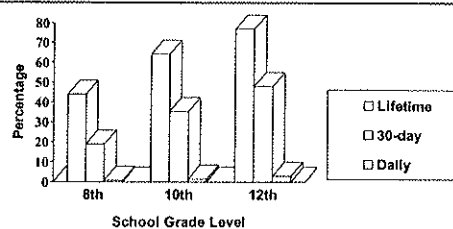


## Underage Drinking

- ◆ 29% of 12-20 year olds are current drinkers
  - represents 10.9 million underage drinkers
- ◆ Higher among Whites (33%) than Asians and Blacks (18%)
- ◆ Higher in the Northeast and Midwest (~32%) than in the South and West (~27%)
- ◆ Similar proportions by population density and gender

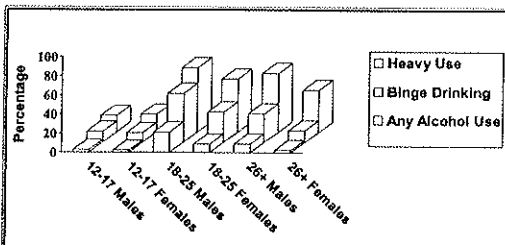
(NSDUH, 2003)

## Alcohol Use by School Grade Level



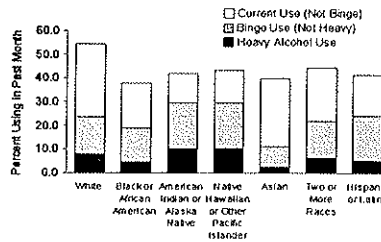
(Monitoring the Future [NIDA], 2004)

## Alcohol Use in Past 30 Days by Age Group and Gender



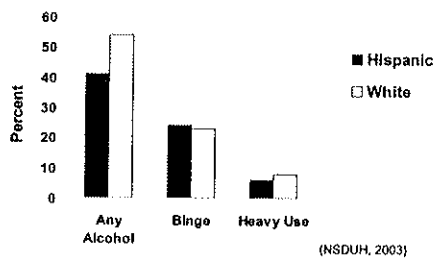
(NSDUH, 2003)

## Alcohol Use in Past 30 Days by Race/Ethnicity



(NSDUH, 2003)

### Alcohol Use, Binge, Heavy Use in Past 30 Days by Ethnicity



### Other Demographic Characteristics of Alcohol Use

#### ◆ Education

- Any alcohol use increases, but binge and heavy use decreases, with education
- All forms of alcohol use greater among full-time college students (18-22 year olds)

#### ◆ Employment

- Any alcohol use greater among full-time employed, but binge and heavy use greater among unemployed

(NSDUH, 2003)

### Alcohol Use in Past 30 Days During Pregnancy

- ◆ Among pregnant women aged 15 to 44, 9.8% used alcohol and 4.1% reported binge drinking
- ◆ These rates were significantly lower than the rates for nonpregnant women of that age (53.0% vs. 23.2%)
- ◆ Heavy alcohol use was relatively rare (0.7%) among pregnant women

(NSDUH, 2003)

### Definition: Alcohol Abuse

Manifested by at least one of the following within a 12-month period (without dependence):

- ◆ Recurrent use resulting in a failure to fulfill major role obligations
- ◆ Recurrent use in physically hazardous situations
- ◆ Recurrent alcohol-related legal problems
- ◆ Continued use despite persistent/recurrent alcohol-related social or interpersonal problems

(DSM-IV, APA, 1994)

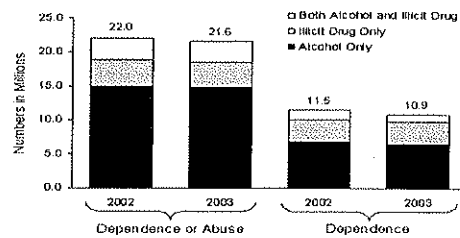
### Definition: Alcohol Dependence

Manifested by 3 or more of the following 7 domains occurring within a 12-month period:

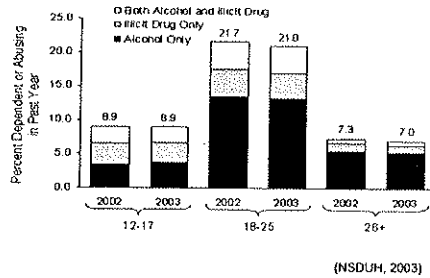
- ◆ Tolerance
- ◆ Withdrawal
- ◆ Impaired control (to cut down or control drinking)
- ◆ Impaired control (drinking in larger amounts)
- ◆ Neglect of important activities because of drinking
- ◆ A great deal of time spent in alcohol-related activity
- ◆ Continued use despite knowledge of having a persistent or recurrent alcohol-related problem

(DSM-IV, APA, 1994)

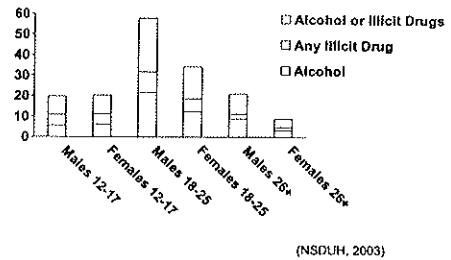
### Past Year Abuse and Dependence



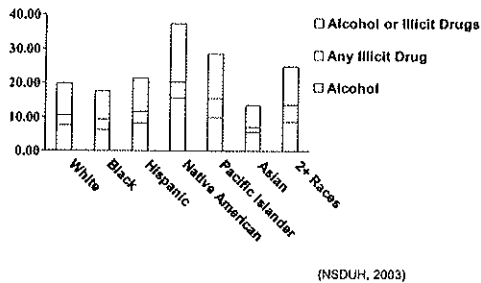
### Past Year Abuse or Dependence by Age Group



### Past Year Alcohol Abuse or Dependence by Age Group and Gender



### Past Year Alcohol Abuse or Dependence by Race/Ethnicity

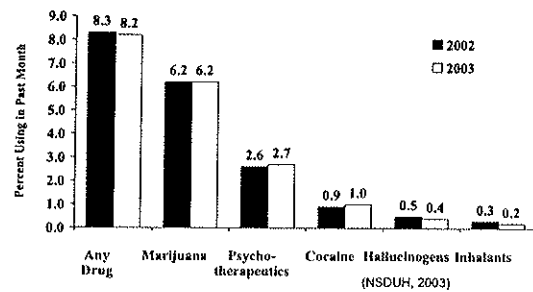


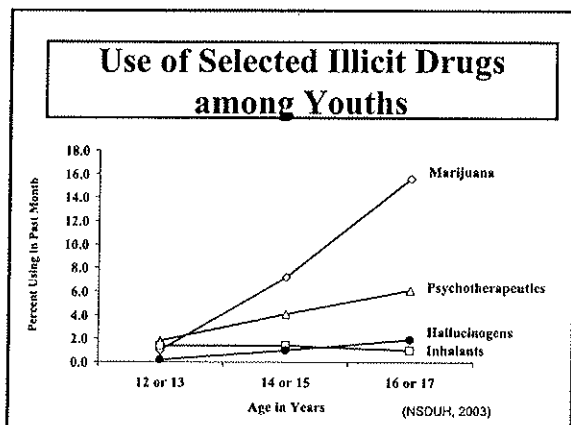
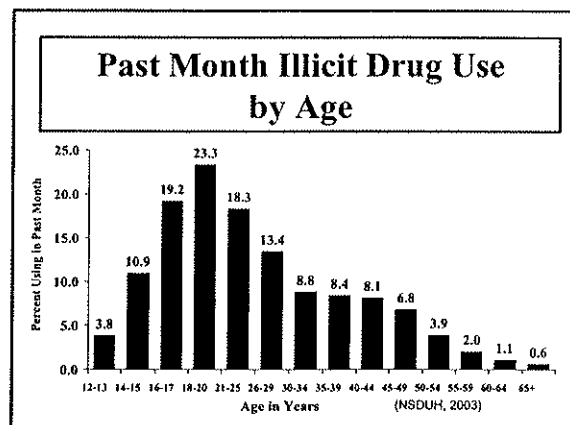
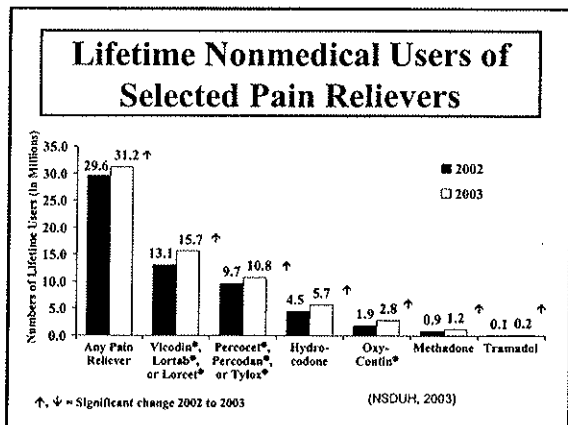
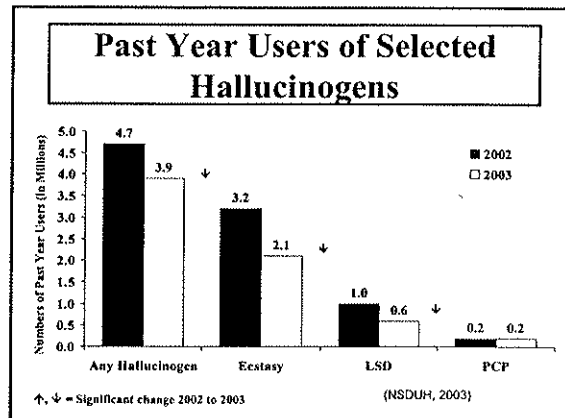
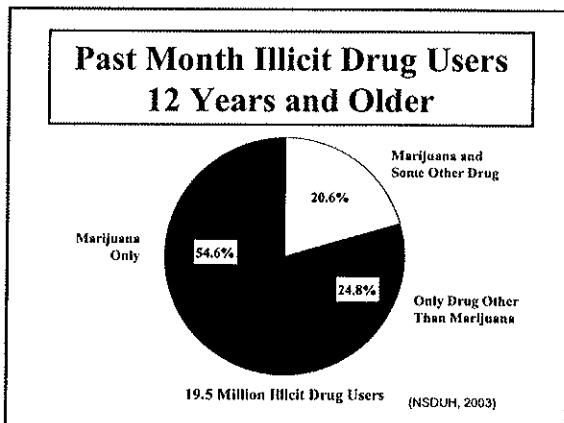
### Other Demographic Characteristics of Alcohol Abuse or Dependence

- ◆ Education
    - Rates of alcohol abuse varied slightly
      - 5.2% among adults with some college compared to other groups (4.0-4.1%)
    - Rates of dependence varied to a greater extent
      - 2.1% among college graduates compared to 4.4% among non-high school graduates
  - ◆ Employment
    - Alcohol abuse and dependence highest among unemployed (7.3% and 6.6%, respectively)
- (NSDUH, 2003)

### Epidemiology of Illicit Drug Use, Abuse and Dependence

### Past Month Use of Illicit Drugs

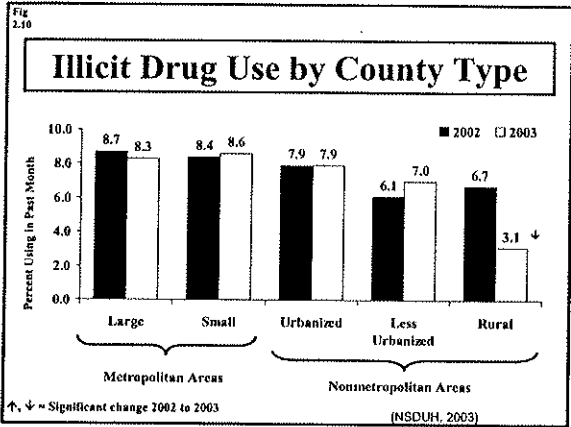
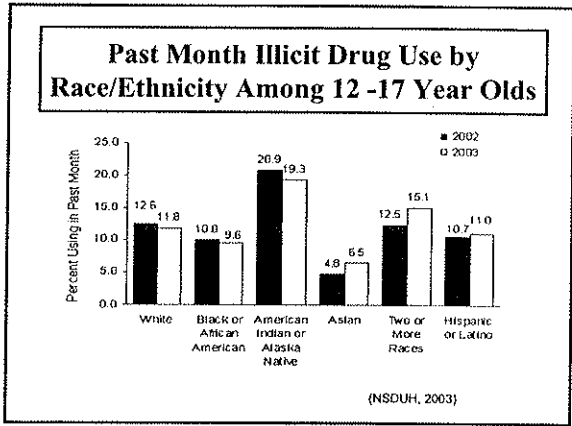
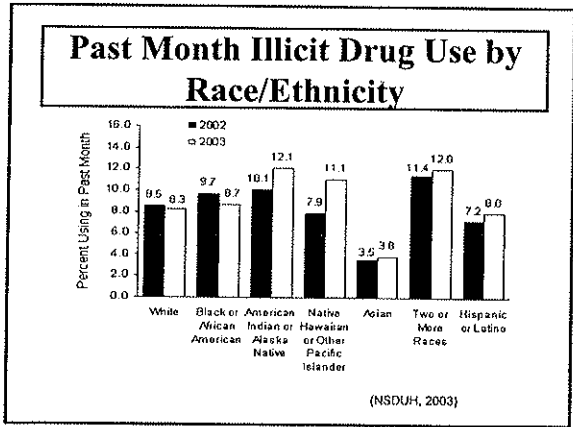




### Illicit Drug Use Among Males and Females

- ◆ Men are more likely to report current use overall than women (10.0 vs. 6.5%)
- ◆ Rates of nonmedical use of any prescription-type psychotherapeutic are similar for males (2.7%) and females (2.6%)
- ◆ Among youths aged 12-17, the rate of current use is similar for boys (11.4%) and girls (11.1%)
  - Boys have a higher rate of marijuana use than girls (8.6 vs. 7.2%)

(NSDUH, 2003)



### Past Month Illicit Drug Use – Other Demographics

**Education**

- ◆ Lower among college graduates (5.2%)
  - 8.3% - 9.2% among other education levels

**Employment**

- ◆ 18.2% of unemployed adults current users
  - 7.9% of those employed full-time
  - 10.7% of those employed part-time
- ◆ 74.3% of current users employed

(NSDUH, 2003)

### Past Month Illicit Drug Use During Pregnancy

- ◆ Among pregnant women aged 15 to 44 years, 4.3% report using illicit drugs
- ◆ This rate is significantly lower than that among women aged 15 to 44 who were not pregnant (10.4%).

(NSDUH, 2003)

### Illicit Drug Abuse and Dependence

- ◆ Similar definition to alcohol abuse and dependence
- ◆ In the NSDUH:
  - Classified as marijuana, inhalant, hallucinogen, and tranquilizer dependent if met 3 or more of 6 dependence criteria
  - Classified as pain reliever, cocaine, heroin, sedative, and stimulant dependent if met 3 or more of 7 dependence criteria (including withdrawal)

(DSM-IV, APA, 1994)



### Definition: Substance Abuse

Manifested by at least one of the following within a 12-month period (without dependence):

- ◆ Recurrent use resulting in a failure to fulfill major role obligations
- ◆ Recurrent use in physically hazardous situations
- ◆ Recurrent substance-related legal problems
- ◆ Continued use despite persistent/recurrent substance-related problems

(DSM-IV, APA, 1994)

### Definition: Substance Dependence

Manifested by 3 or more of the following 7 domains occurring within a 12-month period:

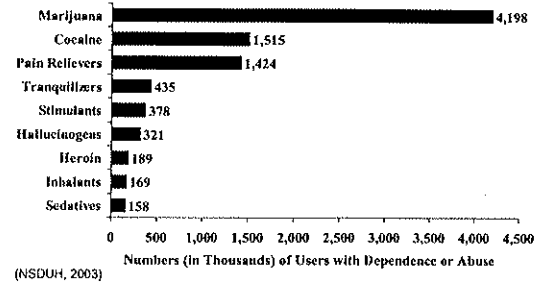
- ◆ Tolerance
- ◆ Withdrawal
- ◆ Impaired control (to cut down or control)
- ◆ Impaired control (using larger amounts)
- ◆ Neglect of important activities
- ◆ A great deal of time spent in substance-related activity
- ◆ Continued use despite knowledge of having a persistent/recurrent substance-related problem

(DSM-IV, APA, 1994)

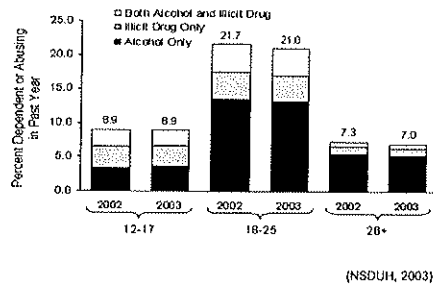
### Substance Dependence or Abuse Among Persons 12 Years and Older



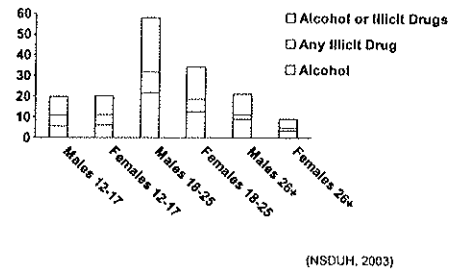
### Illicit Drug Abuse or Dependence by Drug Type

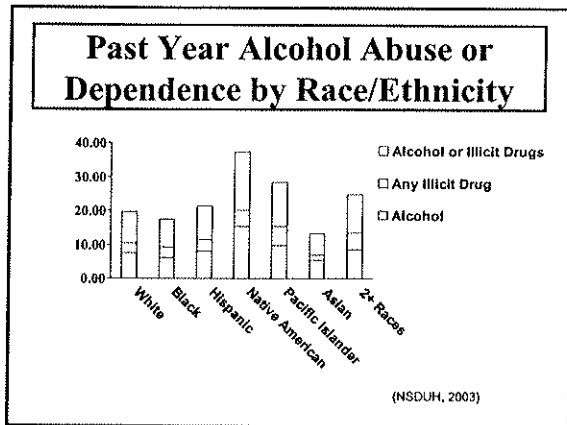


### Past Year Substance Abuse or Dependence by Age Group



### Past Year Substance Abuse or Dependence by Age Group and Gender



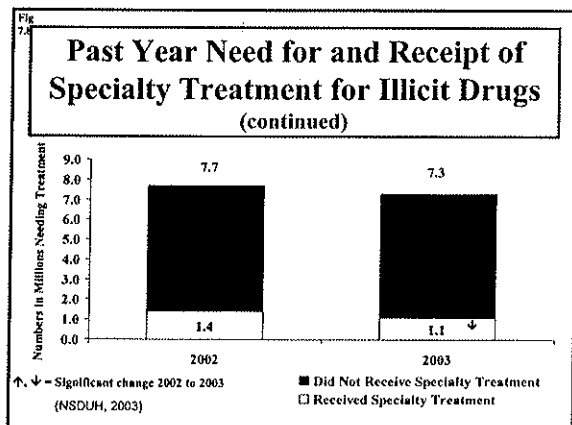
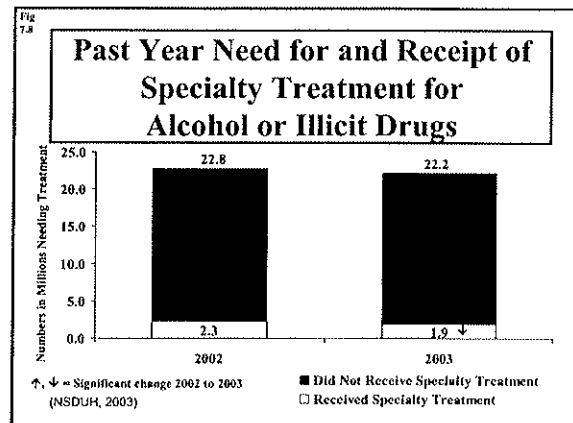


### Other Demographic Characteristics of Illicit Drug Abuse or Dependence

- ◆ **Education**
  - Rates of illicit drug abuse or dependence varied with level of education
  - College graduates had the lowest rate of abuse (0.3%) or dependence (0.6%)
- ◆ **Employment**
  - Rates of illicit drug abuse and dependence were highest among the unemployed (1.4% and 4.8%, respectively)

(NSDUH, 2003)

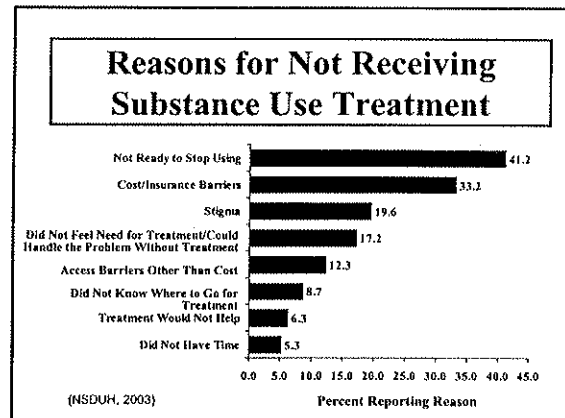
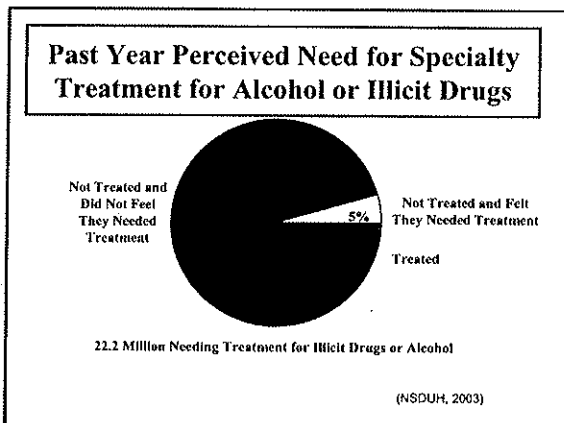
## Substance Abuse Treatment



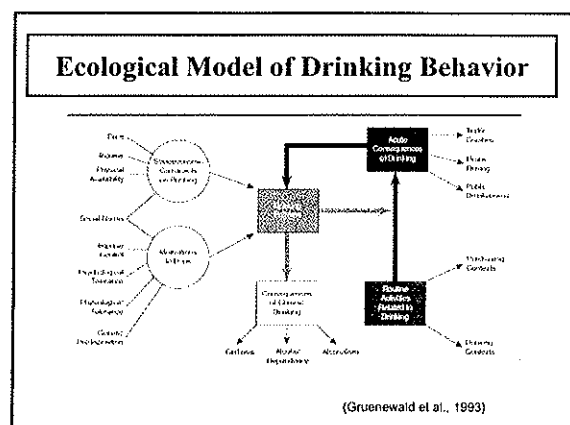
### Need For and Receipt of Alcohol Treatment

- ◆ 18.2 million (7.7% of the population) needed treatment for an alcohol problem in 2003
- ◆ Only 1.3 million received treatment at a specialty facility
- ◆ In 2003, 1.5 million (6%) of youths 12 to 17 years old needed treatment
  - 6.3% of those youths received treatment at a specialty facility

(NSDUH, 2003)



## Health, Social, & Economic Impact of Substance Abuse



- ### Health Impact of Substance Abuse
- ◆ **Health impact:**
    - Teen pregnancy
    - STDs/HIV
    - Unintentional injury (e.g. MV crashes)
    - Violence:
      - homicide/suicide/domestic violence
    - Heart, liver, pancreatic disease
    - Cancer
    - Fetal alcohol syndrome

- ### Oral Health Impact of Substance Abuse
- ◆ Periodontitis
  - ◆ Lack of \$\$ and motivation for dental treatment
  - ◆ Implant failure
  - ◆ STDs/HIV oral manifestations
  - ◆ Unintentional facial injury (e.g. MV crashes)
  - ◆ Violence-induced facial injuries:
    - Community-based or domestic violence
  - ◆ Cancer
  - ◆ Child neglect
  - ◆ Fetal alcohol syndrome; facial deformities

## Fetal Alcohol Syndrome

- ◆ One of the leading preventable causes of mental retardation and a leading cause of birth defects
- ◆ Estimates range from 0.2 to 1.0 per 1,000 live births
- ◆ Alcohol-related birth defects and neurodevelopmental disorders are thought to occur 3 to 4 times more often than diagnosed cases of FAS

(Healthy People 2010)

## Alcohol and Injuries

- ◆ Alcohol use is associated with increased risk of injury in MV crashes, falls, and fires
- ◆ Due mainly to reduced cognitive function, impaired physical coordination & performance, and risk-taking behavior
- ◆ Dose-response effect between recent alcohol use and injury risk
- ◆ Pattern of drinking (e.g. binge drinking) related to relative risk of injury

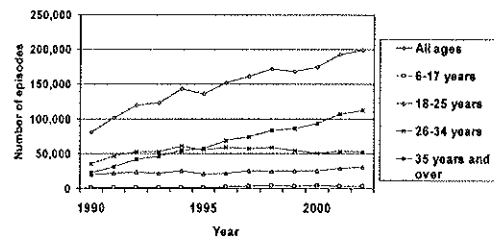
(NIAAA, 2000)

## Driving Under the Influence (DWI) Offenders in Jail

- ◆ Over 75% reported past drug use
- ◆ 25% of inmates had arguments with family, friends, or partners under the influence
- ◆ About 10% lost a job due to drug use
- ◆ 15% had been in a physical fight under the influence of drugs

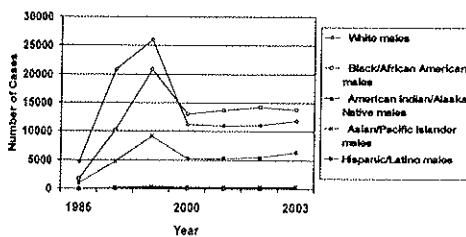
(Bureau of Justice Statistics)

## Cocaine-Related ED Episodes 1990-2002



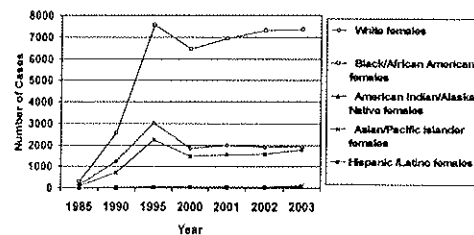
(National Center for Health Statistics, 2004)

## AIDS Cases Among Males in U.S. 1985 - 2003



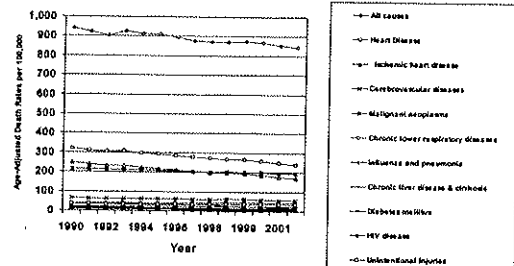
(National Center for Health Statistics, 2004)

## AIDS Cases Among Females in U.S. 1985 - 2003



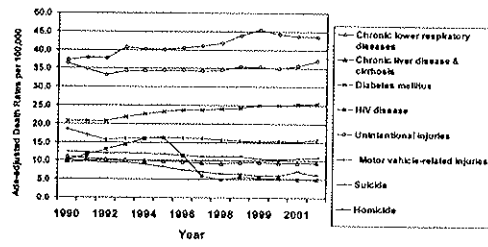
(National Center for Health Statistics, 2004)

### Age-Adjusted Death Rates by Disease 1990-2002



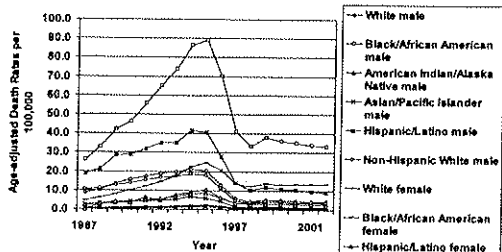
(National Center for Health Statistics, 2004)

### Selected Age-Adjusted Death Rates by Disease 1990-2002



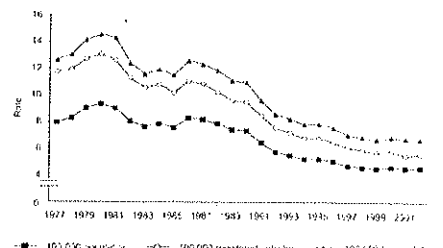
(National Center for Health Statistics, 2004)

### Age-Adjusted HIV Disease Death Rates 1987-2002



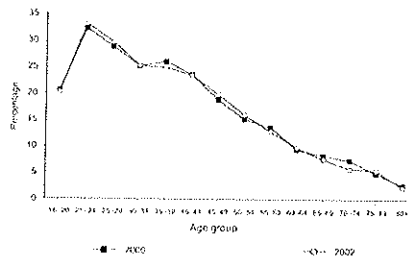
(National Center for Health Statistics, 2004)

### U.S. Alcohol-Related Traffic Fatality Rates, 1977-2002



(NIAAA Surveillance Report 66, 2004)

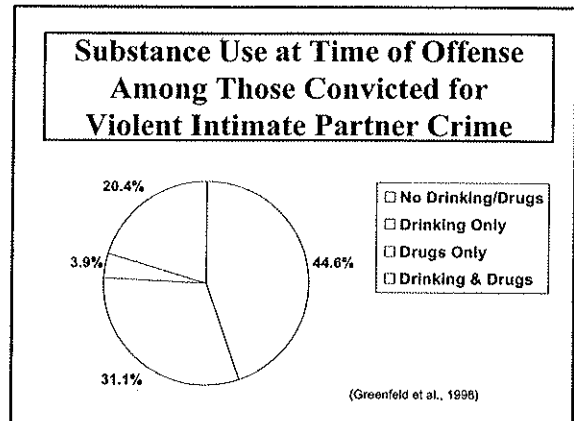
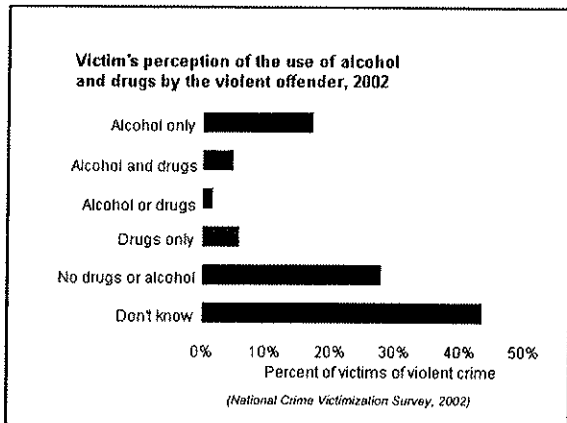
### U.S. Alcohol-Related Traffic Fatality Rates by Age, 1977-2002



(NIAAA Surveillance Report 66, 2004)

### Social Impact of Substance Abuse

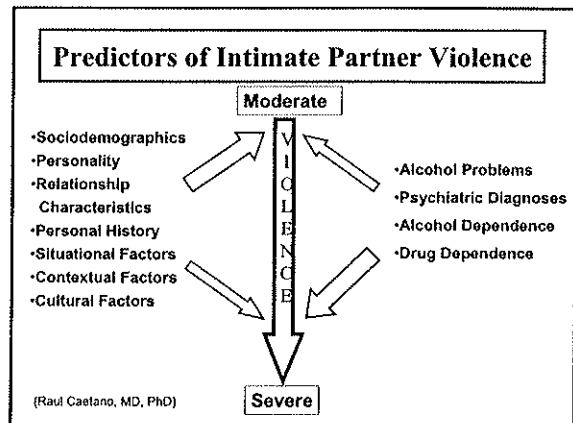
- ◆ Social impact:
  - Violence:
    - homicide/suicide/domestic violence
  - School failure
  - Low worker productivity
  - Homelessness
  - Disruption of family, work and personal life



### Drug-Related Homicides

- ◆ Proportion of drug-related homicides peaked in 1989 (7.4% of 18,954 homicides)
- ◆ Lowest rate in 2001 (4.1%)
- ◆ In 2003, 4.6% of 14,408 homicides were drug-related

(Bureau of Justice Statistics)



### Intimate Partner Violence (IPV) and Alcohol Use

- ◆ Males more often drink at the time of the IPV event than females
- ◆ Women may 'self-medicate' to alleviate the effects of IPV
- ◆ Acute alcohol use may contribute to IPV perpetration by several means, including cognitive disruption, disinhibition, or aggression-related alcohol expectancies
- ◆ Alcohol-related IPV may be the result of background problem drinking

### Intimate Partner Violence (IPV) and Alcohol Use (continued)

- ◆ Studies of battered wives have found positive correlations between alcohol use, drunkenness, or drinking during the IPV event on the part of the victim and/or the perpetrator
- ◆ Male & female alcoholics have higher rates of male-perpetrated IPV than controls
- ◆ Male-perpetrated IPV among Black couples, but not White or Hispanic couples, has been associated with male and female alcohol problems
- ◆ Female-perpetrated IPV among Black and White couples has been associated with female alcohol problems

## Economic Impact of Substance Abuse

### ◆ Economic impact:

- Low worker productivity
- Homelessness
- Escalation of health care costs

## Economic Impact of Alcohol Abuse 1992-1998

### ◆ Total Cost

- \$184,636 million – 24.7% increase

### ◆ Lost earnings due to crime/victims

- \$10,085 million – 56.1% increase

### ◆ Medical consequences

- \$18,872 million – 42.5% increase

### ◆ Specialty Services

- \$7,466 million – 34% increase

## Economic Impact of Drug Abuse 1992-1998

### ◆ Total Cost

- \$143,411 million – 40% increase

### ◆ Health Care Costs

- \$12,862 million – 18.9% increase

### ◆ Productivity Losses

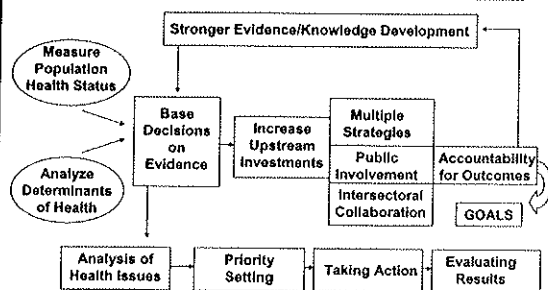
- \$98,467 million – 41.8% increase

### ◆ Other Costs

- \$32,083 million – 46.4% increase

## Prevention, Intervention, and Policy for Substance Abuse

## Population Health Key Elements



Health Canada: The Population Health Template Working Tool

## SAMHSA Substance Abuse Prevention Goals and Strategies

### ◆ SAMHSA Strategic Prevention Framework (SPF) for 2004-2005 to:

- decrease substance use and abuse
- promote mental health
- prevent mental disorders
- reduce disability, co-morbidity and relapse

## Prevention Goals and Strategies (continued)

- ◆ SPF Outcome Measures (examples)
  - Increase abstinence
  - Increase social supports
  - Increase accessible services
  - Decrease criminal justice involvement

## Prevention Goals and Strategies (continued)

- ◆ SPF Process Measures (examples)
  - Increase number of States/communities that:
    - Use SPF
    - Implement capacity to support effective infrastructure
    - Use evidence-based programs, policies, & practices
    - Track process and outcome measures

## Prevention Goals and Strategies (continued)

- ◆ Policy & Program Parameters (examples)
  - Healthier U.S. Initiative launched
  - Implement SPF in every State
  - National outcome measures defined
  - Implement reporting of prevention measures in all SAMHSA programs

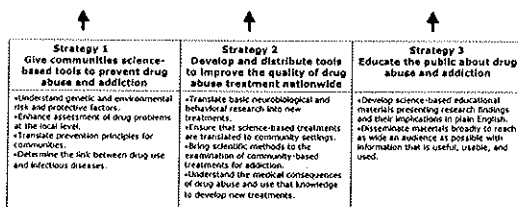
## Prevention Goals and Strategies (continued)

### Key Activities (examples)

- ◆ Fund SPF grants to States and territories
- ◆ Conduct technical assistance workshops
- ◆ Build staff capacity to manage grants
- ◆ Implement measures to assess effects of and ensure program linkages
- ◆ Work with other Federal agencies to implement SPF across agencies
- ◆ Implement National Outcome Measures for prevention

## NIDA Strategic Plan 2000-2005

**Five-Year Goal**  
To Significantly Reduce Drug Abuse and Addiction and Their Behavioral, Health, and Social Consequences



↑ ↑ ↑

Increase Understanding of the Nature of Addiction Through Basic and Clinical Research

## Alcohol Policies

### ◆ Two main categories:

- **Allocative:** provide a net benefit to distinct groups to achieve some public objective
  - Subsidies for alcohol education in schools
  - Training servers in responsible beverage service
- **Regulatory:** influence through direct control
  - Price controls and taxation
  - Minimum purchasing age

(Babor et al., 2003)



## Alcohol Policies (continued)

### Four major criteria for evaluating policy:

- ◆ Evidence of effectiveness
- ◆ Breadth of research support
- ◆ Extent of cross-cultural testing
- ◆ Relative cost to implement

(Babor et al., 2003)

## Alcohol Policies (continued)

### Ten Best Practices:

- ◆ Regulating Physical Availability
  - Minimum legal purchase age
  - Government monopoly of retail sales
  - Hours and days of sale restrictions
  - Outlet density restrictions
- ◆ Taxation and Pricing
  - Alcohol taxes

(Babor et al., 2003)

## Alcohol Policies (continued)

### Ten Best Practices, continued:

- ◆ Drinking-Driving Countermeasures
  - Sobriety check points
  - Lower BAC limits
  - Administrative license suspension
  - Graduated licensing for novice drivers
- ◆ Treatment and Early Intervention
  - Brief intervention with at-risk drinkers

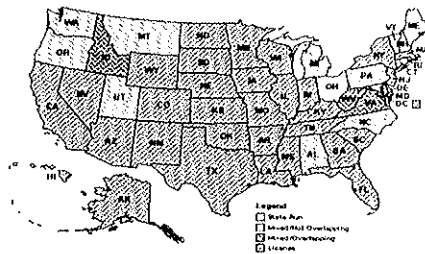
(Babor et al., 2003)

## Examples of U.S. Alcohol Policies

- ◆ Alcoholic beverage control
  - Wholesale and retail sales controls
- ◆ Taxation and pricing
- ◆ Advertising, marketing, and mass media
- ◆ Transportation, crime, and public safety
  - BAC limits, underage drinking
- ◆ Health care services and financing
- ◆ Education
- ◆ Public services, functions, and programs
- ◆ Employment and workplace
- ◆ Alcohol and Pregnancy

(NIAAA – Alcohol Policy Information System)

## Retail Spirits Distribution Systems by State

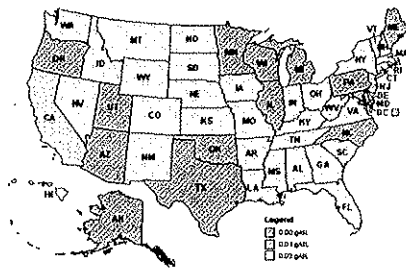


(NIAAA – Alcohol Policy Information System 1/1/04)

## Exceptions to Minimum Age of 21 for Alcohol Purchase



## Youth BAC Limit Laws by State



(NIAAA - Alcohol Policy Information System)

## Summary

- ◆ The determinants of health overall, and substance use in particular, have a profound effect on the health of individuals, communities, and on a national level.
- ◆ An evaluation of these determinants is an important part of developing strategies to improve health and eliminate disparities.
- ◆ Effective and relevant policies, programs, and interventions can improve health and eliminate disparities by targeting factors related to individuals and their environments, including access to quality health care.