

# **2017 Annual Report on Non-Small Cell Lung Cancer**

## ***FirstHealth of the Carolinas***

### **Introduction:**

An in depth review of 221 patient records was performed to ensure that evaluation and treatment of patients presenting to FirstHealth complied with evidence-based national guidelines and was appropriate for AJCC staging, including prognostic indicators. Any problems identified with diagnostic evaluation or treatment planning may then serve as sources for performance improvement.

Lung cancer remains the most lethal malignancy, with the national average 5-year survival rate of 18%. People diagnosed at an early stage are 5x more likely to survive, but only 19% are diagnosed at an early stage. The best chance for cure is surgical removal at an early stage, but only 21% of cases nationally underwent surgery as part of the first course of treatment. (*American Lung Association*). Though exposure to radon, pollution, and genetic predisposition play a role, smoking remains the clearest risk factor, accounting for 9/10 new cases. NCI found 20% fewer lung cancer-related deaths in >30 pk-yr current or former smokers (aged 55-74) using CT screening.

At FirstHealth, the lung program centers upon the multidiscipline chest conference held weekly. Representatives include: nurse navigator, research staff, pathology, oncology, radiation oncology, surgery, and pulmonology. Patients are presented at various stages of disease, usually referred from abnormal chest CT findings. In addition to traditional transthoracic needle biopsy of relatively large lung nodules, navigational bronchoscopy has evolved to detect subcentimeter nodules for both histologic diagnosis and fiducial marking for potential minimally invasive resection. Concomitant EBUS staging of the hilum and mediastinum have supplanted mediastinoscopy to complement PET-CT staging for more precise clinical and pathological staging prior to first treatment intervention.

A quickly developing diagnostic platform for regionally advanced disease has been molecular markers which target individualized selection of chemotherapeutic and immunologic agents to maximize best expected response and minimize toxicity. Traditional radiation may be used for larger tumors or palliative radiation for painful bone metastases. Ablative therapies for more localized disease include stereotactic radiation and evolving microwave bronchoscopic ablation. Surgery for early stage disease has shifted from traditional open thoracotomy to minimally invasive VATs and robot-assisted resection approaches to hasten recovery and potentially broaden patient selection.

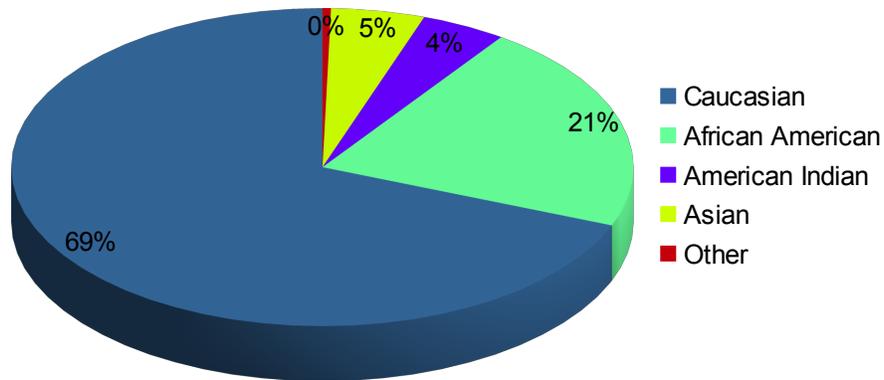
### **Demographics:**

The patient population consisted of 116 males (52%) and 105 females (48%).

Age ranged from 36-95, with the median being 61.

Race/ethnicity in this population consisted of Caucasian, African American, American Indian, and Asian.

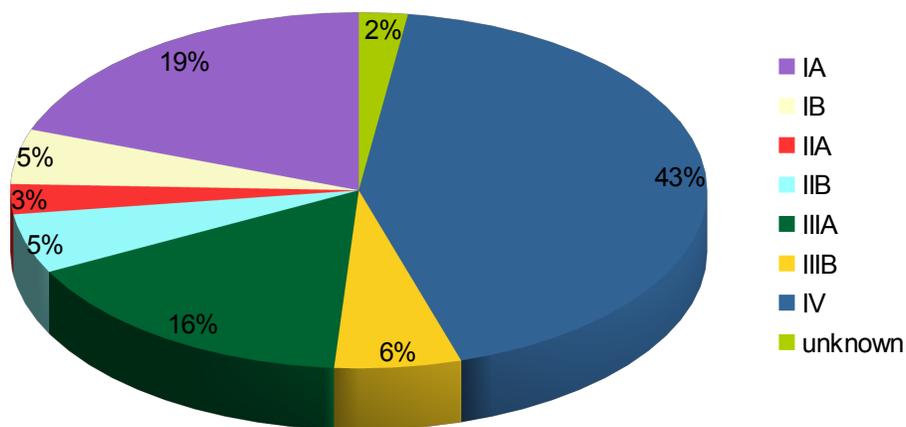
Patients by Race



**Diagnosis by Stage:**

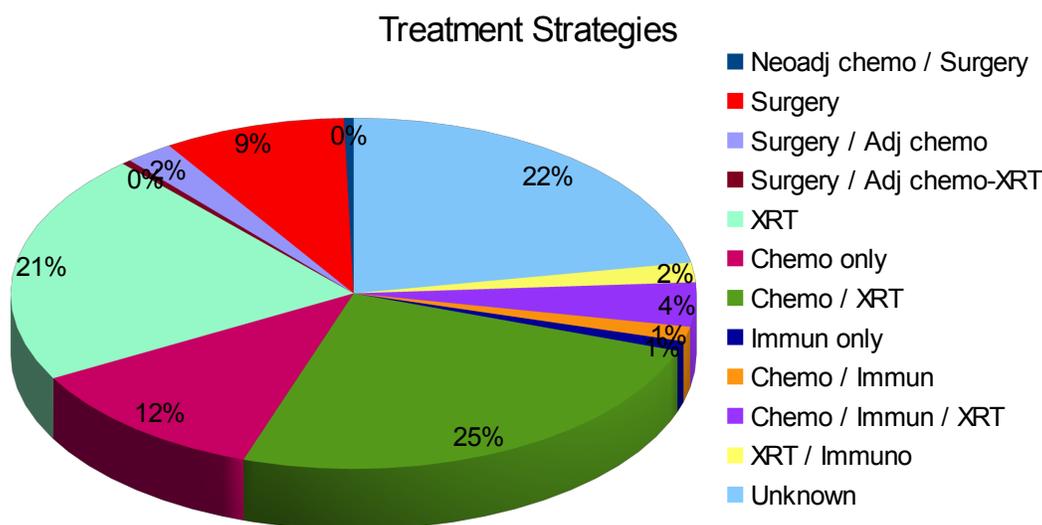
Clinical staging is an amalgam of diagnostic histologic biopsies, imaging, and pathologic staging performed either by EBUS prior to first treatment or by intraoperative lymph node dissection in the case of surgical resection. In this population, 65% of patients had at least regionally advanced disease, meaning IIIA, IIIB, or IV. Patients with locally advanced disease (IIA, IIB) comprised 8% of the group, while 24% of the total population had relatively localized disease (IA, IB), comparable to the average 19% nationally.

Patients by Clinical Stage



### Treatment patterns:

Many variables develop in the course of recommended treatment strategies for lung cancer. Anatomy, age, performance status, residence, insurance, tolerance of therapy, and compliance all factor into how successfully patients can be treated once diagnosed and clinically staged. In this review, individualized treatment plans centered on the consensus opinion developed in the weekly multidisciplinary pulmonary conference. Evidence based guidelines were applied at each level of diagnostic workup, beginning with the candidacy of patients for surgery or SBRT for early disease and progressing up to multimodality plans for local, regional, and systemic disease. Therefore, it is not surprising that treatment correlated with staging, as about 12% of patients underwent surgery for early disease. In one patient, neoadjuvant chemotherapy was given to facilitate downstaging for resection. In six cases, adjuvant therapy was added as the patient was upstaged pathologically following surgical resection. The remaining 19 cases were treated with surgery alone, which supports the current guideline directed approach to evaluation and preoperative staging.



With regard to radiation treatment, the data did not separate use of SBRT for early disease from occasional isolated palliative radiotherapy for isolated metastases. However, the majority of cases with early lung disease who either are not fit for surgery or decline surgery generally receive SBRT as their primary treatment modality, reflected in the 21% isolated radiation group. Based upon extent of regional disease and toleration of systemic therapeutic options, radiation was additionally used in multimodality care plans. Interestingly, the role of immunologic therapy was used as the primary treatment in 2 patients and in some form of combined therapy in 16 other patients. Further refinements in molecular markers will guide the future use of traditional chemotherapy and evolving immunomodulating therapies.

One additional comment should be made concerning the 22% “unknown” category. Although this may reflect to some extent patients lost to follow up, it also includes patients who elect not to receive therapy despite an informed conversation. Patients may only be seen at this center for part of their care, and some patients travel or move from this community making their complete treatment

course difficult to track with our current registry data. Other socioeconomic factors may additionally hinder initial access to care for diagnosis as well as participation in a recommended treatment plan and surveillance following therapy.

**Summary:**

Lung cancer remains an elusive clinical dilemma in our nation, amplified by the historical success of the tobacco industry. The experience at FirstHealth mirrors that of the state of North Carolina and the U.S. in that most patients present with advanced disease. Sophisticated therapies become expensive with less prognostic success at each clinical stage. Post-treatment surveillance becomes more important when options are available for limiting progression. Insurance coverage, patient premiums, and physician/facility reimbursement converge in determining how care is rendered. The significance of a multidiscipline group cannot be understated in forming the core of a cancer program to best follow evidence-based guidelines for providing this care.

**Recommendations:**

1. Continue community efforts at smoking cessation.
2. Pursue enhanced CT screening to detect early disease.
3. Lower barriers to patient access to healthcare and increase patient awareness.
4. Decrease the time from imaging abnormality to definitive treatment.
5. Refine diagnostic, fiducial marking, and staging procedures (navigational bronchoscopy & EBUS).
6. Increase the use of intraoperative localization and minimally invasive resection techniques.
6. Develop enhanced registry data to include role of molecular markers in guiding therapy.
8. Build five year survival data and disease-free interval into registry data

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Standard 4.6 - Monitoring Compliance with Evidence Based Guidelines