Drug Abuse

Recognize and Prevent

Overview of Lesson	National Standards for Civics and Government	National Standards for English	National Standards for Health
Students examine the effects of drug use on teens and practice refusal skills to turn down drugs.	None	• Conduct research on issues and interests by generating ideas and questions and by posing problems. (ELA 7)	• Comprehend concepts related to health promotion and disease prevention. (NHES 1) • Demonstrate the ability to use interpersonal communication skills to enhance health. (NHES 5)

20

SESSION

DRUG ABUSE

RECOGNIZE AND PREVENT

In this session, teens examine the causes and impact of teen drug abuse, then consider what they—as individuals and as members of their community—can do to help solve this problem.

TEENS WILL LEARN

- The definition of drug abuse
- The extent of drug abuse among teens
- The effects of drugs including marijuana, club drugs, inhalants, and tobacco
- Refusal skills to turn down drugs
- Strategies communities can use to fight back against drug abuse

TEACHING STRATEGIES

The following teaching strategies are used in this session:

- What I Know—What I Want To Know—What I Learned (K-W-L)
- Each One Teach One
- Scavenger Hunt
- Small-group Discussion
- Role-play
- Whole-group Discussion
- Journal Writing

MATERIALS NEEDED

- Newsprint and markers
- Handout 1: *How Substance Abuse Causes Problems*
- Handout 2: *National Institute on Drug Abuse Infofacts*
- Handout 3: *Five Refusal Skills Situations*
- *Handling Difficult Situations* poster (found in the *Community Works* kit)
- Pens or pencils and paper for each teen
- Journal for Session 20

RESOURCES ON THE WEB

www.NIDA.nih.gov/

Invite a counselor from a local drug treatment center, a local narcotics officer, a representative of the local Narcotics Anonymous chapter, or a local antidrug coalition member to assist in presenting this session.

SUMMARY OF STEPS

60 Minutes

PART 1
Step A. Warm-up
Step B. What Do You Think?
Step C. Gathering Information about Teen Drug Abuse

55 Minutes

PART 2
Step D. What Can We Do About Teen Drug Abuse?
Step E. Reflection

BEFORE THE SESSION

1. Read the session plan.
2. Review Session 8: *Conflict, Communicating, and Working Together* so that you can use the skills in giving and receiving negative feedback to help teens in the role-plays in Step D. Hang up the *Handling Difficult Situations* poster.
3. Decide how you will involve teens in the session as helpers, leaders, readers, or poster designers. For more information about facilitating teen involvement, consult the Introduction in Volume One.
4. Make two copies of Handout 1: *How Substance Abuse Causes Problems:* one to cut into strips for the Each One Teach One activity and one for your use.
5. Make copies of Handout 2: *National Institute of Drug Abuse Infofacts* for half the teens in your group. They will use these handouts in pairs.
6. Make a copy of Handout 3: *Five Refusal Skills Situations* and cut it into five pieces.
7. Make copies of the journal for all teens.
8. Post the teen-created guidelines from Session 1 in the room.
9. Gather the materials you will need.

PART 1

STEP A

TEACHING STRATEGY

- Icebreaker

5 MINUTES

Warm-up

1. Review the purpose of *Community Works.*
   - Have teens think for a minute about the purpose of *Community Works.* Ask teens to tell what they remember.
   - Ask group members to update newcomers and those who missed earlier sessions. Assign this task to teens on a rotating basis. Tell them it helps build public-speaking skills.
   - Remind teens that these sessions will help them get information and develop skills to avoid being the victims of crime, as well as help them develop skills to help others and their communities become safer.
   - Return their journals with your comments from the last session.
2. Explain the purpose of this session.

- Tell teens that in this session they will examine the causes and impact of teen drug abuse. Then they will consider what they can do to help solve this problem, both as individuals and as members of their community.

3. Remind teens of the guidelines they developed for these sessions. Be sure their list is posted on the wall.
   - One way to increase teens' involvement and give them ownership of the session is to have them volunteer to go over the group guidelines at the start and recap the activities from the last session.
4. To warm up the group, choose an icebreaker (optional) from the Introduction in Volume One. (Allow additional time for this activity.)

STEP B

What Do You Think?

TEACHING STRATEGY

- What I Know—What I Want To Know—What I Learned (K-W-L)


10 MINUTES

1. Begin by asking: "Why do some teens think it's cool to use drugs?"
   - Let teens give their ideas, but don't write them down.
   - The point is to start with the attractions of drugs in terms that teens use before going into the realities of drug abuse.
2. Write on the newsprint or chalkboard the letters K, W, and L in three columns.
   - Explain what these mean: K=What I **K**now, W=What I **W**ant To Know, L= What I **L**earned. Have teens brainstorm what they already know about drug abuse. Write this in the "K" column.
   - If teens list information under "know" that you or the resource person thinks is incorrect, go back at the end of the brainstorm for this activity and write "?" next to the information. Tell teens that you will come back to this information in Step E and provide correct information.
   - Help teens develop questions about drug abuse—what questions do they want answered? Write these questions in the "W" column. (If you think teens would be more comfortable asking questions anonymously, distribute pens or pencils and paper so they can write down their questions without signing their names. Collect all the pieces of paper, then read and record the questions.)
   - The last step (What I Learned) will be done as part of Step E, when you will record what teens have learned during this session in the "L" column on this same chart and teens can see their progress.
3. Define the term *drug abuse.*
   - *Drug abuse is the wrongful use, misuse, or excessive use of any legal or illegal drug.* Any use of an illegal substance is abuse.
   - Compare this definition with what teens listed in the "K" and "W" columns.
   - Acknowledge their efforts.

STEP C

Gathering Information About Teen Drug Abuse

Teaching Strategies

- Each One Teach One
- Scavenger Hunt
- Small-group Discussion

45 Minutes

1. Use the Each One Teach One strategy to encourage teens to share information about drug abuse.
   - Distribute one fact strip to each teen from Handout 1: *How Substance Abuse Causes Problems,* or give more than one fact to each teen if you have fewer teens than facts.
   - Each teen should spend a few minutes reading the information on the fact strip. Circulate and make sure that teens understand the information they received.
   - Tell teens to circulate around the room and teach their fact to one person at a time, until they have spoken to every person.
   - They may talk with only one teen at a time. The object is to share a fact and learn one from the other person.
   - When they have completed the activity, ask volunteers to tell the group something they learned from another teen.
   - Write their information on the chalkboard or newsprint under the heading "How Substance Abuse Causes Problems."
2. Use key messages to help teens make sense of the problems caused for teens by substance abuse. Make sure the following main ideas appear on the chalkboard or newsprint.

   Teens using drugs are

   - At greater risk of contracting HIV and developing AIDS
   - More likely to have emotional problems
   - Putting strain on their family relationships
   - More likely to have problems in school
   - More likely to have problems on the job
   - More likely to be violent
3. To help teens learn more about the problem of teen drug abuse, have them work in pairs on an information scavenger hunt.
   - Organize teens into pairs.
   - Give each pair of teens a copy of Handout 2: *NIDA Infofacts*.
   - Write on the chalkboard or newsprint the scavenger hunt questions that you think are appropriate for your group to answer. These questions can serve as a guide and can be adapted:
     - Use some of the questions teens asked in the "W" column.
     - What three facts did you already know?
     - What three facts did you find the most surprising? Upsetting?
     - Did any facts make you question information that the group put in the "W" column? If so, what were they?
     - What information (select at least two facts) has direct bearing on people you know? On your community?
     - What information do you consider good news? Bad news?
   - Give each pair a pencil or pen and paper to write their questions and answers.

4. When teens have completed their scavenger hunt, bring them back together as a group to consider and select the information they think is most important to know about the problem of drug abuse among teens.
   - On the top of a piece of newsprint or the chalkboard, write "The Problem of Drug Abuse Among Teens."
   - Have each pair join another pair; then each group of four selects two or three pieces of information they think are the most important for teens to know.
   - Ask one teen from each group of four to report their findings and write these on the newsprint or chalkboard. If more than one group selects the same information, indicate this with checkmarks.
   - At the end of this activity, you will have a list of facts the participants think are most important to know about the problem of teen drug abuse.

Wrap-up for Part 1

Ask teens: Based on our discussions, which information would you share with your friends? Brainstorm some information that the participants feel all young people should know about drugs. Once the group has identified some key issues, discussions can focus on how the issue can evolve into a service-learning project.

Part 2 of Session 20 will continue discussions about drug abuse with a focus on handling some difficult situations with friends.

PART 2

REVIEW AND PREVIEW

Begin Part 2 by reviewing Part 1. Be sure to remind participants about the objectives for these sessions and give them an overview of what will be accomplished during this session. (Hint: Use the objectives set out at the beginning of this session.)

STEP D

TEACHING STRATEGIES

- Role-play
- Whole-group Discussion

45 MINUTES

What Can We Do About Teen Drug Abuse?

1. Take some time to reflect on the complexities of this problem while looking over the list. Have teens look over the newsprint list.
2. Point out that although this problem can seem overwhelming, teens can act—as individuals and as part of their community—to prevent drug abuse.
3. Have teens practice refusal skills.
   - Point out that teens need to send clear, direct, and strong messages that they can imagine using in real life.
   - Put the pieces of Handout 3: *Five Refusal Skills Situations* in a paper bag.
   - Ask for five pairs of teens to volunteer to role-play these situations.
   - Have teens recap the skills they learned from the *Handling Difficult Situations* poster.

- Have one member of each pair draw a situation from the bag and act it out.
- After each situation is acted out, ask the group for feedback.
- The point is to get teens to think of realistic and do-able solutions they would actually use.
- Involve the resource person in the discussion.

This is a good place to have your resource person take the lead with the discussion.

4. Have teens focus on how they might talk to a friend who is using drugs.

   - Introduce the following scenario:

     Miranda and Ernie are in the eighth grade at Brainiac High School. Lately their friend Michael has been going through some changes. They have been discussing the changes and aren't sure what to do. Michael has been going to parties and seems to have some new friends. He used to be part of their math study group but lately he hasn't had time. Michael told Miranda and Ernie that he is depressed about his math grade. He is worried about how his father will feel about his grades. During lunch he says he does not have an appetite. Michael has invited Miranda and Ernie to a party he calls a "rave" next week. The party sounds like fun. There will be a band and security guards to make sure that kids cannot leave once they are inside. Miranda and Ernie think that their parents will let them go, especially when they hear about the security guards. Miranda and Ernie wonder if perhaps going to the party will help them figure out what is happening to their friend, and besides—who doesn't like a party?

     Miranda and Ernie are asking your advice about what to do.
     What can they do to help their friend?

   - Begin by asking teens to tell what they remember of the warning signs that a friend may have a problem with drinking or drugs. Participants should also consult their infofacts sheets for additional information.
   - Ask the group to brainstorm some advice they might give to Miranda and Ernie.
   - Write their suggestions on the newsprint or chalkboard.
   - Use the points listed here to supplement and expand teens' ideas so that they can recognize that they are the source of the solutions and not just the problems.

     - Make sure the timing is right. Talk to your friend when he or she is not high.
     - Never accuse your friend of taking drugs, but do express your concern. Try not to blame your friend for the problem.
     - Talk about your feelings: that you're worried when you see him or her taking drugs.
     - Speak in a caring tone and use a calm voice.
     - Don't get into an argument. If one gets started, you can say, "I'm not going to argue with you. I just wanted you to know why I'm concerned about you."

- Ask if there is anything that you can do to help. Offer suggestions, such as "I'll go with you if you want to talk to a school counselor."
- Don't expect your friend to like what you're saying.
- Take care of yourself. Talk about the situation with someone who knows about drug abuse.
- "Raves" and "trances" are two names for parties where the drug ecstasy is available. Often these parties are offered for young people in eighth and ninth grades. The fact that the young people will be kept from leaving gives parents a false sense that the party will be chaperoned and safe.

5. Ask teens to think back to the map from Session 6: *Our Community's Resources* and to focus on drug treatment resources.

   - Ask:

     - What are their community's drug treatment services, hotlines, etc.?
     - Do you know of programs in local schools to educate children and teens about drug abuse?
     - List these resources on the chalkboard or newsprint.

This is a good place for a resource person from the community who works in drug treatment and prevention to let teens know what's out there, answer their questions, and tell them what antidrug abuse efforts could use teen volunteers.

6. Make sure teens know that prevention works best when all parts of the community make it a priority and get involved together. Members of the community to involve include

   - Community leaders
   - Policymakers
   - Educators
   - Faith community leaders
   - Business leaders
   - Volunteers
   - Parents
   - Employers and employees
   - Youth and social service providers
   - Children and youth
   - Media representatives

7. If there is no drug treatment (or inadequate services) in your community, you can use this example:

   Drug treatment is now readily available in the Marshall Heights section of Washington, DC, thanks to the efforts of Marshall Heights Fighting Back, operated through the Marshall Heights Community Development Corporation. This area, which has a high rate of drug use and crime, had no drug treatment capacity, so the Fighting Back program organized key members of the community to help build a drug treatment and social services program right in the neighborhood.

STEP E

Reflection

Teaching Strategy

- Journal Writing

10 Minutes

1. Relate the session to teens' lives.
   - Ask teens what other information they might need to do a service-learning project to help prevent drug abuse. For example, they could take a survey of their community's attitudes about drugs. What do they want to publicize? What groups might they target? With whom in their community might they work to expand on or create solutions?
   - Ask teens what they think would be the most effective ways of sharing this information with these groups. Tell teens that they could use what they have learned about drug abuse and present their findings to the local prevention coalition. Other suggestions include holding a panel discussion, writing and presenting skits, designing and exhibiting posters, and writing and distributing a brochure about drug abuse.
   - Have teens consider what organizations in their community are already working on this problem.
2. Turn learning into action.
   - If this session has sparked special interest among teens and they are interested in doing a short service-learning project (of approximately two hours or less) related to this session, consult "Easy Steps to a Service-learning Project" in the Introduction in Volume One.
   - Ask for volunteers for the next session's tasks, such as making posters, contacting community resource people, and setting up the room.
3. Distribute the journal for Session 20.
   - Remind teens of the purpose of the journal. Be sure they know it is to help them reflect on what they learned and for you to read and respond to what they write. Be clear that you will not be correcting what they write, just reading and responding.
   - Ask teens to write their answers to the journal questions.
   - Have teens share what they learned in this session.
   - Collect their journals and review them after the session and write short comments. Tell them you will return journals with your comments at the next session. This gives the teens something tangible and provides them with a connection to previous sessions.

HANDOUT 1

How Substance Abuse Causes Problems

1. Drug use among teens has declined to the lowest levels since 1995.
2. Using drugs can cause defensiveness and paranoia (an irrational fear, suspicion, or distrust of others).
3. People using drugs often cause their family members to worry about their loved one's use of drugs.
4. People using drugs often cause their family members to be angry about the squandering of family money used to buy drugs.
5. Teens' repeated use of some drugs can lead to increased absences from school and bad grades.
6. Teens' repeated use of some drugs can lead to memory lapses and difficulty in concentrating.
7. Teens' repeated use of some drugs can increase the tendency to get into fights.
8. Teens' repeated use of some drugs can reduce coordination in athletic activities.
9. Drug users find it hard to perform duties on a job and difficult or impossible to get a job with a drug-related criminal record.
10. Drug users may not get their choice of duties in the military.
11. Among drug users, there is a high incidence of spouse and child abuse.
12. Among drug users, there is a high incidence of acquaintance rape and dating violence.
13. Among drug users, there is a lot of theft to support a drug habit.

HANDOUT 2A

National Institute on Drug Abuse Infofacts

Inhalants

Inhalants are breathable chemical vapors that produce psychoactive (mind-altering) effects. A variety of products common in the home and in the workplace contain substances that can be inhaled. Many people do not think of these products, such as spray paints, glues, and cleaning fluids, as drugs because they were never meant to be used to achieve an intoxicating effect. Yet, young children and adolescents can easily obtain them and are among those most likely to abuse these extremely toxic substances.

Inhalants fall into the following categories:

Volatile Solvents

- *Industrial or household solvents or solvent-containing products*, including paint thinners or removers, degreasers, dry-cleaning fluids, gasoline, and glue
- *Art or office supply solvents*, including correction fluids, felt-tip-marker fluid, and electronic contact cleaners

Aerosols

- *Household aerosol propellants* and associated solvents in items such as spray paints, hair or deodorant sprays, fabric protector sprays, aerosol computer cleaning products, and vegetable oil sprays

Gases

- *Gases used in household or commercial products*, including butane lighters and propane tanks, whipping cream aerosols or dispensers (whippets), and refrigerant gases
- *Medical anesthetic gases*, such as ether, chloroform, halothane, and nitrous oxide ("laughing gas")

Nitrites

- *Organic nitrites* are volatiles that include cyclohexyl, butyl, and amyl nitrites, commonly known as "poppers." Amyl nitrite is still used in certain diagnostic medical procedures. Volatile nitrites are often sold in small brown bottles labeled as "video head cleaner," "room odorizer," "leather cleaner," or "liquid aroma."

Health Hazards

Although they differ in makeup, nearly all abused inhalants produce short-term effects similar to anesthetics, which act to slow down the body's functions. When inhaled in sufficient concentrations, inhalants can cause intoxication, usually lasting only a few minutes.

However, sometimes users extend this effect for several hours by breathing in inhalants repeatedly. Initially, users may feel slightly stimulated. Repeated inhalations make them feel less inhibited and less in control. If use continues, users can lose consciousness.

Sniffing highly concentrated amounts of the chemicals in solvents or aerosol sprays can directly induce heart failure and death within minutes of a session of repeated inhalations. This syndrome, known as "sudden sniffing death," can result from a single session of inhalant use by an otherwise healthy young person. Sudden sniffing death is particularly associated with the abuse of butane, propane, and chemicals in aerosols.

High concentrations of inhalants also can cause death from suffocation by displacing oxygen in the lungs and then in the central nervous system so that breathing ceases. Deliberately inhaling from a paper or plastic bag or in a closed area greatly increases the chances of suffocation. Even when using aerosols or volatile products for their legitimate purposes (i.e., painting, cleaning), it is wise to do so in a well-ventilated room or outdoors.

Chronic abuse of solvents can cause severe, long-term damage to the brain, the liver, and the kidneys.

Harmful irreversible effects that may be caused by abuse of specific solvents include:

- Hearing loss—toluene (spray paints, glues, dewaxers) and trichloroethylene (dry-cleaning chemicals, correction fluids)
- Peripheral neuropathies, or limb spasms—hexane (glues, gasoline) and nitrous oxide (whipped cream dispensers, gas cylinders)
- Central nervous system or brain damage—toluene (spray paints, glues, dewaxers)
- Bone marrow damage—benzene (gasoline)

Serious but potentially reversible effects include:

- Liver and kidney damage—toluene-containing substances and chlorinated hydrocarbons (correction fluids, dry-cleaning fluids)
- Blood oxygen depletion—aliphatic nitrites (known on the street as poppers, bold, and rush) and methylene chloride (varnish removers, paint thinners)

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HANDOUT 2B

National Institute on Drug Abuse Infofacts

Heroin

Heroin is an addictive drug, and its use is a serious problem in America.

Heroin is processed from morphine, a naturally occurring substance extracted from the seedpod of the Asian poppy plant. Heroin usually appears as a white or brown powder. Street names for heroin include "smack," "H," "skag," and "junk." Other names may refer to types of heroin produced in a specific geographical area, such as "Mexican black tar."

Health Hazards

Heroin abuse is associated with serious health conditions, including fatal overdose, spontaneous abortion, collapsed veins, and, particularly in users who inject the drug, infectious diseases, including HIV/AIDS and hepatitis.

The short-term effects of heroin abuse appear soon after a single dose and disappear in a few hours. After an injection of heroin, the user reports feeling a surge of euphoria ("rush") accompanied by a warm flushing of the skin, a dry mouth, and heavy extremities. Following this initial euphoria, the user goes "on the nod," an alternately wakeful and drowsy state. Mental functioning becomes clouded due to the depression of the central nervous system. Long-term effects of heroin appear after repeated use for some period of time. Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulitis, and liver disease. Pulmonary complications, including various types of pneumonia, may result from the poor health

condition of the abuser, as well as from heroin's depressing effects on respiration.

In addition to the effects of the drug itself, street heroin may have additives that do not readily dissolve and result in clogging the blood vessels that lead to the lungs, liver, kidneys, or brain. This can cause infection or even death of small patches of cells in vital organs.

The Drug Abuse Warning Network* reports that eight percent of drug-related emergency department (ED) visits in the third and fourth quarters of 2003 involved heroin abuse. Unspecified opiates—which could include heroin—were involved in an additional 4 percent of drug-related visits.

Tolerance, Addiction, and Withdrawal

With regular heroin use, tolerance develops. This means the abuser must use more heroin to achieve the same intensity of effect. As higher doses are used over time, physical dependence and addiction develop. With physical dependence, the body has adapted to the presence of the drug and withdrawal symptoms may occur if use is reduced or stopped.

Withdrawal, which in regular abusers may occur as early as a few hours after the last administration, produces drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps ("cold turkey"), kicking movements ("kicking the habit"), and other symptoms. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and subside after about a week. Sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal, although heroin withdrawal is considered less dangerous than alcohol or barbiturate withdrawal.

Treatment

There is a broad range of treatment options for heroin addiction, including medications as well as behavioral therapies. Science

has taught us that when medication treatment is integrated with other supportive services, patients are often able to stop heroin (or other opiate) use and return to more stable and productive lives.

In November 1997, the National Institutes of Health (NIH) convened a Consensus Panel on Effective Medical Treatment of Heroin Addiction. The panel of national experts concluded that opiate drug addictions are diseases of the brain and medical disorders that indeed can be treated effectively. The panel strongly recommended (1) broader access to methadone maintenance treatment programs for people who are addicted to heroin or other opiate drugs; and (2) the Federal and State regulations and other barriers impeding this access be eliminated. This panel also stressed the importance of providing substance abuse counseling, psychosocial therapies, and other supportive services to enhance retention and successful outcomes in methadone maintenance treatment programs. The panel's full consensus statement is available by visiting the NIH Consensus Development Program Web site at consensus.nih.gov.

Methadone, a synthetic opiate medication that blocks the effects of heroin for about 24 hours, has a proven record of success when prescribed at a high enough dosage level for people addicted to heroin. Other approved medications are naloxone, which is used to treat cases of overdose, and naltrexone, both of which block the effects of morphine, heroin, and other opiates.

Buprenorphine is the most recent addition to the array of medications available for treating addiction to heroin and other opiates. This medication is different from methadone in that it offers less risk of addiction and can be dispensed in the privacy of a doctor's office. Several other medications for use in heroin treatment programs are also under study.

There are many effective behavioral treatments available for heroin addiction. These can include residential and outpatient approaches. Several new behavioral therapies are showing par-

ticular promise for heroin addiction. *Contingency management* therapy uses a voucher-based system, where patients earn "points" based on negative drug tests, which they can exchange for items that encourage healthful living. *Cognitive-behavioral interventions* are designed to help modify the patient's thinking, expectancies, and behaviors and to increase skills in coping with various life stressors.

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HANDOUT 2C

National Institute on Drug Abuse Infofacts

Prescription Pain and Other Medications

Prescription medications such as pain relievers, tranquilizers, stimulants, and sedatives are very useful treatment tools, but sometimes people do not take them as directed and may become addicted. Pain relievers make surgery possible, and enable many individuals with chronic pain to lead productive lives. Most people who take prescription medications use them responsibly. However, the inappropriate or nonmedical use of prescription medications is a serious public health concern. Nonmedical use of prescription medications like opioids, central nervous system (CNS) depressants, and stimulants can lead to addiction, characterized by compulsive drug seeking and use.

Commonly Abused Prescription Medications

While many prescription medications can be abused or misused, these three classes are most commonly abused:

- **Opioids**—often prescribed to treat pain.
- **CNS Depressants**—used to treat anxiety and sleep disorders.
- **Stimulants**—prescribed to treat narcolepsy and attention deficit/hyperactivity disorder.

- **Opioids**

  Opioids are commonly prescribed because of their effective analgesic, or pain relieving, properties. Studies have shown that properly managed medical use of opioid analgesic compounds is safe and rarely causes addiction. Taken exactly as prescribed, opioids can be used to manage pain effectively.

  Among the compounds that fall within this class—sometimes referred to as narcotics—are morphine, codeine, and related

medications. Morphine is often used before or after surgery to alleviate severe pain. Codeine is used for milder pain. Other examples of opioids that can be prescribed to alleviate pain include oxycodone (OxyContin—an oral, controlled release form of the drug); propoxyphene (Darvon); hydrocodone (Vicodin); hydromorphone (Dilaudid); and meperidine (Demerol), which is used less often because of its side effects. In addition to their effective pain relieving properties, some of these medications can be used to relieve severe diarrhea (Lomotil, for example, which is diphenoxylate) or severe coughs (codeine).

Opioids act by attaching to specific proteins called opioid receptors, which are found in the brain, spinal cord, and gastrointestinal tract. When these compounds attach to certain opioid receptors in the brain and spinal cord, they can effectively change the way a person experiences pain.

In addition, opioid medications can affect regions of the brain that mediate what we perceive as pleasure, resulting in the initial euphoria that many opioids produce. They can also produce drowsiness, cause constipation, and, depending upon the amount taken, depress breathing. Taking a large single dose could cause severe respiratory depression or death.

Opioids may interact with other medications and are only safe to use with other medications under a physician's supervision. Typically, they should not be used with substances such as alcohol, antihistamines, barbiturates, or benzodiazepines. Since these substances slow breathing, their combined effects could lead to life-threatening respiratory depression.

Long-term use also can lead to physical dependence—the body adapts to the presence of the substance and withdrawal symptoms occur if use is reduced abruptly. This can also include tolerance, which means that higher doses of a medication must be taken to obtain the same initial effects. Note that physical dependence is not the same as addiction—physical dependence can occur even with appropriate long-term use of opioid and other medications. Addiction, as noted earlier, is defined as compulsive, often uncontrollable drug use in spite of negative consequences.

Symptoms of withdrawal can include restlessness, muscle and bone pain, insomnia, diarrhea, vomiting, cold flashes with goose bumps ("cold turkey"), and involuntary leg movements.

Individuals who become addicted to prescription medications can be treated. Options for effectively treating addiction to prescription opioids are drawn from research on treating heroin addiction.

- **Central Nervous System (CNS) Depressants**

CNS depressants slow normal brain function. In higher doses, some CNS depressants can become general anesthetics. Tranquilizers and sedatives are examples of CNS depressants.

CNS depressants can be divided into two groups, based on their chemistry and pharmacology:

- Barbiturates, such as mephobarbital (Mebaral) and pentobarbitalsodium (Nembutal), which are used to treat anxiety, tension, and sleep disorders.
- Benzodiazepines, such as diazepam (Valium), chlordiazepoxide HCl (Librium), and alprazolam (Xanax), which can be prescribed to treat anxiety, acute stress reactions, and panic attacks. Benzodiazepines that have a more sedating effect, such as estazolam (ProSom), can be prescribed for short-term treatment of sleep disorders.

There are many CNS depressants, and most act on the brain similarly—they affect the neurotransmitter gamma-aminobutyric acid (GABA). Neurotransmitters are brain chemicals that facilitate communication between brain cells. GABA works by decreasing brain activity. Although different classes of CNS depressants work in unique ways, ultimately it is their ability to increase GABA activity that produces a drowsy or calming effect. Despite these beneficial effects for people suffering from anxiety or sleep disorders, barbiturates and benzodiazepines can be addictive and should be used only as prescribed.

CNS depressants should not be combined with any medication or substance that causes drowsiness, including prescription

pain medicines, certain OTC cold and allergy medications, or alcohol. If combined, they can slow breathing, or slow both the heart and respiration, which can be fatal.

Discontinuing prolonged use of high doses of CNS depressants can lead to withdrawal. Because they work by slowing the brain's activity, a potential consequence of abuse is that when one stops taking a CNS depressant, the brain's activity can rebound to the point that seizures can occur. Someone thinking about ending their use of a CNS depressant, or who has stopped and is suffering withdrawal, should speak with a physician and seek medical treatment.

In addition to medical supervision, counseling in an in-patient or out-patient setting can help people who are overcoming addiction to CNS depressants. For example, cognitive-behavioral therapy has been used successfully to help individuals in treatment for abuse of benzodiazepines. This type of therapy focuses on modifying a patient's thinking, expectations, and behaviors while simultaneously increasing their skills for coping with various life stressors.

- **Stimulants**

  Stimulants increase alertness, attention, and energy, which are accompanied by increases in blood pressure, heart rate, and respiration.

  Historically, stimulants were used to treat asthma and other respiratory problems, obesity, neurological disorders, and a variety of other ailments. As their potential for abuse and addiction became apparent, the use of stimulants began to wane. Now, stimulants are prescribed for treating only a few health conditions, including narcolepsy, attention-deficit hyperactivity disorder (ADHD), and depression that has not responded to other treatments. Stimulants may also be used for short-term treatment of obesity and for patients with asthma.

  Stimulants such as dextroamphetamine (Dexedrine) and methylphenidate (Ritalin) have chemical structures that are similar to key brain neurotransmitters called monoamines, which include norepinephrine and dopamine. Stimulants

increase the levels of these chemicals in the brain and body. This, in turn, increases blood pressure and heart rate, constricts blood vessels, increases blood glucose, and opens up the pathways of the respiratory system. In addition, the increase in dopamine is associated with a sense of euphoria that can accompany the use of stimulants.

Research indicates that people with ADHD do not become addicted to stimulant medications, such as Ritalin, when taken in the form and dosage prescribed. However, when misused, stimulants can be addictive.

The consequences of stimulant abuse can be extremely dangerous. Taking high doses of a stimulant can result in an irregular heartbeat, dangerously high body temperatures, and/or the potential for cardiovascular failure or seizures. Taking high doses of some stimulants repeatedly over a short period of time can lead to hostility or feelings of paranoia in some individuals.

Stimulants should not be mixed with antidepressants or OTC cold medicines containing decongestants. Antidepressants may enhance the effects of a stimulant, and stimulants in combination with decongestants may cause blood pressure to become dangerously high or lead to irregular heart rhythms.

Treatment

Treatment of addiction to prescription stimulants, such as methylphenidate and amphetamines, is based on behavioral therapies proven effective for treating cocaine or methamphetamine addiction. At this time, there are no proven medications for the treatment of stimulant addiction. Antidepressants, however, may be used to manage the symptoms of depression that can accompany early abstinence from stimulants.

For more information on addiction to prescription medications, visit www.drugabuse.gov/drugpages/prescription.html.

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HANDOUT 2D

National Institute on Drug Abuse Infofacts

Club Drugs

MDMA (ecstasy), Rohypnol, GHB, and ketamine are among the drugs used by teens and young adults who are part of a night-club, bar, rave, or trance scene. Raves and trance events are generally night-long dances, often held in warehouses. Many who attend raves and trances do not use club drugs, but those who do may be attracted to their generally low cost, and to the intoxicating highs that are said to deepen the rave or trance experience.

For the third and fourth quarters of 2003, hospital emergency department mentions were estimated at 2,221 for MDMA use, 990 for GHB, and 73 for ketamine.*

MDMA (Ecstasy)

MDMA (3-4 methylenedioxymethamphetamine) is a synthetic, psychoactive drug chemically similar to the stimulant methamphetamine and the hallucinogen mescaline. Street names for MDMA include "ecstasy," "XTC," and "hug drug." In high doses, MDMA can interfere with the body's ability to regulate temperature. On rare but unpredictable occasions, this can lead to a sharp increase in body temperature (hyperthermia), resulting in liver, kidney, and cardiovascular system failure, and death. Because MDMA can interfere with its own metabolism (breakdown within the body), potentially harmful levels can be reached by repeated drug use within short intervals.

Research in animals links MDMA exposure to long-term damage to serotonin neurons. A study in nonhuman primates showed that exposure to MDMA for only 4 days caused damage of sero-

tonin nerve terminals that was evident 6 to 7 years later. While similar neurotoxicity has not been definitively shown in humans, the wealth of animal research indicating MDMA's damaging properties suggests that MDMA is not a safe drug for human consumption.

GHB, Ketamine, and Rohypnol

GHB and Rohypnol are predominantly central nervous system depressants. Because they are often colorless, tasteless, and odorless, they can be added to beverages and ingested unknowingly.

These drugs emerged several years ago as "date rape" drugs.***** Because of concern about their abuse, Congress passed the "Drug-Induced Rape Prevention and Punishment Act of 1996" in October 1996. This legislation increased Federal penalties for use of any controlled substance to aid in sexual assault.

GHB

Since about 1990, GHB (gamma hydroxybutyrate) has been used in the U.S. for its euphoric, sedative, and anabolic (body building) effects. It is a central nervous system depressant that was widely available over-the-counter in health food stores during the 1980s and until 1992. It was purchased largely by body builders to aid in fat reduction and muscle building. Street names include "liquid ecstasy," "soap," "easy lay," "vita-G," and "Georgia home boy."

Coma and seizures can occur following use of GHB. Combining use with other drugs such as alcohol can result in nausea and breathing difficulties. GHB may also produce withdrawal effects, including insomnia, anxiety, tremors, and sweating. GHB and two of its precursors, gamma butyrolactone (GBL) and 1,4 butanediol (BD), have been involved in poisonings, overdoses, date rapes, and deaths.

Ketamine

Ketamine is an anesthetic that has been approved for both human and animal use in medical settings since 1970; about 90 percent of the ketamine legally sold is intended for veterinary use. It can be injected or snorted. Ketamine is also known as "special K" or "vitamin K."

Certain doses of ketamine can cause dream-like states and hallucinations. In high doses, ketamine can cause delirium, amnesia, impaired motor function, high blood pressure, depression, and potentially fatal respiratory problems.

Rohypnol

Rohypnol, a trade name for flunitrazepam, belongs to a class of drugs known as benzodiazepines. When mixed with alcohol, Rohypnol can incapacitate victims and prevent them from resisting sexual assault. It can produce "anterograde amnesia," which means individuals may not remember events they experienced while under the effects of the drug. Also, Rohypnol may be lethal when mixed with alcohol and/or other depressants.

Rohypnol is not approved for use in the United States, and its importation is banned. Illicit use of Rohypnol started appearing in the United States in the early 1990s, where it became known as "rophies," "roofies," "roach," and "rope."

Abuse of two other similar drugs appears to have replaced Rohypnol abuse in some regions of the country. These are clonazepam, marketed in the U.S. as Klonopin and in Mexico as Rivotril, and alprazolam, marketed as Xanax.

For more science-based information on MDMA and other club drugs, visit www.Club Drugs.gov, www.Teens.drugabuse.gov, and www.BacktoSchool.drugabuse.gov; or call the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686.

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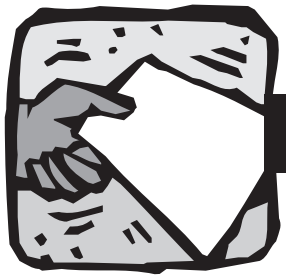

HANDOUT 2E

National Institute on Drug Abuse Infofacts

Marijuana

Marijuana is the most commonly abused illicit drug in the United States. A dry, shredded green/brown mix of flowers, stems, seeds, and leaves of the hemp plant Cannabis sativa, it usually is smoked as a cigarette (joint, nail), or in a pipe (bong). It also is smoked in blunts, which are cigars that have been emptied of tobacco and refilled with marijuana, often in combination with another drug. It might also be mixed in food or brewed as a tea. As a more concentrated, resinous form it is called hashish and, as a sticky black liquid, hash oil. Marijuana smoke has a pungent and distinctive, usually sweet-and-sour odor. There are countless street terms for marijuana including pot, herb, weed, grass, widow, ganja, and hash, as well as terms derived from trademarked varieties of cannabis, such as Bubble Gum, Northern Lights, Fruity Juice, Afghani #1, and a number of Skunk varieties.

The main active chemical in marijuana is THC (delta-9-tetrahydrocannabinol). The membranes of certain nerve cells in the brain contain protein receptors that bind to THC. Once securely in place, THC kicks off a series of cellular reactions that ultimately lead to the high that users experience when they smoke marijuana.

Effects on the Brain

Scientists have learned a great deal about how THC acts in the brain to produce its many effects. When someone smokes marijuana, THC rapidly passes from the lungs into the bloodstream, which carries the chemical to organs throughout the body, including the brain.

In the brain, THC connects to specific sites called cannabinoid receptors on nerve cells and influences the activity of those cells. Some brain areas have many cannabinoid receptors; others have few or none. Many cannabinoid receptors are found in the parts of the brain that influence pleasure, memory, thought, concentration, sensory and time perception, and coordinated movement[4].

The short-term effects of marijuana can include problems with memory and learning; distorted perception; difficulty in thinking and problem solving; loss of coordination; and increased heart rate. Research findings for long-term marijuana abuse indicate some changes in the brain similar to those seen after long-term abuse of other major drugs. For example, cannabinoid (THC or synthetic forms of THC) withdrawal in chronically exposed animals leads to an increase in the activation of the stress-response system[5] and changes in the activity of nerve cells containing dopamine[6]. Dopamine neurons are involved in the regulation of motivation and reward, and are directly or indirectly affected by all drugs of abuse.

Effects on the Heart

One study has indicated that a user's risk of heart attack more than quadruples in the first hour after smoking marijuana[7]. The researchers suggest that such an effect might occur from marijuana's effects on blood pressure and heart rate and reduced oxygen-carrying capacity of blood.

Effects on the Lungs

A study of 450 individuals found that people who smoke marijuana frequently but do not smoke tobacco have more health problems and miss more days of work than nonsmokers[8]. Many of the extra sick days among the marijuana smokers in the study were for respiratory illnesses.

Even infrequent abuse can cause burning and stinging of the mouth and throat, often accompanied by a heavy cough. Someone who smokes marijuana regularly may have many of

the same respiratory problems that tobacco smokers do, such as daily cough and phlegm production, more frequent acute chest illness, a heightened risk of lung infections, and a greater tendency to obstructed airways[9]. Smoking marijuana possibly increases the likelihood of developing cancer of the head or neck. A study comparing 173 cancer patients and 176 healthy individuals produced evidence that marijuana smoking doubled or tripled the risk of these cancers[10].

Marijuana abuse also has the potential to promote cancer of the lungs and other parts of the respiratory tract because it contains irritants and carcinogens[9,11]. In fact, marijuana smoke contains 50 to 70 percent more carcinogenic hydrocarbons than does tobacco smoke[12]. It also induces high levels of an enzyme that converts certain hydrocarbons into their carcinogenic form—levels that may accelerate the changes that ultimately produce malignant cells[13]. Marijuana users usually inhale more deeply and hold their breath longer than tobacco smokers do, which increases the lungs' exposure to carcinogenic smoke. These facts suggest that, puff for puff, smoking marijuana may be more harmful to the lungs than smoking tobacco.

Other Health Effects

Some of marijuana's adverse health effects may occur because THC impairs the immune system's ability to fight disease. In lab oratory experiments that exposed animal and human cells to THC or other marijuana ingredients, the normal disease-preventing reactions of many of the key types of immune cells were inhibited[14]. In other studies, mice exposed to THC or related substances were more likely than unexposed mice to develop bacterial infections and tumors[15,16].

Effects of Heavy Marijuana Use on Learning and Social Behavior

Research clearly demonstrates that marijuana has the potential to cause problems in daily life or make a person's existing problems worse. Depression[17], anxiety[17], and personality

disturbances[18] have been associated with chronic marijuana use. Because marijuana compromises the ability to learn and remember information, the more a person uses marijuana the more he or she is likely to fall behind in accumulating intellectual, job, or social skills. Moreover, research has shown that marijuana's adverse impact on memory and learning can last for days or weeks after the acute effects of the drug wear off[19,20,25].

Students who smoke marijuana get lower grades and are less likely to graduate from high school, compared with their non-smoking peers[21,22,23,24]. A study of 129 college students found that, among those who smoked the drug at least 27 of the 30 days prior to being surveyed, critical skills related to attention, memory, and learning were significantly impaired, even after the students had not taken the drug for at least 24 hours[20]. These "heavy" marijuana abusers had more trouble sustaining and shifting their attention and in registering, organizing, and using information than did the study participants who had abused marijuana no more than 3 of the previous 30 days. As a result, someone who smokes marijuana every day may be functioning at a reduced intellectual level all of the time.

More recently, the same researchers showed that the ability of a group of long-term heavy marijuana abusers to recall words from a list remained impaired for a week after quitting, but returned to normal within 4 weeks[25]. Thus, some cognitive abilities may be restored in individuals who quit smoking marijuana, even after long-term heavy use.

Workers who smoke marijuana are more likely than their coworkers to have problems on the job. Several studies associate workers' marijuana smoking with increased absences, tardiness, accidents, workers' compensation claims, and job turnover. A study among postal workers found that employees who tested positive for marijuana on a pre-employment urine drug test had 55 percent more industrial accidents, 85 percent more injuries, and a 75-percent increase in absenteeism compared with those who tested negative for marijuana use[26]. In another study, heavy marijuana abusers reported that the drug impaired several

important measures of life achievement including cognitive abilities, career status, social life, and physical and mental health[27].

Addictive Potential

Long-term marijuana abuse can lead to addiction for some people; that is, they abuse the drug compulsively even though it interferes with family, school, work, and recreational activities. Drug craving and withdrawal symptoms can make it hard for long-term marijuana smokers to stop abusing the drug. People trying to quit report irritability, sleeplessness, and anxiety[32]. They also display increased aggression on psychological tests, peaking approximately one week after the last use of the drug[33].

Notes

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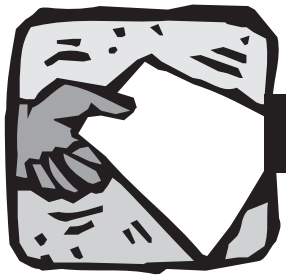

HANDOUT 2F

National Institute on Drug Abuse Infofacts

Cigarettes and Other Nicotine Products

Through the use of cigarettes, cigars, and chewing tobacco, nicotine is one of the most heavily used addictive drugs in the United States. In 2004, 29.2 percent of the U.S. population 12 and older—70.3 million people—used tobacco at least once in the month prior to being interviewed.* This figure includes 3.6 million young people age 12 to 17. Young adults aged 18 to 25 reported the highest rate of current use of any tobacco products (44.6 percent) in 2004.

Findings for high school youth indicate that 25.9 percent of 8th-graders, 38.9 percent of 10th-graders, and 50.0 percent of 12th-graders had ever smoked cigarettes when asked in 2005.** These figures were lower for all three grades from 2004 data, and for 8th-graders and 12th-graders, the decreases were statistically significant.

Statistics from the Centers for Disease Control and Prevention indicate that tobacco use remains the leading preventable cause of death in the United States, causing approximately 440,000 premature deaths each year and resulting in an annual cost of more than $75 billion in direct medical costs attributable to smoking. (See www.cdc.gov/tobacco/issue.htm.) Over the past four decades, cigarette smoking has caused an estimated 12 million deaths, including 4.1 million deaths from cancer, 5.5 million deaths from cardiovascular diseases, 2.1 million deaths from respiratory diseases, and 94,000 infant deaths related to mothers smoking during pregnancy. (See www.cdc.gov/nccdphp/publications/aag/osh.htm.)

Health Hazards

Since 1964, 28 Surgeon General's reports on smoking and health have concluded that tobacco use is the single most avoidable cause of disease, disability, and death in the United States. In 1988, the Surgeon General concluded that cigarettes and other forms of tobacco, such as cigars, pipe tobacco, and chewing tobacco, are addictive and that nicotine is the drug in tobacco that causes addiction. Nicotine provides an almost immediate "kick" because it causes a discharge of epinephrine from the adrenal cortex. This stimulates the central nervous system and endocrine glands, which causes a sudden release of glucose. Stimulation is then followed by depression and fatigue, leading the user to seek more nicotine.

Nicotine is absorbed readily from tobacco smoke in the lungs, and it does not matter whether the tobacco smoke is from cigarettes, cigars, or pipes. Nicotine also is absorbed readily when tobacco is chewed. With regular use of tobacco, levels of nicotine accumulate in the body during the day and persist overnight. Thus, daily smokers or chewers are exposed to the effects of nicotine for 24 hours each day. Adolescents who chew tobacco are more likely than nonusers to eventually become cigarette smokers.

Addiction to nicotine results in withdrawal symptoms when a person tries to stop smoking. For example, a study found that when chronic smokers were deprived of cigarettes for 24 hours, they had increased anger, hostility, and aggression, and loss of social cooperation. Persons suffering from withdrawal also take longer to regain emotional equilibrium following stress. During periods of abstinence and/or craving, smokers have shown impairment across a wide range of psychomotor and cognitive functions, such as language comprehension.

Women who smoke generally have earlier menopause. Pregnant women who smoke cigarettes run an increased risk of having

stillborn or premature infants or infants with low birth weight. Children of women who smoked while pregnant have an increased risk for developing conduct disorders. National studies of mothers and daughters have also found that maternal smoking during pregnancy increased the probability that female children would smoke and would persist in smoking.

In addition to nicotine, cigarette smoke is primarily composed of a dozen gases (mainly carbon monoxide) and tar. The tar in a cigarette, which varies from about 15 mg for a regular cigarette to 7 mg in a low-tar cigarette, exposes the user to an increased risk of lung cancer, emphysema, and bronchial disorders.

The carbon monoxide in tobacco smoke increases the chance of cardiovascular diseases. The Environmental Protection Agency has concluded that secondhand smoke causes lung cancer in adults and greatly increases the risk of respiratory illnesses in children and sudden infant death.

Treatment

Some individuals simply are able to stop smoking. For others, studies have shown that pharmacological treatment combined with behavioral treatment, including psychological support and skills training to overcome high-risk situations, results in some of the highest long-term abstinence rates. Generally, rates of relapse for smoking cessation are highest in the first few weeks and months and diminish considerably after about 3 months.

Behavioral economic studies find that alternative rewards and reinforcers can reduce cigarette use. One study found that the greatest reductions in cigarette use were achieved when smoking cost was increased in combination with the presence of alternative recreational activities.

Nicotine chewing gum is one medication approved by the Food and Drug Administration (FDA) for the treatment of nicotine

dependence. Nicotine in this form acts as a nicotine replacement to help smokers quit smoking. The success rates for smoking cessation treatment with nicotine chewing gum vary considerably across studies, but evidence suggests that it is a safe means of facilitating smoking cessation if chewed according to instructions and restricted to patients who are under medical supervision.

Another approach to smoking cessation is the nicotine transdermal patch, a skin patch that delivers a relatively constant amount of nicotine to the person wearing it. A research team at NIDA's Intramural Research Program studied the safety, mechanism of action, and abuse liability of the patch that was consequently approved by FDA. Both nicotine gum and the nicotine patch, as well as other nicotine replacements such as sprays and inhalers, are used to help people fully quit smoking by reducing withdrawal symptoms and preventing relapse while undergoing behavioral treatment.

Another tool in treating tobacco addiction is a medication that goes by the trade name Zyban. This is not a nicotine replacement, as are the gum and patch. Rather, this works on other areas of the brain, and its effectiveness is in helping to make nicotine craving, or thoughts about cigarette use, more controllable in people who are trying to quit.

Other Information Sources

For additional information on tobacco abuse and addiction, please visit www.smoking.drugabuse.gov.

For more information on how to quit smoking, please visit www.cdc.gov/tobacco.

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HANDOUT 3

Five Refusal Skills Situations

1. You are at your friend's house for a party. You are offered inhalants. What would you do?

   _____

   _____

2. You're feeling sad and angry because you've had a fight with your parents. Your brother says he can give you something to make you feel better and offers you prescription drugs from your parents' medicine cabinet. How would you respond?

   _____

   _____

3. You are at your friend's house and your friend offers to show you how to smoke cigarettes, saying it will make you "look cool." What do you do?

   _____

   _____

4. You are at your first boy/girl party and someone offers you marijuana. You don't want to try it but you don't want to look like a geek by saying no. What do you do?

   _____

   _____

5. You have had a great time at a party. It is time to go but your driver has been using drugs and is clearly high. What do you do?

   _____

   _____

JOURNAL

Session 20

NAME_____ DATE_____

I learned

_____

_____

One piece of information I think should be shared with others is

_____

_____

If one of my friends started acting strange and I thought he or she was taking drugs, I would

_____

_____

Two things I would do if I were in charge of solving the drug problem:

1. _____

   _____

2. _____

   _____