**ABSTRACT**

**Title**: Recent increase in survival of stage IV lung cancer patients that attended secondary care at the Liverpool Lung Cancer Unit correlates with increased uptake of oncological treatments

**Authors**: Bashir Matata, Matthew Shaw, Joe Maguire and Martin Ledson

**Background**: Around 32% and 10% of people diagnosed with lung cancer in England and Wales survive their disease for 1 year and five years respectively. Survival for lung cancer is strongly related to the stage of the disease at diagnosis. One-year net survival for lung cancer is highest for patients diagnosed at stage I, and lowest for those diagnosed at stage IV. In 2014, 83% of patients diagnosed at stage I survived their disease for at least one year, versus 17% of patients diagnosed at stage IV. Although at the Liverpool Lung Cancer Unit we consistently diagnose approximately 400 new cases each year with lung cancer, it is not known whether the survival rates and patterns from a city with significant levels of deprivation are consistent with those of the national average.

**Methods**: We conducted a retrospective analysis of data collected over a period of 9 years from patients from Liverpool diagnosed with lung cancer. All analyses were conducted on the entire dataset stratified on the basis of 3-years’ time cohorts (2007-2009; 2010-2012; 2013-2015). Demographic data were analysed and compared using descriptive statistics. Survival analysis was conducted by Kaplan Meier survival plots and log- Rank tests. P-values less than 5% were considered statistically significant.

**Results**: There was no significant change in numbers, gender, age, performance states (PS) and stage over the 3 time cohorts. However, a survival rate of 40% and 16% was observed for 1year and 5 years respectively, which is higher than the national average (Figure 1). In addition, there was an increase in survival for patients diagnosed in the 2013-2015 compared with the other cohorts. Interestingly, only stage IV patients showed significant change in survival for 2013-2015, a pattern that strongly correlated with an increase in oncological treatments from 41% to 57% (p<0.001). The differences in survival for stage IV patients did not relate with any significant change in age, gender and PS.

**Conclusions**: Survival rates for our unit are higher than the national average. A recent change in policy for uptake of oncological treatments for stage IV patients appears to have contributed to the significant increase in survival for these patients.