

## 2013 Annual Report

Focus on Colorectal Cancer  
OHSU Cancer Committee



**KNIGHT  
CANCER INSTITUTE**  
*Oregon Health & Science University*





# OHSU Cancer Committee 2013 Annual Report

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Our vision to provide world-class, compassionate, individualized care for all is enhanced by our growth in the number of multidisciplinary clinics offered.

Dear Colleagues and Friends,

We look forward each year to sharing areas of progress in the diagnosis, treatment and prevention of cancer. This year's report focuses on advances being made at Oregon Health & Science University's Knight Cancer Institute in treating colorectal cancer, including genetic testing to analyze tumors for more precise diagnosis, less invasive endoscopic microsurgery techniques and image guided radiation treatment.

The National Cancer Institute recently reported that improved patient outcomes as well as incident rates of breast, colorectal, lung and prostate cancers, accounted for more than two-thirds of the overall reduction in cancer death rates from 2001 to 2010. About 90 percent of colorectal cancers are now curable if caught early. But, more needs to be done. A majority of colorectal cancers are still found after the disease has spread. As such, the five-year survival rate for patients hovers at 65 percent.

The correlation between early detection and a cancer patient's survival rate is high. Many forms of cancer — such as pancreatic, ovarian and liver — frequently become deadly before they are diagnosed. There are no tests or symptoms to signal these diseases are underway.

That is why OHSU Knight Cancer Institute Director Brian Druker, M.D., is making research to transform the early detection of cancer a top priority. The institute recently launched the Knight Cancer Challenge with a pledge from Nike Co-founder and Chairman Phil Knight and his wife Penny to donate \$500 million to the effort if OHSU can match it in a two-year campaign. The funds raised will make it possible for OHSU to expand its world-class team of scientists and clinicians to develop more sophisticated tests and technologies to identify the biological triggers that transform cells from benign to malignant before the disease can gain a foothold in the body.

Sharing the ways in which we're working to improve patients' lives is deeply ingrained in the OHSU Knight Cancer Institute's mission and the OHSU Cancer Committee's goal in producing an annual report. By working to make strides together, we are confident that we will end cancer as we know it.

Sincerely,

Kevin Billingsley, M.D.

Chairman, OHSU Cancer Committee

Hedinger Professor of Surgery and Chief of the Division of Surgical Oncology

OHSU Knight Cancer Institute

In early August 2012, Dr. Tsikitis removed most of Charlotte's giant polyp using a transanal endoscopic microsurgery approach.

## My Knight Cancer Story: Charlotte Holland

Charlotte Holland knew she was due for a colonoscopy. Her doctor reminded her each year at her annual physical. But Charlotte was reluctant. She knew her father had polyps, but he lived to be 98 with no known effects. Charlotte avoided the procedure even when she started having gastrointestinal symptoms.

"I've always been healthy, so when I had gas, urgency and diarrhea, especially after meals, I blamed it on stress. My doctor had finally quit telling me to get a colonoscopy. She probably figured I was too stubborn." By October 2011, Charlotte's symptoms were bad enough that she did consult her doctor. "By then, I would have had that colonoscopy, but we just talked about my symptoms and diet."

Charlotte resolved to be screened as soon as she retired and went on Medicare. "There was something wrong — I just didn't know what." She had a colonoscopy in June 2012, and she was right: there was something wrong

in her colon. She had two polyps, including one apparently too large to remove without open surgery. The good news was that all her biopsies showed the growth was precancerous.

"They said they had to cut me completely open, and I would have a colostomy for two or three months," Charlotte recalls. "I was in shock." The surgeon said her partner might be able to remove the polyp endoscopically, though she was concerned that since the polyp was so large, it might not be possible. "That gave me a little hope, so I made an appointment to see him." In the meantime, a friend knew someone who worked at OHSU, so Charlotte sought one more opinion from Liana Tsikitis, M.D.

"Dr. Tsikitis made me feel it wasn't the end of the world," Charlotte says. "She felt she could get it out without major surgery, and she could do it sooner than the other doctor. I didn't want to wait when I knew something had to be done."

In early August 2012, Dr. Tsikitis removed most of Charlotte's giant polyp using a transanal endoscopic microsurgery approach. The growth was very large, involving most of her rectum. The team removed the remainder with the same approach a month later, on the second try. "She got it all," Charlotte reported.

Charlotte's symptoms have disappeared. Today, she gets regular colonoscopies — annually for a while — and is an advocate for screening. "I have two sons, and I'll definitely try to convince them to have the procedure when it is recommended," she says. "Now I feel it wasn't very smart to avoid a colonoscopy, but when I had symptoms, I read information online and in books and thought, 'I must have irritable bowel syndrome.' I diagnosed myself, and it wasn't with anything too bad." She reflects, "I feel fortunate that I found Dr. Tsikitis, and I was really lucky."



# Treating Colorectal Cancer at OHSU Knight Cancer Institute

## A MULTIDISCIPLINARY APPROACH

At the OHSU Knight Cancer Institute, experts work as a team to provide comprehensive, multidisciplinary care for patients with colorectal cancer. From the most advanced endoscopic techniques to adjuvant radiation and chemotherapy, we offer a full range of diagnostic, treatment and screening modalities.

OHSU holds a weekly gastrointestinal tumor board meeting. Patients with complex or unusual presentations benefit from the combined knowledge of many experienced providers, including experts in colorectal, hepatobiliary and thoracic surgery, gastroenterology (including endoscopic ultrasound specialists), medical and radiation oncology, diagnostic and interventional radiology, medical genetics, pathology and palliative care and more. Nurse coordinators and supporting staff from specialized wound and ostomy RNs to nutritionists also attend. At this weekly multidisciplinary conference, the entire team shares perspectives and develops a personalized treatment plan for the patients whose cases are discussed. When appropriate, patients are also connected with clinical trials, a benefit of OHSU's participation and leadership in studies of new therapeutics.

## COORDINATED CLINIC VISITS

A board-certified nurse coordinator meets with all patients scheduled for colorectal surgery to review preoperative instructions and tell them what to expect after surgery. The coordinator can also streamline patients' appointments



Left to right: Daniel O. Herzig, M.D.; Kian Keyashian, M.D.; Liana Tsikitis, M.D.; and Ronald Katon, M.D.



and tests. This is particularly helpful to patients from outside Portland.

In addition, the nurse coordinator educates and consents patients who participate in OHSU's Colorectal Cancer Registry, handles post-surgery questions and is present at the weekly multidisciplinary tumor board meeting, where complex cases are presented to the colorectal team and personalized treatments are developed.

## A COLORECTAL CANCER PRIMER

In the United States, colorectal cancer is the second leading cause of cancer death for men and women combined. The name "colorectal" is used to describe colon and rectal malignancies because cancers of these organs have essentially the same genetic makeup.

Colorectal cancer is most common in adults older than 50, but incidence in younger adults is rising. In the U.S. in 2013, the American Cancer Society estimates there will be 102,480 new cases of colon cancer, 40,340 cases of rectal cancer and 50,830 colorectal cancer deaths.

Nearly all colorectal cancers — 90 percent — are curable if they are found before they have spread regionally or to distant body sites. While survival rates have increased in



recent years due to improvements in treatment, awareness and screening, almost 60 percent of colorectal malignancies are not found before they spread. In Oregon, which has one of the nation's lowest colorectal cancer screening rates, 1650 new cases were recorded in 2010, with just 36 still in situ.

Having a first-degree relative with colorectal cancer or related family history increases the risk, as do genetic syndromes such as familial adenomatous polyposis and diseases such as colitis. Genetic testing and counseling are important tools for determining the optimal surgical approach and evaluating the need for further screening for patients and families.

The OHSU Knight Cancer Institute's colorectal cancer team is committed to providing the most advanced and effective treatment, survivorship support and palliative care. We are equally committed to increasing screening rates for Oregonians and other Northwest residents. Our providers collaborate with you to provide your patients with optimal health and quality of life.

## SCREENING AND DIAGNOSIS

Colonoscopy is the standard for colorectal cancer screening in the United States. We recommend that men and women at average risk (no first-degree relatives with colorectal cancer or history of polyps) have a colonoscopy every 10 years, starting at age 50. African-Americans should start at age 45 because of the higher incidence of colorectal cancer in people with this genetic heritage. People with a family history of colon polyps or cancer, an inherited cancer syndrome that affects the colon or a personal history of colorectal cancer, polyps or colitis should begin screening earlier.

The diagnosis of colorectal cancer is usually made by colonoscopy, either screening or diagnostic if symptoms are present. Cancers are staged from I to IV based on tumor depth (T), lymph node status (N) and metastasis sites (M).

Colorectal cancer tends to metastasize to the regional lymph nodes, peritoneum, liver and lungs. Thus, staging evaluation includes physical examination, pelvic and abdominal CT scan and chest imaging. Blood testing for markers associated with colon cancer, such as carcinoembryonic antigen, is also possible.



## COLORECTAL CANCER STAGES

When a physician diagnoses colorectal cancer, the next step is to determine how far the cancer cells have spread. This process, called staging, is essential for treatment planning and important for prognosis. Stages I – III are generally considered localized colorectal cancer; Stage IV is considered advanced disease.

The National Cancer Institute defines the following stages for primary colorectal cancer:

**Stage 0:** Abnormal cells found in colorectal mucosa. Also called carcinoma in situ. Cells are considered precancerous and have not penetrated to deeper tissue layers.

**Stage I:** Cancer in the colorectal mucosa has spread to the submucosal layer and sometimes the muscle layer. No lymph nodes or nearby organs involved.

**Stage II:** Stage II colorectal cancer is divided into three categories: A, B and C.

- **Stage IIA:** Cancer has spread from colorectal mucosa through submucosal layer and muscle into outer layer of colon, called the serosa.
- **Stage IIB:** Cancer has spread outside serosa.
- **Stage IIC:** Cancer has spread to nearby organs.

**Stage III:** Stage III is also divided into categories.

- **Stage IIIA:** Cancer has spread to submucosa or muscle layer and one to three lymph nodes, or cancer cells

are found near the lymph nodes. Alternately, cancer has not spread farther than submucosa but four to six lymph nodes are involved.

- **Stage IIIB:** Cancer has spread to or through the serosa, but not nearby organs. One to three involved lymph nodes or cancer cells near nodes. Alternately, cancer has spread to muscle layer or serosa with four to six involved lymph nodes, or mucosa or muscle layer with seven or more nodes.
- **Stage IIIC:** Cancer has spread through serosa and four to six nearby lymph nodes but not nearby organs. Alternately, cancer has spread through muscle layer and seven or more lymph nodes, or through serosa and to nearby organs with one or more lymph nodes involved or cancer cells near the nodes.

**Stage IV:** Stage IV colorectal cancer is also called metastatic colorectal cancer. There are two categories:

- **Stage IVA:** Cancer has spread through colon wall and may involve one nearby organ or nearby lymph nodes, plus one distant site such as a lung, the liver or a distant node.
- **Stage IVB:** Cancer has spread to more than one distant site and into abdominal wall. Nearby organs or lymph nodes may also be involved.

**Recurrent:** This cancer has returned after treatment.



Gastrointestinal videoscope

## SURGERY FOR COLORECTAL CANCER AT OHSU

*By V. Liana Tsikitis, M.D.*

Surgery is the mainstay of treatment for colorectal cancer, alone or with radiation, chemotherapy or both. The OHSU Knight Cancer Institute is the only center in Oregon offering laparoscopic-assisted colorectal cancer surgery as well as the most advanced open surgical approaches. We also offer robotic surgery and the latest endoscopic procedures for diagnosis and treatment.

The OHSU Knight Cancer Institute team performs surgery for all types of colorectal malignancies. Its expertise is particularly helpful in treating patients with complex and recurrent cancers, and the volume of more complex cases treated at OHSU ensures the surgery team has the experience to meet any challenges.

Surgical treatment is multidisciplinary. Each week, the colorectal cancer surgeons participate in a tumor board that brings together specialists from medical and radiation oncology, diagnostic radiology, gastrointestinal pathology, palliative care, nutrition, social work and more to discuss and personalize care for each patient presented. The surgical team works closely with surgical colleagues at OHSU, from urologic surgeons in cases of pelvic exenteration to plastic surgeons for perineal defect wounds.

As a tertiary care center, OHSU offers outstanding critical care. This support enables us to resect tumors successfully in older patients, even several nonagenarians, as well as patients with comorbidities. At the OHSU Knight Cancer Institute, age alone is not prohibitive of successful colorectal cancer surgery.

## CHEMOTHERAPY FOR COLORECTAL CANCER

*By Charles Lopez, M.D., Ph.D.*

Medical oncology options for treating colorectal cancer include neoadjuvant and adjuvant chemotherapy and treatment for metastatic disease in the setting of clinical trials. Medical therapy is tailored to each patient's situation, including factors such as tumor size and location, disease spread, patient age, health, preferences and more.

As with all colorectal cancer treatment at OHSU, our multidisciplinary approach is the cornerstone of clinical decision making. Medical oncologists collaborate closely with colorectal cancer surgeons, hepatic or thoracic surgeons in cases of lung or liver metastasis, radiation



## About Transanal Endoscopic Microsurgery

There is a long tradition of local excision of rectal tumors, but transanal procedures are well known for the difficulty of exposure and visualization of rectal lesions. The transanal endoscopic microsurgery operations system offers great visualization of tumors and utilizes many familiar instruments of laparoscopic surgery along with well-established endoscopic techniques. The surgeon can perform a full-thickness rectal wall resection using an operating rectoscope (a rigid scope inserted in the rectum). The rectoscope is connected to a camera system, a light source and an insufflation system that distends the operative area.

The advantages of TEM for local excision over a traditional transanal local approach lie in the high degree of precision possible. This approach also allows the surgeon to resect lesions higher in the rectum that cannot be addressed with traditional transanal local excision. The TEM procedure is indicated for precancerous lesions and stage I rectal tumors with favorable prognostic indicators.

oncologists and other experts, such as gastroenterologists, radiologists and pathologists.

The multidisciplinary approach benefits all patients. For example, in a patient with a complex rectal cancer, the timing and delivery of neoadjuvant chemotherapy and radiation can and frequently does alter the surgical approach.

Specialized care available to OHSU patients include approaches to increase pathologic complete response rates, with an aim towards increasing the chances of sphincter-sparing surgery in patients with certain rectal cancers. We also offer complex staged approaches to liver and lung resections for metastatic colorectal cancers.

#### **Access to multiple oncology trials**

OHSU's medical oncology team offers novel treatment approaches based on evolving knowledge from and participation in clinical trials. In particular, OHSU has been on the forefront of the evolving management of rectal cancer, and we participate in and lead many investigations in colorectal cancer. Connections to multiple trials give patients access to chemotherapy options for metastatic disease that are not available elsewhere in the state and region. For more information on colorectal cancer clinical trials, call **503 494-1080**.

#### **PERSONALIZING COLORECTAL CANCER THERAPIES**

*By Christopher Corless, M.D., Ph.D., Executive Director and Chief Medical Officer, Knight Diagnostic Laboratories, OHSU Knight Cancer Institute; Professor of Pathology, OHSU*

Patients at OHSU Knight Cancer Institute have easy access to gene testing that can help physicians decide on targeted therapies. The Knight Diagnostic Laboratories, located at OHSU, create cancer genetics and oncology test panels. They are leading the way in adapting next-generation DNA-sequencing technologies for clinical testing. By combining amplicon-based DNA library preparation with semiconductor sequencing using the Ion Torrent PGM platform, Knight Diagnostic delivers information on DNA sequence variants and mutations in a rapid, sensitive and cost-effective manner.

The GeneTrails Solid Tumor Genotyping Panel provides information on 37 different genes commonly found in solid tumors. It is recommended for patients with adenocarcinomas of the colon, small intestine and other gastrointestinal sites. Screening for mutations in cancer-associated genes and tumor suppressor genes is increasingly important for personalized care. Knight Diagnostic Laboratories helps the colorectal cancer team deliver the most advanced care for each patient.



## RADIATION THERAPY FOR COLORECTAL CANCER

*By Charles Thomas, Jr., M.D., Chair, Radiation Medicine, OHSU Knight Cancer Institute; Professor of Radiation Oncology, OHSU*

Although surgery has long been the mainstay of colorectal cancer treatment, OHSU has a long history of incorporating radiation therapy as part of a multidisciplinary approach. Investigators at the University of Oregon Medical School, OHSU's predecessor, published on radiation therapy for colorectal cancer in the 1950s.

Radiation therapy remains part of multidisciplinary management for many patients with rectal cancer today. With surgery and chemotherapy, it can be part of a curative strategy for early stage tumors. It can also be helpful in palliating symptoms of more advanced tumors, including perianal and deep pelvic pain as well as rectal bleeding.

OHSU was a leader in establishing image-guided radiation therapy for pelvic tumors such as rectal cancer, and OHSU faculty continue to publish extensively on its use.

Radiation therapy chairman Charles Thomas, M.D., and colleagues from the Department of Radiation Medicine are involved in national and international prospective clinical trials for rectal cancer. Along with Memorial Sloan-Kettering Cancer Center, the University of California, San Francisco, and other leading academic medical centers, OHSU was a major participant in a recently completed trial investigating the timing of surgery after chemotherapy and radiation for locally advanced rectal cancer. In North America, the standard treatment involves four to six weeks of concurrent chemotherapy and radiation followed by surgical resection four to six weeks later. Emerging data suggest that in some patients, prolonging the pre-surgery interval to 10, 12 or even 16 weeks increases the likelihood of a complete response to treatment (chemotherapy continues during the interval). Charles Thomas, M.D., was the national radiation oncology study chair and OHSU colorectal cancer surgeon Daniel Herzig, M.D., was OHSU study chair.

In addition, OHSU is a major contributor to a successor study that aims to identify patients receiving chemoradiation who may not require standard surgery but can be followed with close monitoring. Patients who do well on this regimen may never require radical resection, which would be a major development in rectal cancer treatment and patient quality of life.

### **Intraoperative radiation therapy for colorectal cancer**

OHSU is a leader in offering intraoperative radiation therapy for colon and rectal cancer. To date, only a few other United States cancer centers offer this option, including Mayo Clinic and Massachusetts General Hospital. Coupled with

the expertise of OHSU's radiation oncology team, this new treatment ensures patients access to the most advanced technology without leaving the Northwest.

Following maximal tumor resection, radiation therapy is administered at the surgical site with the aim of eradicating any remaining malignant cells. (It works similarly to Intrabeam radiation for breast cancer, which OHSU has offered for several years, but has a wider clinical applicability for locally advanced cancers.)

Intraoperative radiation is a promising adjunct to other colorectal cancer therapies. For example, the OHSU team sees an increasing number of patients with colon cancer at high risk of local recurrence, and intraoperative radiation therapy should be particularly beneficial in this population.

### **OHSU COLORECTAL CANCER SURVIVAL RATES, 2004-2012**

Colorectal cancer is the third most common cancer in the United States and the third leading cause of cancer-related death. In industrialized nations, the lifetime risk of developing colon cancer is 5 percent and is decreasing.<sup>2</sup> In 2010, an estimated 102,900 new cases of colon cancer were diagnosed and 51,370 patients died from CRC.<sup>1</sup> The colon cancer death rate decreased in the previous decade, from 30.77 per 100,000 people to 20.51 per 100,000 people.<sup>1</sup> It has been estimated that 1.5 million people in the United States will be living with CRC by 2020.<sup>3</sup>

In the past decade, OHSU has taken a very active role in the treatment of colorectal cancer. The number of colorectal cancer patients diagnosed and treated at OHSU has doubled in the past 10 years, and the colorectal cancer team treats more than 150 cases annually. This expansion of the clinical volume is likely due to OHSU's unique comprehensive multidisciplinary colorectal tumor program. This program allows for coordinated multidisciplinary evaluation and treatment of patients, including the opportunity to participate to the latest clinical trials for metastatic disease.

For patients with stage I and II colorectal cancer, OHSU survival rates are close to benchmark outcomes from the National Cancer Data Base, which draws its patient data from multiple institutions. The three-year survival for patients with stage III and IV colorectal cancer treated at OHSU are 72.9 percent and 37.3 percent respectively, compared to NCDB rates of 68.3 percent and 20 percent (Figures 1 and 2). Patients with stage IV colorectal cancer are treated according to individualized plans, as there are no standard guidelines for this advanced stage of disease. OHSU's weekly multidisciplinary tumor board meetings offer the opportunity to develop a unique personalized treatment approach for each patient with complex and advanced stage IV colorectal cancer.

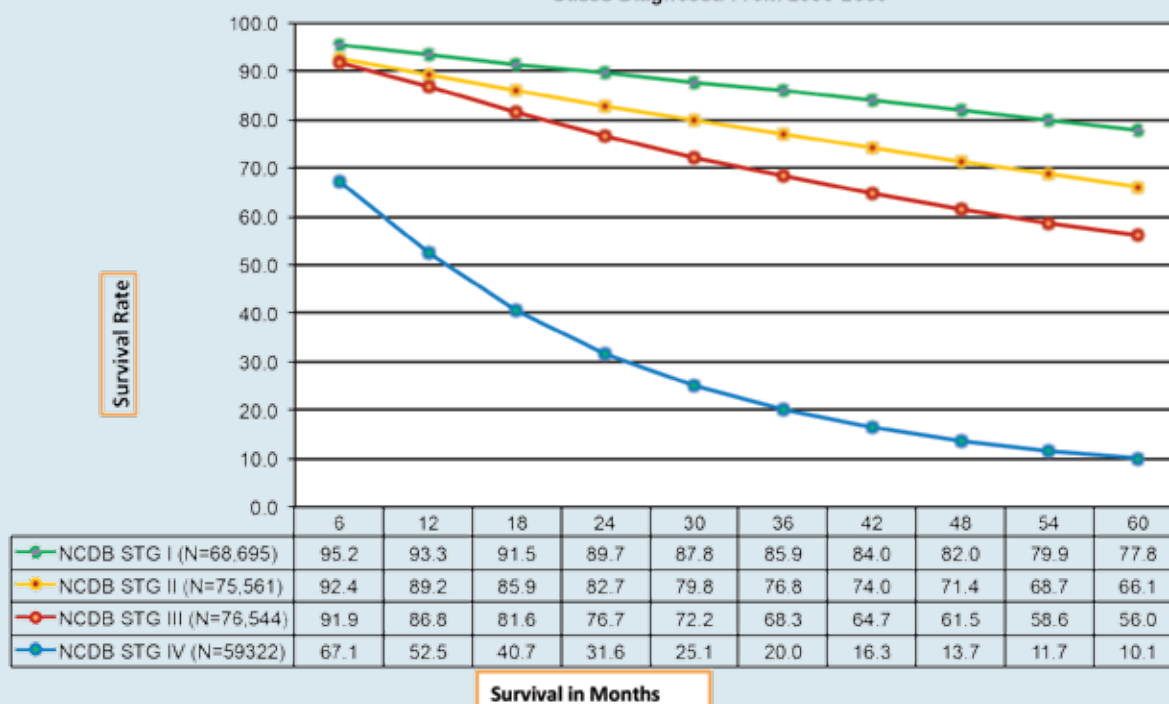


### NCDB Colorectal Cancer: Five Year Survival

Source of Data: National Cancer Database (NCDB)

Method of Calculation: Observed

Cases Diagnosed From 2003-2006

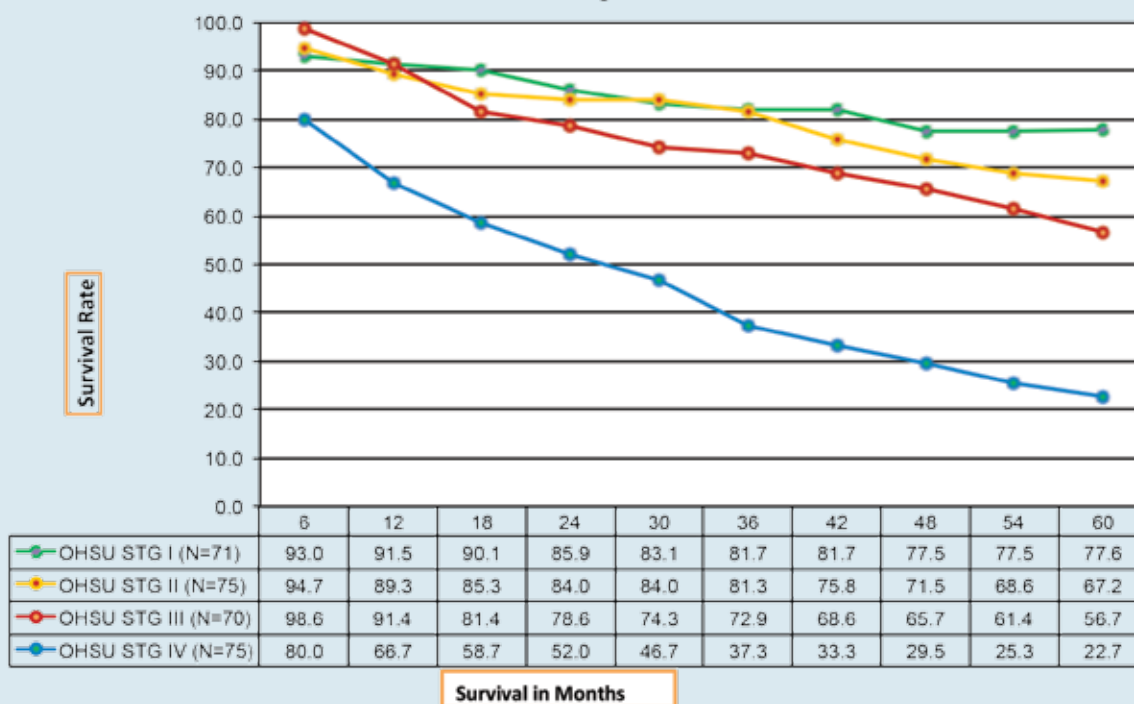


### OHSU Colorectal Cancer: Five Year Survival

Source of Data: OHSU Cancer Registry

Method of Calculation: Observed

Cases Diagnosed From 2003-2006



#### REFERENCES

<sup>1</sup> Jemal A, Siegel R, Xu J, Ward E. Cancer statistics, 2010. *CA Cancer J Clin*. 2010;60(5):277-300.

<sup>2</sup> Bretthauer M. Evidence for colorectal cancer screening. *Best Pract Res Clin Gastroenterol*. 2010;24(4):417-425.

<sup>3</sup> Mariotto AB, Yabroff KR, Feuer EJ, De Angelis R, Brown M. Projecting the number of patients with colorectal carcinoma by phases of care in the US: 2000-2020. *Cancer Causes Control*. 2006;17(10):1215-1226. See more at: <http://www.onclive.com/publications/contemporary-oncology/2011/fall-2011/colorectal-cancer-a-review/6#sthash.I0o2di7A.dpuf>

# MRI for Rectal Cancer Staging and Treatment

*By Elena Korngold, M.D., Diagnostic Radiologist, OHSU Knight Cancer Institute*

For a number of years, endorectal ultrasound was the most common modality for evaluating and preoperatively staging rectal malignancies. While EUS is still appropriate for early stage rectal tumors, MRI offers superior detail for tumors that penetrate the rectal wall.

The rise of MRI coincides with advances in oncologic surgery. This is because MRI offers a level of detail superior to other imaging modalities. It helps surgeons make the most of today's highly specialized surgical techniques and optimize patient outcomes from cure to sphincter preservation.

MRI provides the most detail, which is important in making the best decisions on extent of surgery and timing of adjuvant and neoadjuvant treatment. MRI provides precise information about prognostic factors from lymph node characteristics through vascular involvement and the status of other pelvic organs. It gives a full picture that allows optimal treatment. That's why it is now the standard of care in top-ranked cancer centers. And new sequences are continually being developed to give us even more information.

From a patient's perspective, MRI is simple and noninvasive. At the OHSU Knight Cancer Institute, it is performed on patients with biopsy-proven rectal cancer under the direction of fellowship-trained diagnostic radiologists with subspecialty training in abdominal imaging. This expertise allows physicians to adjust the MRI protocols as necessary and to ensure that each patient is placed in the optimal imaging position relative to individual anatomy and tumor location for the highest-quality scans.

The OHSU imaging center maintains open schedule slots for patients referred with gastrointestinal cancers, and MRI can be done the same day as the referral visit. Complex cases are discussed at OHSU's weekly multidisciplinary gastrointestinal tumor board meeting, where diagnostic radiologists, gastrointestinal surgeons, medical and radiation oncologists and members of other relevant specialties review findings and create a personalized plan for each patient.

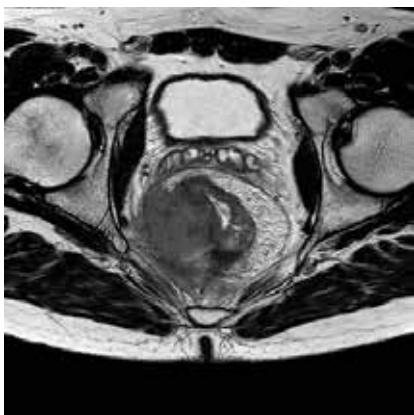


Figure 1.

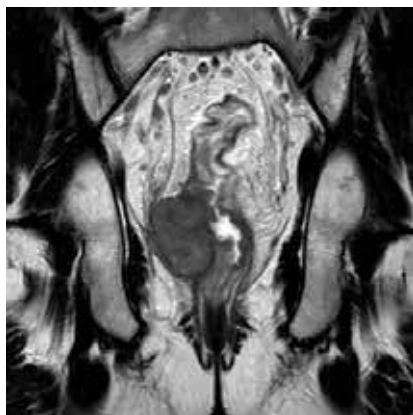


Figure 2.



Figure 3.

**Figure 1.** Axial image of the rectum performed perpendicular to the rectum demonstrates a locally aggressive right rectal lesion extending beyond the rectal wall through the right perirectal (mesorectal) fascia. The extension to the lateral pelvic wall would not be clearly delineated on transrectal ultrasound.

**Figure 2.** Coronal (frontal) view in plane of rectum demonstrates extension of the tumor to the pelvic floor musculature.

**Figure 3.** MRI is able to fully stage the cancer locally within the pelvis, including assessment for metastatic lymph nodes as is demonstrated more superiorly in the perirectal fat.





OHSU Digestive Health Center Endoscopy Team, from left to right: Kian Keyashian M.D.; Martina Dunbar, R.N.; Daniel O. Herzig, M.D.; Hunter Morgan, M.A.; Richard Robbins, M.A.; Susan Clark, R.N.; Liana Tsikitis, M.D.; Michelle Libra, GI Tech; Barbara Anderson, R.N.; Domingo Sanchez, GI Tech; Ronald Katon, M.D.; Lisa Newman, R.N.

## Gastrointestinal Endoscopy Units

At OHSU, two dedicated units are available for endoscopic gastrointestinal procedures. Both are fully staffed with nurse specialists, technicians and other support for physicians and patients, and provide diagnostic, screening and treatment procedures throughout the week, including weekend care on Marquam Hill.

The unit at OHSU Center for Health & Healing (CHH) on the South Waterfront campus functions as an ambulatory surgery center. Patients are seen for routine screening and diagnostic tests, including colonoscopy and specialized tests relevant to colorectal malignancies, such as anorectal manometry. This unit can accommodate up to 35 patients per day, and is conveniently located on the same floor as surgical services.

The unit on Marquam Hill in OHSU's Multnomah Pavilion serves patients with higher acuity, including inpatients who are not in intensive care. Call teams are available 24-7, and specially trained sedation nurses are on call through the weekend so patients who need a sedated procedure before discharge can be treated immediately instead of spending additional days in the hospital. Procedures performed in this unit include endoscopic mucosal resections for polyps or cancer, including substantial procedures that eliminate the need for traditional open surgery. Endoscopic resection is especially beneficial to higher-risk surgical patients. Our physicians offer the full range of endoscopic procedures,

including the latest technology not available at many United States centers (see related story on endoscopic resection for complex polyps).

### DOUBLE BALLOON ENTEROSCOPY

OHSU is the only center between Seattle and San Francisco offering double balloon enteroscopy. This procedure allows visualization of the entire small bowel, which is not possible with other techniques. The balloons are inflated and deflated by turns, pleating the bowel over the advancing scope. Currently, no other center in Oregon offers this technique for diagnosis and treatment.

### INCREASED CAPACITY, RAPID REFERRALS

The gastrointestinal endoscopic team recently added two physicians and an additional procedure room, increasing its capacity. Both units also have "urgent hold" scheduling slots available each week. A physician or specialized RN reviews information on symptomatic patients and schedules them urgently as needed. Patients having routine screening are scheduled less urgently.

## SPECIALIZED NURSE COORDINATORS

Each unit has a specialized endoscopy nurse coordinator. At the Multnomah Pavilion unit, services include ensuring patient follow-up after procedures, facilitating appropriate transfer of patient information and arranging testing and imaging in the patient's home community or at OHSU.

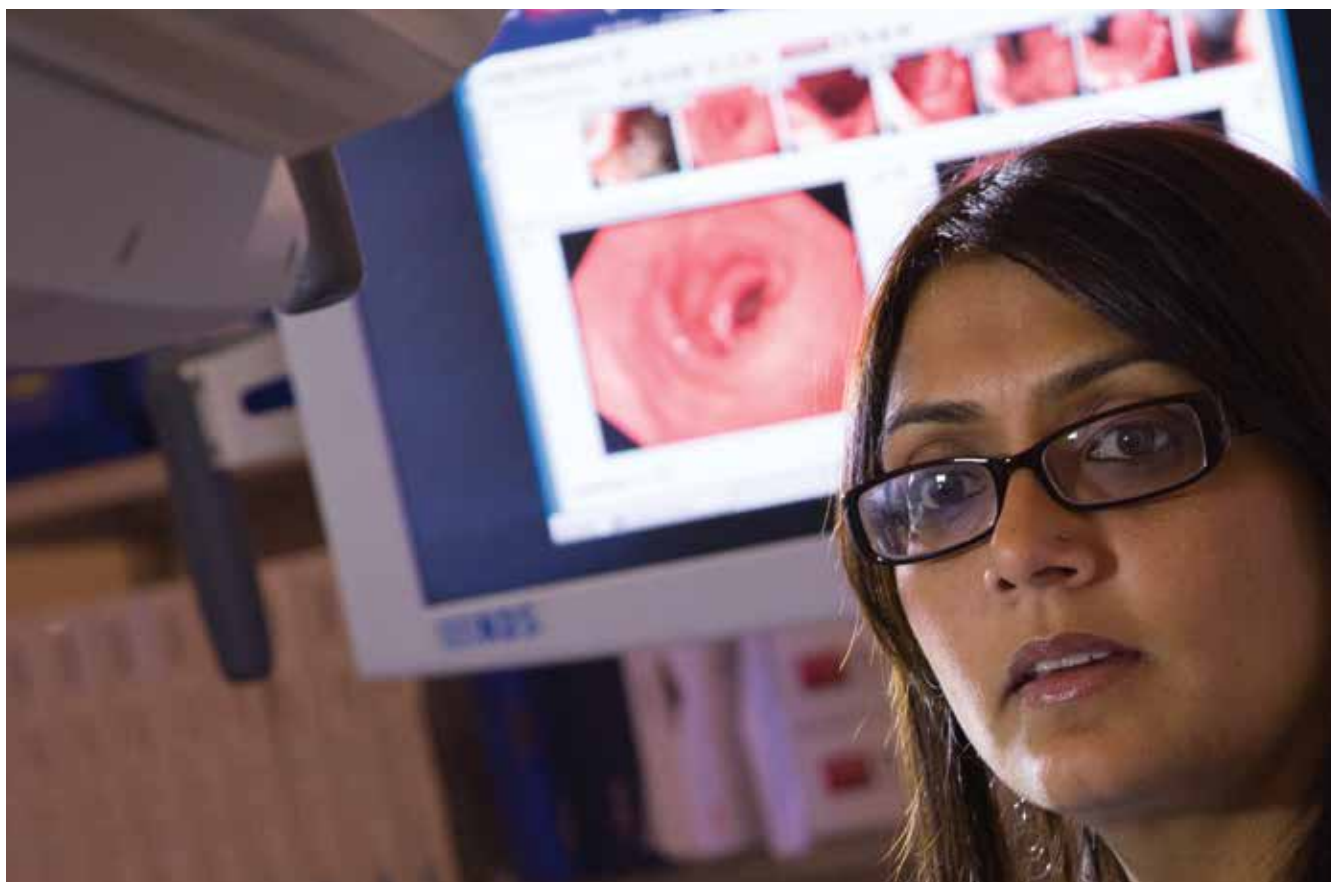
At the CHH outpatient location, the nurse coordinator works with patients scheduled for screening or identified for further care. For example, screening colonoscopy patients receive a letter three weeks before the procedure, a phone call one week before and additional calls at five and three days before the procedure to ensure proper preparation.

## PROMPT SURGICAL CONSULTATION

If a screening or diagnostic procedure reveals areas of concern, our endoscopy specialists have immediate access to colorectal and general surgeons who can often consult on the spot. The nurse coordinator can work with the patient and family immediately after the procedure to schedule additional tests and appointments, including referrals to surgical and medical oncology. Our continuity of care protocols also ensures that patients see the same physician at a clinic visit, for a procedure and in follow-up.



Barbara Anderson, R.N.,  
assisting with a  
colonoscopy procedure.



Brintha Enestvedt, M.D., M.B.A., conducting an endoscopic ultrasound. Dr. Enestvedt specializes in therapeutic endoscopy and is the first to offer double balloon enteroscopy in Oregon.



Gene Bakis, M.D., and Adam Foster, R.N., perform an ERCP using the latest technology in the Multnomah Pavilion GI procedure unit.

## Endoscopic Resection for Complex Polyps

*By Gene Bakis, M.D.*

At OHSU, the colorectal and gastroenterology team uses a technique called endoscopic mucosal resection, or EMR, to remove larger polyps with a colonoscope. A liquid such as saline is injected under the polyp to lift and separate it from surrounding tissue, and the polyp is resected with a snare. EMR can eliminate the need for segmental resection. Lesions of the colorectal mucosa and superficial layers of the submucosa appear to be the most amenable to endoscopic cure.

EMR is a leading option for removing large adenomas. There is really no limit on the size or location of the polyp that can be removed with EMR. Surgery is always possible, but in general, adenomas should be removed endoscopically.

Techniques for EMR have been perfected in the last 10 years, and the technique offers both diagnostic and therapeutic capability. It is complemented by endoscopic ultrasound, or EUS, which provides high-definition imaging of the gastrointestinal tract's multiple layers. This imaging technique can alert the endoscopist to deeper tumor invasion that would contraindicate endoscopic removal. The OHSU team is equipped with the latest EUS techniques, including mini-probes, to evaluate all types of lesions.

Appropriate EMR candidates are patients in whom the concern for malignancy is low, the polyp size and location carry a low risk of complications or the patient's comorbidities would complicate open surgery. Careful patient selection and a high degree of endoscopic expertise are important for achieving good results and managing any complications. In case a polyp turns out to be cancerous, patients benefit from the presence of OHSU Knight Cancer Institute's multidisciplinary colorectal team. Endoscopists should remove only Stage I cancers or carcinomas in situ. If the lesion is more invasive, we can immediately contact the colorectal cancer surgeons.

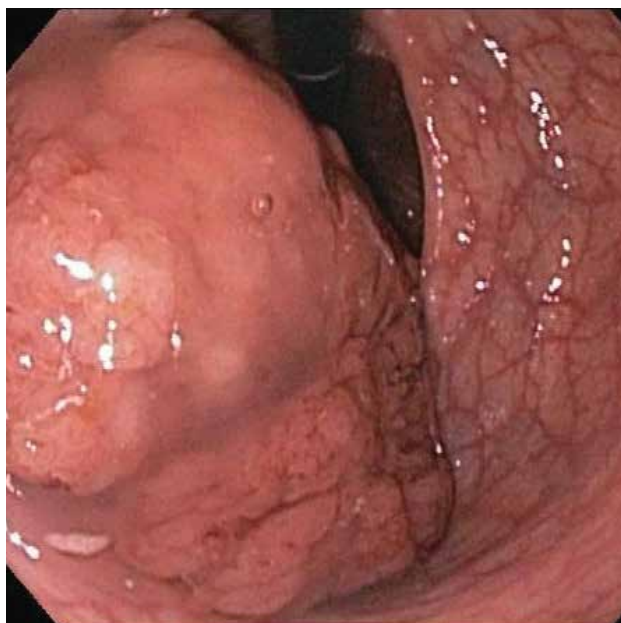
### BEYOND EMR: SUBMUCOSAL DISSECTION THROUGH THE ENDOSCOPE

The next step beyond EMR is endoscopic submucosal dissection, or ESD. Gene Bakis, M.D., recently spent time training in this technique at Japan's National Cancer Institute. In EMR, tumors are removed piece by piece, but ESD allows en bloc removal of large polyps or early cancers from any part of the colon. Removing the entire tumor at once allows for more complete pathologic evaluation. (Recent studies show that nearly 20 percent of patients may have positive tumor margins after what endoscopists thought was a complete resection.)

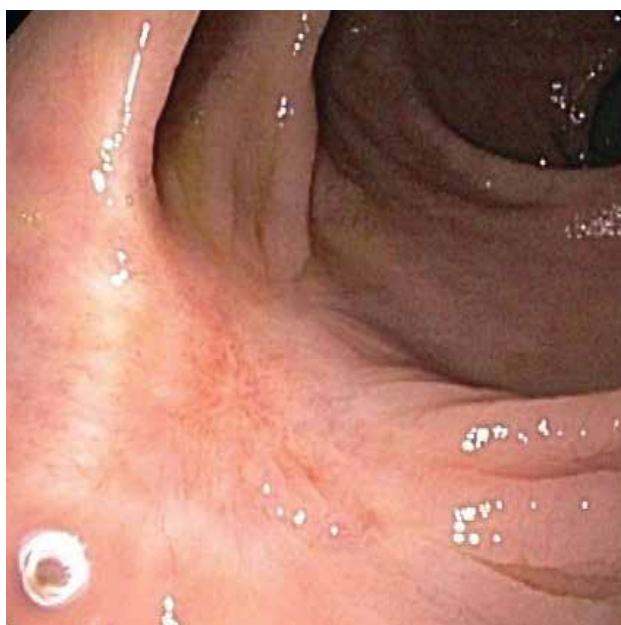


## EMR EXPERIENCE AND VOLUME

Bakis and Brian Fennerty, M.D., also use EMR for upper gastrointestinal malignancies such as esophageal and stomach cancers. This added experience brings the endoscopic surgical volume at OHSU to several hundred EMRs each year. The team also expanded in the fall of 2013 with the addition of Brintha Enestvedt, M.D., from Temple University in Philadelphia, Pa., where she specialized in difficult-to-treat colorectal polyps.



**Figure 4.** Coronal (frontal). At left, 8 cm rectal polyp.



**Figure 5.** View of rectum three months after endoscopic mucosal resection of 8 cm polyp shown at left.



## Research from the Oregon Colorectal Cancer Registry

OHSU researchers recently published a paper on genetic profiles of stage III and IV colon and rectal cancers, based on data from 370 patients in the Oregon Colorectal Cancer Registry. While several studies suggest that colorectal cancer prognosis is related to genetic factors in some earlier tumors, and that primary and metastatic colorectal tumors might have different genetic profiles, the OHSU group and colleagues from Intermountain Healthcare in Utah found no prognosis-changing mutations in the advanced tumors studied. They found little genetic difference between colon and rectal cancers except for more BRAF mutations in colon cancers, an interesting development that warrants further study.

### Reference

Gawlick U, Lu KC, Douthit MA, Diggs BS, Schuff KG, Herzig DO, Tsikitis VL. Stage III & IV colon and rectal cancers share a similar genetic profile: a review of the Oregon Colorectal Cancer Registry. *The American Journal of Surgery* 2013;205:608-612.



25 percent of people with colorectal cancer have a family history of the disease.

## Genetic Screening and Counseling

According to the National Cancer Institute, approximately 25 percent of people with colorectal cancer have a family history of the disease. This may be shared environmental exposure, a shared gene mutation or both. Having a first-degree relative (parent, child or sibling) with colorectal cancer doubles or triples the average person's risk, so genetic screening is important for patients with personal or family history.

### OREGON'S ONLY BOARD-CERTIFIED TEAM

OHSU Knight Cancer Institute is Oregon's only cancer center with a board-certified medical geneticist and certified genetic counselor available. Director of Clinical Cancer Genetics Jone Sampson, M.D., and certified genetic counselor Kelly Jo Hamman, M.S., C.G.C., offer counseling and testing for hereditary cancer predisposition syndromes, including for colorectal cancer. They meet with patients to discuss appropriate management and testing options.

The team is available for inpatient and outpatient consultation at OHSU. They are also available twice monthly at both Salem Cancer Institute in Salem, Ore., and, via telemedicine, Rogue Regional Medical Center in Medford, Ore. Patients may be self-referred or referred by a physician based on personal or family history.

### ROUTINE SCREENING FOR COLORECTAL TUMORS

OHSU screens all colorectal tumors with immunohistochemistry for characteristics that increase the chance that the tumor arose due to Lynch syndrome, also called hereditary nonpolyposis colorectal cancer or

HNPCC. This disorder increases the risk of colorectal and other cancers, including endometrial and ovarian tumors. Specifically, we conduct MLH1, MSH2, MSH6 and PMS2 immunohistochemistry and microsatellite instability testing on all colon tumors and screen endometrial tumors with MSH6 and PMS2.

### PATIENT CONSULTATION

At the initial consultation, the genetic counselor reviews the personal and family history of cancer, explains the hereditary basis of cancer, provides individualized risk assessment and makes screening recommendations. She also explains genetic testing options, possible test results and the implications for medical management and family members. Patients can discuss the pros and cons of testing, and the counselor can facilitate the tests. Progress notes and plans are documented in the OHSU electronic medical record and sent to the referring physician.

### TESTING AND SUPPORT

For patients who choose genetic testing, the team calls the patient with results, offers a follow-up consultation and discusses recommendations. The patient and referring provider receive copies of test results along with a detailed letter. For patients who do have genetic syndromes, we provide support information and a letter to share with family members.



The OHSU Knight Cancer Institute's Adolescent and Young Adult Oncology program is the only one in Oregon and one of a few nationwide.

## Adolescent and Young Adult Oncology Program

Most patients with colorectal cancer are over 40. This type of cancer rarely affects teens and young adults, but when it does, the cancer may have a different biology and their youth may contribute to an increased feeling of isolation. Young adults and teens with cancer have different medical, emotional and social needs from children and older adults.

Colorectal cancer patients aged 15-39 can benefit from the OHSU Knight Cancer Institute's Adolescent and Young Adult Oncology program while being treated for cancer or making the transition to survivorship. The OHSU Knight Cancer Institute's Adolescent and Young Adult Oncology program is the only one in Oregon and one of a few nationwide. In November 2013, the program was designated an AYA Oncology Center of Excellence by Change It Back, a program of the Health Care Rights Initiative.

Medical director Brandon Hayes-Lattin, M.D., is a survivor of young adult cancer and director of Critical Mass: The Young Adult Cancer Alliance. He developed the AYA program to meet the needs of young adults. "OHSU has led the nation in highlighting the

unique needs of adolescent and young adult cancer patients," he says. "We've developed innovative ways to ensure they not only receive the best medical care, but also the best support."

The AYA program helps with:

- Concerns about fertility after cancer treatment
- Emotional challenges
- Education, relationship and career challenges
- Insurance coverage
- Other medical and life issues related to cancer and treatment

Support services include Cancer Transition Sessions, a six-week program to help young adults transition from treatment to survivorship, and Survivor Portland, a support group that meets twice a month. In July 2013, AYA program participants partnered with the adventure company First Descents to present an outdoor weekend for cancer fighters and survivors.

The AYA program's community partners include:

- Familias en Accion
- Oncology Youth Connection

- Athletes for Cancer
- Children's Healing Art Program
- Leukemia-Lymphoma Society
- Candlelighters

Participants in OHSU's AYA program have access to all the resources of the OHSU Knight Cancer Institute, including clinical trials. To refer a patient or consult with OHSU's AYA program staff, call **503 494-0446**.

### OHSU ADOLESCENT AND YOUNG ADULT ONCOLOGY PROGRAM TEAM

#### **Brandon Hayes-Lattin, M.D.**

Medical Director

#### **Susan Lindemulder, M.D.**

Director, Doernbecher Childhood Cancer Survivor Program — AYA Liaison

#### **Rebecca Block, Ph.D., M.S.W., L.C.S.W.**

Social Worker and Researcher

#### **Andrea Lehman, M.S.W.**

Social Worker, AYA Support Group

#### **Mindy Buchanan**

AYA Program Coordinator





Michelle Barnes, here with her daughter Emma, was successfully treated for Stage I colon cancer at OHSU Knight Cancer Institute. She was more than 20 weeks pregnant at the time of surgery. Photo courtesy of Michelle Barnes.

## My Knight Cancer Story: Michelle Barnes

Michelle Barnes was a bit more than 20 weeks pregnant when she noticed blood in her stool. At just 29 years old, colon cancer was the last thing on her mind, but she mentioned the blood to her doctor and was referred for a diagnostic colonoscopy near her Medford, Ore., home. The doctors didn't look far before they found a tumor "the size of a golf ball," says Michelle.

Surgery was the next step. Because Michelle was pregnant, her doctors referred her to OHSU. After a repeat colonoscopy, she was hospitalized and taken for a colectomy the next day. Her multidisciplinary team included colorectal surgeon Daniel Herzig, M.D., high-risk prenatal specialist Leonardo Pereira, M.D., M.C.R., and an obstetrical anesthesia specialist. "The prenatal team did ultrasound and talked with me about the risks," Michelle says. "They told me I could go into labor during surgery, but everything just went perfectly. Thank goodness, because my daughter was young enough that she probably wouldn't have survived."

In order to reach Michelle's colon, the surgical team had to keep her pregnant uterus out of the way. "Someone had to hold it during surgery, which lasted a couple of hours," Michelle says. Fortunately, Michelle's cancer was Stage I and had not progressed beyond the colon wall. Dr. Herzig was able to remove the section of colon with the tumor and use an end-to-end anastomosis to reconnect Michelle's colon and avoid a colostomy.

"I was pretty confident," Michelle says. "The cancer was just something I had to have removed." As for her nerve-racking situation, she says, "Everything happened so quickly I didn't have time to process it. The OHSU staff was amazing, and I had terrific support from family and friends." While at OHSU, she had extensive genetic testing, looking at 14 separate genes. All results were negative, so the origin of Michelle's colon cancer remains something of a mystery.

Although Michelle talked with the medical oncology team before surgery, she did not need chemotherapy because her cancer was Stage I. For the next five years, she will have regular blood tests, colonoscopies and CT scans to make sure her cancer does not return. In August, four months after her cancer surgery, Michelle gave birth to a healthy daughter, delivering as planned at the community hospital in Ashland, Ore. "The pregnancy went well, and I feel pretty much back to normal," she says. "If you need to have something serious done, OHSU is the place to go."

# Colorectal Cancer Research: The Oregon Colorectal Cancer Registry

Knowing the molecular profile of colorectal cancers has enormous potential for personalized cancer treatment. Identifying genetic markers associated with colon and rectal cancers opens the door for researchers to develop new diagnostic tests and targeted therapies for personalized cancer medicine, including treatments for different cancer stages or primary versus metastatic tumors.

The Oregon Colorectal Cancer Registry at OHSU gathers the data needed for these advances. The OCCR is an extensive private library of colon and rectal cancer data collected from patients and families around the United States. It includes information from medical histories and family history questionnaires, as well as blood and tissue samples in some cases. The OCCR staff use family health histories to create pedigrees and determine whether some families are at higher risk for colorectal cancer.

**Oregon Colorectal Cancer Registry researchers review patient and family health information and samples for signs of these inherited gastrointestinal syndromes:**

- Hereditary nonpolyposis colorectal cancer
- Juvenile polyposis syndrome
- Peutz-Jeghers syndrome
- Familial adenomatous polyposis
- MYH associated polyposis

Family members with increased colorectal cancer risk are referred to the OHSU Knight Cancer Institute's Colorectal Cancer Assessment and Risk Evaluation Clinic. There, they can discuss the possibility of screening earlier or more often than usual, with the goal of finding cancer or precancerous changes at a potentially more treatable stage.

The registry can also help patients manage their colorectal cancer care. A registry coordinator can help bring together experts from gastroenterology, surgery, oncology, medical genetics and supportive care services, such as wound and ostomy care, to ensure comprehensive evaluation, treatment and follow-up for each patient.

The OHSU Cancer Committee, which is accredited by the American College of Surgeons, oversees the Oregon Colorectal Cancer Registry.

## **Oregon Colorectal Cancer Registry**

### **Principal Investigator:**

*V. Liana Tsikitis, M.D.*

*Registry Coordinator: Hope Hardaker, M.P.H.*

*For more information, email [occr@ohsu.edu](mailto:occr@ohsu.edu) or call 503 494-8820.*





GI Tumor Board weekly team meeting attendees include surgical oncology, medical oncology and radiation oncology specialists. From left to right: Joseph Waller, M.D., M.P.H.; Michael Grant, Radiology Fellow; Ellie Korngold, M.D.; Kevin G. Billingsley, M.D.; Jody E. Hooper, M.D.; Rodney F. Pommier, M.D.; Daniel O. Herzig, M.D.; Charles R. Thomas Jr., M.D.; Cristina Budde, Surgical Resident; Charles Lopez, M.D., Ph.D.; Vicki Jakovec, R.N., M.N., A.C.N.P.; Gina M. Vaccaro, M.D.; Liana Tsikitis, M.D.; Jen Pasko, Surgical Resident; Pam Russell, R.N.

## Gastrointestinal Tumor Board

OHSU Knight Cancer Institute's Multidisciplinary Gastrointestinal Tumor Board meets each Thursday morning to review and discuss complex cases. At the weekly meeting, cancer specialists from many different disciplines work together to understand the case, share perspectives and plan individualized treatment, including appropriate clinical trials. The discussion can include specialists from:

- Gastrointestinal and general surgery
- Gastrointestinal endoscopy and pathology
- Diagnostic radiology
- Medical and radiation oncology
- Palliative care
- Wound and ostomy care
- Nutrition, social work and other support services

Specialists from OHSU departments involved with the case may also attend. For example, if a patient with colorectal cancer is pregnant (see patient story on page 19), OHSU's perinatal experts are included. Community physicians are welcome to attend weekly tumor board meetings in person or via teleconference.

Dane Moseson, M.D., values the ability to attend OHSU's Gastrointestinal Multidisciplinary Tumor Board meetings via teleconference from PeaceHealth St. John Medical Center in Longview, Wash.

"OHSU has done an outstanding job of putting together a multidisciplinary team. The tumor board considers each patient in detail and comes up with a really good treatment. Obviously, OHSU is a first-class referral center, but these are also very thoughtful, caring physicians who really look the patient's needs. This kind of medicine is the future — and it's the right thing to do," said Dr. Moseson. "We just reviewed a case here and a colleague is presenting it to the OHSU board via teleconference tomorrow. We're looking forward to their recommendations. They know the right way to do things, and they're the right people to do them."

The Gastrointestinal Tumor Board is just one of OHSU Knight Cancer Institute's 15 disease-specific tumor boards. All boards are overseen by the OHSU Cancer Committee, which is accredited by the American College of Surgeons.



# Colorectal Cancer Screening Events

Since 2011, the Oregon Health Authority has run an awareness and screening campaign on colorectal cancer, “the cancer you can prevent.” Oregon has a lower-than-normal percentage of men and women older than 50 receiving routine colonoscopy screening, and the campaign aims to change that.

Now, the OHSU Knight Cancer Institute and OHSU’s Digestive Health Center have joined forces to raise awareness of the importance of routine colorectal cancer screenings to OHSU employees. The first Colorectal Cancer Screening Day was Sunday, November 24. Participants were employees aged 50 or older (45 for African Americans) who had not undergone colonoscopy in the past 10 years and who signed up via questionnaire.

The event was scheduled on a Sunday so participants could complete colonoscopy preparation more easily. Employees who are not screened on the 24th will still benefit from OHSU communications about how to access screening in other ways. The screening and information are also part of OHSU’s culture of employee wellness, which includes farmers’ markets on campus, walking and running groups and more.

In March 2014, OHSU will offer Sunday appointments to the community as part of

Colorectal Cancer Awareness Month. Participants should be referred by a primary care provider.

“These events highlight how committed we are to the health of OHSU employees and the general public,” said Liana Tsikitis, M.D., one of the physicians who performed employee screenings.



## Quality improvement projects in 2013

In 2013, the OHSU Knight Cancer Institute took steps to improve patient safety, the patient experience and data tracking for all types of cancer. The Cancer Registry made updates to improve staging records and database searches. Oncology nursing units implemented a portfolio of patient safety and quality measures, including programs to reduce falls and central line-associated bloodstream infections, a new anti-emetic protocol and several measures to improve the patient experience. Ambulatory and surgical units instituted World Health Organization

protocols for hand hygiene to improve patient safety further at OHSU.

Continuing OHSU’s emphasis on process improvement, the departments of radiation oncology and surgical oncology completed Lean projects to improve clinic scheduling. Ambulatory units took steps to improve the patient waiting experience, including expanding point-of-care testing to reduce wait times. The Department of Surgical Oncology completed a Kaizen project aimed at making sure critical information

is consistently available before each patient’s surgery.

To further ensure that the OHSU Knight Cancer Institute provides comprehensive care, Social Work Services piloted programs for patient distress screening and survivorship care planning. The Cancer Registry staff added information on OHSU’s Adolescent and Young Adult program to meeting worksheets for the weekly multidisciplinary tumor board to remind all providers of the resources available for this population.

## 2012 Analytic Cases — Site and Stage Distribution

SITE	MALE	FEMALE	TOTAL	0	I	II	III	IV	UNK	N/A
LIP/ORAL	42	31	73	6	29	13	6	18	1	0
PHARYNX	82	11	93	0	3	6	21	63	0	0
LARYNX	37	11	48	3	14	4	9	17	0	1
NASAL CAVITY/SINUS	7	9	16	0	1	1	5	7	0	2
THYROID	30	58	88	0	51	12	11	14	0	0
ESOPHAGUS	74	10	84	1	12	25	29	15	2	0
STOMACH	19	13	32	0	4	13	9	5	1	0
SMALL INTESTINE	20	19	39	0	6	2	13	18	0	0
COLON/RECTUM	96	58	154	4	21	26	54	46	2	1
LIVER/BILE DUCT	124	52	176	1	61	48	38	23	2	3
OTHER DIGESTIVE	16	15	31	0	5	11	7	4	1	3
PANCREAS	62	52	114	3	14	46	9	39	3	0
LUNG	177	120	297	0	85	22	75	114	1	0
BONE	19	22	41	0	13	15	0	5	1	7
SOFT TISSUE	44	35	79	0	27	15	26	10	1	0
MELANOMA/SKIN	164	143	309	98	154	30	23	2	2	0
OTHER SKIN	16	12	28	2	10	2	4	1	0	9
BREAST	6	454	460	59	201	136	47	15	1	1
CERVIX UTERI	0	19	19	0	13	1	4	1	0	0
CORPUS UTERI	0	51	51	0	32	5	7	7	0	0
OVARY	0	36	36	0	6	3	17	8	1	1
OTHER FEMALE	0	12	12	2	6	1	1	1	0	1
PROSTATE	250	0	250	0	30	160	37	21	2	0
OTHER MALE	22	0	22	9	3	3	2	3	0	2
KIDNEY/RENAL	85	44	129	6	54	16	19	28	0	6
URINARY BLADDER	66	21	87	22	12	19	10	24	0	0
EYE/OCULAR	29	32	61	0	16	12	5	1	1	26
BRAIN/CNS (MALIGNANT)	58	42	100	0	0	0	0	0	0	100
BRAIN/CNS (BENIGN)	77	110	187	0	0	0	0	0	0	187
LYMPHOMA	109	68	177	0	39	35	34	66	3	0
LEUKEMIA	116	96	212	0	0	0	0	0	0	212
MULTIPLE MYELOMA	33	27	60	0	0	0	0	0	0	60
OTHER HEMATOPOIETIC	33	25	58	0	0	0	0	0	0	58
OTHER SITES	30	21	49	0	2	4	1	7	0	35
UNKNOWN PRIMARY	18	17	35	0	0	0	0	0	35	0
<b>TOTAL</b>	<b>1961</b>	<b>1746</b>	<b>3707</b>	<b>216</b>	<b>924</b>	<b>686</b>	<b>523</b>	<b>583</b>	<b>60</b>	<b>715</b>

*Note: Figures above represent patients first seen at OHSU in 2012 and include analytic cases only (diagnosed here and/or received part or all first course here). Basal and squamous cell skin cancer and CIS cervix not collected.*

# Certified Ostomy Specialists for Continuing Care

Colorectal cancer treatment often includes surgery that results in a temporary or permanent ostomy. OHSU Knight Cancer Institute's colorectal cancer team includes three nationally certified wound, ostomy and continence nurses, or CWOCNs. "For our patients, the idea of having an ostomy is often the scariest part of colorectal surgery," says Meredith von Werssowetz, B.S.N., R.N., O.C.N., C.W.O.C.N., C.F.C.N. "Having an ostomy specialist as a guide through the process makes a big difference in the patient's experience before and after surgery."

## PATIENT EDUCATION AND PLANNING

Ostomy education begins when surgery is scheduled. The colorectal surgeon makes a referral to the CWOCNs and one of the nurses meets with the patient and family to educate them about the planned surgery and colorectal diversion. Talking with a patient before surgery, seeing how he or she prefers to dress and observing the abdomen's natural contours all help the wound and ostomy specialist determine the best stoma placement.

## INCREASING PATIENT CONFIDENCE, REDUCING ANXIETY

The preoperative appointment gives patients the opportunity to ask any questions they have about living with an ostomy. The CWOCNs also show patients the various ostomy supplies they will be using. "Many people have never seen an ostomy bag, so they don't know what to

expect," says Jodi Duke, M.N., R.N., C.W.O.C.N., C.N.S. "We try to make things more familiar so the idea of an ostomy isn't so anxiety-provoking." The team also provides reading material and resources and addresses any fears. "You can do anything with an ostomy that you can do without one," Duke says. "Triathletes, mountain climbers, pro football, surgeons — we've seen them all."

Postsurgical education begins in the first day or two after surgery. The first post-op visit includes an evaluation of the stoma and a pouching demonstration. Subsequent visits reinforce this initial teaching and foster patient independence. The CWOCNs also arrange for post-discharge ostomy supplies, follow up by phone and connect patients with local wound and ostomy resources. "Helping patients move from uncertainty to expertise is one of the most satisfying parts of my role as a wound and ostomy nurse," says Sharon Bertuleit, B.S.N., R.N., C.W.O.C.N.

## OHSU Wound, Ostomy and Continence Team

*Sharon Bertuleit, B.S.N., R.N., C.W.O.C.N.*

*Jodi Duke, M.N., R.N., C.W.O.C.N., C.N.S.*

*Meredith von Werssowetz, B.S.N., R.N., O.C.N., C.W.O.C.N., C.F.C.N.*





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