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Educating Children and Youth To Prevent Contagious Disease. ERIC Digest.

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Chronic disease has bypassed contagious disease as a leading cause of death in the

U.S. Still, infectious diseases continue to contribute to illness and death. For example, pneumonia and influenza are the fifth leading cause of death among all Americans; AIDS is the leading cause of death for African American 25- to 44-year-olds; and almost 400,000 people in the U.S. are known to be living with AIDS (Martin, Smith, Mathews, & Ventura, 1998; CDC, 1999a). Approximately 3.9 million people are infected with the hepatitis C virus, between 125,000 and 200,000 with hepatitis A, and there are 140,000-320,000 new hepatitis B infections each year in the U.S. (CDC, 1999b; 1999c). Mainstreaming institutionalized special needs children into regular public schools has increased the risk of hepatitis B infection, as hepatitis B has been described as endemic in institutions for the mentally disabled (American Academy of Pediatrics, 1993). Less serious but still a cause of many missed school and work days each year, pediculosis (head lice) afflicts 6-12 million people worldwide annually (CDC, 1998).

We teach children to throw their used tissues into the trash and to cover their mouths when they sneeze. We stress hand washing after using the bathroom. As children grow, we encourage personal cleanliness and vaccinations. But the contagious diseases of the twenty-first century require more than these basic health lessons. This digest looks at ways to prevent the transmission of disease in school settings.

WHAT ARE THE KEY CONCEPTS IN CONTAGION EDUCATION?

There are several key concepts about contagious disease prevention (sometimes called contagion education) that students in all grades should learn. The first and most important is that any person is potentially contagious. Age, sex, race, ethnic background, economic status, and even the appearance of health are not viable protectors.
Other basic concepts to learn include the following:

1. The germs that cause contagious diseases (bacteria, viruses, protozoans, fungi, and parasites) are present on skin surfaces, in the mouth, nose, and eyes, on the scalp, and in body fluids.

2. Body fluids are particularly effective carriers of germs, and blood is the body fluid of greatest concern in the non-sexual transmission of disease.

3. While barriers such as gloves can reduce the spread of germs, hand washing is

essential, whether or not gloves are used.

4. Correct use of biohazard labels and containers can reduce the spread of disease.

5. Needles and other sharp objects should be handled appropriately.

WHAT ARE UNIVERSAL PRECAUTIONS?

Many of the key concepts of contagion education fall into a category of behaviors known as universal precautions. The Centers for Disease Control and Prevention (CDC) defines universal precautions as a set of precautions intended to prevent the transmission of hepatitis, HIV infection, and other blood borne pathogens when providing first aid or health care (National Safety Council, 1997). Universal precautions should be used when handling blood or body fluids of all individuals, not only those known to be HIV- or hepatitis-infected. Such precautions include, but are not limited to:

1. Using personal protective gear as a barrier when exposure to body fluids is possible. In school settings, personal protective gear includes water-impervious vinyl or latex gloves, disposable cloth towels, and wads of gauze or paper towels.

2. Removing personal protective gear correctly by not touching the contaminated side of the item, and disposing of used personal protective gear and any contaminated materials in biohazard containers or biohazard labeled bags. Gloves should never be re-used.

3. Washing hands and any contaminated body areas immediately with soap and water.

4. Seeking medical attention for any significant exposure to blood of another person.

5. Cleaning surfaces and/or solid objects that may be contaminated. The hepatitis virus can survive at least a week in dried blood (National Safety Council, 1997). Surfaces and

objects contaminated with saliva or blood should be cleaned thoroughly with soap and water and disinfected with household bleach diluted with water at a strength of 1:10 (National Safety Council, 1997). This solution has a 24-hour shelf life and must be mixed fresh for use each day. Keep contaminated objects or surfaces in contact with the bleach solution for at least 30 seconds and either allow to air dry or wipe with a disposable cloth.

6. Using pick-ups, a broom and dust pan, tweezers, or some other object to pick up sharp objects ("sharps"), such as broken glass. Dispose of sharps in a solid container marked with a biohazard label. Do not dispose of sharps in a soft, plastic garbage bag type of container.

WHAT DOES THIS MEAN FOR MY CLASSROOM?

Each classroom is a place to model, teach, and practice safe contagion prevention habits.
Students should not share items which could transmit disease. This includes any item that has been in someone's mouth, such as toys that have been mouthed, drinking glasses, juice/soda cans, straws, eating utensils, pencils, pens, towels, lipstick, chapstick, or toothbrushes. Objects that are mouthed should be cleaned with a 10% bleach solution. Pediculosis transmission can be limited by keeping coats and personal belongings in individual cubicles, not mixing clothing in common piles, not sharing hats and combs, and removing hats and masks from dress-up areas (American Academy of Pediatrics, 1993).

Students should learn how to dispose of their own hazardous waste. Throwing their own used facial tissues into the trash, rather than leaving them for someone else to pick up, is a start. Doing the same with used band aids is even more important. Taking care of one's own eating utensils in the lunch room and picking up one's dirty towels in the locker room also contribute to a contagion-free lifestyle. Students should be encouraged to dispose of used tampons and sanitary napkins correctly (wrapped in several layers of paper towels) and to immediately report blood-contaminated surfaces in restrooms.

Students can learn to attend to their own first aid needs. For minor cuts students can use an article of clothing or gauze pad and stop their own bleeding. Even younger children can, with supervision, wash and apply dressings and bandages to their playground scrapes. A common problem in school-aged children is nosebleeds, and students can be taught to help a peer with a nosebleed by tipping the head forward, pinching the nose, and holding tissues under the nostrils. Students should also know that individuals who administer first aid need to wear gloves and handle medical

supplies carefully.

Students should learn how to dispose of sharps and use sharps containers. Broken glass or other sharp objects should not be handled with bare hands. Sharp objects should be disposed of in a solid container specifically marked for that purpose. Putting sharps into soft bags or regular waste baskets could cause someone else a blood-related emergency.

Students should learn how to safely handle litter of other people. It is not wise to pick up body waste litter with bare hands. Used napkins, tissues, toilet paper, sanitary napkins, tampons, and band aids could carry contagious disease. Wearing gloves insures against needless contagion risk. When gloves are not available, placing a barrier between the litter and one's hands (a wad of paper towels or two plastic bags, for example) can reduce the spread of germs.

Students should know if they have a bleeding accident during play (playground, gymnasium, athletic venue), they must stop playing. The bleeding injury should be cleaned and bandaged and any bloody clothing removed and disposed of before the student returns to the play situation. Although the risk of HIV infection during sports participation is low, at least two cases of hepatitis B infection have been reportedly transmitted through sports contact (American Academy of Pediatrics, 1999). Many athletic conferences have specific rules regarding competition following a bleeding incident. The American Academy of Pediatrics provides excellent guidelines for preventing infection transmission in athletic settings (American Academy of Pediatrics, 1999; Garl, 1993; McGrew, 1995).

Teachers, coaches, and other educational personnel must model correct contagion prevention behavior at all times. Students will learn from what they see and experience daily. Educational personnel should--

1. receive training in first aid and emergency care;

2. use universal precautions for all first aid emergencies;

3. keep a first aid kit and a spill kit (including gloves, gauze, bandages/band aids, small jar of bleach, biohazard disposal bag/stickers) in the classroom or gymnasium at all times;

- 4. have a fanny pack with gloves and bandages for playground duty or on field trips;
- 5. use safety precautions when handling sharps;
- 6. follow all precautions of the Occupational Health and Safety Administration (OHSA) and the specific Contagion Exposure Control Plan of their school (administrators should have copies of both).

CONCLUSION

Specific lessons in contagious disease prevention (sometimes called contagion education) can be taught at all ages in a developmentally appropriate manner. Essential contagion prevention habits should be taught, modeled, and practiced in the classroom, gymnasium, and school setting.

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