

Epidemiology of Drinking Among Women of Childbearing Age and Approaches to FAS Prevention

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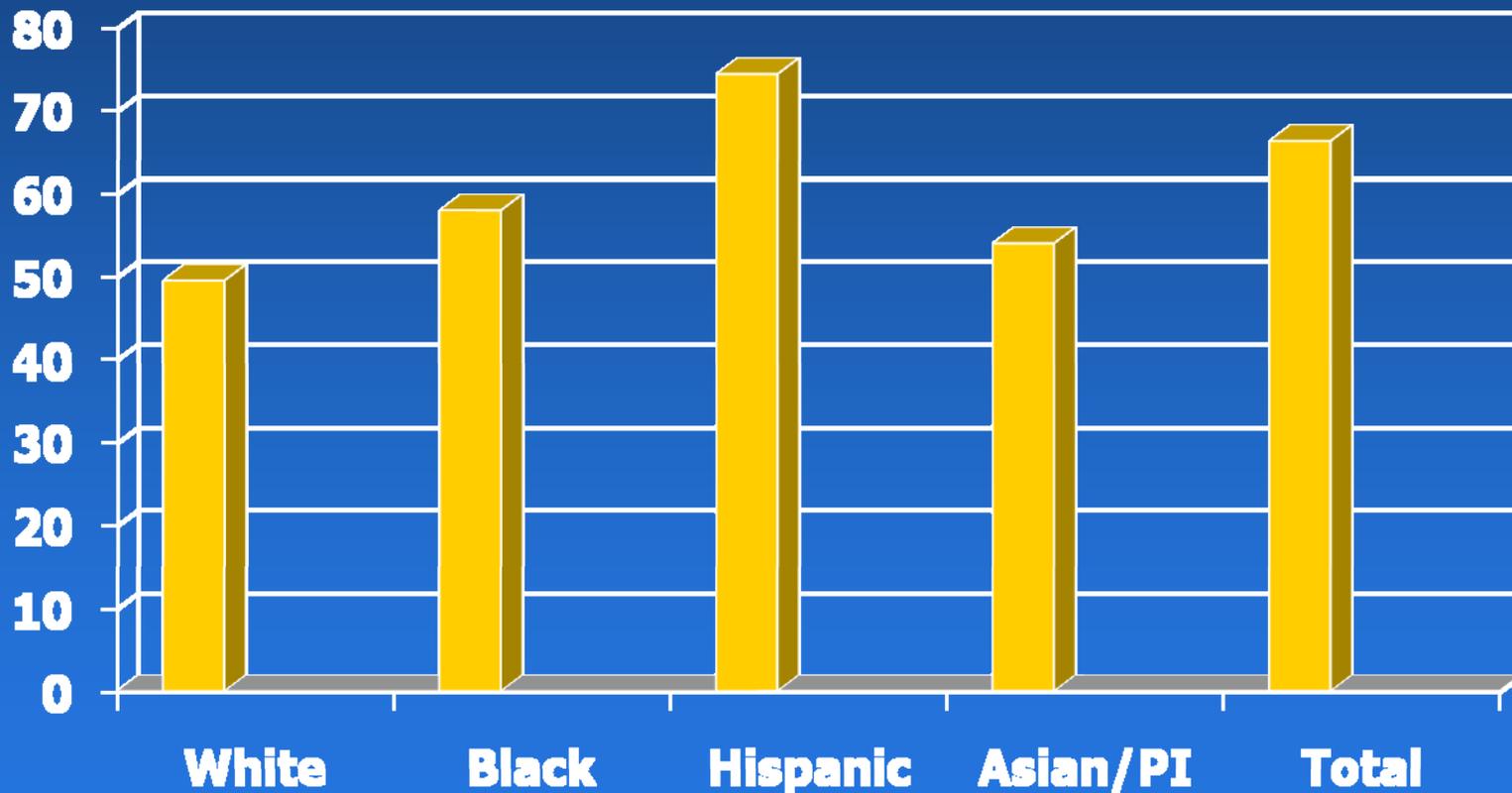
Objectives

- Discuss Census-based and epidemiological information about women of childbearing age and births and pregnancies in the U.S.
- Discuss epidemiological data on alcohol consumption among pregnant and non-pregnant women.
- Discuss approaches to prevention.

Childbearing Women in the U.S.

- In June 2006 there were 61.7 million women of child bearing age (15-44) in the U.S.
- About 38% of these women were members of ethnic minority groups; 49% were 15-29 years of age.
- About 45% of these women were childless. But proportion varies by age and by ethnicity.
- Overall fertility rate is 66.3/1,000. But this rate too varies by age and ethnicity.

Twelve Month Fertility Rate per 1,000: U.S. 2006



Source: Dye, J.L. *Fertility of American Women: 2006*. Current Population Reports, P20-558. U.S. Census Bureau, 2008. Available at <https://www.census.gov/prod/2008pubs/p20-558.pdf>

Births and Pregnancies.

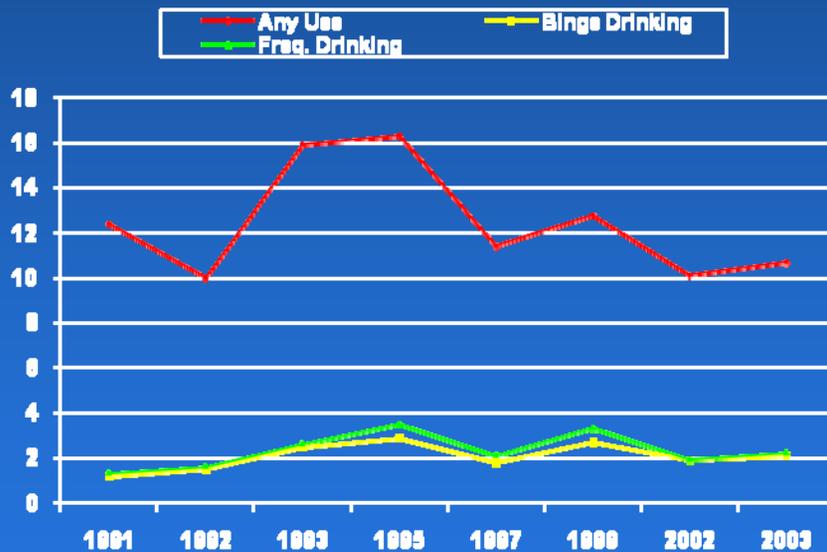
- There were 4.25 million births in the U.S. in 2008 (Hamilton et al., 2010).
- About 40.6% of these births were to unmarried women (Hamilton et al., 2010).
- Between 1994 and 2001, 49% of pregnancies were unintended. More common among younger women, unmarried, Blacks, less than high school education, on Medicaid (Finer and Henshaw, 2006).
- Among Whites, unintended pregnancies are associated with binge drinking (Naimi et al., 2003).

Alcohol Use, High Risk Drinking, Abuse and Dependence

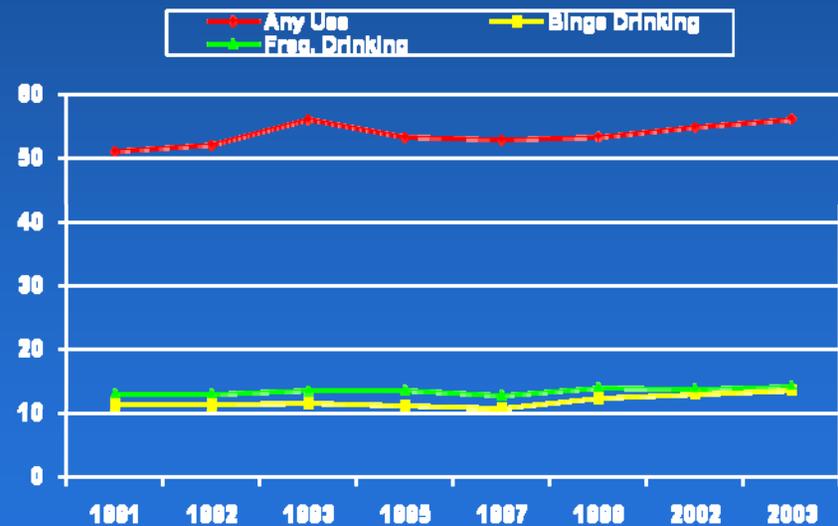
- This epidemiological information makes it possible to identify subgroups of women at different levels of risk for FAS/FASD.

Weighted Percentage of Pregnant and Non-Pregnant Women aged 18-44 Who Reported Alcohol Use - United States 1991 -2003

Pregnant Women



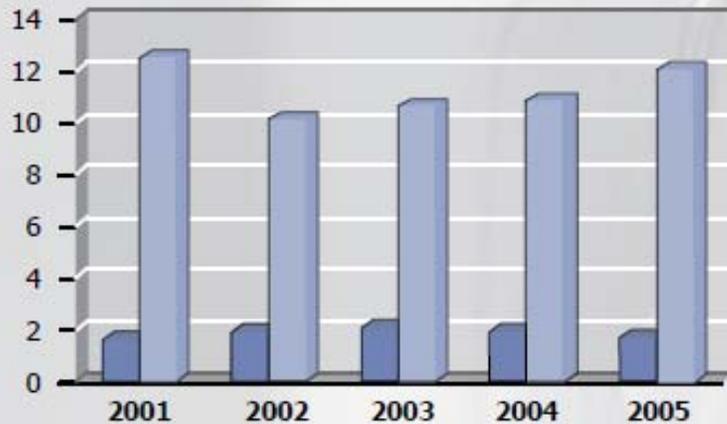
Non-pregnant Women



Data from 1991 to 1999 from Sidhu & Floyd, 2002

FIGURE 1.

Alcohol Consumption Prevalence Among Pregnant Women Aged 18-44 Years

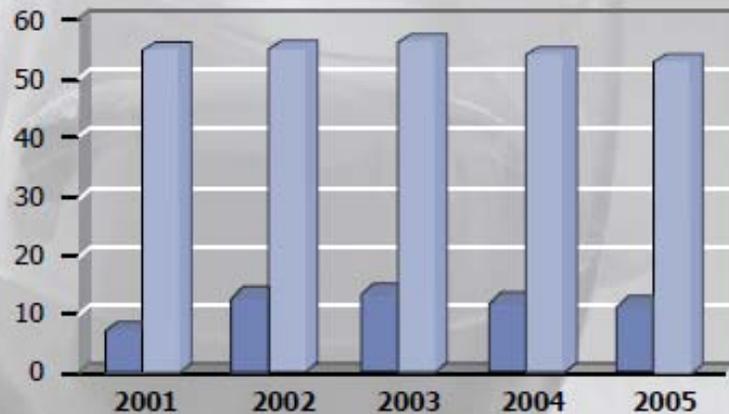


Source: Behavioral Risk Factor Surveillance System 2001-2005, CDC.

BINGE: ≥ 5 drinks on one occasion in past month
ANY USE: 1 or more drinks in past month

FIGURE 2.

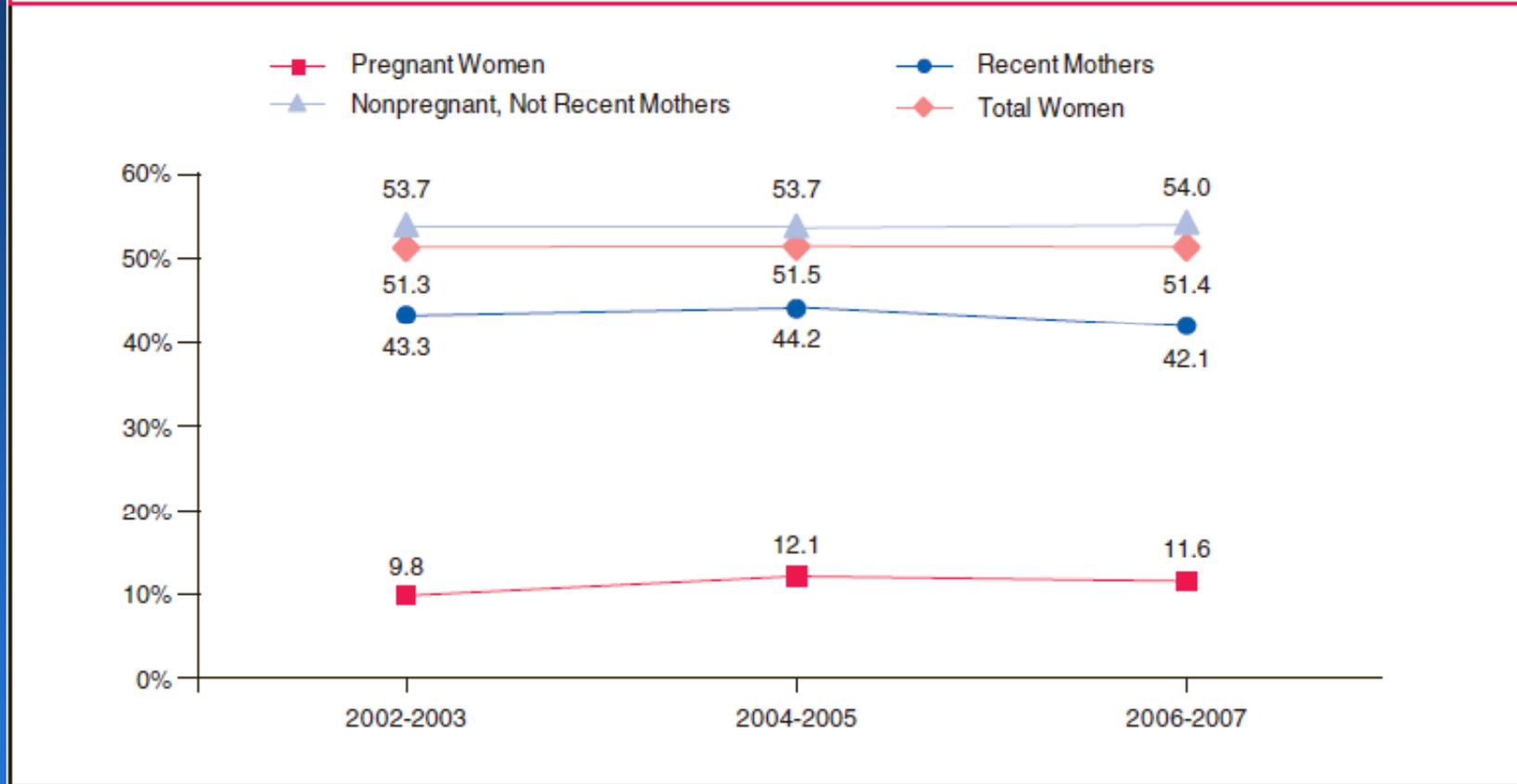
Alcohol Consumption Prevalence Among Non Pregnant Women Aged 18-44 Years



Source: Behavioral Risk Factor Surveillance System 2001-2005, CDC.

BINGE: ≥ 5 drinks on one occasion in past month
ANY USE: 1 or more drinks in past month

Figure 1. Trends in Past Month Alcohol Use among Women Aged 15 to 44, by Pregnancy Status*: Percentages, 2002-2007



Pregnant at the time of the survey. Recent mothers gave birth during the past 12 months. Trends are based on data from 2002 to 2007. Other data are annual averages for the combined 2006 and 2007 NSDUH.

Table 1. Percentages of Past Month Alcohol Use among Women Aged 15 to 44, by Pregnancy Status* and Demographic Characteristics: 2006 and 2007

| Demographic Characteristic | Pregnancy Status | | |
|----------------------------|------------------|----------------|---------------------------------|
| | Pregnant | Recent Mothers | Nonpregnant, Not Recent Mothers |
| Age | | | |
| 15 to 17 | 15.8 | 26.8 | 25.3 |
| 18 to 25 | 9.8 | 41.2 | 62.2 |
| 26 to 44 | 12.5 | 42.9 | 55.7 |
| Race/Ethnicity** | | | |
| White | 14.5 | 52.1 | 61.1 |
| Black | 15.7 | 31.9 | 44.6 |
| Hispanic | 4.1 | 22.9 | 41.6 |
| Education Status*** | | | |
| Less Than High School | 8.9 | 28.1 | 37.7 |
| High School Graduate | 8.3 | 35.7 | 51.8 |
| Some College | 11.7 | 45.6 | 60.9 |
| College Graduate | 15.8 | 53.7 | 69.7 |
| Income | | | |
| Less Than \$20,000 | 11.7 | 30.9 | 47.3 |
| \$20,000 to \$49,999 | 9.2 | 38.3 | 50.7 |
| \$50,000 to \$74,999 | 9.5 | 47.1 | 55.2 |
| \$75,000 or Higher | 16.3 | 54.4 | 62.2 |

Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (September 11, 2008). *The NSDUH Report: Alcohol Use among Pregnant Women and Recent Mothers: 2002 to 2007*. Rockville, MD.

Table 2. Average Number of Alcoholic Drinks Consumed per Day on the Days That Alcohol Was Used in the Past Month among Past Month Female Alcohol Users Aged 15 to 44, by Pregnancy Status* and Demographic Characteristics: 2006-2007

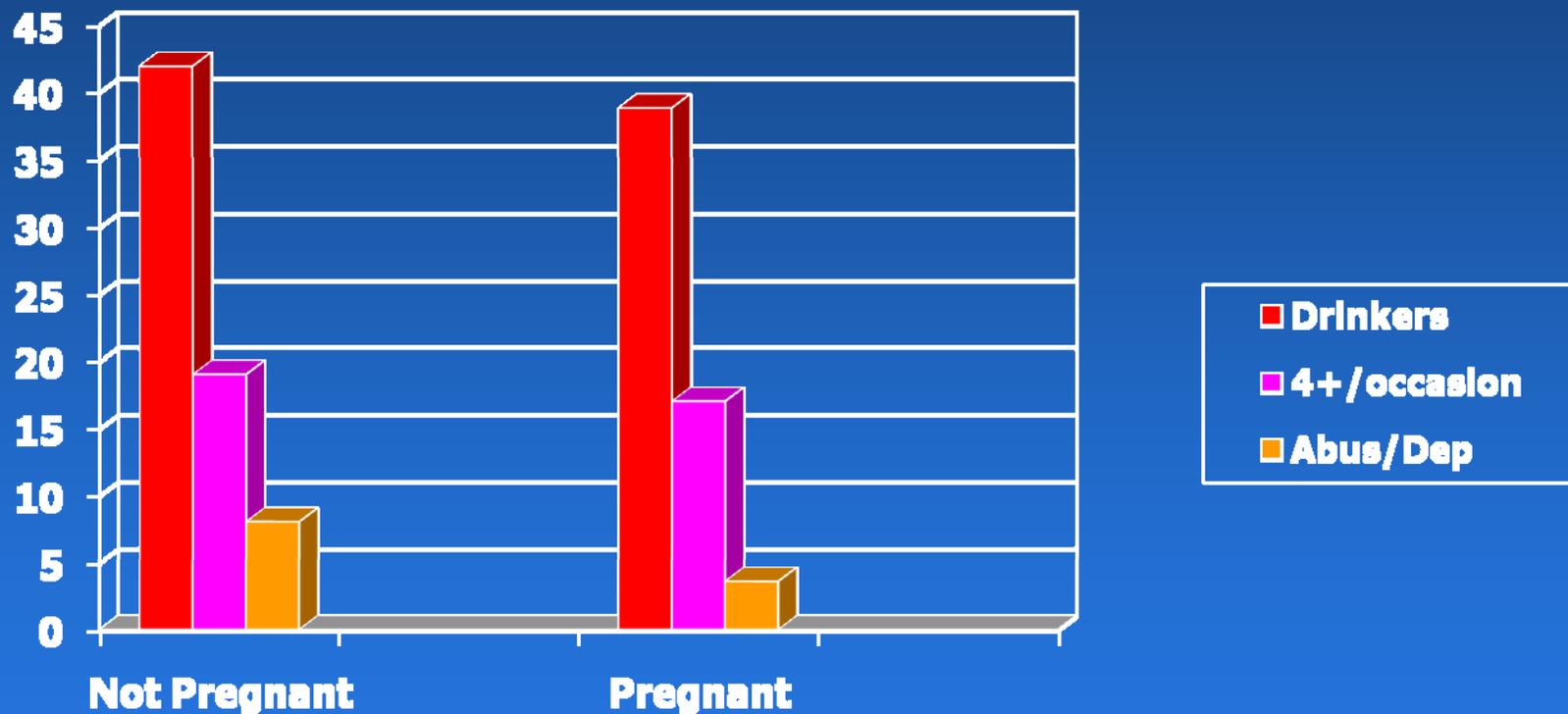
| Demographic Characteristic | Pregnancy Status | | |
|----------------------------|------------------|----------------|---------------------------------|
| | Pregnant | Recent Mothers | Nonpregnant, Not Recent Mothers |
| Age | | | |
| 15 to 17 | 3.6 | + | 4.1 |
| 18 to 25 | 3.6 | 3.4 | 3.6 |
| 26 to 44 | 1.7 | 2.0 | 2.6 |
| Race/Ethnicity** | | | |
| White | 1.9 | 2.6 | 3.0 |
| Black | 3.1 | 1.9 | 2.5 |
| Hispanic | 4.6 | 2.5 | 3.1 |
| Education Status*** | | | |
| Less Than High School | 4.5 | 3.5 | 4.1 |
| High School Graduate | 2.6 | 2.9 | 3.4 |
| Some College | 2.1 | 2.7 | 3.0 |
| College Graduate | 1.6 | 1.7 | 2.2 |
| Income | | | |
| Less Than \$20,000 | 3.7 | 3.1 | 3.7 |
| \$20,000 to \$49,999 | 2.2 | 2.8 | 3.2 |
| \$50,000 to \$74,999 | 2.3 | 2.0 | 2.8 |
| \$75,000 or Higher | 1.6 | 2.1 | 2.5 |

Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (September 11, 2008). *The NSDUH Report: Alcohol Use among Pregnant Women and Recent Mothers: 2002 to 2007*. Rockville, MD.

Pregnant means pregnant at the time of the survey

2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)

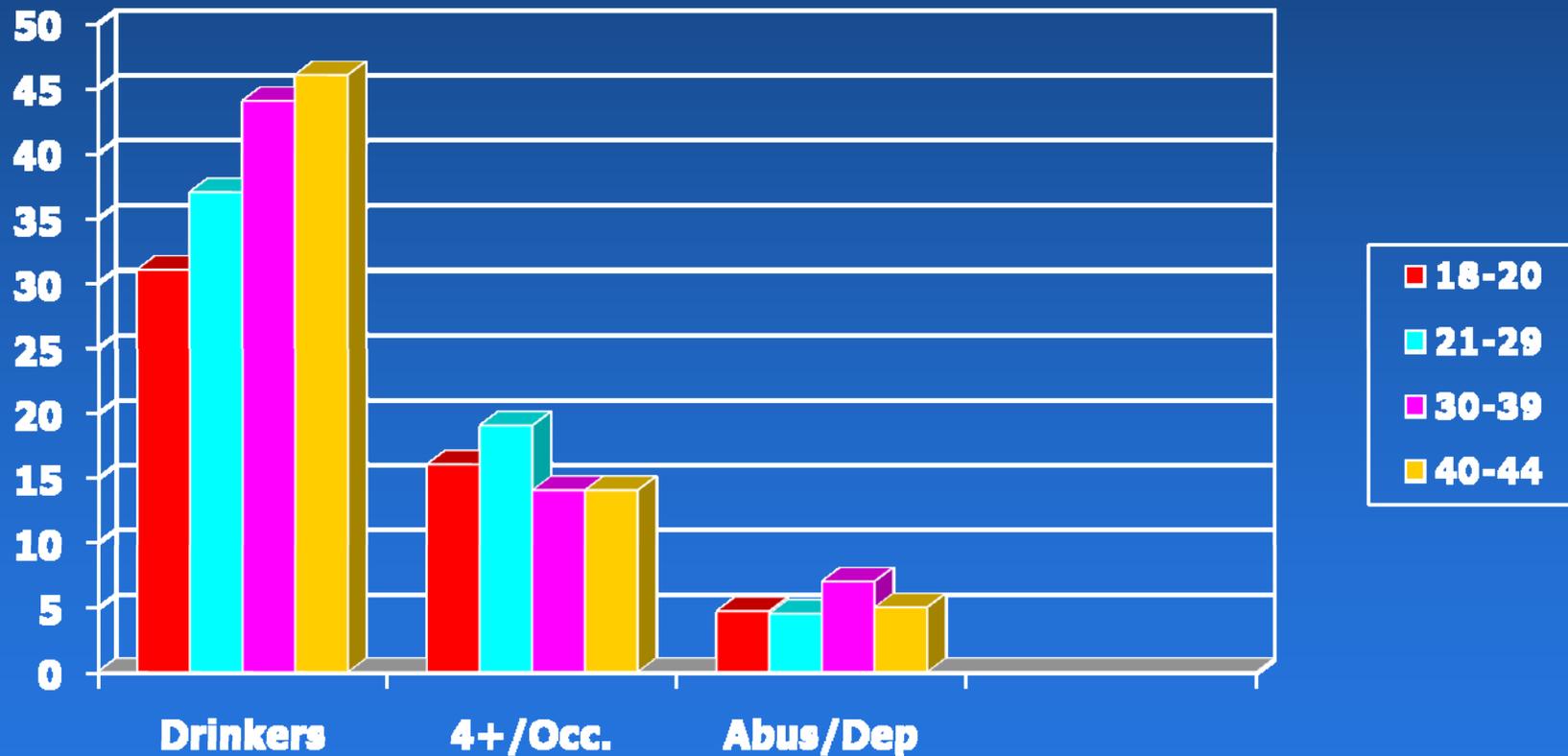
Alcohol Use, Four or More and Abuse/Dependence Among Women 18-44: NESARC 2002



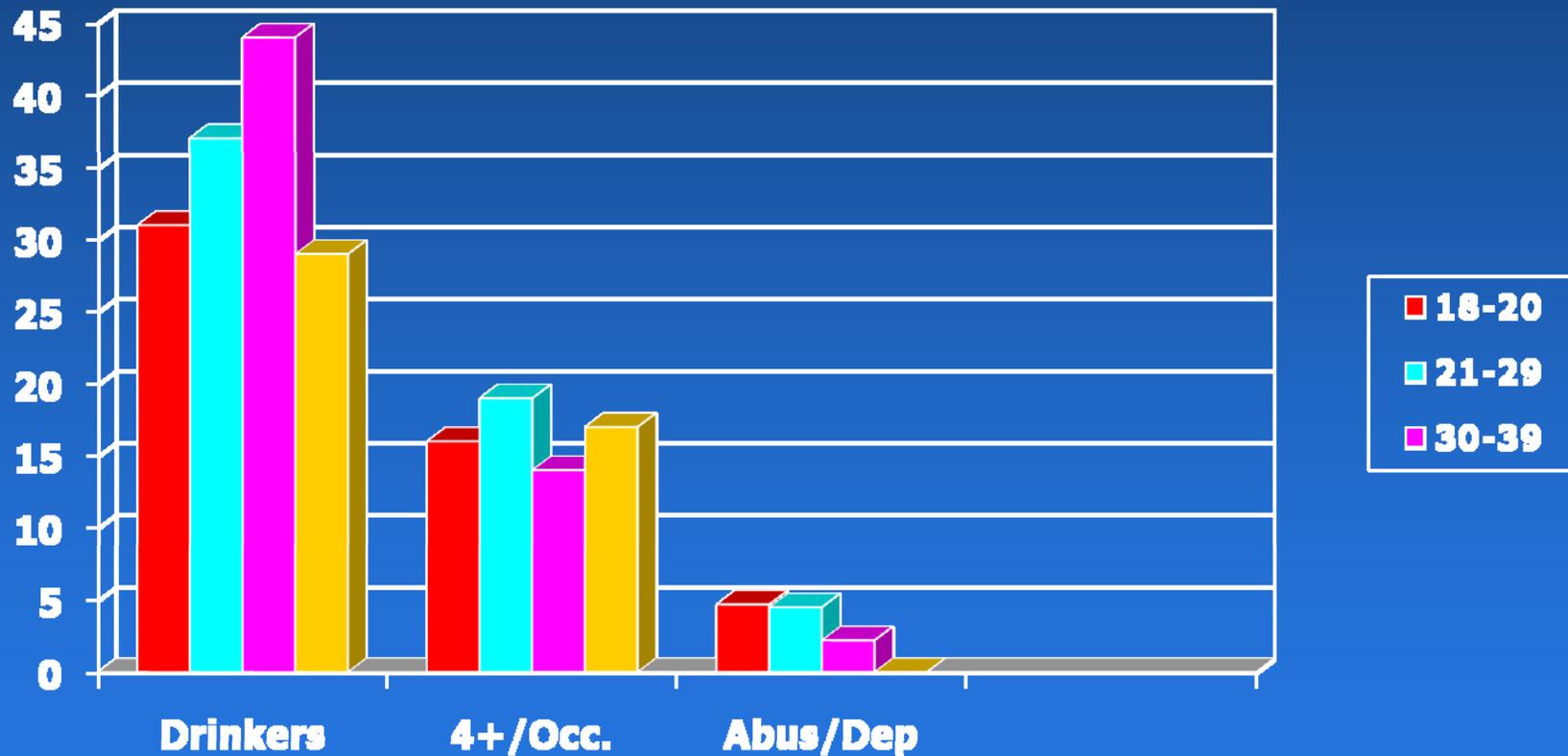
N=10,576 not pregnant and 1,517 pregnant at some point in time in past year

Caetano et al., 2006

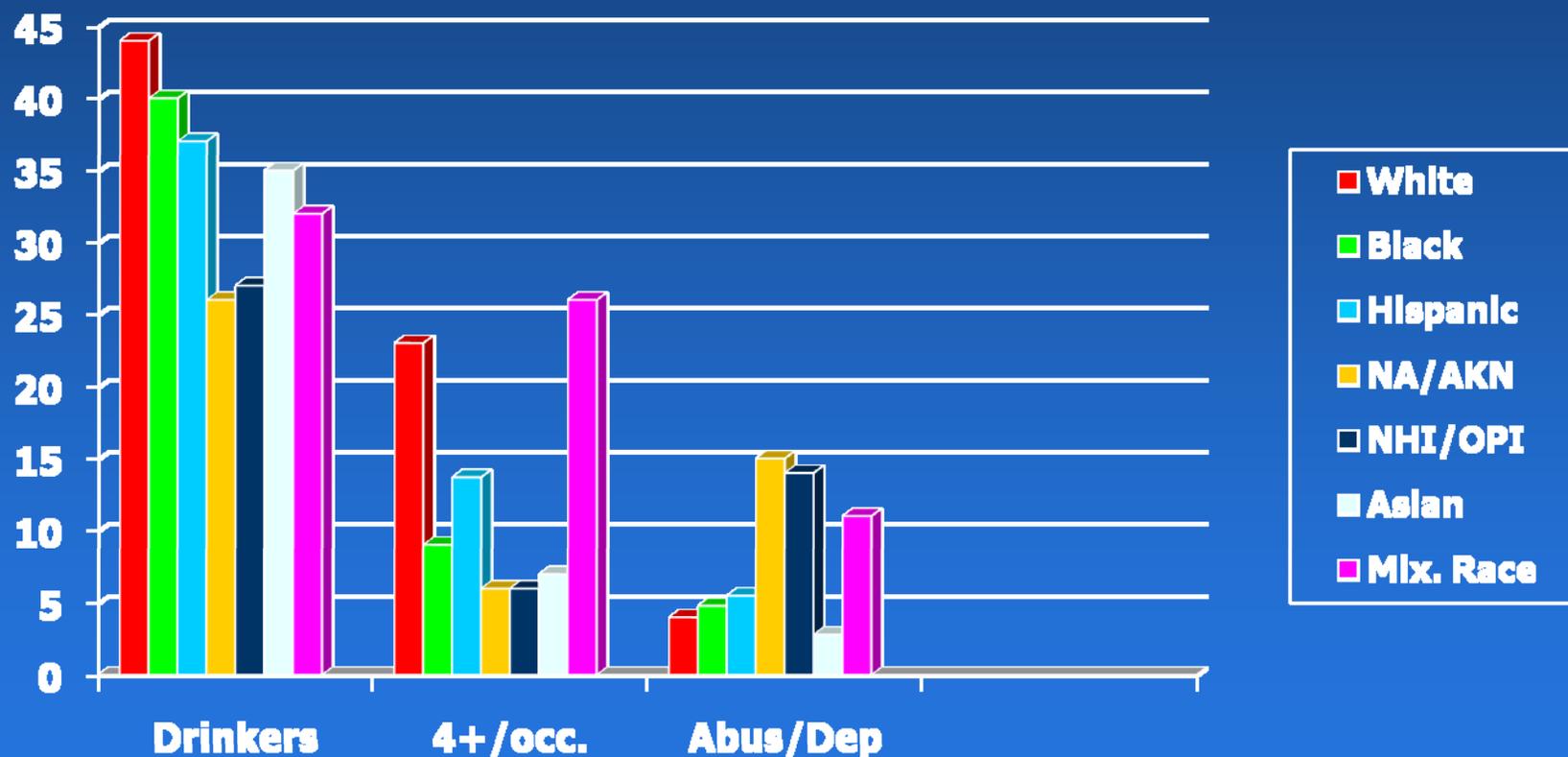
Alcohol Use, Four or More and Abuse/Dependence Among Non-Pregnant Women 18-44: NESARC 2002



Alcohol Use, Four or More and Abuse/Dependence Among Pregnant Women 18-44: NESARC 2002



Alcohol Use, Four or More, Abuse/Dependence by Ethnicity Among Non-Pregnant Women 18-44: NESARC 2002



Alcohol Use, Four or More, Abuse/Dependence by Ethnicity Among Pregnant Women 18-44: NESARC 2002

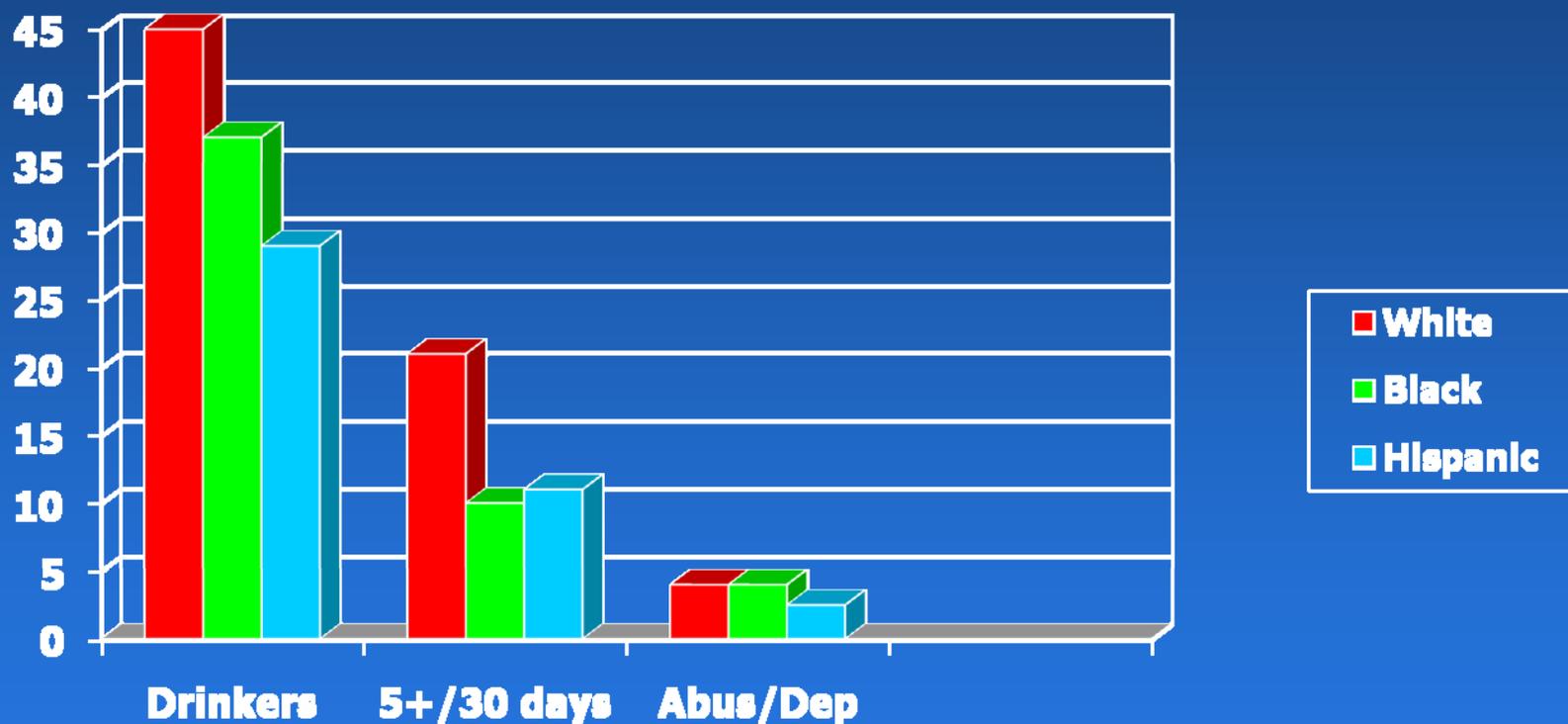


Table 1: Major maternal risk factors associated with Fetal Alcohol Syndrome and alcohol-related birth defects

| Factor | Reference(s) |
|---|--|
| Age: >25 years | Abel and Sokol 1987; May et al. 1983 |
| Number of children: >3 | Abel 1988; Abel and Sokol 1987; Davis and Lipson 1984; Hankin and Sokol 1995 |
| Separated, divorced, or never married | Gehshan 1995; Hilton 1991; Wilsnack et al. 1991 |
| High blood alcohol concentration | Chang et al. 1997; Day et al. 1993; Godel et al. 1992 |
| Binge drinking | Chang et al. 1997; Day et al. 1993; Godel et al. 1992 |
| Long history of drinking | May et al. 1983; Sokol et al. 1980 |
| Heavy drinking by male partner | Wilsnack and Beckman 1984; Wilsnack et al. 1991 |
| Heavy drinking by any family member | Abel 1988 |
| Culture tolerant of heavy drinking | May et al. 1983; Robinson et al. 1987 |
| Low socioeconomic status | Abel 1995; Abma and Mott 1991; Bingol et al. 1987; Sokol et al. 1986 |
| Work in male-dominated occupation | Gehshan 1995; Wilsnack and Wilsnack 1992; Wilsnack et al. 1991 |
| Unemployment | Gehshan 1995; Wilsnack and Wilsnack 1992; Wilsnack et al. 1991 |
| Social transience | May et al. 1983; Streissguth et al. 1985 |
| Low self-esteem | Kaskutas 1996 |
| Loss of children to foster or adoptive care due to neglect, abuse, or abandonment | Habbick et al. 1996; May et al. 1983; Streissguth et al. 1985 |
| Sexual dysfunction | Wilsnack et al. 1991 |
| Use of multiple substances | Day et al. 1993; Godel et al. 1992; Serdula et al. 1991 |
| Cigarette smoking | Day et al. 1993; Godel et al. 1992; Serdula et al. 1991 |

Source: Adapted and updated from May 1995.

Summary of the Epidemiological Data

- Non-pregnant women have higher rates of drinking and binge (BRFSS, NSDUH).
- Rates among 18-20 and 21-29 are too high: 25% non-pregnant and 20% pregnant women either binge or have a substance use disorder.
- Younger group drinks more and has a high rate of unplanned pregnancies.

Approaches to Prevention

Steps to Prevention

Surveillance

What is the size of the problem?

Risk Factor
Identification

What are the risks? Alcohol?

Intervention
Evaluation

What works and for
what groups?

Implementation

How to do it?

Adapted from Christoffel &
Gallagher, 1999

Levels of Prevention When Alcohol is a Risk Factor

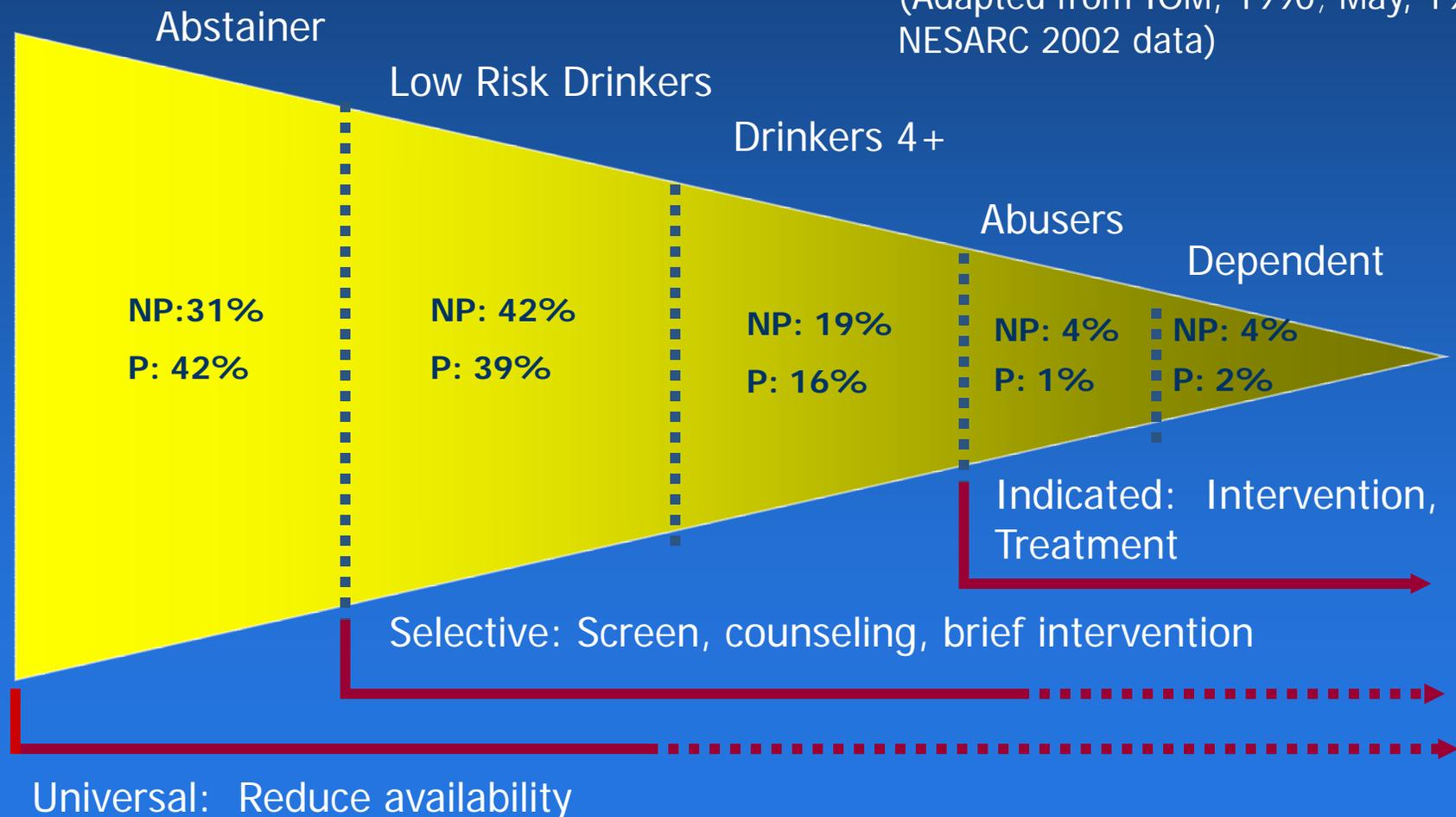
- Universal: Directed at all members of a population (e.g., all women, all pregnant women).
- Selective: Directed at subgroups of individuals with a risk higher than average (e.g., drinkers, pregnant women who drink, partners).
- Indicated: Directed at the groups who are at highest risk (e.g., high risk drinkers, abusers and dependent).

Prevention Interventions

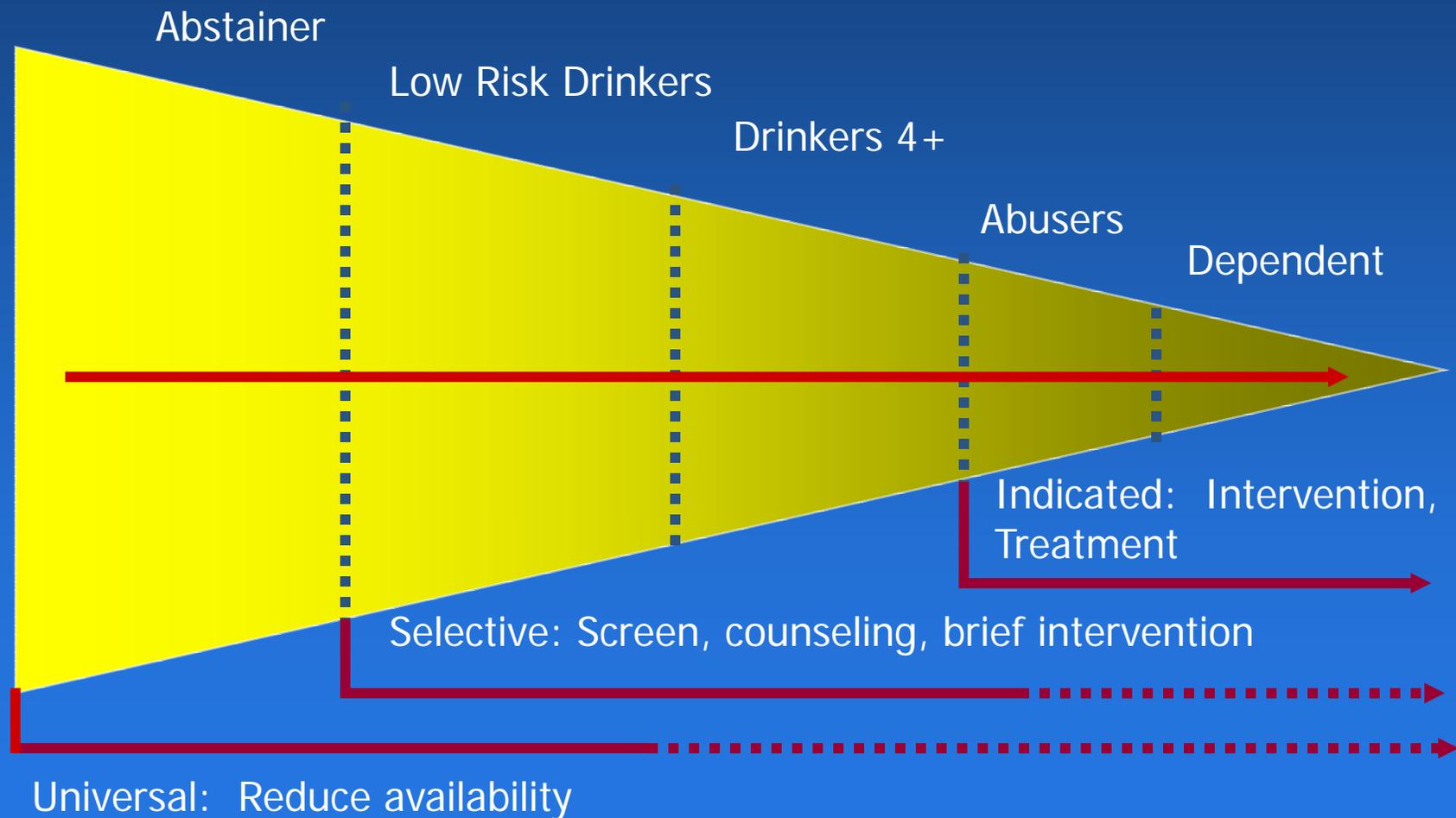
- Different levels of prevention call for different types of intervention.
- Universal: Reduce alcohol consumption in the population, support abstinence, FAS risk awareness in routine health care.
- Selective: Screen, identify at risk and provide less intense intervention.
- Indicated: More intense interventions for those at highest risk (e.g., treatment).

Women 18-44 Pregnant and Non-Pregnant at Different Levels of Risk and Potential Interventions

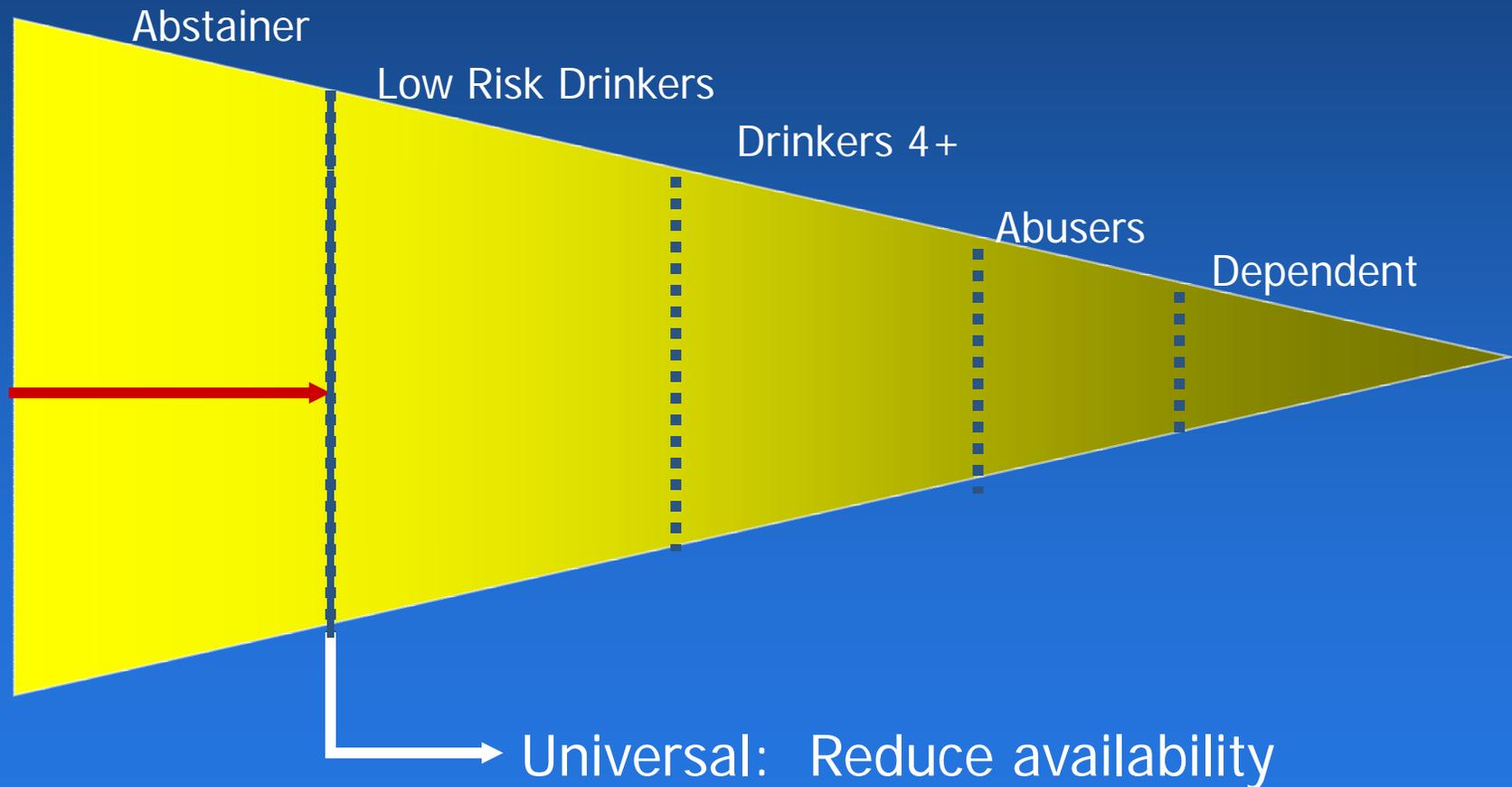
(Adapted from IOM, 1990; May, 1995; NESARC 2002 data)



Women 15-49: Lifetime Movement Along Drinking Continuum



Women 15-49: Lifetime Movement Along Drinking Continuum



Primary (Universal) Interventions

- Based on the “public health approach”, which proposes that the higher the average amount of alcohol consumed the greater the prevalence of problems.
- Prevention interventions are directed at the reduction of average alcohol consumption by limiting the availability of alcohol.

Primary Prevention Interventions Directed at the General Population

| Intervention | Effectiveness | Research Support |
|----------------------|---------------|------------------|
| Alcohol Taxes | High | 5 or + studies |
| Hour & day limits | Moderate | 2-4 studies |
| Outlets limits | Moderate | 5 or + studies |
| Diff. avail/strength | Moderate | 2-4 studies |
| Comm. mobilizat. | Moderate | 2-4 studies |
| Advertising ban | Limited | One study |
| Public messages | Lacking | 5 or + studies |
| Warning labels | Lacking | One study |

Adapted from Babor et al., 2003.

Potential Roles for Education & Persuasion Interventions

- Fulfill a public service
- Provide a perspective
- Promote debate and discussion
- Offer a rationale for alcohol policies
- Supportive function
- Influence focus of policy work

Recommendation on Universal Prevention

Recommendation 1: Expand and test methodological approaches for assessing the effects of universal prevention strategies on alcohol use patterns and reproductive health outcomes of childbearing-aged women.

Recommendation 2: Promote the implementation of effective population-based interventions for reducing alcohol-related harms in the general population, including women of childbearing age, as they are validated.

Table 2: Commonly used screening questionnaires for identifying problem drinking

CAGE:

- Have you ever felt you should **C**ut down on your drinking?
- Have people **A**nnoyed you by criticizing your drinking?
- Have you ever felt bad or **G**uilty about your drinking?
- Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (**E**ye opener)?

Each item receives a score of 1 for a positive response (Ewing 1984).

T-ACE:

- **T**olerance—How many drinks can you hold?
- Have people **A**nnoyed you by complaining about your drinking?
- Have you ever felt you ought to **C**ut down on your drinking?
- **E**ye opener—Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?

A score of 2 is given for a positive response to the tolerance question; 1 point each is scored for the other three questions (Sokol 1989).

TWEAK:

- How many drinks can you hold? (**T**olerance)
- Does your spouse [or do your parents] ever **W**orry or complain about your drinking?
- Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover? (**E**ye opener)
- Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before? (**A**mnnesia)
- Have you ever felt you ought to cut [**K**ut] down on your drinking?

Positive answers to the tolerance and worry questions score 2 points each; the other three questions score 1 point each (Chan et al. 1993).

MAST (Michigan Alcoholism Screening Test):

Consists of 25 questions, each weighted 0, 1, 2, or 5, and when summed yielding scores of 0 to 53 (Selzer 1971).

A Pragmatic Approach

- There are women at all levels of risk.
- The approach must therefore be comprehensive, combining all levels of interventions.
- Only universal interventions have the potential to stop the flow of women from low risk to high risk drinking.
- The challenge is that universal interventions do not address FAS or women only but must be part of a wider strategy to reduce all problems.

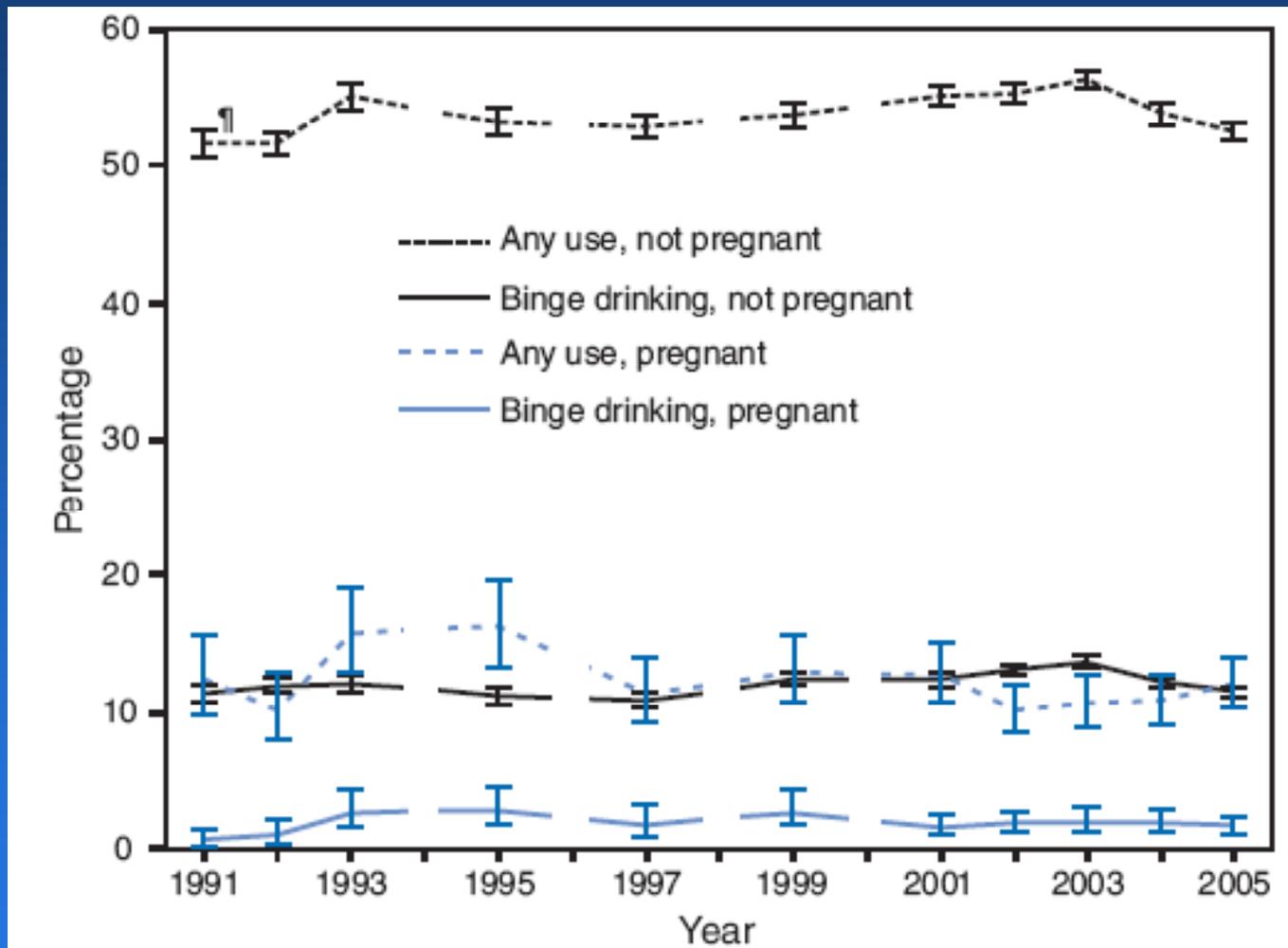
Extraordinary Opportunities

The research base is strong, presenting opportunities:

- To make choices rationally.
- To combine rationally selected strategies into an integrated overall policy.
- To implement policies at multiple levels.
- To strengthen public awareness and support.

THE END

Percentage of women 18--44 years who reported any alcohol use or binge drinking by pregnancy status: Behavioral Risk Factor Surveillance System (BRFSS) surveys, United States,† 1991--2005



Ratings of 31 Policy-relevant Prevention Strategies and Interventions

- 1) Evidence of Effectiveness^a – the quality of scientific information
- 2) Breadth of Research Support^a – quantity and consistency of the evidence
- 3) Tested Across Cultures^a, e.,g. countries, regions, subgroups
- 4) Cost to Implement and Sustain^b – monetary and other costs

^aRating Scale: 0, +, ++, +++, (?)

^b Rating Scale: Low, Moderate, High

Evaluation Standards

Evidence of Effectiveness:

- 0 Evidence indicates a lack of effectiveness
- + Evidence for limited effectiveness
- ++ Evidence for moderate effectiveness
- +++ Evidence of a high degree of effectiveness
- ? No studies have been undertaken or there is insufficient evidence upon which to make a judgment.

Evaluation Standards

Breadth of Support

- 0 No studies of effectiveness have been undertaken
- + Only one well designed study of effectiveness completed.
- ++ From 2 to 4 studies of effectiveness have been completed.
- +++ 5 or more studies of effectiveness have been completed.
- ? There is insufficient evidence on which to make a judgment.

Evaluation Standards

Tested Across Cultures:

- 0 The strategy has not been tested adequately.
- + The strategy has been studied in only one country
- ++ The strategy has been studied in 2 to 4 countries
- +++ The strategy has been studied in 5 or more countries
- ? There is inadequate information on which to make a judgment

Evaluation Standards

Cost to Implement and Sustain:

High Relatively high cost to implement and sustain.

Moderate Moderate cost to implement and sustain.

Low Low cost to implement and sustain.

? There is no information about cost or cost is impossible to estimate.