CIP-: Patients who do not develop CIP). **Result:** A total of 58 patients (43 CIP-, 15 CIP+) were included. Median age was 66y and 96% of patients were current/former smokers. 52% had adenocarcinoma and 45% had squamous histology. 75% had stage III/IV disease at initial diagnosis. Patients received single agent PD-(L)1 ICI (77%), ipilimumab+nivolumab (ipi/nivo) (12%), and novel PD-(L)1 ICI (10%). Compared to CIP- patients, CIP+ patients were more likely to have squamous histology (67% vs. 34%) and receive ipi/nivo (27% vs 7%). In the overall study cohort, ICI initiation was associated with a 0.335L reduction in FEV1 (95% CI: -0.713, 0.042), 0.747L reduction in FVC (-1.21, -0.28), and 0.061 increase in FEV1/FVC (0.006, 0.116) consistent with restrictive lung physiology. Compared to CIP- patients, CIP+ patients had a 0.35L (-0.724, 0.013) lower FEV1 and 0.516L (-1.06, 0.02) lower FVC, while FEV1/FVC did not differ (-0.07, 0.07). The rate of change of FEV1/FVC over time was significantly higher among patients with vs without CIP ($p<0.05$). **Conclusion:** Our data suggest that initiation of PD-(L)1 ICI is associated with progressively restrictive lung function changes on PFTs (increased FEV1/FVC) irrespective of CIP development. Furthermore, our results indicate that patients who eventually develop CIP may have an altered respiratory physiology prior to ICI initiation, with longitudinal changes in lung function that differ when compared to CIP- patients who receive checkpoint blockade. To further characterize PFT changes associated with CIP, a prospective study assessing serial PFTs in NSCLC patients receiving ICIs is underway. **Keywords:** Non-Small Cell Lung Cancer, pneumonitis, Pulmonary Function Tests (PFTs)

P1.16-07
Real World Evidence of the Impact of Immunotherapy in Patients with Advanced Lung Cancer

C. Pettengell,[1] J. Law,[2] L. Le,[2] M. Sung,[2] S. Lau,[3] A. Sacher,[2] D. Merritt,[4] P. Demarco,[4] N. Leighl[5] *[1]Pentavere, Toronto, ON/CA, [2]Princess Margaret Cancer Centre, University Health Network, Toronto, ON/CA, [3]Medical Oncology, Princess Margaret Cancer Centre, Toronto, ON/CA, [4]Roche Canada, Mississauga/CA, [5]Princess Margaret Cancer Centre, Toronto, ON/CA*

Background: PD-1 axis inhibitors have become a standard treatment modality in the management of advanced lung cancer. Novel Natural Language Processing (NLP) and Artificial Intelligence (AI) technology enables automated extraction of real-world data at greater scale than current manual chart abstraction processes, which can be used to further explore the impact of these agents in the general population irrespective of PDL1 tumour expression. **Method:** Patients diagnosed with stage IIIB/IV lung cancer at the Princess Margaret Cancer Centre between 2015 and 2018 were reviewed using the DARWEN™ NLP and AI data abstraction platform developed by Pentavere. Data extracted include patient age, smoking status, ECOG performance status, tumour histology, biomarker status, PDL1 expression, sites of metastases, treatment information and survival. **Result:** Of 615 patients with accessible electronic pathology records, 540 (87.8%) had NSCLC and 280 (51.8%) of those received systemic therapy and were included in the analysis. 86 (30.7%) were EGFR sensitizing mutation positive, 18 (6.4%) ALK rearranged, PDL1>50%/1-49/<1/unknown in 21/8/10/61%. Almost one third (31.7%) of those that received treatment received immunotherapy for any line of therapy (12.1% first-line). Chemotherapy was used first-line in 56.1% and targeted therapy in 36.1% of those receiving systemic therapy Patients that were more likely to receive immunotherapy any line were smokers (OR: 2.7, 95% CI: 1.43-5.10, p=0.002) with a higher number of metastatic sites (OR: 1.23, 95% CI: 1.06-1.43, p=0.005). Those with EGFR sensitizing mutation and ALK rearrangement were less likely to be given immunotherapy (OR: 0.07, 95% CI: 0.03-0.19, $p<0.001$ and OR: 0.11, 95% CI: 0.01-0.84, p=0.03 respectively). There was no difference in the rates of immunotherapy being given in those with PDL1>50%/1-49/<1 (52/52/44%, p=0.8). Using Cox regression analyses after controlling for ALK, EGFR, PD-L1, age, sex, baseline ECOG, smoking status and number of metastatic sites, patients that received immunotherapy at any point had longer survival (HR: 0.28, 95%CI: 0.12-0.67, p=0.004) in a complete case analysis. **Conclusion:** Novel NLP and AI technologies like DARWEN™ gives clinicians access to previously unavailable information on real world treatment strategies and outcomes. Increasing uptake of immunotherapy may further improve outcomes for patients with this challenging to treat cancer. This study demonstrates that the benefit of immunotherapy seen in clinical trials can be translated into the general advanced lung cancer population. Larger population studies will be needed to further analyze the impact of new treatments in the real world and will be facilitated by automated data abstraction to rapidly generate large datasets. **Keywords:** Real world evidence, immune therapy, Artificial Intelligence

P1.16-08
Integration of Durvalumab into the Treatment of Stage III Non-Small Cell Lung Cancer: Real-World Considerations

S. Gorgens,[1] E. Schreibmann,[2] M. Behera,[3] C. Steuer,[4] R. Pillai,[4] T. Owonikoko,[4] J. Shelton,[2] S. Ramalingam,[1] W. Curran,[2] K. Higgins[2] *[1]Emory University School of Medicine, Atlanta, GA/US, [2]Radiation Oncology, Winship Cancer Institute, Emory University, Atlanta, GA/US, [3]Department of Biostatistics and Bioinformatics, Winship Cancer Institute, Emory University, Atlanta, GA/US, [4]Medical Oncology, Winship Cancer Institute, Emory University, Atlanta, GA/US*

Background: In 2017, the PACIFIC study demonstrated improvement in progression free survival, leading to FDA approval for the treatment of unresectable stage III non-small cell lung cancer (NSCLC) that has not progressed following concurrent platinum based chemoradiation (CRT). This study reports on practice patterns during the first year of adaptation of immunotherapy into the treatment paradigm for stage III NSCLC at a NCI designated Comprehensive Cancer Center. **Method:** This retrospective study captured patients (pts) with unresectable NSCLC treated from 09/2017-10/2018 who referred to radiation oncology for definitive treatment. Clinical and treatment characteristics were extracted, including radiation dose parameters and information regarding durvalumab administration. **Result:** 48 pts with locally advanced NSCLC were referred for definitive radiation therapy. 17% were not eligible for concurrent CRT: of these, 6 received 60 Gy hypofractionated radiation alone, and 2 received 60-64 Gy with conventional fractionation. Forty (83%) received concurrent CRT (80% carboplatin/paclitaxel, 10% cisplatin/etoposide, 10% platinum/pemetrexed). Of the patients undergoing CRT, 32% did not go on to receive durvalumab due to the following factors: 25% due to unresolved grade 3 or higher toxicities, 25% due to relative contraindications to immunotherapy, 17% were lost to follow up, 8% due to disease progression, 8% due to active illicit drug use, 8% due to large tumor and potential risk for pneumonitis, and 8% received nivolumab. Twenty-seven (68% of pts receiving CRT, 56% of all referred pts) went on to receive durvalumab after completion of CRT. For these pts, the radiation dose parameters were as follows: median total dose of 60 Gy (range 60-66 Gy), median lung V20 of 22.7% (range 5.4-31.5%), median lung mean dose of 13.9 Gy (range 5.3-19.5 Gy), and median heart mean dose of 12.9 Gy (range .715 — 29.9 Gy). The median time from completion of radiation to start of durvalumab was 36 days (range 11-84). Restaging imaging with CT