OCT

Universal Precautions

Purpose

To provide guidelines for the practice of infection control in the presence of exposure to blood and body fluids.

Responsible Personnel

All home healthcare personnel.

Objectives

To outline specific practices for protecting the home healthcare patient and worker from the risk of exposure to infection.

Policy

All blood and body fluids are considered to be potentially infectious. The active and aggressive use of appropriate barriers to the transmittal of disease is based upon interaction between the caregiver and the patient rather than on a known diagnosis.

A physician's order is not necessary in order to implement blood and body fluid precautions.

All home healthcare team members are encouraged to make recommendations based on their observations in the home setting. These recommendations should be passed on to the team leader for implementation in the home.

All home healthcare team members involved in direct patient care should be encouraged to be immunized against Hepatitis B.

All home healthcare team members involved in direct patient care should be encouraged to participate in routine TB skin testing.

Infection control policies and procedures will be present in the home healthcare agency for reference. It will be required reading for all new personnel.

Procedure ***Universal precautions***

Equipment

- ☐ Soap
- ☐ Water
- ☐ Disposable gloves
- ☐ Goggles
- ☐ Mask

Action	Rationale
1. Wash hands before and after providing care for each patient.	To prevent cross contamination. ("Handwashing" in this section.)
2. Wear disposable gloves at all times when contact with blood or body fluids is anticipated.	All blood and body fluids are considered to be potentially infectious.
3. Wear protective gowns or aprons when splashes of blood or body fluid are likely.	As above.
4. Use disposable supplies whenever possible.	So that they can be discarded rather than reprocessed.
5. Provide the patient with container for disposal of sharps. Should be impenetrable to needles. May be manufactured specifically for sharps. May be large heavy glass cylinder or heavy plastic cylinder. **Do not recap needles. Drop entire syringe into collecting receptacle.**	For disposal.

continued

Procedure ***Universal precautions,*** *continued*

Action	Rationale
When patient's collecting receptacle is full, instruct caregiver in the following procedure: • close top; • secure with tape; • label "Medical Waste;" • place in thick plastic bag; • close bag; and • place in trash receiver or carry to landfill (dependent on local provisions).	
6. Use masks or gogles anytime a splash to the eyes or mucous membrane is anticipated.	To protect from exposure.
7. Make a large "Stop: Alert" sign for an area where respiratory isolation is necessary. Find an area in the home through which cross traffic is unnecessary. Explain the meaning of the sign to caregivers. Place in a conspicuous place. Involve children in the household in the teaching.	
8. Place any soiled clothes or bed linen in a plastic bag. Take directly to the family washing machine for washing in hot water with detergent and bleach additives. To protect hands, use gloves when handling soiled clothes or linens. Instruct caregivers as well. Do not put laundry on floor. Do not mix with family laundry in hamper.	To prevent cross contamination.
9. Wear gloves anytime you are suctioning a patient.	Contact with saliva and mucous can be expected.
10. Wash hands before touching a urinary catheter bag. Wear gloves when emptying the bag. Wash hands after touching a urinary catheter bag.	To prevent bringing cross contaminants to the patient. Contact with urine can be expected. To prevent cross contamination.
11. Wear gloves anytime a dressing or any refuse containing blood or body fluid will be touched.	Contact with blood and body fluids can be expected.

continued

Action	
All wound dressings must be placed in plastic bags. Spray dressing thoroughly with a freshly made solution of one part bleach to 10 parts water. Close bag; place in second plastic bag; add to family trash. Trash disposal varies. If the patient has garbage pickup, instruct the family to place the double bag directly into trash receptacle. If the patient does not have garbage pickup, instruct the family to burn the bag outside in trash burner or carry to county landfill.	
12. Use gloves any time you are drawing specimens of body fluid or excrement. Label all containers with the patient's name, social security number, date, time, and required laboratory. Place all specimens in a closed plastic bag.	Contact with blood or body fluids can be expected. To prevent error, contact individual laboratory for specific directions regarding labeling. For transport to lab.
13. Clean any spills of blood and body fluid with a freshly prepared solution of household bleach and water. Solution strength should be in a ratio of 1 to 10.	Instruct the family regarding this procedure so that cross contamination can be minimized between home visits.
14. Any needlestick should be reported immediately to the agency supervisor.	For institution of appropriate follow-up care: i.e., physician consult; blood work, etc.

infection-control UPDATE 94

A roundup of news on tuberculosis, preventing infection at home, pneumonia, and more.

INSERTING C.V.C.s

BETTER BARRIERS

They lower infection rates and save money too.

Maximal sterile barrier precautions not only reduce the risk of catheter-related infection during central venous catheter (CVC) insertion but are cost-effective as well, according to a recent study.

Some 176 patients at Houston's M.D. Anderson Cancer Center had CVCs inserted using maximal sterile barrier precautions (gown, mask, cap, and gloves). The caregiver wore a nonsterile cap and mask as well as sterile gloves and gown; both the patient's head and body were covered with a large sterile drape.

Some 167 other patients had CVCs inserted using only control precautions (sterile gloves and small drape). All patients were followed for 3 months after insertion or until the catheter was removed, whichever came first.

The results? Only 4 patients developed catheter-related infections in the test group, compared with 12 patients in the control group. The catheter-related septicemia rate was 6.3 times higher in the control group.

The cost of maximal sterile barrier precautions was $3.40; the cost of the patient cover was $8.90. Even after assuming the lowest possible cost for catheter-related infections ($6,000 per illness), the savings from using maximal sterile barrier precautions in the center would have been $167.30 per catheter insertion.

Source: *Infection Control and Hospital Epidemiology.* Part I, April 1994.

TUBERCULOSIS

REDUCING THE RISK

Should a vaccine that's standard in other countries be used more often in the United States?

A vaccine to prevent tuberculosis (TB) that's used infrequently in the United States was found to reduce

DAVID WINK

the risk of pulmonary TB by 50%, according to a new statistical study.

The study, reported in *JAMA,* found that the bacillus Calmette-Guérin (BCG) vaccine is effective, even though other studies of its effectiveness have produced conflicting results. Researchers from the Harvard School of Public Health, Boston, pooled data from many earlier studies and found that the vaccine protected against pulmonary TB, disseminated TB, and TB meningitis. The vaccine also helped improve survival rates from TB.

Although the BCG vaccine is reportedly the most widely used vaccine in the world, it's given infrequently to people in the United States because federal health officials consider it unreliable. What's more, anyone who's been inoculated with the vaccine will have a positive tuberculin skin test, rendering the test meaningless. Health officials then need to rely on chest X-rays and other methods to detect tuberculosis infection.

However, in one study, researchers found that even if the BCG vaccine were only 15% effective at best, it would prevent more cases of TB in U.S. health care workers than the current protocol of using skin tests to detect newly infected people.

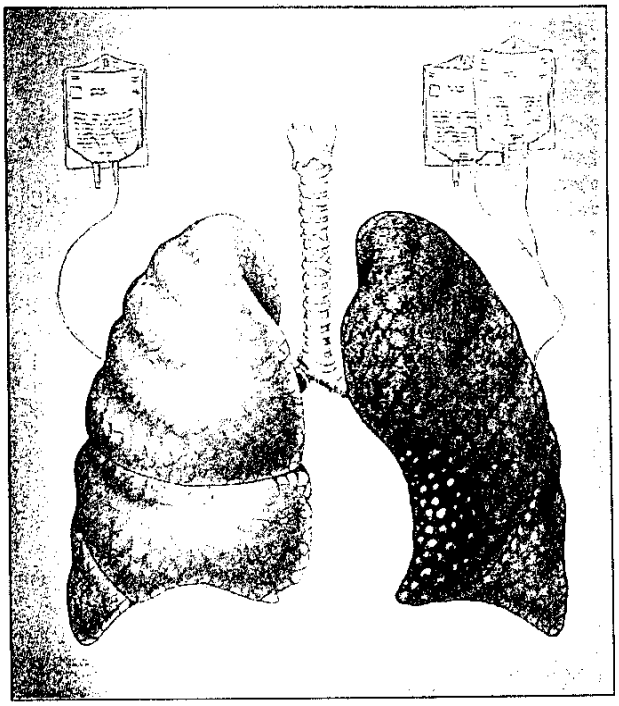
Source: *JAMA,* 271(9):698-702, March 2, 1994.

JAMES COOPER

...ABOUT CHILDREN AND H.I.V.

- Human immunodeficiency virus (HIV) infection is increasing at a faster rate in children than among adults.
- For every child with reported acquired immunodeficiency syndrome (AIDS), another two to three are infected with HIV.
- Projections indicate that 6,000 to 30,000 children in the United States have HIV infection.
- Nearly all children with HIV infection who are under 13 years old acquired it perinatally.
- 14% to 45% of infants born to HIV-infected women will have HIV infection.

Source: *Access to Primary Health Care for Children with HIV: A Guide for Pediatricians, Family Physicians and Nurse Practitioners.* © 1993 Children's National Medical Center, Washington, D.C.



NOSOCOMIAL PNEUMONIA

ONE DRUG OR TWO?

A recent study contradicts conventional therapy.

Although nosocomial pneumonia (NP) occurs in only about 10% of hospital admissions, the incidence jumps to 44% in intensive care units (ICUs)—and can be nearly 90% among trauma patients. Combination therapy with a beta-lactam and an aminoglycoside is generally the treatment of choice, but how well does it work?

In a study of 109 trauma patients, researchers found that the cure rate was higher for pneumonia patients treated with monotherapy (using either cefoperazone or ceftazidime) than for those given combination therapy: Monotherapy resulted in a 56% cure rate, compared with 31% for combination therapy.

The study included 95 blunt-injury patients and 15 penetrating-trauma patients. All were at least 18 years old and developed NP while intubated in an ICU.

Of the 15 deaths in the study, 9 were related to pneumonia: 2 in the monotherapy group and 7 in the combination-therapy group. Eight of the pneumonia-related deaths were associated with superinfection.

Source: *Critical Care Specialist,* January-February 1994.

COMBATING INFECTION

HOW TO SAFELY HANDLE LINEN

Ways to protect yourself and your patients against bad bedbugs.

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YOU'RE ABOUT TO CHANGE THE BED linen after one of your patients has been incontinent. Should you wear gloves? What about a gown? How should you dispose of the linen?

Although the risk of contracting disease from direct contact with soiled linen is very small, you still need to handle it carefully. If you don't, you could come into contact with various pathogens and possibly spread them to other patients.

Bad bugs

Many microorganisms reside in feces, including Salmonella, Cryptosporidium, Rotavirus, and hepatitis A virus. Even if your patient doesn't have diarrhea, his stool could also carry such pathogens as vancomycin-resistant *enterococcus* or *Clostridium difficile*.

Urine could be a silent carrier of cytomegalovirus (CMV)—9 out of 10 patients with CMV in their urinary tract are asymptomatic. Blood can harbor hepatitis B, hepatitis C, and human immunodeficiency virus.

Because of these threats, make sure to use universal precautions when you handle soiled linen. If you suspect that it's contaminated with blood or body substances, wear gloves; if soiling is substantial, wear personal protective equipment (PPE), such as a gown. Always use gloves and a gown if your patient has untreated lice or scabies.

If your uniform becomes soiled with blood or other body substances that could penetrate to your skin, change it as soon as you can. Make sure to wash your hands after removing gloves and PPE.

When changing soiled bed linen, minimize aerosolization by loosening the edges and rolling the sheets toward the center of the bed. Don't shake or flap the sheets. Roll the most heavily soiled sections carefully so that loose contents don't fall out or touch you or your uniform. Keep the soiled linen away from your body and be alert for sharps hidden in the folds.

After stripping the bed, immediately put the soiled linen into the linen hamper (using the foot-operated lever) or into a soiled-linen bag. Keep the hamper or bag just outside the door.

Don't put linen on the floor or furniture because this could contaminate other surfaces in the patient's environment. And never sort soiled linen; leave that task for housekeeping, which is equipped for the task.

In the bag

Soiled-linen bags are usually made of plastic or specially treated cloth. Some are made of water-soluble material that melts when the bag comes in contact with water during the wash cycle, so a laundry worker can place the bagged linen directly into the washer without handling it. *Caution:* Don't put saturated linen into these bags because the bags could melt prematurely.

If hospital staff members who handle and sort the soiled linen wear PPE, you shouldn't have to double bag linen, even from isolation rooms, unless you need two bags for strength (as you might with water-soluble bags). Check your facility's procedure regarding use of double bags or water-soluble bags for soiled linen.

If you use a linen chute, make sure access is locked. Put soiled linen in closed linen bags before putting the bags into the chute; the chute should exit into an area with adequate ventilation to minimize the number of aerosolized microorganisms. The chute's exit door should have a strong latch to ensure that ventilation isn't altered.

Although contact with soiled linen may be an everyday occurrence, you can't let down your guard. With these tips, you can ward off some avoidable infections. ■

KEEPING LINEN CLEAN

- Use clean, covered containers to transport clean linen from the laundry to your unit.
- Make sure the shelves in your unit's linen closets or storage spaces are clean and dry, easily cleaned, at least 18 inches (45 cm) from the ceiling, and more than 12 inches (30 cm) from the floor.
- Take only the linen items you need into your patient's room.
- Place linen on a clean, dry surface until you're ready to use it. Don't place clean linen on top of a soiled linen hamper or any other surface that may be soiled or contaminated. Send items that fall to the floor to be rewashed.
- A few areas may require sterile linen; for example, the OR, burn unit, or specialized units caring for extremely immunocompromised patients. Although baby linen was sterilized in the past, this is unnecessary. Clean, nonsterile sheets present no infection risk to the newborn or premature infant.

SELECTED REFERENCES

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Sundsaert, S., et al.: "Nosocomial Transmission of Salmonella Gastroenteritis to Laundry Workers in a Nursing Home," *Infection Control and Hospital Epidemiology*, 15(1):22-26, January 1994.

COMBATING INFECTION

HOW TO STOP THE SPREAD OF M.R.S.A.

These three cases show you the way.

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JOHN HALL HAS A METHICILLIN-resistant *Staphylococcus aureus* (MRSA) infection in his right eye. Florence Leery, in the room at the end of the unit, has a wound infected with the same organism. And Fred Ward, across from her, has a respiratory tract infection also caused by MRSA.

If you follow proper infection-control precautions, you'll probably never have to deal with this many MRSA-infected patients at one time. But if you do, will you know how to prevent the organism from spreading further? What protective equipment to wear for various types of MRSA infection? How to support the patients and their families?

Even if you *think* you know the answers, read on for details about how to protect yourself and your patients from this infection. First, though, let's review why this organism is so dangerous.

One tough bug

As you may know, MRSA is a strain of *S. aureus* that's resistant to many antibiotics—including methicillin, the longtime drug of choice to treat staph infection. A related strain is frequently resistant to aminoglycosides and macrolides as well. Although MRSA isn't any more contagious than other strains, few antibiotics are available to treat the infection—making this microbe potentially life-threatening.

What's worse, antibiotics used to treat MRSA are expensive and may cause dangerous adverse reactions. These drugs include vancomycin (the preferred drug), imipenem-cilastatin, co-trimoxazole, and the quinolones (for example, ciprofloxacin). So you have to be especially careful and vigilant to prevent the spread of MRSA to noninfected patients, visitors, and yourself.

Prime precautions

Because MRSA is spread by direct contact with fomites (objects that transmit infectious organisms) or the hands of health care workers, an MRSA-infected patient should be in a private room. Some hospitals may put two MRSA patients in the same room. That's an acceptable practice, but a private room is better. In either case, make sure you have all the protective equipment you're likely to need (such as gloves, gowns, and eyewear) in the room.

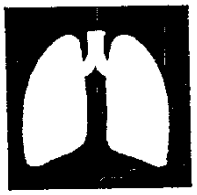
To avoid infection, follow your institution's infection-control protocol. Obviously, you'll use universal precautions, but you also may need to follow the contact isolation precautions suggested by the Centers for Disease Control and Prevention in 1983. These call for such measures as wearing gloves when you touch infective material.

Although you should wash your hands after caring for any patient, make doubly sure to wash them after you care for a patient infected with MRSA because your hands can spread the organism directly—even if you used gloves. Wash for at least 10 to 15 seconds—longer, and with a disinfectant soap, if your hands are grossly contaminated.

Now let's look at how to treat our three patients.

• *Eye infection.* Always wear gloves when giving eye care, including cleaning the eye and instilling medications. Clean the eye with cotton balls and dispose of them in a biohazardous-waste container. Never use a washcloth for cleaning the eye—if you touch the eye and then bathe the patient, you could spread MRSA to another part of his body.

• *Wound infection.* If drainage is extensive, wear a gown (as well as gloves) when you change the dressing. Dispose of any materials that come into contact with the wound in a biohazardous-waste container.



• *Respiratory infection.* Besides gloves, wear a mask when you're giving direct bedside care to the patient—and a gown if you're in the room for an extended time. Have him dispose of tissues in a biohazardous-waste bag. Change the bag often and make sure to wash your hands after you do.

If his airway needs suctioning, wear gloves, a gown, and eyewear or a face shield. Treat all suctioning equipment as biohazardous waste.

Social support

Because isolation is difficult to cope with, you'll need to provide emotional support for the patient with MRSA. He may also be upset because everyone who visits him wears protective equipment. Spend extra time teaching him about his condition and the need for these precautions, and encourage him to express his feelings.

You'll also need to support his family because the need to wear gloves and a gown may frighten them as well. Make sure they know why they need to wear protective garb when they visit the patient, how to put it on, and how to dispose of it.

Caution them not to touch their own bodies, especially their faces, while in the room. Before they leave the patient's room, make sure they take off the protective equipment and wash their hands.

Unfortunately, MRSA can infect any part of the body. But with meticulous care, you can stop the spread of the disease, protect yourself, and point your patient toward recovery.