

## Infection

You are taking immune-suppression or anti-rejection medicines to keep your body's immune system from rejecting the new organ(s). These medications lower your natural immune system so your body doesn't recognize the new organ as foreign. These same medicines increase your risk for infection.

Most transplant patients handle colds and flu like other non-transplant patients. If you get an infection your doctor will tell you about the kind of infection you have and ways to treat it. The most common types of infections are discussed below.

### Preventing Infections

To protect yourself from infection after your surgery, you should take the safety steps listed below:

- Wash your hands often. This is the best way to reduce the spread of germs and to prevent infection
- Use hand sanitizer unless your hands are noticeably soiled or you have touched feces
- Keep your hands away from your face and mouth
- Wash your hands after coughing or sneezing, and throw tissues into the trash right away
- Take good care of your skin. Clean all cuts and scrapes with soap and water. If you are taking prednisone, your skin will not heal as quickly as before your transplant and may bruise more easily
- Shower or bathe and brush your teeth daily
- Eat a healthy, well-balanced diet. Cook meats to recommend temperature and avoid raw meat. Wash all fruits and vegetables
- Limit your visitors for the first three to four weeks
- If your visitors have cold or flu symptoms, ask them to return when they are well
- If someone in your family becomes ill with a cold or flu, have that person wash their hands often, use their own drinking glass and their own towel and cover their mouth when coughing. Use dishwasher or hot water when cleaning dishes
- Keep your house clean
- Stay active
- Be careful with sharp objects and use protective gloves if needed
- Enjoy your pets. If you can, have someone else handle animal waste, such as cleaning bird cages, fish or turtle tanks or cat litter boxes. The stool of some animals may have parasites and could cause infections. If you cannot stay away from pet waste, use gloves followed by good hand washing. Keep pets' vaccinations up to date

### Bacterial Infections

Fever is the most common sign of a bacterial infection. If you have a fever call the transplant team. You may be asked to go to the emergency room or to your local doctor or to come to the hospital to give blood, urine and/or sputum samples. Infections may be caused by many types of bacteria. Bacterial infections may happen any place in the body, like lungs, bloodstream, urinary tract and wound.

If bacteria are found, you may be started on an antibiotic. It is very important to take all the antibiotics as ordered even if you feel better before all antibiotics are finished. Bacteria may become resistant to an antibiotic if used too often. If the same infection comes back, the same antibiotic may not work for you.

### Viral Infections

During the pre-transplant workup, you were tested to see if you had previously been in contact with viruses such as Cytomegalovirus (CMV), herpes simplex virus (HSV), hepatitis viruses, and HIV (AIDS virus). Having infection with CMV or HSV is common. These viruses are picked up in childhood and stay inactive in the body for a lifetime. They may reactivate (come back) after a transplant when you are on anti-rejection medicine and cause sickness.

### Cytomegalovirus (CMV)

CMV is a common infection following organ transplantation. You are at greatest risk in the first 3 months after transplant because of the high doses of anti-rejection medicines. More than half of all Americans have had been in contact to CMV, an illness that causes flu-like symptoms. If a CMV infection becomes active or you get CMV, it may cause serious infection after transplant. All patients are placed on antiviral medications for the first 3 months after transplant.

#### Signs of CMV include:

- Weakness
- Fever
- Night Sweats
- Aching joints
- Headaches
- Upset stomach
- Throwing up
- Loose stools
- Shortness of breath

You may feel “lousy” or flu like. Call the transplant team if you have any of these symptoms. If you get an infection due to CMV, you may need to be admitted to the hospital for oral or IV medicines.

## Shingles Infection

### Signs of Shingles

- Raised red rash
- Tingling feeling at rash site
- Pain at the rash site
- Eye issues, eye sight changes

If you are told you have shingles you must call the transplant office to make sure you are getting the right treatment.

You cannot get shingles if you have not had chicken pox.

## Fungal Infections

There has been recent studies and research showing that smoking marijuana may increase your risk of getting aspergillosis, a fungal infection. Aspergillosis is a common fungus found both indoors and outdoors.

### Signs of Aspergillosis

- Fever
- Chest pain
- Cough
- Coughing up blood
- Shortness of breath

Other symptoms can show up if the infection spreads from the lungs to other parts of the body.

## Other Infections

Other infections you may get after transplant are listed here. More information on any of

these infections will be given to you by your doctor, if needed.

- Herpes Simplex Virus (HSV) Type 1 and 2
- Varicella Zoster (chicken pox)- (VZV)
- Herpes Zoster (Shingles)- (VZV)
- Pneumocystis Carinii Pneumonia
- Fungal Infections (Candida/Yeast)
- Aspergillosis
- Histoplasmosis
- Toxoplasmosis
- Tuberculosis (TB)

## Care of Your Incision or Wound

Check your wound for infection every day until it is healed. Call the transplant team if you notice any of these changes:

- Redness
- Drainage
- Odor
- Increased pain
- Tenderness
- Skin is hot to the touch around the wound

You should shower daily. Wash the wound daily with soap and water. Pat dry with a clean towel.

Do not soak in the tub or swim until your incision is fully healed and all drains are removed.

You may put a dry gauze dressing over the wound if it is draining fluid.

Always wash your hands before and after caring for your wound.

## Immunizations

Everyone should receive a yearly flu vaccine starting three months after transplant.

All other vaccines should be given 12 months after transplant when your anti-rejection medicines will be lower.

Inactive vaccines are safe in transplant patients but may not be as effective due to the anti-rejection medicines.

## Vaccination recommendations post-transplant (inactive/killed vaccines) :

- Pneumococcal vaccine (Prevnar) - need once as an adult
- Pneumococcal vaccine (Pneumovax) - need every 5 years
- Tdap - need every 10 years
- Meningococcal vaccine (Menactra or Menveo) - need series every 5 years
- Meningococcal B vaccine (Tremunba or Bexsero) - need series if 10 to 25 years old
- Hepatitis B series (if not previously received) - series of 3 shots
- Hepatitis A series (if traveling to endemic areas) - series of 2 shots
- HPV vaccine (if ages 9-26) - series of 3 shots
- Shingles (shingrix) - need series if >50 years old
- Influenza (flu) vaccine - need every year at the end of October

## Live vaccines to avoid post transplant

- Chickenpox or Shingles (Zostavax) vaccine
- MMR
- Yellow Fever
- Smallpox
- FluMist (nasal flu vaccine)

Talk to your transplant team before anyone living in your house gets a vaccine.

If someone who you live with or have close contact with gets a vaccination you should use good hand washing. Also if changing diapers of a child who has received a live vaccine, use gloves for four weeks.

If you are travelling and have vaccination questions call the Multispecialty Clinic at Village Pointe Health Center at 402.596.4491 or Internal Medicine at Durham Outpatient Center at 402.559.4015.

## Flu Vaccine Recommendations

The flu virus may cause serious illness, especially in people who take anti-rejection medicine, such as transplant patients. Therefore, we recommend that all transplant patients, and people who live with them, get the seasonal flu vaccine when it becomes available in the fall. The H1N1 (swine flu) vaccine will be built in to the seasonal flu vaccine so you will only need to get one vaccine.

The vaccine is very good at preventing illness from influenza (seasonal flu) and H1N1 (swine flu). If people get the vaccine it **does not** cause them to get either seasonal flu or H1N1. Some people may get muscle aches and/or fever for a day or so after the shot. This is caused by the body's response to getting the vaccine.

People who have allergic reactions to eggs **should not** get the vaccine. People who have fever, aches, or a cough should not get the vaccine until after those symptoms go away. Acetaminophen, **not aspirin**, should be taken for fever or pain caused by the vaccination.

**Nasal influenza vaccine (FluMist®) is a live virus and may not be taken by transplant patients.** Those who have close contact with transplant patients may get the live vaccine.

If you are over 65 years old, it is safe to get a high strength flu vaccination.

Transplant patients who are in close contact with someone who has a confirmed case of

the flu should first call their local doctor's office. The doctor may want to order a medicine like Tamiflu®. The doctor's office should also be called if the patient has 2 or more of the following symptoms:

- Sore throat
- Fever higher than 100 degrees
- Cough

In these cases, patients will be tested for flu. If the test is positive the patient should receive flu medicine. Call the transplant office with the plan of care.

Try to avoid people you know are sick or have the flu.

If you see a Nebraska Medicine doctor on a regular basis, call their clinic to schedule a visit with the nurse to get the vaccine. If you are an adult patient and are staying in the Omaha area, you can call the Multi-organ Transplant Clinic at 402.559.4988 and schedule a time to get the vaccine. All other patients should get vaccines through their local doctors.

If you have questions or concerns about this information, please call the transplant office at 800.401.4444, Monday through Friday, 8 a.m. to 4 p.m. CST or you can go to the Center for Disease Control Website at: <http://www.cdc.gov/flu/about/season>.

## Dental Exams

We recommend routine dental care. Daily teeth and mouth care are important because your mouth may also be a source of infection. Wait 3 months after your transplant before scheduling a dental visit except in cases of an emergency.

Taking antibiotics before any dental work is not needed. We follow the suggestions of the American Dental Association (ADA) and the American Heart Association (AHA), about antibiotic prophylaxis and dental procedures.