Radiation Therapy
To the Head and Neck Area

You will be receiving four to eight weeks of radiation treatment to the head and neck area. Some of the common side effects from radiation to the head and neck include skin irritation, dryness or soreness in the mouth and throat, trouble swallowing, taste changes, and fatigue. Some people may have nausea. Side effects can begin roughly two to three weeks after the start of treatments. They can continue for two to four weeks after the treatments end. Some side effects may occur at different times. Not everyone has side effects.

Positioning for Your Treatment
Each day, right before your treatment, you will be asked to get into position on a treatment table. The radiation therapists will help you get into the correct position. Some patients are put into “molds”. These molds are made during the treatment planning period.

Tiny dots or marks may also have been put on your skin. These marks relate to your treatment field. They look like tiny freckles and will not be easy to see. Oil based skin markers or a dye may be used to make these marks.

If these marks fade, they will be remarked. After your radiation therapy is finished, you can allow the marks to fade. You can also gently remove them using soap and water or baby oil. These marks may rub off on your clothes. If this happens, spray the stains with hair spray or Spray’N’Wash® before you wash your clothes.

Radiation Skin Reaction
Most radiation goes through the skin into body tissues. Even so, the skin in treatment sites can become reddened and irritated. It can also become dry and itchy. Sometimes, the skin will peel and become moist. This happens most often in skin folds and curves. The radiation therapists will tell you which sites to watch.
Watch your skin closely and report any changes you notice. Use the skin care products as directed. As your skin reaction develops, we will also watch it closely. We may tell you to change the way you care for your skin. Some skin reactions can be painful. Tylenol® or ibuprofen is usually helpful. If you need something stronger or help with skin care, let us know.

If you have questions or concerns after your treatments end, call the Radiation Oncology Clinic (open 8am–5pm) at (608) 263-8500 and ask to speak to a nurse. If the clinic is closed, your call will be transferred to the answering service. Give the operator your name and phone number with the area code. The doctor will call you back.

Skin Care during Treatment
In order to protect your skin during treatment, please follow the guidelines listed below. You will need to follow these guidelines during your treatment and afterwards, until your skin has fully healed.

1. Bathe or shower using lukewarm to warm water. If you need soap, use one that is meant for dry or sensitive skin. Rinse well and gently pat dry. Do not rub the skin in your treatment fields.

2. Avoid sources of heat -- heating pads, very hot water in the bath or shower, and hot water bottles.

3. Avoid sources of cold such as ice packs.

4. Avoid sunlight or sunlamps on the skin in treatment areas. When outside, keep the treated area covered. If clothing does not cover the treatment area, use sunscreen with SPF 30 or higher.

5. Avoid rubbing or using friction on the skin exposed to treatment. Do not rub or scrub the skin. Wear loose, cotton clothing that allows good airflow. Avoid clothing made of nylon or synthetics because they hold moisture next to the skin. Clothes that bind can irritate treated skin.

6. Avoid the use of tape on the skin in treatment areas.

7. In most cases, nothing should be applied to treated skin unless approved by your doctor or nurse. This includes bath oils, perfumes, talcum powders, and lotions. If a skin reaction is anticipated, we will advise you to use a skin moisturizer. Use it each day as instructed.

Remember: Your skin needs to be clean and dry before each treatment. Lotions and creams should be applied 2-4 times per day to help your skin feel better. You should not apply lotions or creams in the 1-2 hour period before your treatment. If your treatment is late in the day, you may apply a skin care product before your treatment if it will be fully absorbed by the time your treatment is given.
Skin Care after Treatment

1. Although rare, late effects may occur. These late effects may occur months to years after the end of treatment. Treated skin may continue to be dry. It may also darken in color, or become firm and tough. It may help to apply skin moisturizer or Vitamin E oil.

2. The skin in treatment areas may always be extra sensitive to sunlight. When outdoors, use a sunscreen of SPF 30 or higher on treated skin exposed to the sun. This is because the skin in treatment fields is at higher risk for a certain type of skin cancer.

Dryness or Soreness in the Mouth and Throat
Over the course of treatment, most patients develop redness and soreness in the lining of the mouth and throat. These symptoms continue to be present until four to six weeks after the treatments end. Patients may also notice mouth dryness. If the salivary glands are treated, the amount of saliva in your mouth will decrease and become thicker. This symptom may worsen over the first year after treatment ends. Please discuss these symptoms with your radiation doctor or nurse. There are things you can do make your mouth and throat feel better. You can also do things to help keep your mouth healthy.

1. **Take extra special care of your mouth and teeth.** Brush the teeth, top of the tongue, and inside the cheek with a soft toothbrush. A water pique or bulb syringe may also help to clean gently. You may floss or use a periodontal stimulator, but use it gently.

2. **Rinse your mouth often to keep it moist.** Mix 1 tsp. salt and 1 tsp. baking soda in 1 qt. of water. Rinse your mouth and gargle every two hours while you are awake. Start the rinses before you have any symptoms. Continue the rinses until your mouth heals. If the rinse burns your tissues, reduce the amount of salt in the rinse. Make the rinse up a quart at a time, so that it is ready for you to use when you need it. You are more likely to use it if it is ready to use.

3. If your spit becomes thick and ropey, keep using the salt and soda rinses. You may also wish to purchase alcohol-free mouth washes; go back and forth between the salt and soda rinses and the store bought rinses.

4. **Avoid mouthwashes that contain alcohol** such as Scope®, Cephacol®, and Listerine®. They will further irritate and dry your mouth and throat.

5. **Drink 8 to 12 glasses of fluids daily** and chew sugarless gum. Both will help to loosen up your saliva

6. Ask your doctor or nurse about the use of artificial saliva.

7. Mouth and throat pain can make it hard to swallow and eat properly. If you have pain in your throat that is making it hard for you to eat and drink, discuss it with your doctor or nurse.
8. Radiation to your mouth and glands makes your teeth more prone to decay. Special fluoride treatment can prevent the decay. Your doctor will suggest that you see your dentist.

9. **Visit your dentist regularly** after you finish your treatments. Tell your dentist about the radiation treatments you have had. Before any oral surgery or teeth removal, your dentist should contact Radiation Oncology at 608-263-8500.

10. **If you wear dentures**, clean them at least once a day. Try to wear your dentures as little as possible during your treatments and for three to four months after treatments end. Radiation can cause slight changes in your gum line. You may need to have your dentures refitted.

11. **Avoid smoking and drinking alcohol.** Both can worsen the side effects in your mouth because they dry and irritate the mouth. They also make these areas more prone to cancer.

12. **Some foods will bother your mouth.** Avoid spicy (pepper, chili powder, nutmeg, horseradish, Tabasco®, and cloves), hot, rough, or coarse foods. Try soft, bland foods. Moisten your food with sauces and gravy.

13. **Dilute citrus juice.** Orange, grapefruit, lemon, and lime juices are slightly acidic which can further dry your mouth. You may need to avoid them until you finish treatments and your mouth heals.

14. **Carry water with you to moisten your mouth.** Carry a small squirt or spray bottle to keep the water easy to access.

15. **Use a vaporizer or humidifier at home.** Change the water, and clean out the basin daily.

16. **Check your tongue, the inside of your cheeks, gums, and the roof of your mouth in the morning and before going to bed each day.** The tissues should be smooth, pink, and moist. If you notice any red or white areas, or areas that look or feel injured, report it to your nurse or doctor right away. Sometimes radiation causes an oral yeast infection, which can be treated with medicine.

17. **Inner ear discomfort may occur during treatment.** Some patients report a feeling of fullness or decreased hearing. If this happens to you, report it to your nurse or doctor.

**Problems Swallowing**

About two weeks after treatments begin, you may notice that you have problems swallowing. The tissues in the throat and mouth can swell and makes it hard to swallow. You may need to change your diet. Eat foods that are soft, moist, and wet. Eat foods high in protein and calories. Don’t eat anything that irritates your tissues. High protein foods are needed to help heal your body during and after treatments. A daily multi-vitamin is a good thing to take.
If you do not feel like eating, try to eat 6 small meals instead of three larger ones. Nausea is rare, but if it develops, talk to your radiation doctor or nurse.

If you have problems swallowing, choose from the soft food lists. High protein drinks will help to prevent weight loss. We have listed blender recipes for you if you find the soft food lists too thick. A sample daily menu can also be found at the back of this handout.

**Tube Feedings**
Patients often lose weight during treatments because they have problems eating. Your body needs high calorie and protein foods to help it heal. If you start to lose weight and are not able to increase your food intake, tube feedings can help give you the protein and calories your body needs. We use a soft flexible tube that is a little wider than a cooked spaghetti noodle. The tube is either passed through your nose into your stomach or placed directly into your abdomen. You can take in liquid food through the tube several times each day. We will teach you how to take care of the tube and your feedings at home. Your doctor or nurse may suggest this as a way to help you get the nutrition you need. If you want to know more details, please ask your doctor or nurse.

Good nutrition is very important during your treatments. Patients who get enough nutrients, either through eating or tube feeding, have milder and shorter lasting side effects.

**Taste Changes**
Many patients notice taste changes as they go through their treatments. Your sense of taste may become weaker and some foods may taste different.

**If your sense of tastes becomes weaker . . .**

Radiation can destroy your sense of taste for a short time. Protein will help your body rebuild your taste buds. Your taste will slowly return to normal 2 – 4 months after you complete the treatments. For some people, it may take longer. If you eat enough protein during and after treatments, you will help the healing process.

Even if food has no taste for you, you still need to eat well. There are some things that you can do to help your food taste better. Try liquid foods. Add sauces, gravies, and salad dressings to food. Cook foods that have a pleasant smell. If you can smell the food, you can taste it better. Try adding mild spices such as basil, mint, or vanilla.

**If you have a bad taste in your mouth . . .**

No one knows why taste changes happen. The cancer may change the way your body is able to sense the taste of food. Drinking 8 to 12 glasses of non-alcoholic fluid may help to clear your body of the byproducts of cancer and treatments.
If you have bitter tastes . . .
Some patients find that beef and pork taste bitter. Either eat other high protein foods or disguise the taste of the meat. You can marinate and cook the meat in a sweet sauce. Wine and fruit juice work well. Sometimes if you aren't in the kitchen when the food is cooked, it helps. The smell of the meat may bring on the bitter taste. You can also try to eat the meat cold.

If you have a metallic taste . . .
Avoid serving foods or liquids in metal cans.

Nausea
Nausea, although rare, may occur. Some people describe it as feeling “sick to their stomach”. This feeling will not last. It is important that you keep eating well.

Some of the tips listed below may be helpful to you.
1. If you have nausea, tell your doctor or nurse the next time that you come for treatment. We may be able to prescribe helpful medicine.
2. Try eating salty foods like chicken soup, crackers, pickles, or olives. If your mouth is not sore, you may also want to try tart foods such as lemons.
3. Eat low fat foods and avoid fried foods.
4. Drink small amounts of clear, cold drinks.
5. Try cold foods such as Popsicles®, gelatin desserts, yogurt, cottage cheese, cheese, deviled eggs, and cold meats.
6. Try eating small meals (4 to 6 per day) to keep your stomach from feeling too full and to prevent a prolonged empty stomach.
7. The smell of cooking sometimes makes people feel nauseous. If this applies to you, avoid cooking the food yourself. Ask your nurse about resources to help you with the cooking.
8. Eat slowly.
9. Relax and chew your food well to help your stomach digest food. You will also reduce a tense stomach this way.
10. Do not eat for the hour before your treatment if you become nauseated during or shortly after the treatment.
11. Sometimes coughing while trying to rid your throat of thick secretions brings a sick feeling. If you drink 8 – 12 glasses of non-alcoholic fluids, you will help to keep those secretions looser and not as hard to cough out of your throat. Rinsing your mouth and gargling with the salt solution may help, too. You may find a vaporizer or humidifier helpful. Change the water and clean the basin daily.
Soft Foods

Main Dishes

- Moist casseroles (macaroni and cheese, tuna and noodle, macaroni with hamburger and tomatoes)
- Cottage cheese moistened with milk or add fruit from a can (drain the juice)
- Soft, cooked, poached or scrambled eggs
- Ground meats moistened with gravy
- Baked or broiled fish or chicken
- Cream soup—add cheese or non-fat dry milk for extra protein and calories
- Bean soup (strain out the hulls)
- Split pea soup
- Any commercial baby food

Vegetables

- Mashed squash with butter
- Mashed potatoes thinned with milk, cream, or butter
- Tomato or other vegetable juice

Fruits

- Applesauce
- Mashed bananas
- Sieved or blended peaches and pears
- Apricot, peach, or pear nectar
- Apple or grape juice
Desserts

- Ice cream or sherbet
- Gelatin (increase calories by adding Polycose® or Citrotein® to the mix. Ask your nurse or dietitian for details)
- Pudding, custard, or tapioca
- Yogurt
- Fudgesicles and popsicles
Top any of these with whipped cream

High Protein, High Caloric Drinks

**Carnation Instant Breakfast® in milk**  
(makes a good snack too)  
275 calories per cup

**Double strength milk**  
1 c. dry skim milk powder mix in 1 qt. whole milk  
250 calories per cup

**Milkshake**  
Blend 1 c. whole milk  
1/2 c. ice cream  
1 T honey or Karo® syrup  
1 tsp. vanilla  
204 calories per cup

**Flavored milkshake**  
Add fruits, syrup, coffee crystals, chocolate or maple syrup, pureed fruits, baby food fruits. You also double the strength of the milkshake.

**Floats**  
Blend 1/2 c. ice cream  
1/4 c. of soda  
250 calories

**Hot Chocolate**  
1 square of unsweetened chocolate  
1/4 tsp. sugar  
1/4 tsp. vanilla extract  
1 c. milk  
dash of salt  
Blend until chocolate is dissolved. Serve hot, garnished with whipped cream.  
335 calories per cup.

**White Lightning**  
1-6 oz. can frozen apple juice concentrate, thawed  
1-8 oz. carton fruit flavored yogurt  
1 medium banana  
1/2 c. nonfat dry milk  
1/2 c. shredded coconut  
12 ice cubes partially crushed  
Combine all ingredients in a blender. Blend at high speed until ice cubes are crushed and the mixture is frothy. 185 calories per cup.

**Shake Surprise**  
1/4 c. refrigerated butterscotch, chocolate or fruit flavored syrup  
2 scoops of ice cream  
1/2 c. whole milk  
Combine all ingredients in a blender until smooth. 527 calories per cup.

OPTIONS  
add 1/4 c. nonfat dry milk powder for 60 calories  
add 2 tsp. peanuts for 104 calories  
1 envelope instant breakfast for 130 calories
Food Supplements
There are many liquid or powdered food supplements on the market to add protein and calories to your diet. They can be found in grocery stores, drug stores, department stores, and health food stores. Some brands to look for are: Carnation Instant Breakfast®, Boost®, Ensure®, Sustacal®, Osmolyte®, Skandi-Shake®. If you have diabetes, you may choose Glucerna® and Choice®. Many stores carry generic brands that are good, too. The canned liquids are easy to use because they need no preparation—just pop the can open and drink. Powders require some mixing into fluids or foods, but are also quick and easy. Ask to speak with a nurse or dietitian.

Blender Recipes

Breakfast

Sausage and eggs (570 calories per cup)
2 cooked sausage links
2 soft cooked eggs
1/2 c. mashed potatoes
1/2 slice warm toast
1 c. warm milk
Blend sausage at low speed. Add eggs, potatoes, and toast. Blend again. Add milk, blend at high speed until smooth.

Poached eggs (280 calories per 1.5 cups)
2 poached eggs
1/2 slice buttered toast, quartered
1/2 c. warm milk
Blend at high speed until smooth.

Breakfast in a glass (240 calories per 1.5 cups)
3/4 c. milk
1 soft cooked egg
1/2 c. warm milk
Blend at high speed until smooth.

Sandwiches

Liverwurst and cheese on whole wheat (420 calories per 1.5 cups)
1 slice whole wheat bread
1 slice liverwurst (1 oz)
2 T. cream cheese
1 c. cold milk
Blend bread, liverwurst, and cream cheese at low speed. Add milk, blend at high speed until smooth.

Hamburger (290 calories per cup)
2 oz. cooked hamburger
1 hamburger bun
3/4 beef bouillon
season to taste
Blend hamburger and bouillon at low speed. Tear bun into small pieces, add seasoning. Blend at high speed.

Cheese sandwich (270 calories per cup)
2 slices soft cheese
1/2 slice bread
1/2 c. warm milk
Favorite cold cuts
Blend bread at low speed. Add cheese, milk and cold cuts. Blend at high speed until smooth.
Main Dishes

Wieners pork and beans (400 calories per cup)
- 3 oz. wieners
- 1/2 c. baked beans
- 1 tsp. mustard
- 1/2 c. water
Blend wieners at low speed. Add beans, mustard, and water. Blend at high speed.

Fried Chicken (430 calories per 2 cups)
- 2 oz. fried chicken broken into small pieces
  (skin will add calories and taste)
- 1/2 c. mashed potatoes
- 1/2 c. cream gravy
- 1 c. hot milk
  season to taste
Blend all ingredients until smooth.

Macaroni and Cheese (300 calories per 1.5 cup.)
- 1 c. hot baked macaroni and cheese
- 1/2 c. hot milk
Blend until smooth.

Beef Stew (250 calories per cup)
- 1 c. stew
- 1/4 c. broth
Blend until stew is as thick as a milkshake.

Spaghetti and meatballs (250 calories per 1.5 cups)
- 1/2 c. cooked spaghetti
- 2 meat balls
- 1/2 c. spaghetti sauce
- 3/4 c. hot water
Blend until smooth.

Macaroni and Beef Casserole (220 calories per cup)
- 1 c. hot macaroni ground beef casserole
- 1/2 c. hot water
Blend until smooth.

Roast Beef (520 calories per 1.5 cups)
- 6 oz. hot roast beef cut into small pieces
- 1/2 c. parsley potatoes
- 1 c. hot water
- 1 beef bouillon cube
Blend beef, bouillon, and hot water at high speed. Add potatoes and blend until smooth.

Salads and Vegetables

Cottage cheese and fruit salad
- 1 c. cottage cheese
- 1/2 c. canned fruit or fresh fruit, chopped
Blend at high speed. Add milk to thin.

Potato Salad (350 calories per 1.5 cups)
- 1 c. potato salad
- 1 c. milk
Blend until smooth.

Macaroni Salad (450 calories per cup)
- 1 hard boiled egg, chopped
- 1 c. cooked macaroni
- 1 T. salad dressing
- 1 T. pickle relish
- 1 c. milk
Mix egg, macaroni, salad dressing, and pickle relish. Blend at low speed. Add milk, blend at high speed until smooth.

Vegetables

Most vegetables can be blended with their own juice. Use at least one cup vegetable and juice mixture. Butter and season to taste. Baby foods make ideal vegetables when diluted.
Desserts

Apple or Cherry Pie (450 calories per 3/4 cup)
1 serving pie, chopped with edge crust omitted
1/3 c. cold milk
Blend until smooth, add ice cream or whipped cream if desired.

Pudding (470 calories per 1.5 cups)
3/4 soft pudding
1 c. cold milk
Blend until smooth.

Strawberry Shortcake (330 calories per cup)
1 baking powder biscuit
1/2 c. frozen strawberries
1/2 c. whipped cream
1/2 c. milk
Blend until smooth. Add sugar, if desired.

Yogurt-honey Dip (330 calories per 1 1/2 cups)
8 oz. vanilla yogurt
1 T. cream or milk
2 T. honey
Mix all ingredients well and serve with fresh or canned fruit.

Sample Daily Menu

Breakfast
Blended entree (e.g. eggs and sausage)
Cooked cereal with milk and butter
Fruit juice
Coffee or tea

Lunch
Blended entree
Buttered vegetable, blended
Potato salad
Pudding
Milk or juice

Dinner
Blended entree
Buttered vegetable, blended
Apple pie
Milk or juice

Evening
Milk shake
**Feeling Tired**

Feeling tired (fatigue) during radiation treatment is a common side effect. The severity of fatigue varies from person to person. Fatigue does not mean that your tumor is getting worse. Some people feel no fatigue and are able to keep up with their normal routines. Others feel the need to take an extra nap each day. Still others change their routines, working only part time, for example. Some people don’t do anything that requires a large amount of energy. Fatigue can begin right away, or it can occur after 1 – 2 weeks of treatment. It can go on for several weeks to months after treatment has ended. Rarely, it can last for up to a year.

Low blood counts may also cause you to feel tired. Your bone marrow makes blood cells. If a lot of bone is in your radiation field, your production of blood cells may be slowed down for a time. This is a short term side effect. Your doctor may order a blood test from time to time to check your blood cell counts.

Here are a few tips that may help with feeling tired.

1. **Listen to your body and rest when you need to.** A short nap during the day or sleeping a little longer may help.

2. **Make time for activities you enjoy.** Take a walk in the fresh air, visit with a friend, or pursue a hobby during the times that you feel most energetic. Do things that help you feel good.

3. **Stop smoking and do not drink alcohol during treatment.** Do something healthy for yourself. If you need help with this, talk with your doctor or nurse. There are ways we can help.

4. **If you work you may want to keep working.** Some people are able to maintain a full time job. Others find it helpful to work fewer hours. Many employers understand and will agree to part time work. We can schedule your treatment times to fit in with your work schedule.

5. **Plan regular active exercise – daily walks, riding an exercise bike, or any mild exercise.** Go at your own pace. **Never** exercise to the point of fatigue. A good rule of thumb is that you should feel less tired after the exercise than you did before the exercise.

6. **Take advantage of emotional outlets.** Pent-up emotions can add to fatigue. Talk with family or friends. Having a good cry or laugh can be helpful.

7. **Eat well.** Keep foods around that need little effort to prepare – cheese, yogurt, or slices of meat. When you feel well, prepare and freeze meals to eat later when you are tired. Extra calories and protein are needed to maintain energy while getting treatments. They also help repair normal skin cells damaged by your treatment. Speak with a clinic nurse if you have problems eating.

8. **Drink lots of fluid – 8 to 12 glasses per day.** The water will help to flush some of the by-products of your cancer fighting treatment out of your body.
9. If you need help with your basic daily needs, ask your nurse or the social worker to help you contact your local resources. You may be able to receive help with meals, housekeeping, personal care, transportation, support groups, and respite care.

10. Accept offers of help from family and friends. If friends ask if they can help, accept it! If they ask you to call if you “need anything,” they may need specific ideas from you. Often people want to help but don’t know what things you need the most help doing. Things like mowing the lawn, baking a casserole or watching the kids, can help both you and your friends to feel good.

11. Visits from family and friends can be pleasant, but also tiring. You do not need to be the perfect host/hostess. Let your friends and family fix dinner, and get the drinks and snacks for you!

12. Some people may have pain from cancer or other causes. Pain can be very tiring. Your doctor and nurse can work with you to achieve good pain control. Let them know about any discomfort you have during treatment.

Other Concerns
When you have cancer you may have concerns other than the need to manage your side effects. Often, it affects many other aspects of your life. Patients feel its impact on their emotions, marriage, family, jobs, finances, thoughts, and feelings about the future. The nurses and social workers can help you cope with these issues. They can suggest support services and resources. Feel free to speak them at any time.

Cancer Resource Services
There are many resources available to cancer patients and their families.

Cancer Connect is a toll-free telephone service of the University of Wisconsin Hospitals and Clinics. The staff of Cancer Connect can answer your questions about treatments available at UWHC and how to get information about them. It can also provide information about available community resources and support services. The number is 1-800-622-8922.

Cancer Information Service is a nationwide telephone service of the National Cancer Institute. It has information about cancer care available around the country as well as locally. The toll free number is 1-800-422-6237. You can also visit their website at www.cancer.gov.

Support for People with Oral and Head and Neck Cancer is a non-profit organization dedicated to supporting the needs of oral and head and neck cancer patients. www.spohnc.org

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 2/2017. University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#4825.