What connected feels like®

compassion ✚ expertise

North Mississippi Medical Center Cancer Program

Public Reporting of Outcomes 2017

NORTH MISSISSIPPI MEDICAL CENTER

Compliance with Evidence-Based Guidelines

The Cancer Committee at NMMC assigned two in-depth analyses to determine if our cancer patients are being evaluated and treated according to national treatment guidelines. Both analyses are described below:

Appropriate Use of trastuzumab (Herceptin) in Patients with HER2/neu Positive Breast Cancer

Ray Reed, M.D.

Background:

HER2 is a member of the human epidermal growth factor receptor (HER/EGFR/ERBB) family. Over-expression of this oncogene has been shown to play an important role in the development and progression of certain aggressive types of breast cancer. In recent years the protein has become an important biomarker and target of therapy for approximately 30% of breast cancer patients.[1]

Trastuzumab (Herceptin) is a monoclonal antibody used to treat breast cancer that is HER2 receptor positive. It may be used by itself or together with other drugs. Trastuzumab works by binding to the HER2 receptor and slowing down cell replication.

National Comprehensive Cancer Network (NCCN) guidelines for use of trastuzumab include patients with HER2+ disease stages 1-4.[2]

To evaluate our program's use of trastuzumab and ensure use compliance with evidence based guidelines, we performed the following review:

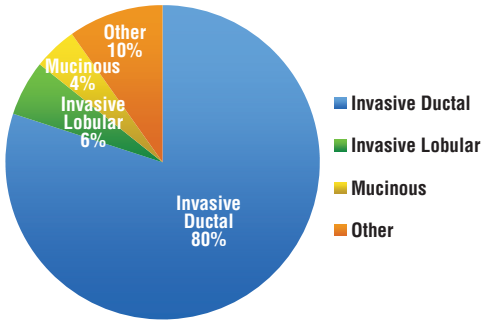
Methodology:

Cancer Registry data on all patients diagnosed with AJCC stages 1 through 4 carcinoma of the breast and accessioned into the NMMC Cancer Registry from 1/1/2016-12/31/2016 were reviewed. The reviewed data included patient age and sex, histology, Best AJCC stage of disease, HER2/neu status by immunohistochemistry (IHC) and fluorescent in situ hybridization (FISH) confirmation of equivocal results as well as use of trastuzumab treatment.

Results:

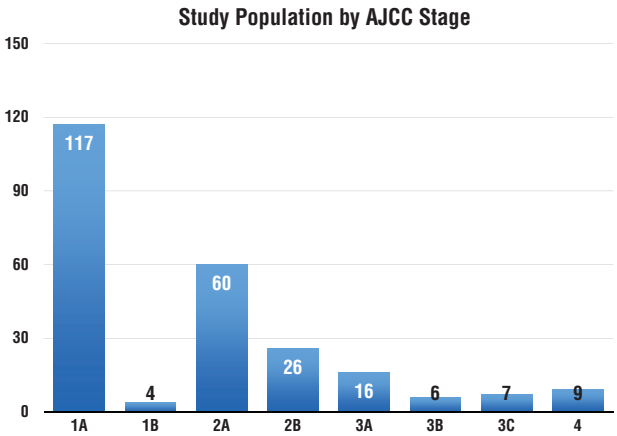
245 patients met the review criteria.
All were female with a mean age of 63.

196 invasive ductal carcinoma
14 invasive lobular carcinoma
11 mucinous carcinoma
24 other
———
245



Study Population by AJCC Stage

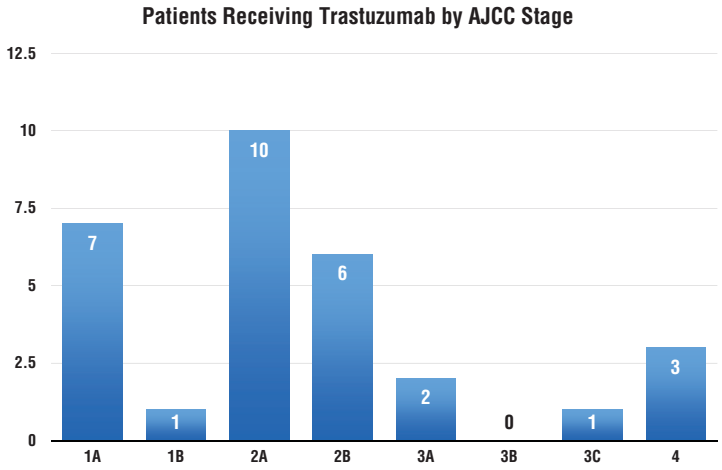
1A - 117
1B - 4
2A - 60
2B - 26
3A - 16
3B - 6
3C - 7
4 - 9



Population of Patients Receiving

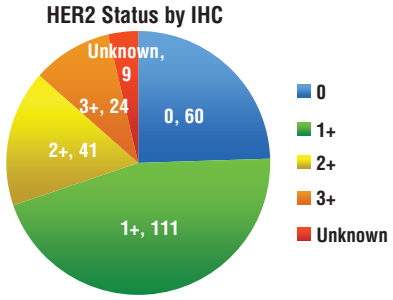
Trastuzumab by AJCC Stage

1A - 7
1B - 1
2A - 10
2B - 6
3A - 2
3B - 0
3C - 1
4 - 3
Total Patients 30



Her-2-neu status by IHC

0 60 patients
1+ 111 patients
2+ 41 patients
3+ 24 patients
Unknown 9 patients
Total Patients 245



Of the 41 patients with IHC 2+ equivocal results, all 41 received appropriate follow up testing with FISH.

9 of these 41 patients ultimately were FISH positive, and 7 of these 9 received treatment with trastuzumab. The remaining 2 patients in this cohort had stage 1A disease and trastuzumab was not recommended by the treating oncologist due to co-morbidities.

23 of the 24 patients who were 3+ positive by IHC received trastuzumab/pertuzumab. The one patient in this cohort who did not receive trastuzumab had stage 4 disease at diagnosis and was treated initially with chemotherapy and subsequently expired.

In summary, 30 of 33 patients who were potential candidates for treatment with trastuzumab ultimately received treatment.

Based on this review, trastuzumab is being prescribed as recommended by NCCN guidelines to our patients with HER2 positive breast cancer.

**5 of the 9 patients with unknown HER2 status were from outside hospitals and these records were not found. The remaining 4 patients appear to have had insufficient tissue at biopsy to perform the analysis and records of HER2 testing on surgical specimens were not found.*

1. Mitri Z, Constantine T, O'Regan R (2012). "The HER2 Receptor in Breast Cancer: Pathophysiology, Clinical Use, and New Advances in Therapy." *Chemotherapy Research and Practice, 2012*
2. *NCCN Clinical Practice Guidelines in Oncology Breast Cancer*

Are breast cancer patients who meet NCCN recommendations adequately receiving 21-gene assay testing to determine high risk of recurrent disease?

Paschal Wilson, M.D.

Method: Breast cancer patients diagnosed January-July 2017 were compared to National Comprehensive Cancer Network (NCCN) guidelines to determine if criteria was met for 21-gene assay testing. NCCN recommends that providers include 21-gene assay testing in the workup for breast cancer patients:

- who have favorable histology, including ductal, lobular, mixed and metaplastic
- who are staged as pT1, pT2 or pT3
- whose nodal status is N0 or pN1mi (2 mm axillary node metastasis)
- whose tumor size > 0.5 cm

A chart audit was performed to determine if patients were adequately receiving the 21-gene assay testing according to NCCN.

Findings: For the time period aforementioned, 131 patients were diagnosed with breast cancer at NMMC. Of those, 86 were not included in this evaluation as follows:

- 9 received chemotherapy elsewhere
- 4 did not have favorable histologies
- 36 were excluded for hormone and/or HER2 status
- 37 did not meet criteria with respect to staging, nodal status and/or tumor size

Of the remaining 44 patients, 20 were not recommended for 21-gene assay testing due to factors such as patient age, co-morbidities, performance status, or patient refusal with respect to chemotherapy. The remaining 24 patients received 21-gene assay testing as recommended by the NCCN.

Recommendations: Based on the findings, our patients are adequately being referred for 21-gene assay testing. It is recommended that patients who meet the criteria set by NCCN continue to be referred for 21-gene assay testing to help ensure appropriate personalized treatment.

National Comprehensive Cancer Network (2017). Guidelines Version 2.2017 Invasive Breast Cancer. Retrieved from https://www.nccn.org.

Quality Studies

The Cancer Committee at NMMC authorized two quality studies to measure the quality of care provided and the outcomes of our cancer patients. Both quality studies are described below:

Stereotactic Radiosurgery for Brain Metastases was implemented in September 2016. There is concern that this new service is not being utilized as recommended.

Benjamin Hinton, M.D.

State the problem:

Brain metastases occur in up to 20% of adult patients with cancer. Whole brain irradiation (WBI) and stereotactic radiosurgery (SRS) are two non-surgical modalities used in the treatment of intracranial tumors. Recent studies have shown that SRS produces similar rates of local control and progression free survival but lower rates of neurotoxicity and cognitive dysfunction resulting in improved quality of life (Loeffler & Wen, 2017).

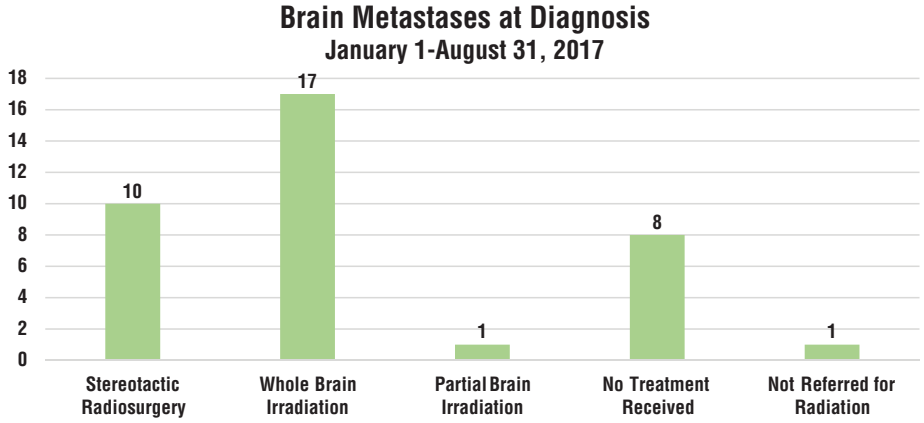
According to the American Society for Radiation Oncology (ASTRO), criteria for the use of SRS in patients with brain metastases include those with:

- Stable systemic disease and otherwise reasonable survival expectations.
- An ECOG status of 3 or less, or a score expected to return to 2 or less with treatment.

Stereotactic Radiosurgery (SRS) for Brain Metastases was implemented in September 2016. Discussion at the Chest Health Conference in early 2017 led to concern that this new service is not being utilized as previously recommended. The Cancer Committee recommended a review of the use of SRS in the treatment of brain metastases diagnosed January-August 2017.

Data Analysis:

Medical records of patients who had brain metastases at the time of diagnosis were reviewed for the rate at which eligible patients were 1) referred to Radiation Oncology and 2) offered SRS surgery at the initial consult.



Total Patients 37

Summary of Findings:

As per the analysis above, 6 of 37 patients were admitted directly to hospice after diagnosis or expired prior to treatment, leaving 31 patients who received some form of treatment. Only 1 of the 31 patients (3.2%) was not referred to radiation oncology. Two patients (6.5%) had planned referrals but expired before the referral process could be completed.

The remaining 28 patients (90.3%) were referred to Radiation Oncology for treatment of their brain metastasis. A review of the treatment plans for these 28 patients shows that 12 were offered SRS. All of the patients offered SRS met ASTRO criteria for this treatment modality. Two of the 12 patients refused SRS and received WBI instead. Sixteen patients did not meet criteria for SRS; 15 were treated with WBI and one was treated with partial brain irradiation.

Recommendations:

This study shows that patients diagnosed with brain metastases at the time of diagnosis are adequately being referred for radiation oncology consult. The study also shows that patients who meet ASTRO criteria for SRS are being treated

appropriately. It is recommended that patients with brain metastases continue to be referred for radiation oncology consult and that eligible patients continue to be treated with SRS.

American Society for Radiation Oncology (2014). Model policies for stereotactic radiosurgery. Retrieved from https://www/astro.org
Loeffler, J. and Wen, P. (2017). Overview of the treatment of brain metastases. Retrieved from https://www.uptodate.com

Time Lapse in Days from Diagnosis to Treatment for Small Cell Lung Cancer

Kevin Harbour, M.D.; Angie Eaton, MSN, OCN, CN-BN

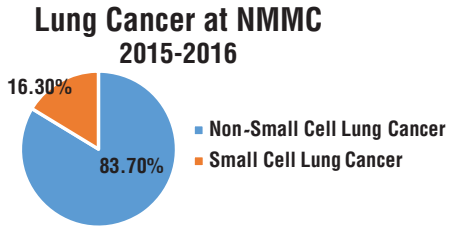
State the problem:

Lung cancer is the most common cancer and cause of cancer deaths in both northeast Mississippi and the United States. When compared to other common histologies, small cell (SCLC) is the most aggressive and accounts for 13.6% of all lung cancers nationally. According to Harris, et al. (2012), "given the neuroendocrinological origin of SCLC, it is considered the prototype of rapidly growing malignancies with doubling time in the range of 25-217 days according to several studies." Accordingly, "SCLC continues to carry a grim prognosis, with a median survival of approximately 2-4 months when untreated, and a 5-year survival rate of 4-5% when treated" (Harris et al., 2012). Delays in treatment significantly increase tumor burden.

At North Mississippi Medical Center, it was determined that treatment for SCLC was being delayed for some patients due to lack of consistent patient navigation and timely appointments with medical oncology. To determine the accuracy of the proposed delay, a quality improvement project addressing SCLC wait times from histologic diagnosis to first treatment was performed.

Data Analysis:

Based on recommendations of the Chest Health Subcommittee, a study of the time lapse between diagnosis and first definitive treatment of analytic patients diagnosed with SCLC at NMMC was performed. Review of 2015-2016 data revealed 701 total cases of lung cancer diagnosed. Of these lung cases, 587 (83.7%) were non-small cell lung cancer (NSCLC) and 114 (16.3%) cases were SCLC.



Of the 114 SCLC cases, 74 (64.9%) received their first course of treatment at NMMC, 18 (15.8%) patients left the NMMC system for treatment elsewhere, and 22 (19.3%) patients chose not to pursue treatment.

Summary of Findings:

The current pathway reveals average time from diagnosis to treatment was 15.6 days for all SCLC patients, while inpatients were treated at an average of 1.1 days. The review will concentrate only on those patients whose treatment began in the outpatient setting as they represent the more typical patient treatment pathway. The outpatient average was 19.6 days. (Median 19 days, Min-Max 2-56 days). Review of data also revealed that 16 (27.6%) patients waited 25 days between diagnosis and first definitive treatment.

Recommendations:

The goal is to decrease the lapsed days from diagnosis to treatment for SCLC to 14 business days or less for patients who desire treatment. The proposed new pathway for SLCL includes:

- Primary care physician/pulmonologist reviews abnormal imaging or examination and refers patient for appropriate diagnostic procedure
- Pathology result released to ordering physician
- Pathology report is also printed in the Tumor Registry
- Tumor Registrar identifies SCLC and immediately notifies lung cancer navigator
- Lung cancer navigator identifies and notifies ordering provider
- Lung cancer navigator facilitates referral to appropriate provider: Pulmonology, Medical Oncology, Radiation Oncology, etc.
- Lung cancer navigator assists in expediting chemotherapy or appropriate care

Recommendations for improvements include:

- A careful analysis of lung pathology to determine the SCLC histology
- Alert the lung cancer navigator to any path report with stated or potential SLCL diagnosis
- The lung cancer navigator shall work closely with the ordering provider to facilitate a quicker diagnostic and treatment turnaround time

Harris, K., Khachaturova, I., Azab, B., Maniatis, T., Murukutla, S., Chalhoub, M., Alkaied, H. Small cell lung cancer doubling time and its effect on clinical presentation: A concise review. (2012). Clinical Medicine Insights: Oncology, 6, 199-203.

NMMC Cancer Registry Data

Quality Improvements

The Cancer Committee at NMMC implemented the following quality improvements:

Decrease the Overall Elapsed Days from Diagnosis to Treatment to 14 Business Days or Less in Patients Desiring Treatment

Kevin Harbour, M.D.; Angie Eaton, BSN, OCN

Source of Evidence:

The Quality Study: Delay in days from diagnosis to treatment for small cell lung cancers was performed in 2017 and utilized as the source for this Quality Improvement.

Summary:

A process was put into place to alert the lung cancer navigator of patients with small cell lung cancer diagnoses. The new process included:

- Primary care physician/pulmonologist reviews abnormal imaging or examination and refers patient for appropriate diagnostic procedure
- Pathology result released to ordering physician
- Pathology report is also printed in the Tumor Registry
- Tumor Registrar identifies SCLC and immediately notifies lung cancer navigator
- Lung cancer navigator identifies and notifies ordering provider
- Lung cancer navigator facilitates referral to appropriate provider: Pulmonology, Medical Oncology, Radiation Oncology, etc.
- Lung cancer navigator assists in expediting chemotherapy or appropriate care

Recommendations from the quality study performed in 2017 at NMMC are noted below:

- A careful analysis of lung pathology to determine the histology
- Alert the lung cancer navigator to any pathology report with stated or potential SLCL diagnosis
- The lung navigator will work closely with the ordering provider to facilitate a quicker diagnostic and treatment turnaround time

These recommendations along with the new process provided a basis for the quality improvement project that was put into place to decrease the overall days from diagnosis to treatment for SMLC patients. The goal was to decrease the lapsed days to 14 business days or less in patients who desire treatment. A follow-up audit on SCLC diagnosed in June, July and August 2017 was performed. A total of 95 lung cancer cases were reviewed, of which 21 were confirmed by histology as small cell type. The average number of days from the time pathology was reported to definitive treatment was 3.4 days.

Recommendations and Follow-up:

Close monitoring and timely intervention has proven to decrease the number of elapsed days from diagnosis to first treatment in the SCLC population. Close monitoring, timely intervention and multidisciplinary care will continue to help meet the need for prompt treatment in this population of patients. Results will continue to be closely monitored and reported to the Chest Health Subcommittee.

Implementation of In-House HER2 Immunohistochemistry Testing

Richard Griswold, M.D.

Source of Evidence:

In 2016, the Breast Health Subcommittee recommended that the NMMC Pathology Department begin in-house HER2 immunohistochemistry (IHC) testing to reduce the time needed to obtain results necessary to begin treatment planning for patients diagnosed with breast cancer. The Cancer Committee agreed and included the Breast Health Subcommittee's recommendation as a quality improvement project for 2017. After discussion with NMMC's Pathology Department, a go-live target date of June 1, 2017 was set.

Summary:

Following setup and interpretive instructions for the HER2 assay provided by Ventana Medical Systems; the in-house HER2 assay by IHC was validated per American Society of Clinical Oncology (ASCO) and College of American Pathology (CAP) guidelines. NMMC's Pathology Department performed analysis of breast cancer cases (20 HER2 negative and 20 HER2 positive) from our institution that were previously analyzed at the Mayo Medical Reference Laboratory. Essentially 100% correlation of results was achieved; and the assay was put into service in mid-May 2017. Subsequently, in September 2017 the lab achieved 100% agreement on a CAP Survey of 20 negative and 20 positive HER2 cases, providing further confidence in the test.

To validate quality improvement, the Cancer Committee analyzed the time lapse from biopsy date to release of HER2 results for four months, both pre- and post-implementation of in-house HER2 IHC testing.

Pre-implementation, 75 patients were biopsied at NMMC from January 1-April 30, 2017.

- 13 patients with in-situ disease were not tested for HER2
- 64 patients had biopsy specimens sent to an outside lab to determine their HER2 status
  - 9 patients had equivocal results which required FISH testing, and were not included in the pre-implementation data analysis
- 53 patients had their HER2 status determined by IHC testing
  - The average time lapse from biopsy date to release of HER2 IHC results was 7.4 business days

Post-implementation, 62 patients were biopsied at NMMC from June 1-September 30, 2017.

- 9 patients with in-situ disease were not tested for HER2
- 5 patients had tissue sent to an outside lab for histological consultation, and HER2 testing was done there; these patients were not included in the data analysis
- 48 patients had their HER2 status determined by IHC testing in-house
  - 7 patients had equivocal results which required FISH testing at an outside lab, and were not included in the post-implementation data analysis
  - 41 patients had their HER2 status determined by IHC testing in-house
  - The average time lapse from biopsy date to release of HER2 results was 3.6 business days

The implementation of in-house testing has reduced the time lapse from biopsy date to release of HER2 results by 51.4% over pre-implementation times. This, in turn, facilitates faster treatment planning, which enhances patient outcomes.

Inconsistent Language used for Breast Tissue Markers

Joanna Sadowska, M.D.; Melissa Cole, RT (R)(T)

Source of Evidence:

The surgeons noted that the language used for clips placed during the breast biopsy procedure was not congruent throughout the system. Some radiologists used different terms to name the clips, which made it difficult for surgeons to adequately excise breast lesions, making this a patient safety concern. It was recommended that a process be put into place that would standardize the language for more consistent usage throughout North Mississippi Health Services.

Summary:

A new process is in place that standardizes the language used for breast tissue marking clips. A description of the three clips used for breast tissue marking along with a photograph and standardized terms was distributed to radiologist and general surgeons.

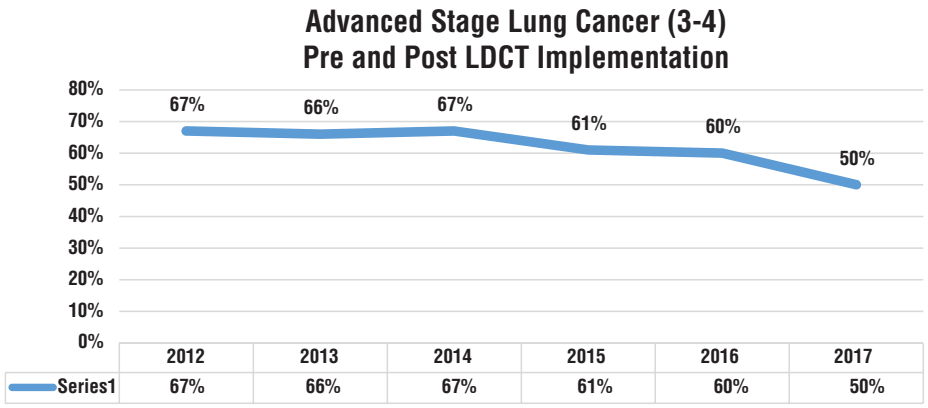
Improved Diagnosis of Lung Cancer at Early Stage

Source of Evidence:

Early stages of lung cancer rarely produce symptoms, making early diagnosis and treatment of this disease extremely difficult. Review of cancer registry data revealed that more than 60% of our lung cancer patients were being diagnosed in the later stages (stage 3 or 4) when patients are much sicker and the hope for cure is minimal. For this reason, the Cancer Committee implemented a screening method using Low-Dose CT (LDCT) to assist in diagnosing lung cancer at an early, more treatable stage.

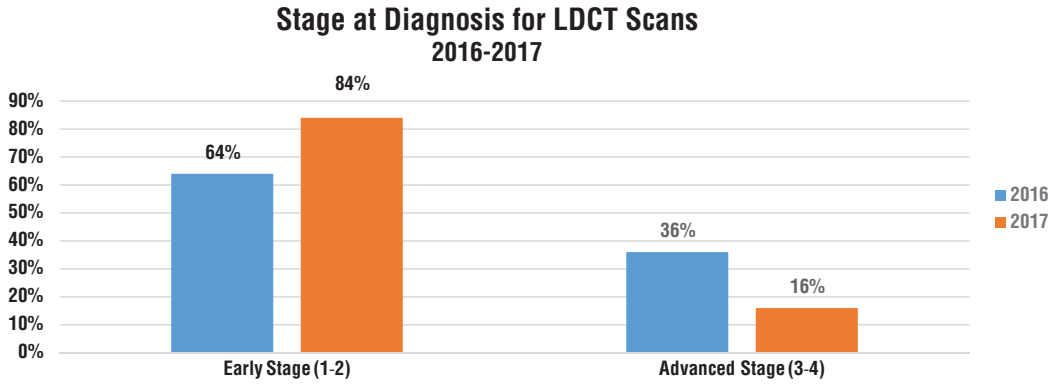
Summary:

After the implementation of LDCT screening and the ACR registry, the Cancer Committee sought to determine if this screening process was helping to diagnose our lung cancer patients at an earlier stage, as planned. A review of LDCT scans performed between January 1, 2016 and September 30, 2017 provided valuable information on the trends and importance of screenings. The data showed 64% of cancers were diagnosed at an early stage in 2016, which increased further to 84% for 2017.



Data Review for 2016:

- 602 LDCT scans performed
- 209 of these showed lung nodules with Lung-RADS grade of 3 or 4
- Of these 209 scans, 22 resulted in a cancer diagnosis
- **64% were diagnosed at an early stage (1 or 2)**



Data Review for January 1-September 30, 2017:

- 588 LDCT scans performed
- 138 showed lung nodules with Lung-RADS grade of 3 or 4
- Of the 138 scans, 12 revealed a cancer diagnosis
- **84% were diagnosed at an early stage (1 or 2)**

The accomplishments from this project were shared with the Cancer Committee as well as other affected departments. The value found in the stated results of screening with LDCT has and will continue to impact our region as we strive to expand this service into other affiliated hospitals, clinics and beyond. The ability to detect and treat cancer at an earlier stage increases life expectancy and quality of life for this patient population. To date, we average more than 60 LDCT scans monthly. We are dedicated to seeing an increase in this volume.

The plan is to:

- Continue the implementation process for improved mortality and morbidity for lung cancer patients
- Market to providers locally and in surrounding areas to enhance awareness of this important screening capability
- Continue to share these great outcomes with surrounding communities to enhance public awareness regarding screening and early detection

2016 Analytic Caseload

		Sex		*Status*		*Stage Distribution-Analytic Cases Only*						
Primary Site	**Total (%)**	**M**	**F**	**Alive**	**Exp**	**0**	**I**	**II**	**III**	**IV**	**88**	**Unknown**
ORAL CAVITY & PHARYNX	68 (3.7%)	52	16	59	9	1	11	10	8	35	1	2
Lip	3 (0.2%)	3	0	3	0	0	1	1	0	1	0	0
Tongue	17 (0.9%)	12	5	14	3	1	3	1	1	10	0	1
Salivary Glands	7 (0.4%)	3	4	6	1	0	0	0	2	5	0	0
Floor of Mouth	6 (0.3%)	6	0	6	0	0	2	1	0	3	0	0
Gum & Other Mouth	9 (0.5%)	6	3	9	0	0	4	2	0	2	0	1
Nasopharynx	2 (0.1%)	2	0	2	0	0	0	1	1	0	0	0
Tonsil	14 (0.8%)	13	1	14	0	0	1	3	3	7	0	0
Oropharynx	4 (0.2%)	3	1	2	2	0	0	0	0	4	0	0
Hypopharynx	5 (0.3%)	3	2	2	3	0	0	1	1	3	0	0
Other Oral Cavity & Pharynx	1 (0.1%)	1	0	1	0	0	0	0	0	0	1	0
DIGESTIVE SYSTEM	319 (17.3%)	173	146	210	109	1	64	64	58	108	4	20
Esophagus	14 (0.8%)	11	3	7	7	0	0	1	3	3	0	7
Stomach	22 (1.2%)	13	9	9	13	0	6	1	3	10	0	2
Small Intestine	14 (0.8%)	6	8	13	1	0	3	3	3	4	0	1
Colon Excluding Rectum	130 (7.0%)	65	65	105	25	0	29	35	26	36	0	4
Cecum	22	13	9	19	3	0	5	10	4	3	0	0
Appendix	3	2	1	3	0	0	1	2	0	0	0	0
Ascending Colon	32	14	18	29	3	0	6	11	6	7	0	2
Hepatic Flexure	5	2	3	4	1	0	1	1	1	1	0	1
Transverse Colon	11	5	6	10	1	0	3	1	2	5	0	0
Splenic Flexure	3	3	0	3	0	0	0	1	2	0	0	0
Descending Colon	6	2	4	3	3	0	1	1	1	3	0	0
Sigmoid Colon	37	19	18	29	8	0	11	8	8	9	0	1
Large Intestine, NOS	11	5	6	5	6	0	1	0	2	8	0	0
Rectum & Rectosigmoid	37 (2.0%)	25	12	34	3	0	15	7	4	8	0	3
Rectosigmoid Junction	5	3	2	5	0	0	3	0	0	2	0	0
Rectum	32	22	10	29	3	0	12	7	4	6	0	3
Anus, Anal Canal & Anorectum	9 (0.5%)	3	6	8	1	1	1	4	2	1	0	0
Liver & Intrahepatic Bile Duct	24 (1.3%)	21	3	4	20	0	2	1	8	7	4	2
Gallbladder	5 (0.3%)	2	3	3	2	0	0	1	0	4	0	0
Other Biliary	6 (0.3%)	5	1	2	4	0	1	1	0	3	0	1
Pancreas	56 (3.0%)	21	35	23	33	0	6	10	8	32	0	0
Retroperitoneum	2 (0.1%)	1	1	2	0	0	1	0	1	0	0	0
RESPIRATORY SYSTEM	386 (20.9%)	212	174	209	177	3	86	42	89	156	1	9
Nose, Nasal Cavity & Middle Ear	1 (0.1%)	0	1	1	0	1	0	0	0	0	0	0
Larynx	25 (1.4%)	19	6	22	3	0	7	3	6	8	0	1
Lung & Bronchus	360 (19.5%)	193	167	186	174	2	79	39	83	148	1	8
BONES & JOINTS	4 (0.2%)	2	2	4	0	0	2	0	0	0	1	1
Bones & Joints	4 (0.2%)	2	2	4	0	0	2	0	0	0	1	1
SOFT TISSUE	12 (0.7%)	7	5	9	3	0	7	1	2	1	0	1
Soft Tissue (including Heart)	12 (0.7%)	7	5	9	3	0	7	1	2	1	0	1
SKIN EXCLUDING BASAL &	58 (3.1%)	33	25	55	3	6	27	10	10	3	1	1
Melanoma – Skin	56 (3.0%)	31	25	54	2	6	27	10	9	3	0	1
Other Non-Epithelial Skin	2 (0.1%)	2	0	1	1	0	0	0	1	0	1	0
BREAST	326 (17.7%)	3	323	311	15	65	125	91	33	12	0	0
Breast	326 (17.7%)	3	323	311	15	65	125	91	33	12	0	0
FEMALE GENITAL SYSTEM	46 (2.5%)	0	46	39	7	4	19	1	6	4	0	12
Cervix Uteri	6 (0.3%)	0	6	5	1	0	3	0	1	0	0	2
Corpus & Uterus, NOS	29 (1.6%)	0	29	25	4	0	15	1	1	3	0	9
Corpus Uteri	28	0	28	25	3	0	15	1	1	2	0	9
Uterus, NOS	1	0	1	0	1	0	0	0	0	1	0	0
Ovary	4 (0.2%)	0	4	2	2	0	0	0	2	1	0	1

Vulva	6 (0.3%)	0	6	6	0	4	1	0	1	0	0	0
Other Female Genital Organs	1 (0.1%)	0	1	1	0	0	0	0	1	0	0	0
MALE GENITAL SYSTEM	185 (10.0%)	185	0	179	6	1	49	110	11	14	0	0
Prostate	174 (9.4%)	174	0	169	5	0	42	108	10	14	0	0
Testis	9 (0.5%)	9	0	9	0	0	6	2	1	0	0	0
Penis	2 (0.1%)	2	0	1	1	1	1	0	0	0	0	0
URINARY SYSTEM	143 (7.7%)	100	43	123	20	46	60	12	10	14	0	1
Urinary Bladder	66 (3.6%)	51	15	59	7	45	11	6	2	2	0	0
Kidney & Renal Pelvis	76 (4.1%)	48	28	63	13	1	48	6	8	12	0	1
Other Urinary Organs	1 (0.1%)	1	0	1	0	0	1	0	0	0	0	0
BRAIN & OTHER NERVOUS	60 (3.3%)	32	28	43	17	0	0	0	0	0	60	0
Brain	26 (1.4%)	15	11	15	11	0	0	0	0	0	26	0
Cranial Nerves Other Nervous	34 (1.8%)	17	17	28	6	0	0	0	0	0	34	0
ENDOCRINE SYSTEM	52 (2.8%)	16	36	51	1	0	27	2	6	2	14	1
Thyroid	38 (2.1%)	9	29	38	0	0	27	2	6	2	0	1
Other Endocrine including	14 (0.8%)	7	7	13	1	0	0	0	0	0	14	0
YMPHOMA	76 (4.1%)	41	35	62	14	0	26	13	20	16	0	1
Hodgkin Lymphoma	7 (0.4%)	5	2	5	2	0	1	0	4	2	0	0
Non-Hodgkin Lymphoma	69 (3.7%)	36	33	57	12	0	25	13	16	14	0	1
NHL - Nodal	50	26	24	42	8	0	11	11	16	11	0	1
NHL - Extranodal	19	10	9	15	4	0	14	2	0	3	0	0
MYELOMA	29 (1.6%)	19	10	20	9	0	0	0	0	0	29	0
Myeloma	29 (1.6%)	19	10	20	9	0	0	0	0	0	29	0
LEUKEMIA	25 (1.4%)	16	9	16	9	0	0	0	0	0	25	0
Lymphocytic Leukemia	9 (0.5%)	5	4	6	3	0	0	0	0	0	9	0
Acute Lymphocytic Leukemia	2	1	1	1	1	0	0	0	0	0	2	0
Chronic Lymphocytic Leukemia	6	3	3	4	2	0	0	0	0	0	6	0
Other Lymphocytic Leukemia	1	1	0	1	0	0	0	0	0	0	1	0
Myeloid & Monocytic Leukemia	13 (0.7%)	8	5	7	6	0	0	0	0	0	13	0
Acute Myeloid Leukemia	9	6	3	4	5	0	0	0	0	0	9	0
Chronic Myeloid Leukemia	4	2	2	3	1	0	0	0	0	0	4	0
Other Leukemia	3 (0.2%)	3	0	3	0	0	0	0	0	0	3	0
MESOTHELIOMA	3 (0.2%)	2	1	2	1	0	0	0	1	1	0	1
Mesothelioma	3 (0.2%)	2	1	2	1	0	0	0	1	1	0	1
MISCELLANEOUS	54 (2.9%)	32	22	27	27	0	0	0	0	0	54	0
Miscellaneous	54 (2.9%)	32	22	27	27	0	0	0	0	0	54	0
Total	**1,846**	**925**	**921**	**1,419**	**427**	**127**	**503**	**356**	**254**	**366**	**190**	**50**

Summary by Body System & Sex Report

Oral Cavity & Pharynx - 51 (5%)
Lung & Bronchus - 196 (20%)
Pancreas - 21 (2%)
Kidney & Renal Pelvis - 49 (5%)
Urinary Bladder - 58 (6%)
Colon & Rectum - 103 (11%)
Prostate - 183 (19%)
Non-Hodgkin Lymphoma - 38 (4%)
Melanoma of Skin - 33 (3%)
Leukemia - 20 (2%)
All other sites - 223 (23%)

Thyroid - 29 (3%)
Lung & Bronchus - 173 (17%)
Breast - 344 (34%)
Kidney & Renal Pelvis - 28 (3%)
Ovary - 7 (1%)
Uterine Corpus - 41 (4%)
Colon & Rectum - 84 (8%)
Non-Hodgkin Lymphoma - 34 (3%)
Melanoma of Skin - 27 (3%)
Leukemia - 9 (1%)
All other sites - 227 (23%)

Race

Caucasian.....1,565
African-American 405
Other 8

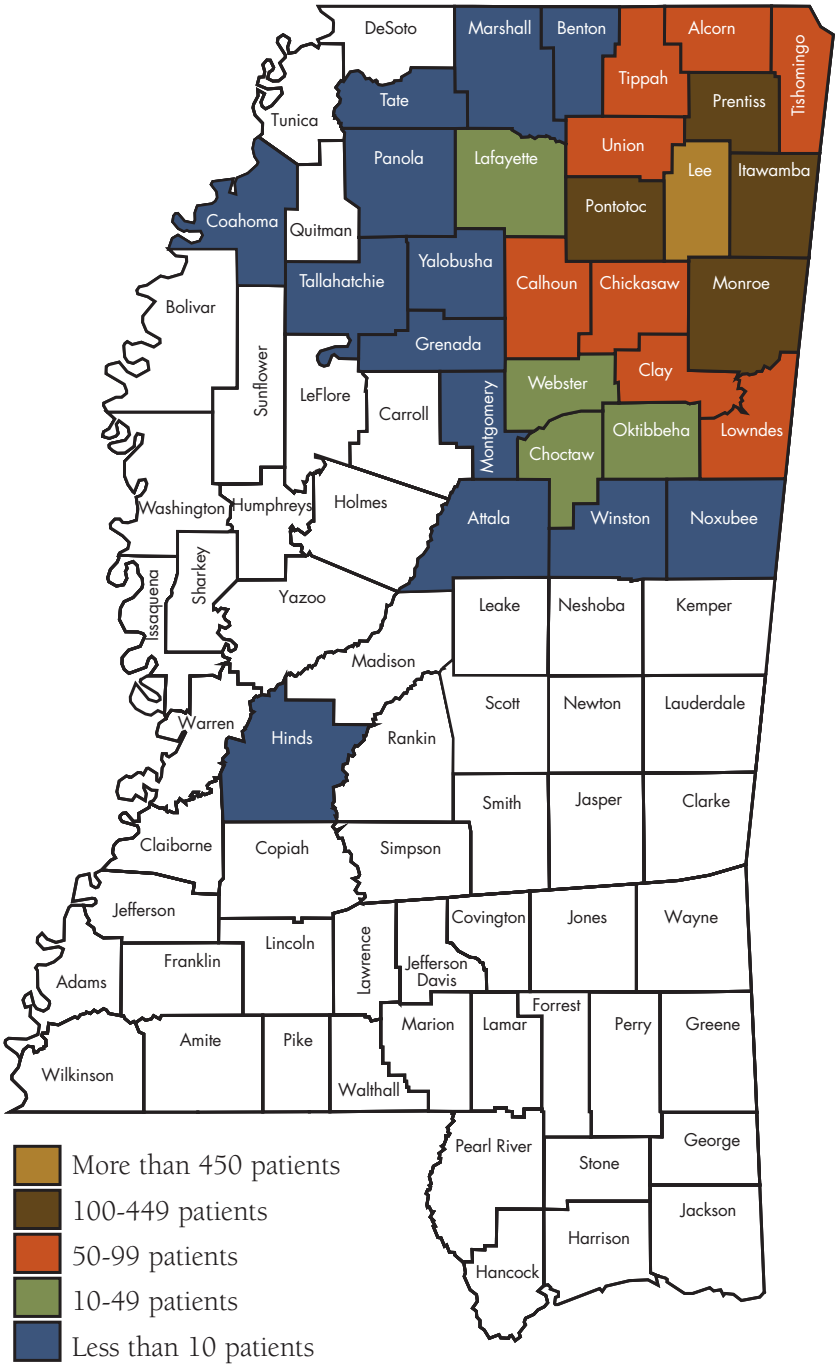
Sex

Male 975
Female 1,003

Distribution by Age

0-29 21
30-39 55
40-49 171
50-59 428
60-69 602
70-79 449
80-89 227
>90 25

Geographic Location:



Alabama Counties

Colbert 1
Fayette 2
Franklin 5
Lamar.....18
Limestone.....1
Madison 1
Marion 63
Pickens.....2
Winston 2

Tennessee Counties

Hardeman 1
Hardin 6
McNairy 4
Shelby 1