





## Cancer Committee Report

Aaron R. Sasson, MD

This past year has been a very busy and productive year for The Nebraska Medical Center and its cancer program. I am pleased to report on the accomplishments that we achieved as well as to present to you the annual cancer report.



Aaron R. Sasson, MD Surgical Oncologist, The Nebraska Medical Center Associate Professor, University of Nebraska Medical Center

During the past year, the UNMC Eppley Cancer Center was successful in renewing its National Cancer Institute designation. This designation is limited to only 66 centers across the country and one of the few in the central portion of the midwest. The Cancer Committee would like to acknowledge and congratulate the cancer center in this achievement.

As a cancer center that is noted for excellence in patient care and teaching, I am also pleased to report on the successful accreditation of the Radiation Oncology residency program. This program is dedicated in teaching and training of doctors in the field of radiation oncology. This adds to the number of specialties in the field of oncology receiving training here at The Nebraska Medical Center.

Cancer care at The Nebraska Medical Center is provided by a group of highly specialized providers in the field of oncology. In this issue of the annual cancer report, we introduce you to the neuro-oncology specialists here at The Nebraska Medical Center. These can be complicated and challenging cancers requiring the integration of multiple specialists. The multidisciplinary approach ensures that patients with these cancers achieve the best possible care.

We recently added a patient advisory group to the Cancer Committee, this group serves an important role in helping us manage and deal with issues that are critical, ensuring a personalized approach to cancer care. Along those lines, we continue our successful and well-received community outreach programs. We have been involved with multiple community service events as well as continue our strong reputation in providing patient, as well as healthcare providers with educational events.

The Nebraska Medical Center is committed to providing excellence in cancer care. This is made possible by the extraordinary support and dedication of nursing, physicians, hospital support staff, and the numerous ancillary staff required. It is through a coordinated effort that we are able to deliver excellence in cancer care for our patients.

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## Mary's "Miracle"

After discovering a genetic predisposition for ovarian cancer, Mary Bernstein bristled at the thought of surgery. A new robotic procedure for hysterectomy, however, had Bernstein back on her feet the very next day. She now calls it her "miracle surgery," a miracle that was made possible by understanding the medical links to her past.

By having a hysterectomy, Bernstein could reduce her risk for ovarian or uterine cancer to 2 percent. Consulting physicians recommended she see Kerry Rodabaugh, MD, gynecologic oncologist at The Nebraska Medical Center.

Dr. Rodabaugh joined The Nebraska Medical Center to pursue her interest in robotics for the treatment of gynecologic/oncologic conditions, hereditary cancer research and palliative care medicine.

As technology has improved, the use of robotics has increased, especially in areas such as urology and gynecology. Dr. Rodabaugh is leading the transition to robotics in gynecology oncology at the medical center.

Today, the use of robotic surgery for endometrial cancer patients should be the standard of care for women who are good candidates for the procedure, notes Dr. Rodabaugh. "With this minimally invasive approach, procedures that were traditionally major interventions are no longer so," she says. "Robotic surgery minimizes pain and discomfort, reduces recovery time greatly and decreases the risk for complications. Patients can go home the day after surgery.

"My goal is to do the most effective oncology surgery in the least invasive way possible without compromising outcomes," says Dr. Rodabaugh. "The literature shows that robotics is now equivalent to traditional open surgery

in some gynecologic cases such as endometrial carcinoma in women that qualify for the procedure."

Bernstein was soon in Dr. Rodabaugh's office discussing her options and had even penciled in a surgery date on her calendar. She had tested positive for a mutation in the BRCA1 gene and needed an oophorectomy. Dr. Rodabaugh also wanted to do a hysterectomy. Because of Bernstein's Ashkenazi Jewish ancestry, her uterus was also potentially at risk of developing a cancer. "I didn't need any of these organs anymore and this would eliminate the possibility of getting cancer in any of these organs," said Bernstein.

Bernstein woke up from the procedure with no pain. By Monday, she was back at work. "Ninety eight percent of my friends never even knew I had surgery," she says. "The scars are so small you have to look for them to find them." Bernstein says she is now a firm advocate of this "miracle" procedure. "Anyone who can have surgery robotically should sign up for it," she says.

Dr. Rodabaugh says this type of recovery is typical of patients who undergo robotic surgery. "It truly is the way to go whenever the surgery allows," she says. "My patients are amazed at how little or no pain they experience afterwards."



This is an excerpt from The Nebraska Medical Center's OneThousandOne magazine.

To read the full story, please scan the QR code with your smart phone reader.

## Cancer Patients and Families Asked to Relay Experiences

In an effort to improve the cancer patient and family experience at The Nebraska Medical Center, the Cancer Center patient Family Advisory Council (PFAC) was created. Nearly 30 current and past cancer patients, family members, hospital providers and representatives gathered at the inaugural PFAC meeting in November.

The purpose of the council is to provide a forum that will enable adult cancer patients and their families to share their experiences and have influence in the development and provision of cancer-related services.

The vision for the group was that of Lynn Borstelmann, director of Oncology Services, with the support of the Cancer Committee, chaired by Aaron Sasson, MD, surgical oncologist and the Patient Relations Department.

Patients and family members were recommended by their physician or hospital staff to serve on the PFAC. Applicants were interviewed in August and September and then notified in October of their council membership.

Sue Wardian Hartung, patient education nurse coordinator, was a key to the success and implementation of the group, performing all of the applicant interviews. She was extremely impressed with the excitement of patients and families to be a part of the group.

The inaugural meeting began with a brief orientation to the council, after which Elizabeth Reed, MD, provided an overview of Cancer Center services. Following group introductions, Melissa Anderson, director of Patient Experience, led the

group in a discussion on the registration process, appointment scheduling and wait times in the clinics. The feedback provided will be used to support one of the council's goals – addressing concerns promptly and effectively.

Reflecting on the first meeting, Borstelmann is "pleased with the level of engagement and interaction that we had." Anderson added, "The council is a great learning experience, not only to get feedback on current services but also to identify new opportunities to put the patient at the center of our quality, safety and patient satisfaction efforts."

#### GOALS

- Ensure cancer care and collaboration between caregivers, families and patients at The Nebraska Medical Center exceeds expectations.
- Address patient, caregiver and family concerns promptly and effectively.
- Continue to improve patient safety.
- Give input regarding new cancer-related services, program development and facility design.



## Competence Building

In response to the national shortage of radiation oncology health-care providers, Ken Zhen, MD was instrumental in the development of a new Radiation Oncology residency program.

The UNMC Department of Radiation Oncology received approval for the Radiation Oncology residency program from the Accreditation Council for Graduate Medical Education (ACGME). The program, which began in July 2010, is available to four residents and provides the opportunity to participate in a four-year residency.

## This program can be expected to provide **broad experience**.

**Ken Zhen, MD**Radiation oncologist

Candidates must have completed a minimum of a one year medical internship prior to starting the residency. Dr. Zhen serves as the medical residency director for the program. The Nebraska Medical Center supported the new program and provided the necessary facility upgrades in order to meet the requirements. The entire department, hospital staff and UNMC faculty provided significant time and effort to achieve a successful launch of the program.

The University of Nebraska Radiation Oncology residency program provides physicians preparing to practice full-time radiation oncology comprehensive clinical training and introduces them to clinical research," said Dr. Zhen.

"Physicians with long-term academic goals also have opportunities to purse intensive research, both clinical and laboratory. This program can be expected to supply broad experience not only in oncologic clinical radiotherapy, but also in radiation physics, radiobiology, and research."

The program is designed to equip physicians-in-training with professional competence in overall management of radiotherapy cases and proficiency with advanced radiotherapy techniques and brachytherapy procedures. Residents participate in the total radiotherapeutic management of all cases with their supervision staff. With residents' achieving knowledge and skills comes progressively increasing responsibilities.

Residents also learn through observation of and direct participation in surgical, chemotherapeutic, hormonal, and immunologic treatment of many types of malignant disease. Multi-disciplinary clinics and conferences offer collaborative decision-making experiences. Research projects, elective rotations and interdisciplinary clinics, as well as regular departmental and institutional conferences and lecture series, are all a part of this challenging curriculum.

This new medical residency program joined an existing Medical Physics residency program. The department also provides educational and clinical experience support for the UNMC School of Allied Health, Radiation Therapy program.



# Reaching Out

Cancer Care Service providers traveled to 12 cities across Nebraska, Iowa, Missouri, Kansas and South Dakota to meet with area physicians and their staff members. Thirteen medical, surgical and radiation oncologists provided education, engaged in networking events and had face-to-face meetings with their colleagues in these various states.



**Optum Conference 2010** 

Over 370 people from 15 states attended OptunHealth's Spotlight on The Nebraska Medical Center in July 2010.

"We feel there is a strong need to provide cancer services to patients closer to their homes and in their own communities," said Theresa Franco, executive director of the Cancer Care Service Line at The Nebraska Medical Center.

One of the highlights of each outreach visit was to link physicians that had referred patients but only met over the phone. Physicians were not only able to consult on cases but also get feedback on their current practices, needs and frustrations. From these meetings our organization was able to determine how our physicians can be of service and best work together. The outreach events also provided an opportunity to introduce new physicians at the hospital and discuss new services being offered to cancer patients.

"Through a partnership with The Nebraska Medical Center physicians can offer their patients the opportunity to participate in clinical trials and cutting-edge treatments offered at The Nebraska Medical Center," said Franco.

Five oncologists also presented at OptumHealth's Spotlight on The Nebraska Medical Center in July 2010. Together The Nebraska Medical Center and UNMC staff planned the event. The conference spotlighted the hospital's cancer care services and provided a much needed educational opportunity for health-care professionals working in this field. Over 370 people from 15 states attended the conference. Attendees include individuals working in managed care, staff nurses, social workers, insurance and clinical case managers, administrators and physicians.

"The Optum conference is a great opportunity for our clinical experts to highlight the novel techniques and unique, innovative services we offer at The Nebraska Medical Center," said Jennifer Rudd, marketing outreach specialists. "The conference not only gives medical providers from around the country updates on the future direction of cancer treatments and helps set the course for advances in care for cancer patients."

While the face-to-face meetings and events are invaluable, with so many demands for physician's



#### **Optum Conference 2010**

In addition to the hospital physician presentations at the conference, outreach specialists netowkred with attendees and promoted hospital social media outlets.

time, the medical center will seek new ways to make connections. Goals for 2011 include using technology to reach beyond the regional area. Webinars are planned in the interest of giving physicians a chance to communicate with large, diverse groups of people from across the country.

The medical center will continue to reach out in various ways to physicians and staff in the community, to ensure needs are being met and expertise is shared. Building relationships remains a priority.

Patients in [other] communities will experience the benefits of receiving care from **the premier cancer program.** 

Theresa Franco

Executive Director, Cancer Services, The Nebraska Medical Center

### Research Update

The UNMC Eppley Cancer Center remains the only cancer center in the central region of the United States to earn prestigious designation from the National Cancer Institute (NCI) after successfully renewing its National Cancer Institute Cancer Center Support Grant (CCSG) in 2010.

The designation means the continuation of NCI funding for the Cancer Center since 1984. Over the next five years, approximately \$7.5 million of funding will help cover the costs of the center's research programs and operating facilities. The center's facilities are home to sophisticated technical services available to researchers throughout the institution.

Renewing the Cancer Center Support Grant is an involved process which includes submitting a 1,000 page grant application and hosting 20 cancer researchers for site visit. During their visit, the center's senior leadership team presented information on the basic and clinical research programs at the UNMC Eppley Cancer Center.

"The site visit team commented on the excellent growth in cancer research in the Cancer Center over the past five years and noted that the Cancer Center is on an 'extremely positive trajectory," said Kenneth H. Cowan, MD, PhD, director of the UNMC Eppley Cancer Center. The NCI renewal re-confirms the University of Nebraska's position that the center at UNMC is an elite program and just one of only 66 NCI-designated cancer centers in the country.

The cancer center focused on recruiting three outstanding scientists that will strengthen the center's goal of being a national leader in cancer research and the development of personalized treatments for cancer patients. Together with the department of Genetics, Cell Biology and Anatomy (GCBA) the cancer center recruited Chittibabu Guda, PhD as an associate professor in the GCBA department. Guda also serves as director of the Center for Bioinformatics and System Biology along with and San Ming Wang, PhD who is an expert in Genomic science. Also recruited, Kaustubh Datta, PhD, conducts prostate cancer research in the area of angiogenesis, or how tumors form their own blood supply and survive.

## Improvements in Appointment Scheduling

The Cancer Committee at The Nebraska Medical Center continues to monitor both the clinical quality and the quality of the patient experience. In 2010 the focus was on efficiency and patient satisfaction. Patient scheduling in outpatient clinics and infusion centers was an area identified as needing improvement. The more unpredictable the patient schedule becomes, the harder it is to staff for the day.

Scheduled appointments were examined from Aug. 24 to Oct. 30 at the Cowdery Care Center. During this time, the schedule template showed the center had 55 percent unscheduled facility capacity from 8 a.m. to 4 p.m. It was clear the schedule was not an accurate picture of the amount of work being done. The lead nurse received an average of 100 calls per day related to the schedule. The nursing hours to patient hours ratio was 0.74, which means for every patient hour, the center had 0.74 hours of nursing time.

The information obtained from this scheduling study was used to identify three major issues affecting performance:

- 1. Limited number of appointment slots open in the scheduled template
- 2. Inability to cancel appointments

3. No easy way to identify type of appointment by reviewing schedule

After identifying these issues, the following improvements were made:

- Each room now has its own template
- Add-on chairs were added to the template for last-minute appointments; template no longer allows for appointments to overlap in the same chair
- New appointment types were created for each different type of appointment

With these improvements in place, the treatment center was able to decrease their unscheduled facility capacity to 24 percent, decrease the average number of calls to the lead nurse by 94 percent and improve the nursing hours to patient hours ratio to 0.63.

"While the changes in the scheduling templates have not solved all of our scheduling issues, we have seen definite improvement in case managers and clerks being able to schedule patients without having to contact the lead nurse," said Lynn Borstelmann, director of Oncology Services. "From a patient perspective, this has lead to more desirable appointment times and our staff feels more confident in managing patient flow."

Our staff feels **more confident** in managing patient flow.

**Lynn Borstelmann, RN, MSN, AOCN, NEA-BC**Director, Oncology Services, The Nebraska Medical Center

### Community Outreach



During 2010 nearly 650 individuals received some form of screening community outreach events, hosted by The Nebraska Medical Center. Cancer Care Services staff members at 250 hours of volunteer service at the various

provided over 250 hours of volunteer service at the various screenings throughout the year.

"Screening is the first step in the fight against cancer and is critical that a comprehensive cancer center provide these activities to the public to educate all about the importance of screening and the ability to catch cancers early and treat, often times, less aggressively," said Theresa Franco, executive director of the Cancer Care Service Line at The Nebraska Medical Center. "It truly makes a difference in being able to be cured."

As part of the Great Plains Colon Cancer Taskforce fecal occult blood test (FOBT) kit project, the medical center processed 100 FOBT kits. Four participants required follow-up when positive results were found.

The UNMC Eppley Cancer Center partnered with Cancer Care Services to offer free Prostate Specific Antigen (PSA) lab draws at The Black Family Health and Wellness Fair in March and Cattlemen's Ball in June. Between the two events, 203 men were screened. Nine of those screened required further evaluation.

The annual Oral, Head and Neck cancer screening was hosted in April. During this collaborative effort, nine faculty members, 10 medical residents and 18 Cancer Center staff members participated worked together to screen 96 participants. Eight of those screened at the event were found to need further examination.

The DermaScan continues to be popular at many screening events. Though the DermaScan is not a diagnostic tool, it dramatically shows cancer-causing sun damage on the face of participants. The service also tends to draw a crowd to the Cancer Care Services table at these events where more information about cancer prevention and early detection can be distributed.

# Going Social

The most recent installment of The Nebraska Medical Center's Lifesaving Stories advertising campaign featured two lung cancer and two Multiple Myeloma patients. They shared their appreciation for their care with the Omaha community and the surrounding region.

Their inspirational stories support the hospital mission statement of Serious Medicine. Extraordinary Care and promote the strong differences of the level of care offered at the medical center. The stories were shared on television, radio, website and in the hospital magazine OneThousandOne.

In addition to traditional and proven forms of advertising, the marketing department took an aggressive approach to integrating social media elements into the latest advertising campaign. The medical center established a strong YouTube and Facebook presence. "This year we have gone one step further to develop a special cancer support page on Facebook as part of our new Lifesaving Stories campaign," said Leslie McAllister, Corporate Marketing director. "Cancer patients want to share and join online communities for support and information exchange, so we are hoping to facilitate this with the Cancer Center Facebook page."

Facebook has become an important marketing medium based on its popularity with millions of people. "Many hospitals are using social media to tell their stories and The Nebraska Medical Center is among the 5 percent of them who are hoping to attract a group of fans to help spread the word," said McAllister.

The cancer related campaign also included a new blog written by cancer physicians regarding interesting topics and trends in each area of cancer. The first post by thoracic surgeon Rudy Lackner, MD, addresses the social misconception of women diagnosed with lung cancer.

Social media has been implemented in effort to reach new audiences and give the hospital additional outlets to share the great work being done at the medical center. "It will be exciting to see what results we can achieve in this cost effective manner," said McAllister.





## Disease Overview: Esophageal Cancer

#### Introduction

Esophageal cancer is relatively uncommon in the United States and comprises both of esophageal squamous cell carcinoma and esophageal adenocarcinoma. It is estimated in 2012 approximately 17,000 patients will develop esophageal cancer and there will be 15,000 deaths attributed to this malignancy. Despite its uncommon nature, it is a relatively aggressive cancer and is the seventh leading cause of cancer deaths in men in the United States.

There has been a shift in the predominant histology of esophageal cancer, whereas in the past squamous cell carcinoma comprised the majority of esophageal cancers, currently adenocarcinoma is the predominant

histiologic type. Although our understanding of esophageal cancer continues to improve along with developments of new treatment modalities, it still remains a very aggressive and lethal cancer.

#### **Etiology and Risk Factors**

Esophageal cancer is approximately seven times more common in men than in women and typically affects people in their seventh decade of life. One of the most important risk factors for esophageal cancer is smoking. This increases the risk for both squamous cell carcinoma and adenocarcinoma. Chronic alcohol use has also been greatly associated with squamous cell carcinoma and has a synergistic effect with smoking on this disease.

The tremendous increase in esophageal adenocarcinoma has been attributed to the increase in gastroesophageal reflux disease; this is the most predisposing risk factor for adenocarcinoma of the esophagus. As a consequence of the irritation of acid reflux, a sequence of events leading from precancer to cancer can occur in the lower third of the esophagus. As a matter of fact, in patients who have been diagnosed with precancerous conditions of the esophagus (Barrett's metaplasia), an active surveillance program is indicated, and this precancerous condition can be often treated without the need for surgery.

#### Diagnosis

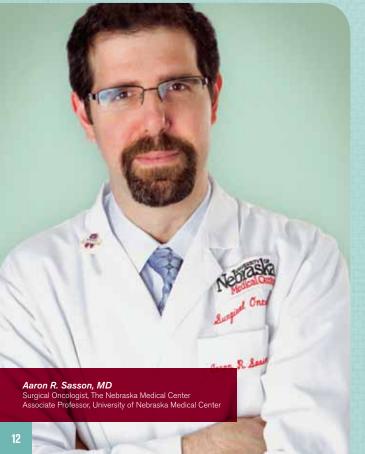
The most common symptom affecting patients with esophageal cancer is difficulty in eating. Food may sometimes get stuck in the esophagus. This typically occurs when the lumen of the esophagus is compromised by 50 percent. As a consequence, most patients are diagnosed at an advanced stage rather than at an early stage. In association with difficulty in eating, most patients experience a fair amount of weight loss. Other symptoms such as cough or hoarseness indicate a more advanced disease with involvement of the surrounding structures. In most cases the diagnosis is made when patients

undergo an upper endoscopy. Biopsies can be obtained at that time, which help establish the diagnosis. In some patients an x-ray is obtained, however, an endoscopy is then used to corroborate the findings and obtain a biopsy. The upper endoscopy is critical in determining the location of the cancer and the biopsy is needed to help differentiate between squamous cell carcinoma and adenocarcinoma as their treatment algorithms are different. Other ancillary studies often used are computer tomography (CT) scans which help identify the presence of any distant spread. Oftentimes a positron emission tomography (PET) scan is also utilized to help identify any spread. In the absence of any spread, an endoscopic ultrasound can help determine the depth of invasion of the tumor into the esophagus as well as the presence, or absence, of any surrounding involved lymph nodes.

#### **Treatment**

The treatment of esophageal cancer is dependent upon the histology, meaning whether this is squamous cell carcinoma or adenocarcinoma, as well as the location of the tumor and stage. In patients who have localized disease, no evidence of metastatic spread, then surgical therapy is often employed for most esophageal cancers, with the exception of squamous cell carcinoma that involves the upper portion of the esophagus. In some patients with squamous cell carcinoma they may be treated only with chemotherapy and radiation therapy.

Patients with localized adenocarcinoma of the esophagus are often treated with surgical therapy, and unless they are of a very early stage, they are also treated with a combination of chemotherapy or a combination of chemotherapy and radiation therapy. Several studies have shown that there is a benefit of treating esophageal cancer with chemotherapy or the combination therapy prior to surgery. This underlies the significance of treating this cancer in a multidisciplinary format as if often involves multiple specialties providing an opinion as well as treatment options.



Surgical therapy for removing the esophagus is considered a complicated and extensive operation. There are multiple options for performing this operation. At The Nebraska Medical Center, we have expertise in utilizing a minimally invasive approach with combination of thoracoscopy and laparoscopy. This typically results in less pain and earlier recovery.

In patients who are unfit for surgical therapy or who have evidence of metastatic disease, then chemotherapy is utilized for the palliation of symptoms. Occasionally radiation therapy is also incorporated into the treatment approach. However, in addition to the use of chemotherapy, radiation therapy and surgery for the treatment of esophageal cancer, most patients also require the use of a nutritionist to help manage the nutritional consequences associated with this disease. Patients often require other additional support services which are incorporated into their treatment care.

#### **Clinical Trials and Research**

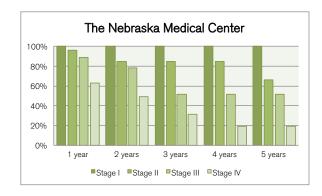
Ongoing clinical trials, both at the national level and at The Nebraska Medical Center, are trying to explore different treatment options. Currently there are several clinical trials available for patients with advanced esophageal cancer.

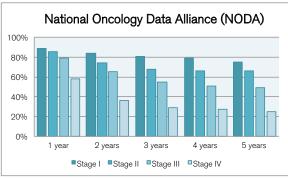
#### **Treatment Outcomes**

The tables and figures at right compare data from The Nebraska Medical Center to the National Oncology Data Alliance database. It denotes that with regard to stage distribution, treatment courses, and survival; outcomes are similar between the two groups. It also should be emphasized that due to the multiple different treatment options regarding esophageal cancer, all patients at The Nebraska Medical Center are discussed at a multidisciplinary conference to provide optimal care.

### Esophageal Analytic Cases, 2003–2009

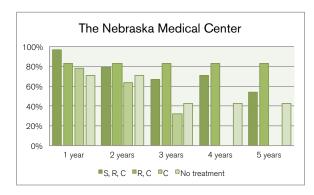
#### Adjusted Survival by American Joint Committee on Cancer (AJCC) Stage

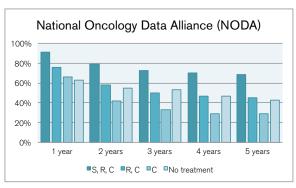




Number of Cases		AJCC Stage											
	Stage I	Stage II	Stage III	Stage IV	TOTAL								
The Nebraska Medical Center	14	28	31	45	118								
NODA	485	962	874	1343	3664								

#### Adjusted Survival by Initial Therapy, Top Four Initial Treatments





S= Surgery

R= Radiation Therapy

C= Chemotherapy

		Treatment Type											
Number of Cases	S, R, C	R, C	С	No Treatment	TOTAL								
The Nebraska Medical Center	36	30	16	16	97								
NODA	872	2189	714	1549	5324								



### Overview: Cancer Registry

The Nebraska Medical Center compiles and publishes the Annual Cancer Registry Report as one of the requirements set forth by the American College of Surgeons Commission on Cancer in order to sustain the accreditation of the hospital's cancer program.

The registry performs data collection and lifetime follow-up on all cases diagnosed and treated at our facilities. Data includes patient characteristics, American Joint Commission on Cancer (AJCC) staging, site, histology, first course of treatment, disease recurrence (if applicable) and survival information. Registry data is an effective resource which assists in establishing goals, measures progress and evaluating outcomes of our cancer program.

The follow-up process provides critical information about disease status and treatment outcomes. The process is also a valuable service for physicians and patients as it reminds patients that regular reassessment of their disease is vital for early detection of local recurrences, possible metastases or development of subsequent primaries. Lifetime follow-up is another important aspect of the cancer registry. Follow-up information is gathered through hospital visits, physicians and patient follow-up letters.

#### Cancer Registry Team

Back row left to right Robbin Dreibelbis, BS, CTR Diana Brinson, RHIT, CTR Rebecca Kellner, BS, CTR

Front row left to right Kristine Bowman Rayma Meyers, BA, CTR

Not photographed
Vicki Parsons, RHIT, CTR



## Primary Site Table: 2012

		Sex		Class of Case		Status		Stage Distribution - Analytic Cases Only						
Primary Site	Total (%)	M	F	Analy	NA	Alive	Ехр	Stg 0	Stg I	Stg II	Stg III	Stg IV	NA	Unk
ORAL CAVITY AND PHARYNX	98 (3.6%)	62	36	84	14	84	14	4	21	7	10	41	0	1
Lip	8 (0.3%)	3	5	7	1	8	0	2	4	0	0	1	0	0
Tongue	27 (1.0%)	16	11	24	3	26	1	1	11	1	2	9	0	0
Salivary Glands	5 (0.2%)	4	1	2	3	5	0	0	0	0	1	1	0	0
Floor of Mouth	5 (0.2%)	3	2	4	1	5	0	0	1	0	0	3	0	0
Gum & Other Mouth	27 (1.0%)	15	12	25	2	22	5	1	5	4	2	12	0	1
Nasopharynx	2 (0.1%)	2	0	2	0	2	0	0	0	0	2	0	0	0
Tonsil	13 (0.5%)	9	4	10	3	11	2	0	0	1	1	8	0	0
Oropharynx	1 (0.0%)	1	0	1	0	0	1	0	0	0	0	1	0	0
Hypopharynx	10 (0.4%)	9	1	9	1	5	5	0	0	1	2	6	0	0
DIGESTIVE SYSTEM	564 (20.6%)	314	250	392	172	412	152	7	53	99	81	116	11	24
Esophagus	29 (1.1%)	19	10	20	9	18	11	0	3	3	5	7	0	2
Stomach	41 (1.5%)	22	19	26	15	31	10	2	4	4	6	6	3	1
Small Intestine	37 (1.4%)	22	15	17	20	28	9	0	1	2	3	10	0	1
Colon Excluding Rectum	129 (4.7%)	65	64	80	49	111	18	4	14	20	18	20	0	4
Cecum	32	13	19	21	11	28	4	2	2	5	7	5	0	0
Appendix	12	6	6	8	4	12	0	0	3	0	0	5	0	0
Ascending Colon	25	12	13	17	8	20	5	2	3	5	5	2	0	0
Hepatic Flexure	3	1	2	3	0	3	0	0	1	1	1	0	0	0
Transverse Colon	12	8	4	10	2	9	3	0	2	3	1	2	0	2
Splenic Flexure	1	1	0	1	0	1	0	0	1	0	0	0	0	0
Descending Colon	8	5	3	4	4	6	2	0	1	1	2	0	0	0
Sigmoid Colon	32	17	15	14	18	30	2	0	1	5	2	4	0	2
Large Intestine, NOS	4	2	2	2	2	2	2	0	0	0	0	2	0	0
Rectum and Rectosigmoid	73 (2.7%)	38	35	41	32	64	9	0	5	6	15	11	1	3
Rectosigmoid Junction	13	7	6	7	6	11	2	0	1	1	3	1	1	0
Rectum	60	31	29	34	26	53	7	0	4	5	12	10	0	3
Anus, Anal Canal and Anorectum	7 (0.3%)	1	6	4	3	4	3	0	0	1	2	0	0	1
Liver and Intrahepatic Bile Duct	96 (3.5%)	66	30	79	17	62	34	0	16	21	14	18	5	5
Liver	81	62	19	67	14	49	32	0	13	19	14	15	3	3
Intrahepatic Bile Duct	15	4	11	12	3	13	2	0	3	2	0	3	2	2
Gallbladder	10 (0.4%)	3	7	8	2	8	2	0	0	1	2	5	0	0
Other Biliary	21 (0.8%)	11	10	20	1	13	8	0	2	4	6	4	1	3

Duimany Cita	T-4-1 (0/)	Sex		Class of Case		Status		Stage Distribution - Analytic Cases Only							
Primary Site	Total (%)	M	F	Analy	NA	Alive	Exp	Stg 0	Stg I	Stg II	Stg III	Stg IV	NA	Unk	
Cervix Uteri	17 (0.6%)	0	17	9	8	13	4	0	3	2	2	2	0	0	
Corpus and Uterus, NOS	54 (2.0%)	0	54	42	12	50	4	0	29	3	6	2	1	1	
Corpus Uteri	50	0	50	41	9	47	3	0	29	3	6	2	1	0	
Uterus, NOS	4	0	4	1	3	3	1	0	0	0	0	0	0	1	
Ovary	32 (1.2%)	0	32	16	16	29	3	0	6	0	5	5	0	0	
Vagina	5 (0.2%)	0	5	4	1	3	2	1	0	2	0	0	0	1	
Vulva	16 (0.6%)	0	16	13	3	13	3	7	2	2	1	1	0	0	
Other Female Genital Organs	1 (0.0%)	0	1	1	0	1	0	0	1	0	0	0	0	0	
MALE GENITAL SYSTEM	180 (6.6%)	180	0	123	57	170	10	0	10	62	27	19	0	4	
Penis	2 (0.1%)	2	0	1	1	1	1	0	0	1	0	0	0	0	
Prostate	158 (5.8%)	158	0	110	48	150	8	0	2	61	24	19	0	3	
Testis	20 (0.7%)	20	0	12	8	19	1	0	8	0	3	0	0	1	
URINARY SYSTEM	168 (6.1%)	113	55	137	31	154	14	30	59	12	11	17	3	5	
Urinary Bladder	68 (2.5%)	48	20	48	20	64	4	22	10	7	2	6	0	1	
Kidney and Renal Pelvis	88 (3.2%)	61	27	77	11	78	10	0	47	5	9	10	2	4	
Ureter	9 (0.3%)	2	7	9	0	9	0	7	1	0	0	1	0	0	
Other Urinary Organs	3 (0.1%)	2	1	3	0	3	0	1	1	0	0	0	1	0	
EYE AND ORBIT	7 (0.3%)	4	3	4	3	6	1	0	0	1	0	0	3	0	
PANCREAS	111 (4.1%)	63	48	92	19	65	46	1	8	35	8	35	0	4	
Retroperitoneum	4 (0.1%)	2	2	2	2	4	0	0	0	2	0	0	0	0	
Peritoneum, Omentum and Mesentery	4 (0.1%)	0	4	2	2	2	2	0	0	0	2	0	0	0	
Other Digestive Organs	2 (0.1%)	2	0	1	1	2	0	0	0	0	0	0	1	0	
RESPIRATORY SYSTEM	303 (11.1%)	151	152	241	62	216	87	2	40	37	65	90	3	4	
Nose, Nasal Cavity and Middle Ear	8 (0.3%)	4	4	6	2	7	1	0	1	1	0	3	1	0	
Larynx	29 (1.1%)	22	7	22	7	27	2	2	4	7	2	7	0	0	
Lung and Bronchus	263 (9.6%)	123	140	211	52	179	84	0	35	29	63	80	0	4	
Trachea, Mediastinum and Other Respiratory Organs	3 (0.1%)	2	1	2	1	3	0	0	0	0	0	0	2	0	
BONES AND JOINTS	21 (0.8%)	12	9	18	3	20	1	0	6	2	0	1	0	9	
SOFT TISSUE (INCLUDING HEART)	39 (1.4%)	20	19	32	7	35	4	0	6	10	9	7	0	0	
SKIN (EXCLUDING BASAL AND SQUAMOUS)	110 (4.0%)	59	51	79	31	103	7	9	36	12	7	3	3	9	
Melanoma Skin	100 (3.7%)	56	44	72	28	94	6	9	34	10	7	3	0	9	
Other Non-Epithelial Skin	10 (0.4%)	3	7	7	3	9	1	0	2	2	0	0	3	0	
SKIN (BASAL AND SQUAMOUS)	3 (0.1%)	3	0	3	0	3	0	0	1	0	0	0	0	2	
BREAST	308 (11.3%)	3	305	247	61	295	13	37	99	68	27	11	0	5	
FEMALE GENITAL SYSTEM	125 (4.6%)	0	125	85	40	109	16	8	41	9	14	10	1	2	

Discourse City	T 1 1 (0)	Sex		Class of Case		Status		Stage Distribution - Analytic Cases Only							
Primary Site	Total (%)	M	F	Analy	NA	Alive	Ехр	Stg 0	Stg I	Stg II	Stg III	Stg IV	NA	Unk	
BRAIN AND OTHER NERVOUS SYSTEM	160 (5.8%)	70	90	123	37	142	18	0	0	0	0	0	123	0	
Brain	71 (2.6%)	42	29	48	23	58	13	0	0	0	0	0	48	0	
Cranial Nerves, Other Nervous System	89 (3.3%)	28	61	75	14	84	5	0	0	0	0	0	75	0	
ENDOCRINE SYSTEM	81 (3.0%)	28	53	68	13	77	4	0	37	6	7	7	9	2	
Thyroid	68 (2.5%)	20	48	58	10	66	2	0	37	5	7	7	0	2	
Other Endocrine including Thymus	13 (0.5%)	8	5	10	3	11	2	0	0	1	0	0	9	0	
LYMPHOMA	315 (11.5%)	189	126	140	175	282	33	0	33	20	11	65	1	8	
Hodgkin Lymphoma	43 (1.6%)	28	15	16	27	41	2	0	4	5	2	5	0	0	
Hodgkin - Nodal	42	27	15	15	27	40	2	0	4	5	2	4	0	0	
Hodgkin - Extranodal	1	1	0	1	0	1	0	0	0	0	0	1	0	0	
Non-Hodgkin Lymphoma	272 (9.9%)	161	111	124	148	241	31	0	29	15	9	60	1	8	
NHL - Nodal	188	114	74	79	109	167	21	0	9	11	8	45	0	5	
NHL - Extranodal	84	47	37	45	39	74	10	0	20	4	1	15	1	3	
MYELOMA	58 (2.1%)	35	23	42	16	52	6	0	0	0	0	0	42	0	
LEUKEMIA	95 (3.5%)	49	46	59	36	74	21	0	0	0	0	0	59	0	
Lymphocytic Leukemia	41 (1.5%)	22	19	26	15	36	5	0	0	0	0	0	26	0	
Acute Lymphocytic Leukemia	14	7	7	12	2	12	2	0	0	0	0	0	12	0	
Chronic Lymphocytic Leukemia	23	13	10	11	12	21	2	0	0	0	0	0	11	0	
Other Lymphocytic Leukemia	4	2	2	3	1	3	1	0	0	0	0	0	3	0	
Myeloid and Monocytic Leukemia	51 (1.9%)	26	25	30	21	38	13	0	0	0	0	0	30	0	
Acute Myeloid Leukemia	34	16	18	22	12	24	10	0	0	0	0	0	22	0	
Other Lymphocytic Leukemia	4	2	2	3	1	3	1	0	0	0	0	0	3	0	
Myeloid and Monocytic Leukemia	51 (1.9%)	26	25	30	21	38	13	0	0	0	0	0	30	0	
Acute Myeloid Leukemia	34	16	18	22	12	24	10	0	0	0	0	0	22	0	
Acute Monocytic Leukemia	4	2	2	4	0	2	2	0	0	0	0	0	4	0	
Chronic Myeloid Leukemia	13	8	5	4	9	12	1	0	0	0	0	0	4	0	
Other Leukemia	3 (0.1%)	1	2	3	0	0	3	0	0	0	0	0	3	0	
Other Acute Leukemia	2	1	1	2	0	0	2	0	0	0	0	0	2	0	
Aleukemic, Subleukemic and NOS	1	0	1	1	0	0	1	0	0	0	0	0	1	0	
MESOTHELIOMA	9 (0.3%)	6	3	8	1	7	2	0	1	1	0	2	1	2	
MISCELLANEOUS	92 (3.4%)	47	45	68	24	49	43	0	0	0	0	0	68	0	
TOTAL	2,736	1,345	1,391	1,953	783	2,290	446	97	443	346	269	389	327	77	



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### Accreditations and Awards

National Comprehensive Cancer Network (NCCN)

National Cancer Institute (NCI) Designation

Foundation for the Accreditation of Cellular Therapy (FACT)

Accreditation of Radiation Oncology by American College of Radiology (ACR)

American College of Surgeons Commission on Cancer (ACoS CoC)

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