SCHOLASTIC TEACHER'S EDITION

DRUGS + YOUR LIFE

Dear Teacher:

The first two articles of this year's Heads Up series highlighted the damaging health effects of drugs on a teen's brain and body. This third article, "Drugs + Your Life," focuses on other real-life consequences of teen drug and alcohol use such as academic problems, violence, accidental death, and blackouts. In addition, the lesson to the right includes further thought-provoking statistics for you to guide students in grade/age appropriate discussions about possible consequences of binge drinking. The accompanying work sheet helps students develop the skills to interpret and understand statistical data as well as apply information in decision making.

By sharing this article and working through these exercises with your students, you will provide them with critical information about the many risks teens face with drugs, as well as valuable tools to help them make informed and healthy decisions.

Sincerely,

Nora D. Volkow, M.D.
Director, National Institute on Drug Abuse

In This Installment:

- **Student article:** Presents teens with statistics that illustrate other real risks of substance abuse in addition to health effects.

- **Student work sheet:** Helps to explain statistics in a relatable way, using real-life examples and mathematical context.

Alignment With National Standards
- *Science (NSES):* Science in Personal and Social Perspectives: Personal and Community Health

- *Math (NCTM):* Evaluate inferences and predictions based on data; probability

Before-Reading Questions:
- In addition to damaging a teen's health, how else can drugs and alcohol affect his or her chances for a successful and happy life?

- What do you know about statistics? What makes statistical data reliable?

- What factors influence your choices and actions when making decisions?

After-Reading Questions (factual responses in *italics*):

- What are statistics, and what can we learn from them? *(Statistics can be used to indicate the probability, or likelihood, of something happening to a certain group of people.)*

- How can a person's age and behavior be used to determine the probability of risk? *(Scientists use a mathematical formula that examines the number of times a certain result occurs within a sample of similar people or behaviors. In drug studies, there are always at least two experimental [or study] groups—one that uses the drug and one that does NOT. By comparing how often a certain result occurs in each group, calculations can be made to determine if using a drug affects outcomes, i.e., has risk.)*

- How can statistics help you make smart decisions? *(Statistics can help you* understand the likelihood of something happening, which can aid you in making smart and informed decisions.)*

Additional Discussion: Binge Drinking[1]

Below are several teen statistics relevant to binge drinking that might be sensitive to present in some classrooms, but are provided here for teachers to incorporate into student discussions as they deem appropriate.

- *Suicide*: Among high school teens, those who binge on alcohol are *three times more likely* to attempt suicide than those who do not drink.

- *Sexual Violence*: Teens who binge drink are about *three times more likely* to be forced to have sex than teens who do not drink.

- *Unwanted Pregnancy*: Compared with high school teens who do not drink, teen binge drinkers are about *four times more likely* to become pregnant or to get someone pregnant.

[1] American Academy of Pediatrics, 2007; http://pediatrics.aappublications.org/content/119/1/76.full.html

Extension:
Challenge students to research infograms and teen drug statistics. Then have them convey information they think is important in a graph, chart, or other visual illustration that displays the data in an accurate and effective way. Have students present their infograms in class.

Work Sheet Answer Key: 1. "Group Fight": 36.4 / 16.5 = 2.2; "Sold Drugs": 29.8 / 2.8 = 10.6; "Stole More Than $50": 26.1 / 4.1 = 6.4; "Attacked Someone": 24.4 / 7.3 = 3.3; "Carried a Handgun": 8.6 / 3.1 = 2.8. **2.** Answers might include: *Teens who do drugs may become addicted and feel compelled to find money to buy more drugs, so they might turn to stealing or selling drugs to get the next high.* **3.** Answers might include: *Statistical probability shows the likelihood of something happening, which can help a person determine risk.*

More Information
- For more information on drugs, go to **teens.drugabuse.gov**.
- For more teaching materials, go to **scholastic.com/headsup** and **drugabuse.gov/parent-teachers**.
- For immediate help with a crisis, call **1-800-273-TALK**.
- To locate a treatment center, call **1-800-662-HELP** or visit **findtreatment.samhsa.gov**.

Statistics: More Than Numbers

Eight seconds are left in the basketball game and your team is down by one. You have the ball. Who do you pass to?

Understanding statistical probability can help you determine the likelihood of something happening, and prepare you to make smart decisions. Back to the game:

- The freshmen have made 40 out of 100 shots this season (40%).

- The seniors have made 160 out of 200 shots this season (80%).

To understand this another way, a senior is two times more likely to make the shot than a freshman because the seniors' shooting percentage is twice as high. This is calculated by dividing the seniors' 80% by the freshmen's 40%, equaling 2. In a bar graph, this means the seniors' bar is two times the size of the freshmen's (see *Figure 1*). Could a freshman make the shot and a senior miss? Of course! These are probabilities, not certainties, but the seniors' *chance* of scoring is still twice as high.

The same process can be applied to understanding drug statistics, which have more serious consequences

than a game outcome. To obtain statistics, scientists study reliable data to find patterns and probabilities. For example, statistics show that teens who use drugs are two times more likely to behave violently—a serious outcome (see *Figure 2*). This means that the act of using drugs multiplies the average teen's likelihood of violence not once, but *two whole times*.
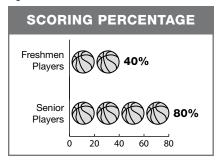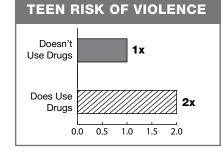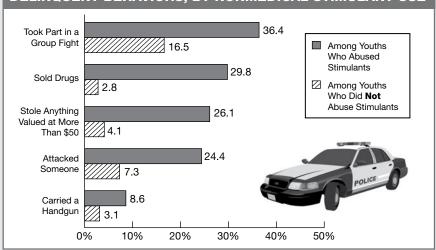
Figure 1

SCORING PERCENTAGE

Freshmen Players   🏀 🏀   **40%**

Senior Players   🏀 🏀 🏀 🏀   **80%**

0   20   40   60   80

Figure 2

TEEN RISK OF VIOLENCE

Doesn't Use Drugs   **1x**

Does Use Drugs   **2x**

0.0   0.5   1.0   1.5   2.0

Think It Through

The graph below compares the probability of certain behaviors among stimulant abusers and non-abusers. Stimulants (cocaine, methamphetamine, and "ecstasy") are a class of drugs that increase energy and feelings of well-being but they also cause increased blood pressure and irregular heartbeat. Study the graph, and then answer the questions on separate paper.

PERCENTAGES OF YOUTHS AGED 12–17 PARTICIPATING IN DELINQUENT BEHAVIORS, BY NONMEDICAL STIMULANT USE

Took Part in a Group Fight — 36.4 / 16.5

Sold Drugs — 29.8 / 2.8

Stole Anything Valued at More Than $50 — 26.1 / 4.1

Attacked Someone — 24.4 / 7.3

Carried a Handgun — 8.6 / 3.1

0%   10%   20%   30%   40%   50%

Legend:
- ▓ Among Youths Who Abused Stimulants
- ▨ Among Youths Who Did **Not** Abuse Stimulants

1. How much more likely are stimulant abusers than non-abusers to participate in each of the behaviors on the graph? Round your results to the nearest tenth.

   Example: Using stimulants makes a teen <u>2.8</u> times more likely to <u>carry a handgun</u>. *Calculation: 8.6% abusers ÷ 3.1% non-abusers = 2.8.*

2. Why do you think drugs like stimulants increase a teen's likelihood of violent behavior and illegal activities?

3. How can examining probability help a person make decisions?