What Every Transplant Patient Needs to Know About Dental Care
Gum Disease (Gingivitis)

What is gum disease and how is this treated?
Gum disease, or gingivitis, is an infection of the tissue that surrounds your teeth. Infection can develop in the gap between the tooth and the gum, just below the gum line. The infection can cause the tissue to break down. As this tissue breaks down, a pocket develops within the gap between the tooth and gum. The pocket will develop into a more serious type of gum infection called periodontal disease. Some transplant medications can increase your risk of gum disease. Diabetes and smoking or chewing tobacco can speed up the progress of gum disease.

Symptoms of gum disease (gingivitis) include:
- Red, swollen, and/or tender gums
- Gums that bleed easily

Symptoms of gum disease and/or periodontal disease include:
- Gums that have pulled away from the teeth
- Bad breath (halitosis) or a bad taste in the mouth that does not go away
- Loosening of the teeth
- Wider separations between your teeth
- Changes in the way your teeth fit together when you bite
Gum Overgrowth  
*(Gingival Hypertrophy)*

Another condition of the gums that can occur in patients after transplant is gum enlargement or overgrowth. This is caused by several medications, including some anti-rejection medications. These medications can cause the gums to grow over their usual borders. As the gums enlarge, they cover part of the teeth. This gum overgrowth is called *gingival hypertrophy*. When the gums are enlarged, the overgrown gums interfere with brushing and flossing. Bleeding and infection can occur.

If you are concerned about gum overgrowth or have enlarged gums:
- Call your transplant coordinator to discuss this medication side effect. Ask if you are taking any of the medications that can cause gum overgrowth.
- Observe your gums for any fullness and growth over the usual gum-tooth border when you brush.
- Visit your dentist regularly for a dental exam and cleaning.
- Provide your dentist with a list of your current medications.
- Brush according to your dentist’s or hygienist’s guidelines if you have gum overgrowth. A very soft toothbrush is recommended to avoid bleeding gums.
- Discuss any problems you are having because of gum overgrowth with your transplant physician. In some cases, it may be possible to change to another type of anti-rejection medication that does not have this side effect. If the medication cannot be changed, sometimes the level or dose of the medication can be lowered.
- Gum surgery can reduce gum tissue if your gums have become severely overgrown. This will help maintain good gum health and decrease the risk of infection.

To prevent plaque build up and further complications:
- Brush at least twice a day with fluoride toothpaste, especially after meals or snacks.
- Always brush your teeth before going to sleep at night.
- Clean between your teeth by flossing once a day.
- Discuss the best method for brushing and flossing your teeth with your hygienist or dentist.
- Visit your dentist and dental hygienist at least every 6 months or more often if necessary for a professional examination and cleaning. The hygienist will be able to remove any hard plaque on your gum line or between your teeth.
- Eat a well-balanced diet. Limit between meal snacks and sweets. Limit high sugar foods and sugar-containing drinks, particularly if they are in prolonged contact with your teeth.
- Call your dentist if you notice any chips or rough areas on your teeth, if your teeth become sensitive to cold or hot foods and drinks, or if you develop any tooth pain.
- Have cavities treated as soon as possible to avoid the progression of decay and infection.

Dental Decay  
*(Dental Caries)*

**What is plaque and how does it lead to tooth decay?**

Plaque is a sticky layer of bits of food and bacteria that is always forming on teeth. After you eat or drink foods that contain sugar or starch, the bacteria in plaque make acids that attack the hard *enamel* covering of the tooth. The enamel can break down over time from repeated attacks of this acid. When the enamel breaks down, that area of the tooth decays, forming a cavity.

Plaque can also build up around the base of the teeth. Plaque hardens and is more difficult to remove if you do not brush and floss daily or get routine cleanings. Plaque irritates the gums, causing them to become swollen and bleed. This can progress to periodontal disease. The tissue can also become infected.
What other oral problems can occur?

**Thrush** (candidiasis) is an infection caused by a fungus that normally lives in your mouth and does not cause any problems. But because you are taking medicines to suppress your immune system, this fungus can cause an infection. You are at a greater risk of developing thrush during times when you are receiving higher levels of immunosuppression to treat rejection.

Thrush appears as white patchy areas in your mouth. The areas can be reddened and may be sore. It commonly forms on the lining of the mouth (oral mucosa), tongue, and throat. If you have thrush, it might be uncomfortable to eat and your mouth might be dry. Thrush is treated with a medicine that can be taken as a lozenge, pill or oral rinse. Your doctor will prescribe this medication for you after transplant to prevent thrush, particularly if you are on high levels of anti-rejection medications, including prednisone (corticosteroids).

Smoking, dry mouth, diabetes, and having dentures increase the risk of getting a thrush infection in your mouth.

Common symptoms of dry mouth include: thick, stringy saliva, a constant sore throat, mouth/tongue burning, bad breath, and difficulty chewing, tasting, and swallowing. It is also difficult to talk when you have dry mouth. Tooth decay and gum disease progress faster when there is not enough saliva to wash away the acids produced by the bacteria in plaque. Dry mouth is harmful to the transplant recipient because the dryness can irritate the soft tissue in the mouth. Mouth sores or ulcers can develop. Having these open sores in your mouth can increase the risk of infection.

If you have dry mouth, discuss this side effect with your transplant physician and/or dentist. Ask if this is a side effect of any of the medications you are taking. Your dentist can recommend some ways to increase the moisture in your mouth. You can improve the symptoms of dry mouth by:

- sucking on sugar-free candy to stimulate saliva
- chewing sugar-free gum
- using artificial saliva or an over-the-counter oral moisturizer
- rinsing frequently with alcohol-free oral rinses such as normal saline, 3% hydrogen peroxide, club soda, or Biotene®
- avoiding alcohol, salty foods, and caffeine
- drinking water frequently
- sucking on ice chips

**Dry mouth** (xerostomia) occurs when you do not have enough saliva to keep your mouth moist. This happens when the salivary glands are not working well and can occur as a side effect of some medications. Many over-the-counter medications, such as antihistamines and decongestants, cause dry mouth. Some of the medications that you are prescribed after transplant cause dry mouth. Dry mouth is often seen in older adults.

**Mouth ulcers** or sores can develop in the soft tissue lining the mouth (oral mucosa). These sores appear for many reasons, as in the general population. Transplant recipients can also get mouth ulcers as a result of some anti-rejection medications. Ulcers also occur by accidentally biting the inside of your lip or when your mouth is irritated from dental braces or dentures. The ulcers wear away the mucosa resulting in a shallow sore with a red border and a yellow or white center. The area is usually swollen and painful. Having mouth ulcers can cause problems with chewing, swallowing, and even talking. Eating soft, mild foods that are easy to swallow such as creamed soups, cottage cheese, and yogurt can help relieve the pain. Drinking cold fluids will also help. There are some over-the-counter medicines that can be applied to the ulcer and surrounding area to decrease pain. Patients who have ulcers that are very painful may find relief with a medicine that numbs the area (anesthetic). This medication is sprayed or applied to the irritated area. Ask your dentist about the product that is best for you. Mouth ulcers usually heal within 1 to 3 weeks. Call your doctor or dentist if you have mouth ulcers that are not healing or if the area around the ulcers has increasing redness, swelling, or pain.
How should I brush my teeth?

Discuss the best way to brush and floss your teeth with your dentist and hygienist. If you are having any dental problems, they can advise you about the best method. Generally, the following steps will lead to a thorough cleaning:

- Choose toothpaste that is approved by your dental association (ADA approved, CDA approved).
- Choose a toothbrush as recommended by your dentist. A soft bristle brush is usually the best. Your dentist may also recommend an automatic (rotary) toothbrush.
- Hold the brush at a 45 degree angle against your teeth so that the bristles of the brush reach into the space between your teeth and gums.
- Gently brush the outside and insides of your teeth on the top and bottom using a short back-and-forth motion or a small circular motion.
- Brush behind the upper and lower front teeth. Hold your brush vertically (straight up instead of sideways) and use the bristles at the top of the brush.
- Brush the surfaces of the back teeth.
- Rinse thoroughly.

How should I floss?

- Wrap the floss comfortably around your fingers so that you can control it as you floss.
- Gently ease and glide the floss back and forth between your teeth making a “C” shape around the tooth with the floss.
- Be careful to move the floss up and down the side of the tooth so that you are thoroughly cleaning between the teeth and between each tooth and the gum.
- If it is difficult to get the floss between your teeth, try using dental tape. It is slightly thicker than floss and may be helpful.

As a transplant patient, you should also:

- Remind your dentist and hygienist that you have had a transplant.
- Always take all your medications as prescribed by your transplant team.
- Get your labs drawn regularly as instructed.
- Make sure your dentist knows what medicines you are taking.
- Examine your mouth regularly and call your physician and/or dentist if you have any chipped or cracked teeth, tooth pain, swelling, red or swollen gums, bleeding, sores in your mouth, or white patches on your tongue or the lining of your mouth.
- Remember that your dentist and hygienist are a part of your transplant team.
How does my diet affect my dental health?

The types of food that you eat and your eating habits affect the health of your teeth and gums. Some foods promote and maintain healthy teeth and gums. Other foods cause plaque and tooth decay to develop. Good nutrition is important to maintain healthy teeth and gums:

- Vitamin C and folic acid help maintain healthy gums. Many fruits and vegetables provide good sources of these nutrients.
- Iron and B Vitamins, which are important for your blood, are found in whole grains. Breads high in fiber, whole grain cereals, and rice are good sources.
- Protein is important for wound healing and tissue growth and repair. Good sources of protein include lean meat, fish, poultry, and beans.
- Fruits and vegetables high in fiber can contribute to good dental health by increasing the flow of saliva which lowers acid levels and helps clean the teeth. Chewing these foods can also help clean your teeth.
- It is also helpful to drink water throughout the day. Water will help decrease the growth of plaque and can also help rinse food particles from your teeth.

Do not ignore any dental pain or delay treatment. It is important to have injured teeth repaired quickly to avoid further complications.

Do I have to do anything special before having a dental procedure since my immune system is suppressed?

Transplant recipients may have a greater risk for developing an oral infection when the gums or the lining of the mouth are injured through a procedure because their immune system is suppressed. Bacteria that are commonly in the mouth can cause infection. This can become more serious if the infection spreads into the bloodstream. Infection may be more of a risk if the levels of anti-rejection medications are high, as during treatment for rejection.

If you are seeing your dentist for a routine examination, no special treatment is needed before your appointment. If you are having a cleaning or any procedure that may injure the gum, like having a tooth pulled, taking an antibiotic before the procedure to prevent any problems with infection may be recommended by some transplant centers. This is called infection prophylaxis. Your dentist will prescribe the appropriate antibiotic and will tell you how to take it. Please contact your transplant coordinator about your center’s protocol for infection prevention before dental procedures.

What should I do if I have a dental emergency?

If you have an emergency situation, such as a cracked or broken tooth, pain, or swelling, contact your dentist immediately. Tell your dentist what medications you are taking or show him your current medication list. Your dentist may prescribe an antibiotic if there is concern about infection before any procedure is begun.

Eat a diet that includes the appropriate amounts of these foods based on your health needs. Do not take additional vitamins or supplements unless prescribed by your physician.

Carbohydrates can add to tooth decay by feeding the bacteria in plaque. Foods such as pasta, white bread, whole milk, cakes, and cookies can cause the bacteria to release acids leading to decay. Some of this acid can be rinsed away by drinking or rinsing your mouth with water, the rinsing action of your saliva, and of course, by brushing your teeth. Foods that stick to your teeth can be more harmful because the plaque acids will continue to attack the enamel even after you
I know I should visit my dentist regularly, but I’m really frightened about having any dental work. What should I do?

Being worried and even scared about visiting the dentist is a common fear. There’s even a name for it! It’s called “dental anxiety.” The best way to overcome your fear of going to the dentist is to make an appointment to discuss your concerns. As your dentist and the dental staff get to know you better, they will be able to work with you on ways to reduce your fear. Choose a time for your visit when you are not rushed. An early appointment might be helpful so you don’t worry all day. Many dentists can use a variety of relaxation therapies, music, and other distraction techniques to help their anxious patients. Try bringing a portable CD player or radio with a headset so you can listen to your favorite music or talk radio. Listening may help distract you during the procedure.

Dental treatments have become more comfortable over the years, so you may be worrying unnecessarily. Talk to your dentist about your fears. If you continue to have severe dental anxiety, medications can be used to help you relax. There are some medications that can put you into a light sleep or a deep sleep, if necessary. If this type of medication is needed, your dentist and transplant physician will consider your overall health status, any ongoing problems, the type of dental procedure, your level of anxiety, and your current medications.
My insurance does not cover any dental care. What options do I have for care?

Dental health plans and coverage for dental care varies widely. Some patients pay only a small co-payment while others have very little coverage or must pay out-of-pocket for all dental care. If you do not have insurance coverage for dental care, discuss this with your transplant social worker or insurance case worker. Your social worker may be able to help you get an appointment at a free dental clinic through a dental school or at a community health clinic. Some dental clinics may offer a sliding scale for payment based on your income. You may also be able to set up a payment schedule with your dentist.

I wear dentures. Do I still have to be concerned about mouth care?

If you have lost some of your teeth and have partial dentures, you should follow the same guidelines that have been described for patients who have their natural teeth. Some organ transplant recipients will have lost all their natural teeth. They may or may not choose to use dentures. Having healthy gums is just as important for these patients. You are also at risk for some of the conditions that have been described in this booklet, including infection with a mouth fungus (thrush), dry mouth, and mouth ulcers. The methods for the prevention and treatment of these problems will be the same as for patients who have teeth. You should keep your mouth and dentures clean and rinse both after eating. Dentures should not be worn at night.

Weight gain or loss before or after transplant surgery can cause changes in how your dentures fit. This should be corrected as soon as possible so that poor-fitting dentures do not interfere with eating and maintaining a healthy diet.

If you develop a sore spot, a lump, or an ulcer in your mouth that does not heal within 2 weeks, schedule an appointment to see your dentist as soon as possible.

Denture wearers should have their mouths examined by a dentist at least once a year. This examination should include a screening for mouth cancer.

Can transplant patients develop cancer of the mouth?

Cancers of the mouth (oral cancer) tend to develop in older people, especially if they have smoked. This also applies to patients who have received transplants. Mouth cancers tend to grow slowly and patients are usually not aware that cancer has developed in their mouth until the tumors have become advanced. This is another reason why you should have a regular check-up with your dentist. Dentists should include an oral cancer screening at routine check-ups every six months, or every year for denture wearers. Your dentist will carefully inspect all areas in your mouth including your gums, the inside of your cheeks, the tissue under your tongue, and your tongue surfaces.

Some mouth cancers develop from pre-cancerous lesions, or patches in the mouth. These are painless white patches (leukoplakia) or red patches (erythroplakia). These lesions should be examined by a dentist immediately, particularly if they develop on the sides or under your tongue. A biopsy of these abnormal areas will be taken to see if the cells of the lesion are benign (not cancerous), pre-cancerous, or malignant (have cancer cells). Your dentist may perform the biopsy or refer you to an oral surgeon or an ear, nose, and throat (ENT) specialist for this procedure.

If you develop a lump, sore, or ulcer anywhere in your mouth, or a lump in your neck that lasts for more than two weeks, you should see your doctor or dentist for an examination.
Dental Care for Children with an Organ Transplant

My child has received a transplant. How should I start caring for his teeth?

If your child is a transplant recipient, caring for your child’s teeth and gums includes the same care routines as for any child. The first step in taking care of an infant’s teeth is to get him used to the feeling of cleaning his teeth and gums. Dentists call this “desensitizing” the mouth. You can begin to desensitize your child’s mouth by touching or rubbing his mouth and gums with your clean fingers. You can use a washcloth, a rubber stimulator (in the baby section of your pharmacy or supermarket), or a toothette sponge (like a toothbrush, but with a small sponge on the end) to massage and clean the gums and any new teeth. Use water to clean an infant’s teeth and gums.

You should rinse your baby’s mouth with water or clean it with a moist toothette or clean cloth after breast or bottle feeding. Avoid soothing your child to sleep with breast or bottle feedings or a sippy cup. Tooth decay develops around the teeth where the milk has settled. This pattern of decay is called “baby bottle mouth.” Saliva, which helps rinse and protect the teeth, decreases when sleeping which adds to the development of tooth decay.

As your child gets older, it is important to have him brush twice daily, especially before going to bed. Place a pea-sized amount of toothpaste on his toothbrush. Teach your child to brush each section of his mouth: the upper and lower teeth on each side, and the top and bottom front teeth. After brushing, he should swish and spit, then rinse. Learning to “swish and spit” is difficult for a small child, but he will improve in time. Rotary (automatic) toothbrushes can be helpful for young children learning to hold and position the toothbrush in their mouths.

Flossing between your child’s teeth is important to remove plaque and food debris. Your child will need help with this for a while, particularly if they have tightly arranged teeth. Individual dental “flossers” are easy to use when flossing your child’s teeth. These are available in the dental section of your pharmacy or supermarket.

What are my child’s risks for dental problems after transplant?

Children, like adults, are at risk for gum problems, tooth decay, mouth ulcers, and infection. Gum overgrowth can also occur as a side effect of some medications.

What can I do to help my child have healthy teeth and gums?

There are several things you can do to help your child maintain good dental health.

✓ Remind, supervise, and help your child brush his teeth and floss.
✓ Examine your child’s mouth regularly for gum swelling, redness or overgrowth. Check for mouth ulcers and signs of infection including red, swollen gums and/or white patches (thrush). As your child gets older, teach him how to check for these oral health problems.
✓ Provide healthy snacks for your child and avoid high sugar snacks, soft drinks, and treats that can contribute to tooth decay.
✓ Schedule visits to your child’s dentist and dental hygienist at least every 6 months for an examination and cleaning.
✓ Call your dentist with any problems or complaints and have dental problems treated promptly.
✓ Ask your dentist about sealants. A sealant is a protective coating that can be applied to the surface of the back teeth where cavities often develop.
Be sure your child is getting the right amount of calcium, vitamin D, and phosphorus. These nutrients help build strong teeth as well as bones and are found in dairy products such as milk, cheese, and yogurt. Talk to your pediatrician or transplant dietician about food choices for your child. Do not give additional vitamins or food supplements unless instructed to do so by your physician.

Fluoride is important for children because it strengthens the teeth as they develop – even before the teeth appear. Your child can absorb fluoride through drinking water that is fluoridated or by taking vitamins that have fluoride. Fluoride can also be given as drops, tablets, or lozenges if you do not have fluoridated water.

How can I talk to my teenager about the risks of oral piercing?

Piercing the tongue and lips has become popular in some groups of adolescents and young adults as a form of self-expression. Many serious complications have been associated with this practice. Teens should be given advice about the serious complications that can arise from oral piercing.

There are many risks associated with oral piercing. Injuries, tongue bleeding or swelling, nerve damage, and transmission of infections can occur. These pieces of metal can crack or chip teeth and can lead to gum injury and recession of the gums. The jewelry can also be a choking hazard if it becomes loose in the mouth. Oral jewelry can affect speech, cause problems with chewing and swallowing food, and stimulate excessive saliva. Oral jewelry will interfere with good tooth brushing and flossing.

Infection is a common side effect of oral piercing. With all the bacteria in the mouth, infections can easily develop in injured tissues. Transplant patients are at an even higher risk of infection since their immune system is suppressed. Transplant patients should never consider oral piercing.

How can I find a dentist?

The best plan for most patients is to have your regular dentist continue to treat you after transplant. That person will be familiar with your mouth and will be able to determine if you are developing problems that were not present before you had your transplant. Providing dental care for transplant recipients is not much different than treating other patients.

However, dentists may relocate or retire. Your regular dentist may not be comfortable treating you after transplant. If this is the case, you can start by asking your local physician for a referral to a dentist in your area who is comfortable with caring for patients with transplants or has experience with these patients. Friends, family, or co-workers can be a referral source. You can also get a listing of dentists through professional organizations in your country by contacting your local dental society.

Before you arrange an appointment with a dentist for your first check-up, ask for some time to discuss your dental care as a transplant recipient. Asking questions before your check-up can help you feel comfortable with your dentist’s care. It is important that your dentist spends enough time with you to answer your questions and discuss your concerns.

Some questions to ask when choosing a dentist:

- Do you have any experience in providing dental care for transplant recipients?
- If not, are you comfortable treating patients who are immunosuppressed?
- Do you think it is important to take antibiotics before any invasive dental procedure since I’m immunosuppressed? If so, will you give me a prescription for the medication or should I ask my transplant physician for the prescription?

- How often would you like to see me for routine check-ups and cleanings?
- Are procedures for sterilizing your dental instruments appropriate for patients who are immunosuppressed?
- What types of procedures are done in your office?
- What types of procedures will be referred to another specialist?
- What should be done in case of a dental emergency? Is there an office emergency line, emergency contact, or answering service?

Dental health is an important aspect of care for everyone. As a transplant patient, it is essential that you take care of your teeth and gums by routinely brushing and flossing. Be sure to see your dentist and dental hygienist every 6 months. Remember, your dental care practitioners are part of your transplant team!
Related Links for More Information

ITNS is not responsible or liable for any information received from these websites. These sites are provided as a network resource. Information from the Internet in regard to your transplant should always be discussed with your transplant team.

For additional information on dental care:

www.ada.org The American Dental Association is the professional association of dentists committed to the public’s oral health, ethics, science and professional advancement

www.ada.org.au The Australian Dental Association is an organization of dentists whose aim is the encouragement of the health of the public and the promotion of the art and science of dentistry.


http://www.dentalhealth.org.uk The British Dental Health Foundation is the leading UK-based independent charity working to bring about improved standards of oral health care. Its goal is to serve the public interest by improving awareness of and access to better oral health.

www.cdha.ca The Canadian Dental Hygienists Association. The CDHA contributes to the health of the public by leading the development of national positions and encouraging standards related to dental hygiene practice, education, research, and regulation. Information is available on oral health care for the public.

www.hdassoc.org The Hispanic Dental Association is the only national association of dental health professionals dedicated to promoting and improving the oral health of the Hispanic community.

http://www.nidcr.nih.gov The National Institute of Dental and Craniofacial Research (NIDCR). The mission of this organization is to improve oral, dental and craniofacial health through research, research training, and the dissemination of health information.

http://www.oralcareindia.com/ Oral Care India. Information on dental care, emergencies, and dental practitioners in India.

http://www.simplestepsdental.com Information about dental care from the Columbia University College of Dental Medicine, New York.

http://www.splut.com/015/007.htm, UK Dental Care Websites. A complete listing of a variety of dental care websites within the UK
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The International Transplant Nurses Society was founded in 1992 as the first professional nursing organization to focus on the professional growth and development of the transplant clinician. ITNS is committed to the promotion of excellence in transplant clinical nursing through the provision of educational and professional growth opportunities, interdisciplinary networking and collaborative activities, and transplant nursing research. This educational brochure is designed to enhance patient education as provided by individual transplant centers. Patients should follow their transplant team’s specific guidelines for dental care after transplant.