

# HEADWAY

NEWS ON ADVANCES IN THE PREVENTION, DETECTION, AND TREATMENT OF HEAD AND NECK CANCERS

## To our patients:

In the Division of Head and Neck Surgery in the Department of Otolaryngology, I have gotten to know many of you through the clinic on the floor at the Eye and Ear Institute. It has been a privilege to participate in your care and to see the strength and resolve as you all face difficult treatments and the side effects that can follow. As part of a large team of doctors, nurses and coordinators who, to the best of our ability, treat and improve the outcome of patients and families affected by head and neck cancer, I am always amazed and honored to be part of this journey that we embark on together, and am grateful for the relationships that I get to have with many of you.

I would like to take a minute to thank you for your participation, generosity and patience with our research activities. We are attempting to identify the causes for head and neck cancer, the reasons why treatments do not always work, and focus our effort to develop new and less toxic therapy for this disease. Most, if not all of our patients agree to provide specimens from the operating room or the clinic. Our laboratories, which are funded by the National Cancer Institute, generate new knowledge and improvements in treatment by studying the blood and tissues donated by our patients. Often as doctors, we forget the inconvenience of waiting for our coordinators, the needle stick involved with donating blood and other aspects of our research activities, which may not provide an obvious immediate benefit for you. However, new drugs such as Cetuximab, recently approved by the FDA for head and neck cancer, were helped in large part by studies in our department on the Epidermal Growth Factor Receptor (EGFR) protein that makes head and neck cancers grow faster. Much of the work understanding how Cetuximab improves survival for head and neck cancer patients is being done at the University of Pittsburgh. Likewise, the development of cancer vaccines and understanding why the immune system does not eliminate head and neck cancer cells has been pioneered in our department and at the University of Pittsburgh Cancer Institute (UPCI). These studies are ongoing and reflect the deep commitment of our doctors and scientists to best use the valuable tissue and blood donations provided by you, our patients. When you do this, have full faith and trust that we will carefully study them and try to understand the inner workings of the cancer cell and the human body, in order to improve treatment and ways to eliminate this disease. The benefits may not always seem obvious, but they are coming one step at a time, as we work in our laboratories and in the clinic. As patients, you are partners, and you are indispensable members of the research team, for without your generosity and willingness to participate, we would have nothing to do in our laboratories of any real benefit for you and future patients.

At the Department of Otolaryngology Clinic at the Eye and Ear Institute, we are aware that patient flow and convenience is important. We are not always as efficient as we should be. However, involving you in our clinical research activities and you agreeing to participate by donating blood and other tissues is crucial to our ability to help you and other patients. We welcome your feedback and suggestions on how to improve the processes.

We always look forward to those times when we can reduce the number of visits, to help our patients get back to daily lives and activities. Although we love to see patients when things are going well, ultimately our goal is to return our patients to family and work, life, eating out and enjoying the everyday aspects of life. In the meantime, we deeply appreciate your patience with our clinical research activities and clinical office, including our coordination as you travel to and from the Eye and Ear Institute and the UPCI Hillman Cancer Center. We always hope that the design of our clinical and research activities maximally benefit patients today and tomorrow, and your role and generosity is paramount.

*Sincerely,*  
*Robert L. Ferris, M.D., Ph.D., FACS*

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## Clinical trials and the necessity for patients to continue to contribute samples

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Despite advances in the treatment of head and neck cancer, we do not know how to identify those patients who are likely to benefit from specific therapies. Cetuximab (Erbix™) is an antibody directed against a growth factor receptor on the surface of the cancer cells known as the epidermal growth factor receptor (EGFR), which was approved by the Food and Drug Administration in 2006 for head and neck cancer patients. Although EGFR is expressed at relatively high levels in most head and neck cancers, only a subset of patients will benefit from treatment with cetuximab. Analyzing tumors obtained at several time points during treatment with cetuximab should begin to identify the patients most likely to respond to this drug. The same approach is needed to evaluate all new cancer agents. Only by understanding precisely what a drug does in the tumor, and correlating these laboratory findings with the clinical response of the patient to the drug, can we begin to realize the promise of personalized medicine.

To obtain these tumors, patients being treated on clinical protocols to test the effects of new treatments need to consent to having their tumor biopsied before, during and/or after treatment. Unlike cancers in other organs, such as the lung, liver and colon, tumors in the head and neck are relatively accessible for sampling in the doctor's office with a local anesthetic. While it can be inconvenient and occasionally uncomfortable to have a biopsy, evaluating new drugs without the information contained in the tumor will

continue to limit our ability to cure this cancer. There are dozens of new drugs being developed that may help patients with head and neck cancer. We have learned that although tumors from different patients may look similar under the microscope, more detailed analysis in the laboratory demonstrates that each tumor contains a unique profile of altered genes. The specific genes that are altered by the treatment may provide the information necessary to determine who will benefit from which drug.

If physicians were able to cure every patient with head and neck cancer, research would be largely unnecessary. Even with improvements in surgical techniques, methods of radiation delivery and the availability of a larger number of drugs that are active in this disease, nearly half of the patients afflicted with head and neck cancer, ultimately succumb to their tumor. Clinical research is needed to test the safety and efficacy of new agents and combinations of drugs. If you are eligible for participation in a clinical trial, you will have the

Only by understanding precisely what a drug does in the tumor...can we begin to realize the promise of personalized medicine.

opportunity to receive cutting edge therapy in a closely monitored setting. Perhaps even more importantly, your willingness to be treated on a protocol will allow us to develop new approaches that lead to increased survival of future generations who get this cancer. Consenting to repeated sampling of your tumor while you are being treated on clinical studies, will enable us to determine the effects of the treatment on the tumor cells.

Ultimately, this information will allow us to identify the best drug for each patient based on the molecular profile of an individual's tumor. We can only write the protocols based on our current understanding of the biology of this cancer. We need to partner with you, our patients, to obtain as much information about these new treatments so that we can cure each and every individual with head and neck cancer.

## HBO and late effects of radiation therapy

*By Diann Corll, RN*

Department of Hyperbaric Medicine  
UPMC Presbyterian

The hyperbaric department at University of Pittsburgh Medical Center is located within the Emergency Department at UPMC Presbyterian Hospital. Kevin O'Toole, M.D. is the Medical Director for the Hyperbaric Department and an Emergency Department physician.

Hyperbaric oxygen therapy is not a new treatment method used as additional treatment for late effects of radiation therapy. It is an effective one though. Hyperbaric oxygen therapy is a treatment in which a patient breathes 100% oxygen intermittently while inside a treatment chamber at a higher than sea level pressure.

A hyperbaric chamber is a clear acrylic tube about 7 feet long. Some people say it reminds them of a tanning bed. A typical treatment protocol is one and a half to two hours in the chamber Monday through Friday for six weeks, or 30 treatments. When the patient arrives for their monoplance treatment they will need to be dressed in 100% cotton clothes or change to a patient gown. After being checked for prohibited materials they will lay on their back on the patient gurney. When the patient is comfortable and all is ready, the stretcher and patient are slid into the chamber. The chamber door is closed and the chamber begins to pressurize. The patient will notice a gentle rush of incoming gas and a slight fullness in their ears. The patient will begin ear clearing procedures. This process lasts about 15 minutes or until the prescribed pressure is reached.

As pressure develops in the chamber the patient will notice a slight warming. When compression is complete, the need for ear clearing ceases. The patient may now rest, watch television, a movie or listen to music. During compression the chamber will become cooler. Patients may invite a family member or friend to sit with them chamber side during their treatment. A hyperbaric nurse will observe the patient during their treatment.

After each hyperbaric treatment is completed, the patient's ears will be examined by an Emergency Department physician to assess for signs of barotrauma

## Hyperbaric oxygen therapy is not a new treatment method... It is an effective one though.

(discomfort in the ear caused by pressure differences between the inside and outside of the eardrum). At times, medicines such as Afrin nasal spray and Sudafed are prescribed to minimize the side effect of ear barotrauma associated with hyperbaric treatments. If these medicines aren't successful the patient is referred to an ENT physician for "ear tubes". These are the same ear tubes young children get for repeat ear infections. If a patient does get tubes in their ears, the need to equalize their ears during compression is eliminated.

What can you do to learn more? To learn more, ask your physician, call the Department of Hyperbaric Medicine at 412-647-7480, or access via the web: [www.hboevidence.com](http://www.hboevidence.com) or [www.uhms.org](http://www.uhms.org). Hyperbaric oxygen treatments are covered by most medical insurance providers.

*Reference: Kindwall, E. P. & Goldman, R. W. (1995). Hyperbaric medicine procedures. Milwaukee, Wisconsin: St. Luke's Medical Center*

## Restoring form and function: the role of plastic surgery

*By Frederic W-B Deleyiannis MD, MPhil, MPH*

Associate Professor  
Division of Plastic Surgery  
Departments of Surgery and Otolaryngology

Cancer of the head and neck can affect a variety of locations, including the mouth, jaw, throat, and face. Because of these locations, the cancer can cause defects that are both functional and cosmetic. Speech, swallowing, and appearance can be affected. However, over the past years recent advances in reconstructive techniques can provide excellent cosmetic and functional results. Quality of life can be preserved, and patients can often return to their pre-diagnosis, normal activities.

To achieve these goals, the plastic surgeon works in conjunction with the head and neck surgeon. Reconstruction is most often used for patients who are likely to have complex defects, for example, when parts of the tongue or jawbone are removed. If reconstruction is necessary, both the head and neck surgeon and plastic surgeon will discuss with the patient the various methods of reconstruction. The technique that is frequently used is microvascular reconstruction, commonly referred to as free tissue transfer. This technique involves taking skin, muscle, and/or bone from one part of the body and using this tissue to replace the structures involved by the cancer. Tiny blood vessels from the source tissue (i.e., the free flap) are reattached to recipient vessels in the head and neck. Reconstruction is routinely done immediately after the tumor has been removed.

Common donor sources for reconstruction include the legs, the arms, and the abdomen. The fibular, anterolateral, rectus, and radial forearm free flap are four commonly used flaps. These flaps are chosen not only because they can replicate the missing tissue but also because their harvest creates minimal morbidity.

If you have questions about your reconstruction, please do not hesitate to ask your

plastic surgeon and head and neck surgeon. Common questions have included:

### **What is the success rate of reconstruction with microvascular surgery?**

Greater than 95% of the free flaps will be successful. The blood vessels that need to be reconnected are very small (2-3 mm). Occasionally blood clots can form that prevent a successful reconstruction. During your hospital stay the nursing and medical staff will be continually checking the pulses (i.e., the blood flow) in the flap.

### **What can be done to restore/replace my teeth at the site of the tumor resection and reconstruction?**

The most common free flap that is done to replace the bone of the jaw (i.e., mandible) is the fibular free flap. The bone of the fibula is thick enough to accept dental implants. Once the reconstructed mandible has healed, these implants can be placed to support teeth.

### **Will I have any difficulty walking if the fibular free flap is used to reconstruct my jaw (mandible)?**

The lower extremity is supported by two bones - the tibia and the fibula. The tibia is the larger of the two bones, and provides the majority of support for weight bearing (i.e., walking). Removing the fibula so that it can be used to replace the mandible does not affect the ability of the tibia to support the leg. Therefore, after harvesting a fibular free flap, few patients report any difficulty in walking or running.

### **Will I be able to eat a regular diet after my throat (pharynx) has been reconstructed?**

To reconstruct the throat, tissue from the leg (i.e., an anterolateral thigh free flap) or from the arm (i.e., a radial forearm free flap) is used. This tissue is rolled into the shape of a tube to replicate the shape of the throat. Approximately, 20% of patients may have difficulty eating large pieces of food. Scar tissue at the reconstructed site can cause narrowing of the reconstructed throat. The majority of patients will be able to eat a soft diet.

### Will I be able to use my hand normally if a radial forearm free flap is used?

Yes, the skin overlying the forearm will be harvested with the radial forearm free flap. This skin will be replaced with a skin graft from your leg. If you have any hand stiffness following harvest of the radial forearm free flap, physical therapy will be used to increase your range of motion and strength. The flap will likely be harvested from your non-dominant arm.

Our goal is to return you to your pre-cancer way of life. With reconstructive surgery excellent results can be obtained, and quality of life can be preserved. To learn more about head and neck reconstruction contact Jeanne Mehalik at 412-648-2381 for an appointment.

## Coping strategies for head and neck cancer patients and their partners

By Mariana I. Escobedo, MA and  
Donna M. Posluszny, PhD  
Behavioral Medicine Service  
UPMC Cancer Centers

Cancer affects not only the person who is diagnosed but also the entire family, especially one's partner or spouse. As with other life events, many couples may experience stress on their relationship during this difficult time. While stress can make a couple's old problems reemerge or new problems arise, it can also be an opportunity for a couple to strengthen their bond to one another. People with head and neck cancer face specific challenges such as difficulty eating, physical disfigurement, and speech impairment; these potential stressors may also impact the patient's partner and relationship.

Coping strategies refer to those efforts and behaviors a person commonly engages in order to minimize the impact of distress. Although you and your partner might have different ways of coping with stress, thinking about how you have overcome other crises as a couple can help you plan ahead for possible adjustments you will need to make.

Some coping strategies that you can use as

a couple in order to deal with these challenges include the following:

- Team up against cancer. Be actively involved in treatment through open communication with your physicians and treatment team as well as with each other. Writing down questions that you would both like to ask can be helpful before medical appointments. Also, gather information together in order to understand what to expect over the course of your or your partner's treatment and agree on possible courses of action for foreseeable challenges.

While stress can make a couple's old problems reemerge or new problems arise, it can also be an opportunity for a couple to strengthen their bond to one another.

- Be honest with yourself and your partner about your feelings and emotions. Expressing feelings of sadness, frustration, anger, or uncertainty can lessen stress and become an opportunity to share ideas about possible ways to solve specific problems you might be facing.
- Try to maintain normalcy with your partner. Continue sharing an activity you used to enjoy doing together such as watching a favorite t.v. show or visiting grandchildren.
- If eating is difficult, be creative during meal times. Experiment with new recipes or combinations of foods with different textures and tastes. Also, look for ways in which you can still enjoy each other's

company as a couple and as a family during mealtime.

- Take time to do something pleasurable as a couple such as being intimate, taking a walk together, watching a movie, listening to music, etc. Scheduling specific times during the week to spend time together may help.
- Build in time apart, if needed, to have time for reflection or individual hobbies and interests.

Think about what strategies have worked for both of you in the past and don't be afraid to try new strategies. There will be times that you may feel anxious, worried, sad, or hopeless; talk to your doctor if any of these feelings become overwhelming for more than two weeks. UPMC Cancer Centers' Behavioral Medicine provides psychological services that can help you and your partner cope with cancer individually or as a couple. Our psychologists can help with a variety of issues such as depression, anxiety, communication and relationship skills, pain management, etc. For more information, call 412-623-5888.

Dr. Posluszny is conducting a study of the impact of cancer diagnosis on quality of life and relationship satisfaction of newly-diagnosed head and neck cancer patients and their partners. Her work is funded by the National Cancer Institute. If you have been diagnosed within the past 12 weeks and are interested in learning more or participating in this study with your partner, please contact Jessica Manculich at 412-641-7530.

## PET/CT imaging studies

By Stacey McKenzie, CNMT,  
ARRT (NM) (CT)

When patients have received a diagnosis of cancer their physician may order a Positron Emission and Computed Tomography (PET/CT) scan. A PET/CT scan is actually two separate tests performed together on one imaging machine. The benefits of combining these separate diagnostic studies into one include saving the patient from having to make two separate trips for two

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## PET/CT imaging studies *continued*

different scans. Furthermore, by having both scans at the same time, physicians can take advantage of having the increased accuracy and diagnostic precision for interpretation. Image fusion allows information from both scans to be interpreted from one set of images, thus providing more precise information and more accurate diagnosis.

The CT (Computed Tomography) scan uses x-ray equipment and many times an oral or intravenous (i.v.) contrast agent to

Overall,  
PET/CT scans  
can change  
the course of  
treatment in up to  
40% of patients.

provide excellent anatomical images of internal organs, bone, soft tissue, blood vessels, and lymph nodes. The structural changes as often seen in cancer can easily be seen on a CT scan. However, in some instances the abnormalities seen on CT can be somewhat confusing.

The PET (Positron Emission Tomography) scan measures metabolic changes in the body using a radiopharmaceutical containing glucose. Cancer is generally more metabolic (active) than the surrounding tissue. Therefore, the PET scanner measures the amount of the radiopharmaceutical (tracer) absorbed by the tumor. In some instances PET can reveal metabolic change in the body prior to structural changes that are seen on CT or MRI alone.

The PET/CT scan is a powerful tool often used when cancer is newly diagnosed. The physician can see where active tumors are and also check to make sure they have not spread to other areas of the body. A PET/CT scan is also beneficial after

treatment has ended to make sure the treatment worked.

You will be contacted a few days before your scan with instructions. You will be asked to refrain from eating, drinking, or chewing gum or candy for 4-6 hours before the process begins (water allowed). Eating will alter the distribution of the radiopharmaceutical and lead to a suboptimal scan. Thus, following these important instructions is quite crucial. Wear loose, comfortable clothing with no metal. It is important to arrive on time since the radiopharmaceutical is short acting and decays quickly. Only one dose per patient is ordered, so if you arrive late, the radiopharmaceutical may be expired and your test may need to be rescheduled.

Once you arrive for your scan, an IV will be placed in your arm and a small blood sample will be taken to document your blood glucose level. You will then be given the tracer for the PET scan and asked to remain quiet and relaxed in a dimly lit room for approximately one hour while the radiopharmaceutical is absorbed. You will then be placed on the PET/CT scanner. The CT scan is taken followed immediately by the PET scan. You will be asked to lie very still for 20-35 minutes. The entire process from arrival to departure will take 2-2.5 hours. You may resume normal activity once your scan is complete. If there are any special instructions, your technologist or nurse will inform you before you leave. Always drink lots of water following the procedure to flush the tracer and/or contrast from your body.

PET and CT are both powerful, non-invasive imaging tools that can be used to pinpoint disease in the body, specifically cancer. By combining these two scans, it enables your physician to more accurately identify where the cancer is located and assess if it has spread. It is a valuable tool in radiation therapy planning, enabling the radiation oncologist to more accurately target the radiation to the cancer and spare surrounding healthy tissue. Overall, PET/CT scans can change the course of treatment in up to 40% of patients. Your physician will decide if a PET/CT is the right procedure for your health care.

## Special presentation: An oral cancer survivor's story

You are invited to attend a presentation to be held on Wednesday, April 22nd, 2009. Lunch will be on us. Dr. Jeanette Ferguson, a scientist from Ohio State University and oral cancer survivor, will present "*A Head and Neck Cancer Journey: My Evolution from Patient to Advocate.*" Also participating will be Dr. Jonas Johnson, Chairman, Department of Otolaryngology, University of Pittsburgh School of Medicine and Dr. Jennifer Grandis, SPORE Director and Vice Chair for research.

The presentation will begin at 12 noon at the Haberman Conference Center, 2nd floor, Cancer Pavilion, Room 201 A/B, 5150 Centre Avenue, Pittsburgh 15232 (adjoining Shadyside Hospital).

Anyone interested in learning about the UPMC Head and Neck Cancer Support efforts and future plans is welcome to attend.

For further information and/or reservations for the presentation and complimentary lunch, please call Jessica Thornton at 412-648-6974.

## Participants needed

### SMILE Study

Physicians in the Department of Otolaryngology are participating with centers from around the country to study dry mouth which frequently occurs after treatment with radiation therapy. This is a multi-center randomized placebo-controlled design Study to assess the effectiveness of **cevimeline** to **Improve oral health** in patients with **xerostomia** (SMILE) secondary to radiation therapy for treatment of head and neck cancer.

Xerostomia, or dry mouth, is often a side effect of radiation therapy. SMILE's primary objective is to assess the impact of **cevimeline** on salivary flow. Participants will need to have completed radiation therapy during the past year. The study drug is FDA approved for other causes of dryness. It will be provided free by the manufacturer. Participants will need to return for office visits twice (their regular visits) at which time they will be asked to complete questionnaires about dryness.

For more information, contact Dana Ivanco at [ivanocode@upmc.edu](mailto:ivanocode@upmc.edu).

### Fish Oil Study

Roxann Diez Gross, PhD, and Ricardo Carrau, MD, are conducting a study to determine if fish oil can reduce or prevent swallowing problems that occur during or after the combination of chemotherapy and radiation therapy that is used to treat head and neck cancer. Individuals interested in participating in this study can call Dr. Gross at 412-647-6187.

### Clinical Trials

For more information about head and neck clinical trials, contact Kerry Trent, clinical research coordinator, at 412-383-2084.

## Head and Neck Cancer Program website

Looking for more information about patient services, current research, clinical trials, news and events and other valuable information pertaining to head and neck cancers? Check out the website for The Head and Neck Cancer Program of UPMC Cancer Centers at [www.upmccancercenters.com/headneck](http://www.upmccancercenters.com/headneck).

## Contact information

Assistance with Coping .....	412-623-5888
Cancer Information and Referral Services .....	412-647-2811
Clinical Trials .....	412-383-2084
Family Care Giver Education and Support .....	412-623-2867
Gumberg Family Library.....	412-623-4733
Hyperbaric Oxygen Treatment .....	412-647-7480
Prostate Cancer Support Group .....	412-647-1062
Swallowing Disorder Center.....	412-647-6461
Head and Neck Cancer Program website .....	<a href="http://www.upmccancercenters.com/headneck">www.upmccancercenters.com/headneck</a>
Hillman Cancer Institute website.....	<a href="http://www.upci.upmc.edu">www.upci.upmc.edu</a>

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