



**ARCHBOLD**

Lewis Hall Singletary Oncology Center

# Annual Report 2019





## In Review

### 2019

It is my privilege to present the 2019 Annual Report for Archbold's Lewis Hall Singletary Oncology Center. The following report outlines case information as well as highlights some exciting activities from the year in review.

This year the oncology center obtained the Paxman Scalp Cooling System through the generous support of the Archbold Foundation. Scalp cooling can be an effective method to prevent or reduce hair loss in certain patients receiving chemotherapy. The NCCN recently approved scalp cooling as a category 2A treatment option for patients with invasive breast cancer. For patients who receive chemotherapy, scalp cooling can assist in helping the patient to regain or maintain control over their appearance, helping support a positive outlook during treatment. The Foundation has not only supported acquiring of the technology but provides ongoing financial support for the patients who qualify, eliminating the financial barrier to access to this supportive care option. The addition of scalp cooling added to the supportive care arsenal of Singletary Oncology, which includes yoga, pet therapy, massage, art therapy, and palliative medicine.

The oncology center continues to strive for excellence, achieving another reaccreditation from the American College of Surgeons Commission on Cancer (CoC). The CoC provides important metrics and tools for cancer centers to improve quality and personalize cancer care. CoC accreditation signals to patients access to the full scope of subspecialty care and services at Archbold Medical Center.

As we journey forward into 2020, a new decade brings even greater treatment options. From our cutting-edge clinical trials to the growth in immunotherapies and oral chemotherapies as well as superior radiation oncology equipment, Archbold remains committed to bringing the latest in technology and innovative treatment options to support a holistic, multidisciplinary approach customized to each individual patient. We are proud to continue to provide our clinical expertise and compassionate support to the patients we serve, and thank each and every patient that walks through our doors. We remain in awe of our survivors and their families, and we are honored that they allow us to assist them during their fight.

Amanda May, MD  
Medical Oncologist , Cancer Committee Chair  
Lewis Hall Singletary Oncology Center

# 2019 Cancer Committee Members

The Cancer Committee provides oversight for the Cancer Program at Archbold Memorial Hospital. Under the direction of the members of the Cancer Committee, multidisciplinary cancer conferences were held weekly. The 2019 meetings were open to Archbold medical staff members for case presentation and review. Ancillary and other professional support staff attended cancer conference meetings for diagnosis and treatment planning discussion.

**Dr. Amanda May**  
*Chair/Medical Oncologist*

**Dr. Steve Johnson**  
*CLP/Radiation Oncologist*

**Dr. Jacqueline Smith**  
*Radiologist*

**Dr. Gregory Roesel**  
*Radiologist Alternate*

**Dr. John Pham**  
*Pathologist*

**Dr. Edward Wright**  
*Pathologist Alternate*

**Dr. Cianna Pender**  
*Surgeon*

**Dr. Katie Hanisee**  
*Surgeon Alternate*

**Dr. Coy Irvin**  
*Chief Medical Officer*

**Dr. Scott Farquhar**  
*Gastroenterologist*

**Debbie Beeson**  
*Psychosocial Services  
Coordinator Alternate/Navigator*

**Jessica Burns**  
*NP, Palliative Medicine*

**Ken Brooker**  
*VP of Clinical Services/  
Palliative Medicine Alternate*

**Stephanie Dennis**  
*Cancer Conference  
Coordinator*

**Todd Bennett**  
*Community Outreach  
Coordinator*

**Mark Lowe**  
*Community Outreach  
Coordinator Alternate*

**Becky Troyer**  
*Cancer Program Administrator/  
QI Coordinator*

**Jean Phipps**  
*QI Coordinator Alternate*

**Tiffany Woolum, NP**  
*Survivorship*

**Shelli Roberts**  
*Clinical Research  
Coordinator Alternate*

**Lynn Kappel**  
*CTR/Cancer Registry  
Quality Coordinator*

**Frances Turner**  
*CTR Alternate*

**Paula White**  
*Head Oncology Nurse*

**Ann Hatcher**  
*Oncology Nurse Alternate*

**Jazmine Murphy**  
*Psychosocial Services  
Coordinator/Social Worker*

**Chris Newman**  
*VP of Ancillary Services*

**Flip Harper**  
*Clinical Research  
Coordinator Alternate*

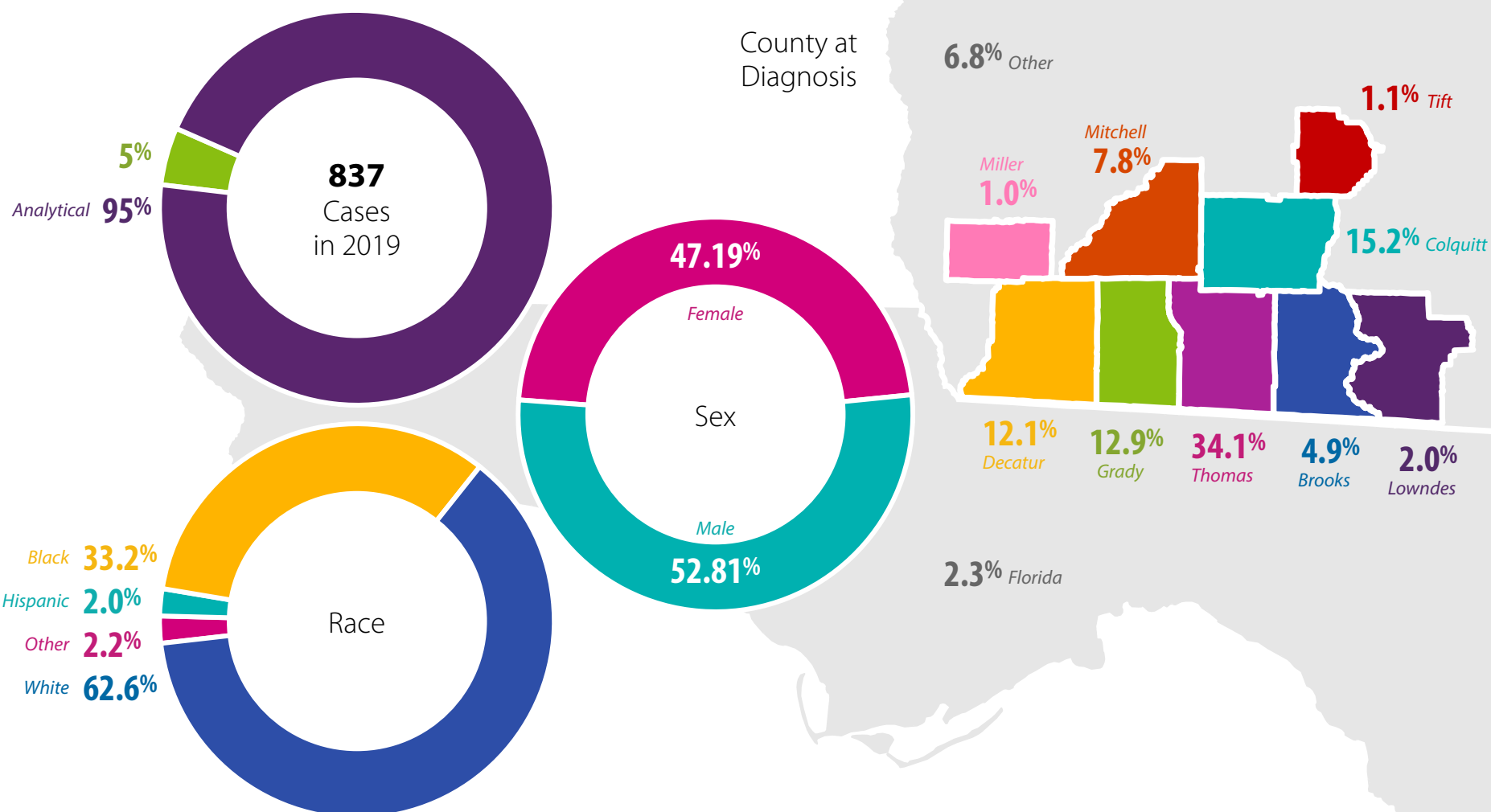
**Karen Bailey**  
*Psychosocial Services  
Coordinator/Navigator*

**Jessica Davis**  
*American Cancer Society*

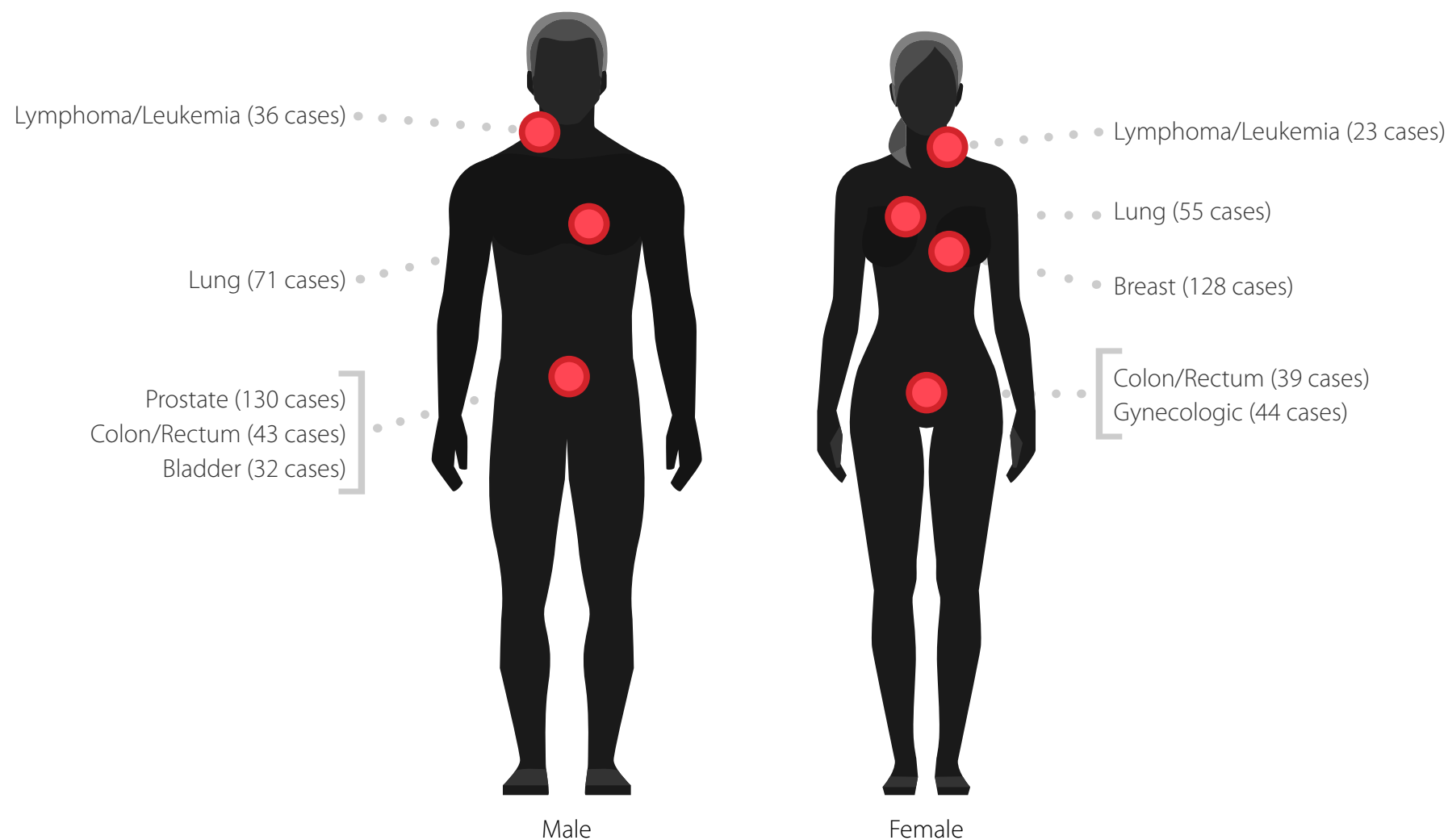
# 2019 Cancer Statistics

The Lewis Hall Singletary Oncology Center remained steady in the number of analytical cases for 2019.

The Tumor Registry Department reported 828 accessioned cases in 2018. *Accessioned cases are cases that require reporting to the state cancer registry based on diagnosis.*

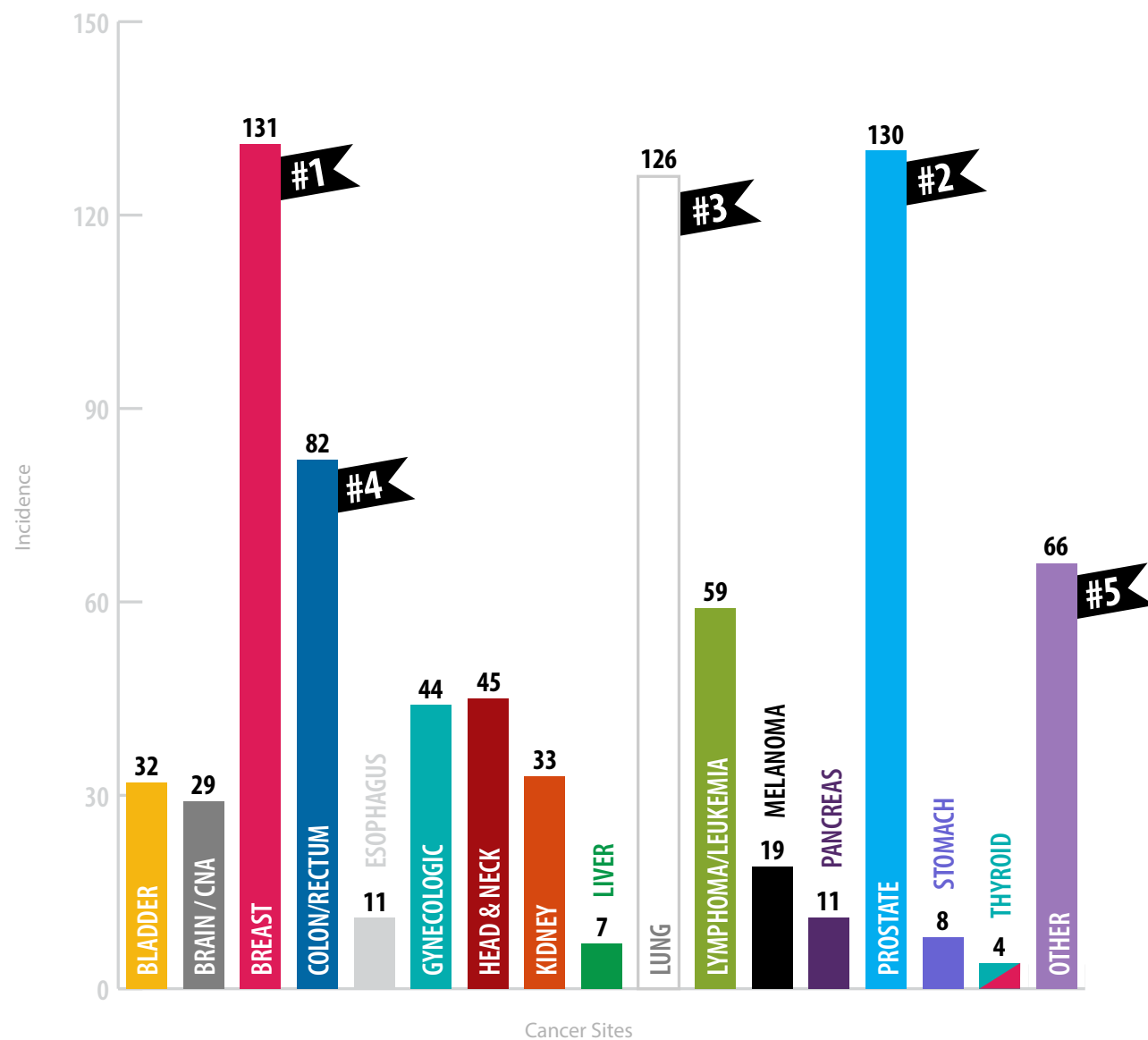


# The Five **Most Common** Cancer Sites in 2019



# All Cancer Sites by Incidence in 2019

Compared to 2018 statistics, breast cancer continued to hold the highest incidence among women referred to the oncology center. Prostate cancer and lung cancer continue to have the highest incidence of cancer among men referred to the oncology center.



Key: **TOP 5 DIAGNOSES**



## Singletary Oncology Center **Welcomes New Providers**

**Dr. Chisom Onuoha** earned her medical degree from University of Port Harcourt in Nigeria. She completed a residency and chief residency in internal medicine at Saint Mary's Hospital, a Yale University affiliate in Waterbury, Connecticut. Thereafter, she completed a fellowship in hematology/oncology at the Medical College of Georgia in Augusta.

Nurse practitioner **Tiffany Woolum, NP-C**, joined the medical oncology provider staff. Woolum worked as an infusion and clinical trials nurse at the Center for nine years before pursuing her master's degree to become a nurse practitioner. Woolum earned a Bachelor of Science degree in nursing from Valdosta State University and a Master of Science degree in nursing from Walden University.



*Chisom Onuoha, MD  
Medical Oncologist/Hematologist*



*Tiffany Woolum, NP-C  
Nurse Practitioner*

# Paxman **Scalp Cooling** System

Chemotherapy-induced hair loss is widely recognized as one of the most traumatic side effects associated with cancer treatment.

It works by targeting rapidly dividing cells in the body, and hair is the second fastest dividing cell. Chemotherapy damages hair follicles at the root of the hair, resulting in hair loss around two weeks after the start of treatment.

Archbold's Lewis Hall Singletary Oncology Center has recently invested in the Paxman Scalp Cooling System for its patients. "The principle of chemotherapy is to interrupt and damage the mitotic and metabolic processes in cancer cells," said Amanda May, MD, medical oncologist at Lewis Hall Singletary Oncology Center. "Chemotherapy affects hair follicles because up to 90% of them will be in an active growth phase during treatment."

Scalp cooling is a new treatment that can prevent hair loss caused by certain chemotherapy drugs.

Scalp cooling has been proven to be an effective treatment in preventing chemotherapy induced alopecia. Results have also shown that patients can retain much of their hair, while still receiving cancer treatment.

The scalp cooling system works by narrowing the blood vessels beneath the skin of the scalp, reducing the amount of chemotherapy medicine that

reached the hair follicles. It does this by lowering the temperature of the scalp immediately before, during and after chemotherapy.

"The cold decreases the activity of the hair follicles, which slows down cell division and makes the follicles less affected by the chemotherapy medicine," said Dr. May.

The cooling treatment happens before, during and after each infusion.

The pre-cooling stage takes place 30 minutes prior to the beginning of the drug infusion. This ensures that the scalp is at the required temperature before chemotherapy is administered.

The cap should be worn throughout the administration of chemotherapy drugs and up to 90 minutes after treatment.

The cooling caps used are lightweight, which allows patients to move around and engage in other activities during treatment.

Patients are able to bring their Paxman caps and attach them to the cooling systems at the oncology center.

"We're very excited to now offer the Paxman Scalp Cooling System at the Lewis Hall Singletary Oncology Center," said Rebecca Troyer, administrator at the Singletary Oncology Center. "The system is another tool that will benefit the wellbeing of our patients."







## Singletary Oncology Center **Reaccredited**

Archbold Memorial Hospital's Lewis Hall Singletary Oncology Center was recently granted reaccreditation by the Commission on Cancer (CoC) for three years.

Established in 1922 by the American College of Surgeons, the CoC is a group of professional organizations dedicated to improving patient outcomes and quality of life for cancer patients through standard-setting, prevention, research, education and the monitoring of comprehensive, quality care.

In order to earn accreditation, the cancer center must meet 34 CoC quality care standards and maintain levels of excellence in the delivery of comprehensive patient-centered care. The Singletary Oncology Center has been accredited by the CoC since 1991.

"Being reaccredited by the Commission on Cancer is an accomplishment that benefits both Archbold and our patients," said Rebecca Troyer, PhD., administrator at Lewis Hall Singletary Oncology Center. "As a CoC-accredited cancer center, our clinicians take

a multidisciplinary approach to treating cancer which results in improved patient care."

The CoC Accreditation Program provides the framework for Archbold to continue enhancing quality of patient care through various cancer-related programs focusing on the full spectrum of cancer care.

Patients at the Singletary Oncology Center have access to state-of-the-art clinical trials and cancer treatments,

counseling, a patient navigation program and a survivorship care plan that documents the care each patient receives to improve cancer survivors' quality of life.

"Our goal is to provide our patients with high quality care," said Troyer. "This accreditation shows that our Center is focused on providing every patient with the best care possible."



A QUALITY PROGRAM  
of the AMERICAN COLLEGE  
OF SURGEONS

# Adherence of NCCN Based **Guidelines for Treatment** of Stage II–III Non-small Cell **Lung Cancer**

Rohini Chintalapally, MD  
Oncologist

## Introduction

Stage II A, Stage II B and Stage III A non-small cell lung cancer patients are usually treated with multimodality treatments of surgical resection, radiation and systemic chemotherapy. Need for adjuvant radiation is mainly dependent on the margins after surgical resection. Adjuvant chemotherapy is dependent on high-risk features like poorly differentiated tumors, vascular invasion, wedge resection, tumors > 4cm, visceral pleural involvement and unknown lymph node status. Patient who is non-surgical or not a candidate for surgery can undergo concurrent chemo radiation or sequential treatment depending on the performance status. Stage III B and Stage III C with N3 positive are usually treated with definitive concurrent chemo radiation followed by Durvalumab according to the guidelines.

## Purpose

To review the cases of Stage II–Stage III non-small cell lung cancer treated at our center from 2016–2017 for any deviation from the standard or care according to the NCCN guidelines and reason for the deviation in the care.

## Methods

From 2016 to 2017 there were 65 cases of Stage II/ Stage III non-small cell lung cancer treated at our center. Of those 14 are Stage II A, seven are Stage

II B. Twenty-eight had Stage III A and 16 Stage III B non-small cell lung cancer. No Stage III C were documented from 2016–2017. All 65 charts were reviewed for mode of treatment used. Of those a total 13 were found to have some deviation from the standard of NCCN guidelines. Of the cases where there was deviation, charts were reviewed for cause of deviation and the reasons were documented.

## Results

There were a total of 65 documented cases of Stage II/Stage III non-small cell lung cancer at our center. Yearly percentages of Stage II were 10% and Stage III 20% at our center from 2016–2017. The national average according to the NCDB report was 9% in Stage II and 18% in Stage III during the years 2016–2017. Of the 65 cases in 2016–2017, 20% (13) of these were found to have some deviation of care from the standard of NCCN guidelines requiring further review. Of these, 39% (5) had Stage II A, 23% (3) Stage II B, 15% (2) Stage III A and 23% (3) Stage III B non-small cell lung cancer. In Stage II A NSCLC (5), two were deemed to be non-surgical/ poor performance status, one was upstaged to Stage IIIA and received the treatment accordingly, one received appropriate care on further chart review and one chart did not have a reason for deviation mentioned. Out of the three patients with Stage II B, one had poor performance status, one opted for non-surgical option, one actually had Stage III A disease and underwent appropriate treatment with

concurrent chemo radiation. In two patients with Stage III A, one patient had poor performance status and one patient did not have a reason mentioned on chart review. In three patients with Stage III B, two patients had poor performance status and got only radiation and one patient was treated with chemo at different hospital.

For six (47%) out of the total 13 cases, the deviation was because of poor performance status. One (8%) was due to patient's preference, two (15%) were upstaged and treated appropriately, two (15%) were treated with chemo at a different center appropriately, and two (15%) had no reason mentioned.

Of the deviations, 85% were appropriate depending on the whether the patient was a surgical candidate, poor performance status, reviewed staging and patient preference.

## Summary

Our center had a slightly higher percentage of Stage II and Stage III non-small cell lung cancer patients compared to the national averages. No clear reason for disparity was noted in the study. A large percentage of our cases have been treated with adherence to the NCCN guidelines with deviations when appropriate depending on the patient's performance status, ability to tolerate the treatment and patient preference. The largest percentage of deviations were appropriate.

# Colon Cancer

Cianna Pender, MD  
General Surgeon

Colorectal cancer (CRC) remains a significant cause of morbidity and mortality in the U.S. and worldwide. CRC is the third most frequently diagnosed cancer and is the fourth leading cause of cancer death for both men and women<sup>1</sup>. As reported by the ACS, in 2017 there will be an estimated 95,520 new cases of colon cancer diagnosed<sup>2</sup>. Survival rates are significantly better for cancers diagnosed early with no regional spread or metastatic disease. For this reason, screening and early detection remain the best strategy to reduce disease related burdens. CRC incidence has steadily declined

since the 1980s and the decline has increased from 2% per year to 3% per year since the 2000s<sup>2</sup>. The early decrease has been attributed to risk factor modification and the uptake of screening programs, but the more recent acceleration in decline is felt to be due to removal of precancerous polyps during screening.

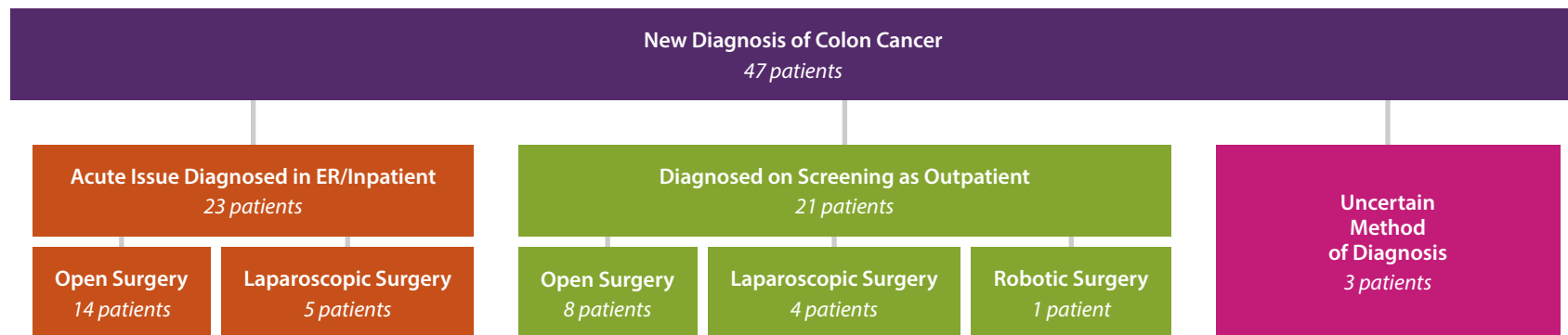
While there are a number of screening options available to patients and providers, colonoscopy remains the gold standard for diagnosis and intervention. Colonoscopy is the only method that has the ability to both identify precancerous lesions and remove them before they can

progress. In addition, for advanced lesions it has the advantage of accurate diagnosis through biopsy and inking of the lesion to aid the surgeon in a minimally invasive removal of the target. Unfortunately, screening rates for CRC remain lower than they should. The “80% by 2018” initiative was introduced in 1997 as a collaborative effort by more than 1,200 organizations to increase screening across the United States. The data is still out but it is estimated that 277,000 cases and 203,000 deaths could be averted by 2030<sup>2</sup>. The 2014 data collected by the Centers for Disease Control lists

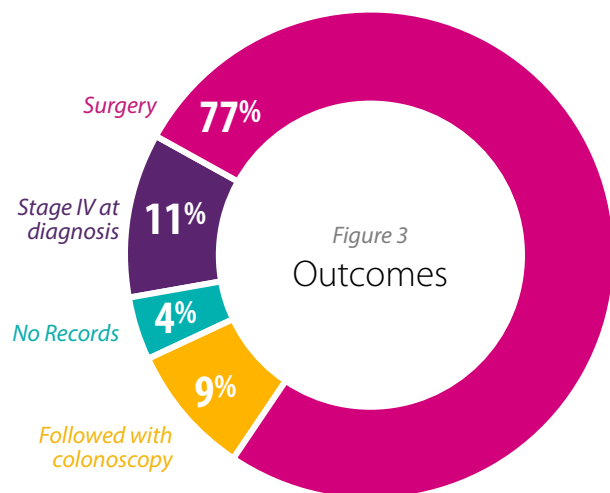
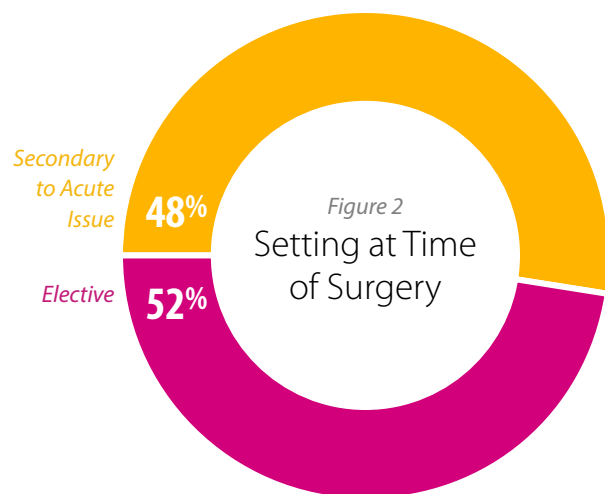
Georgia at #26 in the nation for rates of CRC screening. When including all methods of screening, the overall rate of screening for all ages and races is 67.6%. Screening rates are highest by whites >65 years of age and remain lower for younger people (60.8%) and blacks (69.3%)<sup>2</sup>.

Most patients diagnosed with colon cancer will need an operation—even when surgery cannot be completed from curative purposes—a palliative resection can be considered to prevent death from bowel obstruction or bleeding. From a surgical perspective, CRC is much easier to remove when detected early.

Figure 1



Appropriate screening and tattooing of lesions increase the likelihood that the surgeon will be able to safely remove the appropriate segment of colon in a minimally invasive fashion and complete an

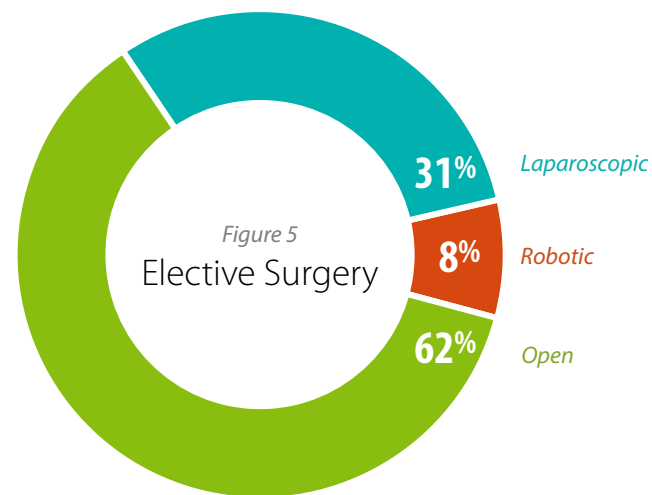
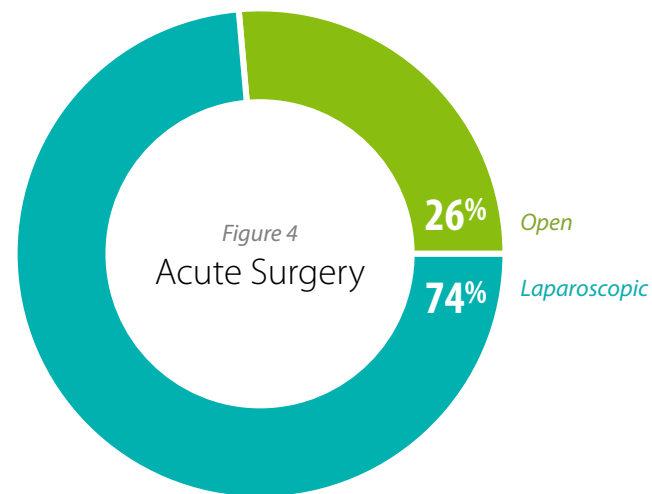


appropriate oncologic resection of the mesentery. In contrast, late stage tumors presenting with acute issues requiring emergent surgery are more likely to require a colostomy or result in an inadequate resection. Emergent treatment would also presumably result in higher costs to patient and increased financial burden on the system.

The Archbold system data for new cases on colon cancer in 2017 was reviewed to help evaluate our patient outcomes and screening rates. Average age at diagnosis was 66 years (67 years with the outlier 24 year old carcinoid patient thrown out). There are two unusual pathologies—one carcinoid and one gastrointestinal stromal tumor (GIST). In addition, there were two patients whose records were more consistent with rectal cancer than colon cancer. These were not included in the data evaluation. Patients whose notes were incomplete were also not included.

Figure 1 illustrates the breakdown of the database patients based on whether the cancer was identified in the elective setting during screening or as a complication from an acute issue. 49% of new diagnoses were made secondary to acute issues while 45% were made at the time of screening or diagnostic colonoscopy (figure 2). Of these patients, 36 had surgery (77%), five had stage IV disease at diagnosis and did not have surgery (11%), three (6%) had in situ disease at polypectomy, two had no further records (4%), and one had invasive disease at polypectomy (2%) (figure 3).

Thirty two of the 36 surgical patients had procedures within the Archbold system. These operative notes and path reports were reviewed. Of those undergoing surgery acutely, 74% received open surgery while 26% were completed laparoscopically. In contrast, when performed electively, 38% underwent minimally invasive



surgery while only 62% were done open (figures 4 and 5). Finally, of all patients making it to surgery, three had inadequate nodal dissections by NCCN guidelines, two were emergent cases and one was elective.



On review of the data, insurance status was also evaluated, though it is impossible to tell in retrospect which patients were uninsured at the time of diagnosis and later obtained insurance. At the time of review, 11% remained uninsured. Medicaid alone accounted for another 11% while 35% has either Medicare or Medicare and Medicaid. 43% currently have private insurance.

Based on this review only 45% of new colon cancer diagnoses in our system were made at the time of screening or diagnostic colonoscopy. A staggering 11% had stage IV disease at time of diagnosis. This suggests to me that our system needs to improve our rates of screening. From a surgical perspective, the rate of surgical intervention for acute issue was quite high. This data is slightly skewed as not all of the acute diagnoses require immediate surgery and were therefore not truly emergent, but rather urgent.

Below is a summary provided by the ACS of screening options. Though societal recommendations differ slightly on screening recommendations for age, risk-status and method of screening, they all agree that any of the below screening methods is better than nothing. If more cancers can be identified or potentially eliminated early, we can limit the disease burden and stress on the system that come with acute issues secondary to CRC. It is well proved nationally that lower socio-economic stature and uninsured status populations have much lower rates of screening and worse outcomes when compared to other cohorts<sup>2</sup>. Within our own data set, the five patients who remain uninsured after cancer diagnosis fell into the emergent treatment group. Programs to improve our local screening rates for patients with regular care as well as to target high-risk patients from those who do not receive regular care will help to identify CRC early and decrease burden on the patients and system.

## References

1. Annual Report to the Nation on the Status of Cancer, part I: National cancer statistics  
<https://onlinelibrary.wiley.com/doi/full/10.1002/cncr.31551>.  
First published May 2018.
2. American Cancer Society Colorectal Cancer Facts and Figures 2017–2019.  
<https://www.cancer.org/cancer/colon-rectal-cancer/about/key-statistics.html>

	Benefits	Performance & Complexity*	Limitations	Test Time Interval
<b>Visual Examinations</b>				
<b>Colonoscopy</b>	<ul style="list-style-type: none"> <li>Examines entire colon</li> <li>Can biopsy and remove polyps</li> <li>Can diagnose other diseases</li> <li>Required for abnormal results from all other tests</li> </ul>	<b>Performance:</b> Highest <b>Complexity:</b> Highest	<ul style="list-style-type: none"> <li>Full bowel cleansing</li> <li>Can be expensive</li> <li>Sedation usually needed, necessitating a chaperone to return home</li> <li>Patient may miss a day of work.</li> <li>Highest risk of bowel tears or infections compared with other tests</li> </ul>	10 years
<b>Computed tomographic colonography (CTC)</b>	<ul style="list-style-type: none"> <li>Examines entire colon</li> <li>Fairly quick</li> <li>Few complications</li> <li>No sedation needed</li> <li>Noninvasive</li> </ul>	<b>Performance:</b> Highest (for large polyps) <b>Complexity:</b> Intermediate	<ul style="list-style-type: none"> <li>Full bowel cleansing</li> <li>Cannot remove polyps or perform biopsies</li> <li>Exposure to low-dose radiation</li> <li>Colonoscopy necessary if positive</li> <li>Not covered by all insurance plans</li> </ul>	5 years
<b>Double-contrast barium enema</b>	<ul style="list-style-type: none"> <li>Can usually view entire colon</li> <li>Few complications</li> <li>No sedation needed</li> </ul>	<b>Performance:</b> High (for large polyps) <b>Complexity:</b> High	<ul style="list-style-type: none"> <li>Full bowel cleansing</li> <li>Some false-positive test results</li> <li>Cannot remove polyps or perform biopsies</li> <li>Exposure to low-dose radiation</li> <li>Colonoscopy necessary if abnormalities are detected</li> <li>Very limited availability</li> </ul>	5 years
<b>Flexible sigmoidoscopy</b>	<ul style="list-style-type: none"> <li>Fairly quick</li> <li>Few complications</li> <li>Minimal bowel preparation</li> <li>Does not require sedation or a specialist</li> </ul>	<b>Performance:</b> High for rectum & lower one-third of the colon <b>Complexity:</b> Intermediate	<ul style="list-style-type: none"> <li>Partial bowel cleansing</li> <li>Views only one-third of colon</li> <li>Cannot remove large polyps</li> <li>Small risk of infection or bowel tear</li> <li>Slightly more effective when combined with annual fecal occult blood testing</li> <li>Colonoscopy necessary if positive</li> <li>Limited availability</li> </ul>	5 years
<b>Stool Tests</b> (Low-sensitivity stools tests, such as single-sample ROBT done in the doctor's office or toilet bowl tests are not recommended.)				
<b>Fecal immuno-chemical test (FIT)</b>	<ul style="list-style-type: none"> <li>No bowel cleansing or sedation</li> <li>Performed at home</li> <li>Low cost</li> <li>Noninvasive</li> </ul>	<b>Performance:</b> Intermediate for cancer <b>Complexity:</b> Low	<ul style="list-style-type: none"> <li>Requires multiple stool samples</li> <li>Will miss most polyps</li> <li>May produce false-positive test results</li> <li>Slightly more effective when combined with a flexible sigmoidoscopy every five years</li> <li>Colonoscopy necessary if positive</li> </ul>	Annual
<b>High-sensitivity guaiac-based fecal occult blood test (gFOBT)</b>	<ul style="list-style-type: none"> <li>No bowel cleansing</li> <li>Performed at home</li> <li>Low cost</li> <li>Noninvasive</li> </ul>	<b>Performance:</b> Intermediate for cancer <b>Complexity:</b> Low	<ul style="list-style-type: none"> <li>Requires multiple stool samples</li> <li>Will miss most polyps</li> <li>May produce false-positive test results</li> <li>Pre-test dietary limitations</li> <li>Slightly more effective when combined with flexible sigmoidoscopy every five years</li> <li>Colonoscopy necessary if positive</li> </ul>	Annual
<b>FIT-DNA test (Cologuard®)</b>	<ul style="list-style-type: none"> <li>No bowel cleansing</li> <li>Can be performed at home</li> <li>Requires only a single stool sample</li> <li>Noninvasive</li> </ul>	<b>Performance:</b> Intermediate for cancer <b>Complexity:</b> Low	<ul style="list-style-type: none"> <li>Will miss most polyps</li> <li>More false-positive results than other tests</li> <li>Higher cost than gFOBT and FIT</li> <li>Colonoscopy necessary if positive</li> </ul>	3 years, per manufacturer's recommendation

\*Complexity involves patient preparation, inconvenience, facilities and equipment needed, and patient discomfort.

# The Effect of Individualized **Chemotherapy Teaching Methods**

*Julie Galvan, RN, ANM*

Understanding what chemotherapy is, the difference between chemotherapy and immunotherapy, and what to expect during treatment can reduce patients' fears and anxieties. Unfortunately, patients often report difficulty obtaining dependable information about their treatment (Thomas, Daly, Perryman, & Stockton, 2000). Patients who receive education prior to their chemotherapy experience have more successful outcomes and find side effects less burdensome compared to patients who have not received any education (Hartigan, 2003). Education is essential for patients to understand what to expect during their treatment course, how to best care for themselves, and when to seek assistance. Many methods of patient education can be effective; however, too many resources can lead to conflicting information, a feeling of being overwhelmed with too much information, and can cause misunderstandings and uncertainty, contributing to feelings of depression and anxiety (Rigdon, 2010).

For many years at Archbold's Singletary Oncology Center, a nurse provided chemotherapy education in a classroom setting. Patients could bring their family members, and often times there were up to 5 patients along with family members in a class. General information was shared with all in the form of video materials on chemotherapy basics. Additional materials, customized to the patient, were provided to the individuals, and individual teaching was somewhat limited to what could be shared in a classroom setting without violating any patient privacy laws. Any additional teaching on the specific drugs and side effects was expected to occur at the chair side before administration.

Several specific needs were identified with the classroom education provided at the oncology center. Patients reported that their privacy was not always maintained while in the group setting. They did not always feel comfortable discussing personal issues in front of a group. It was difficult for the educator to access individual learning styles while in a group setting and to meet the educational needs of all patients and family members participating

in the group at that time. Patients were not always prepared for the side effects they experienced as a result of treatment, and patients needed more teaching with how the nurse triage line works to report and manage their side effects.

Leadership at the oncology center recognized that a classroom group setting was not ideal for providing patient education for many reasons. With the advent of immunotherapy, there were often patients who did not benefit from general chemotherapy education. Patients had to make a separate visit to the oncology center to receive the education at a specific classroom day and time, which sometimes caused unnecessary hardship. Often patients came prepared with questions but due to privacy concerns the questions went unasked and/or possibly unanswered despite some valiant efforts by the nurse to provide as much relevant information as possible. Many times patients still arrived for their first treatment feeling uninformed, scared, and confused, which caused delays in treatments while the attending nurse did everything he or she could to fill in the blanks prior to treatment administration.

Ideally, because patients have many ways to learn, patient education should include an array of different teaching strategies and written materials (Treacy & Mayer, 2000). Teaching methods should be based on patient preference and individually tailored to meet the patients' needs and learning styles (Hartigan, 2003). One of the first goals of the teaching process is to develop a rapport with the patients and their families so they feel comfortable enough to ask questions and not be embarrassed or ashamed (Hartigan, 2003). Patients need emotional support to begin the coping process and ensure maximum retention of the information presented. Patients who are anxious have been shown to have difficulty retaining information (Garcia, 2014). The goal is to develop the best way to provide patient education so the patient has simple but informative factual resources and materials that will allow them to feel knowledgeable and prepared for their treatment.

## Problem

The oncology center went from classroom chemotherapy/immunotherapy teaching methods to individualized teaching of the patient and family members. To best meet patients' needs, the nurse educator needed to determine the efficacy and impact of the customized, individualized process. To evaluate this change, as well as to answer any lingering patient questions, a follow-up call was made to the patient or family member. The purpose of this study is to evaluate the effectiveness of individualized teaching methods.

## Methodology

Patients were provided an education session consisting of verbal and printed instructions regarding their chemotherapy or immunotherapy medication regimens. This teaching was provided in a separate appointment, prior to the initiation of treatment. Instructions were provided regarding when to arrive and what to expect on the first day of treatment as well as information about their particular medication regimens, including expected side effects and how to manage them.

The nurse educator instituted follow-up calls to patients she educated within 1 week of the education session. Most often the follow-up call occurred after the initiation of the patient's treatment.

Data were collected from patients aged 18 and older who received their first chemotherapy or immunotherapy treatment in the outpatient clinical setting between October 1, 2019 and Dec 2, 2019. Phone call questions were

created to derive perceptions of the adequacy of the education provided. Open-ended questions included:

- Do you feel as though the education you received has prepared you for your treatment?
- Were you comfortable asking questions of the nurse educator?
- Do you feel as though you know what side effects to expect and how to manage them?

## Results

A total of 15 patients who were scheduled to receive a new chemotherapy or immunotherapy treatment regimen were provided an individualized education session. All received a follow-up phone call. (Figure 1)

Patients reported feeling very comfortable asking any questions including those of a personal nature. Patients reported feeling well prepared for the side effects and how to handle them. Patients with no anti-emetics sent to the pharmacy for home use were identified, and scripts with detailed instructions on usage were electronically prescribed before the patient left the oncology center. Detailed education on the nurse triage line allowed patients to be more confident that they would be taken care of during their treatment course. Patients needing additional resources were identified and referred accordingly.

The study had several limitations. The number of patients surveyed was small, which makes it difficult to draw conclusions applicable to all groups.

Figure 1

Evaluation of Individualized Patient Education					
Question	1	2	3	4	5
Do you feel as though the education you received has prepared you for your treatment?				2	13
Were you comfortable asking question of the nurse educator?					15
Do you feel as though you are educated about your treatment course?				1	14
Do you feel as though you know what side effects to expect?			1	3	11
Do you feel comfortable managing most side effects of your chemotherapy/immunotherapy?				3	12
Scale ranges 1 (completely disagree) to 5 (completely agree)					

Patient medications could have influenced phone call results. Patient versus family member responses could have been collected separately, because it is unknown if the patient experienced the education differently or if education tailored to the patient could have been a different learning style for the family member. Patients who received a follow-up phone call did not receive education in a classroom setting, so there was nothing to compare with the individualized education session.

## Conclusion

There was consistency in patients' responses indicating that the education was adequate and met their needs. Some patients offered specific comments about their experience which supported individualized, customized patient education.

This study indicated consistent findings with published data from other studies. Interventions, such as individualized post-education phone calls and the use of a nurse educator, can promote optimal patient outcomes, satisfaction, and safety (Kean, Iverson, & Boylan, 2016). Educational interventions that meet patients' learning styles leads to increased knowledge, enhanced communication and comprehension, and improved adherence to instructions, promoting optimal outcomes, satisfaction, and overall safety, and may also have positive financial aspects (Tamura-Lis, 2013).

Prior to the education sessions, patients reported feeling anxious and uncertain. After the education, patients reported feeling educated and informed. In addition, a great deal of gratitude was expressed for the individualized teaching session. Infusion nurses reported less patient questions on the first day of treatment, which led to improved productivity, as well as better adherence to supportive medications to manage side effects.

Patients have higher rates of information retention when provided information in a manner that correlates with their preferred learning styles (Treacy & Mayer, 2000), so it is imperative that patient education continue to occur in an individualized environment. It is recommended that individual teaching methods continue, as well as follow-up phone calls to measure the effectiveness of the teaching methods as well as answer any subsequent questions patients may have. This study confirmed results found in a study by Berry et al. (2014), which demonstrated that follow-up phone calls resulted in improved rates of medication knowledge and adherence. This

study provides foundation work for future studies to measure the clinical effectiveness of individualized teaching methods, as well as adherence to symptom management during active treatment.

## References

- Berry, D.L., Cunningham, T., Eisenberg, S., Wickline, M., Hammer, M., & Berg, C. (2014). Improving patient knowledge of discharge medications in an oncology setting. *Clinical Journal of Oncology Nursing*, 18, 35–37. doi:10.1188/14.CJON.35-37.
- Garcia, S. (2014). The effects of education on anxiety levels in patients receiving chemotherapy for the first time: An integrative review. *Clinical Journal of Oncology Nursing*, 18, 516–521. doi: 10.1188/14.CJON.18-05AP
- Hartigan, K. (2003). Patient education: The cornerstone of successful oral chemotherapy treatment. *Clinical Journal of Oncology Nursing*, 7, 21–24. doi: 10.1188/03.CJON.56.21-24
- Kean, C. C., Iverson, L., & Boylan, A. (2016). Evaluation of chemotherapy and medication education process for patients starting cancer treatment. *Clinical Journal of Oncology Nursing*, 20, 364–366. doi:10.1188/16.CJON.364-366.
- Rigdon, A.S. (2010). Development of patient education for older adults receiving chemotherapy. *Clinical Journal of Oncology Nursing*, 4, 433–441. Doi: 10.1188/10.CJON.433-441.
- Tamura-Lis, W. (2013). Teach-back for quality education and patient safety. *Urology Nursing*, 6, 267–271. doi: 10.7257/1053-816X.2013.33.6.267.
- Thomas, R., Perryman, B., & Stockton, B. (2000). Forewarned is forearmed—benefits of preparatory information on video cassette for patients receiving chemotherapy or radiotherapy—a randomized controlled trial. *European Journal of Cancer*, 36, 1536-43. Doi: 10.1016/s0959-8049(00)00136-2.
- Treacy, J.T., & Mayer, D.K. (2000). Perspectives on cancer patient education. *Seminars in Oncology Nursing*, 16, 47–56. doi:10.1016/S0749-2081(00)80007-8