



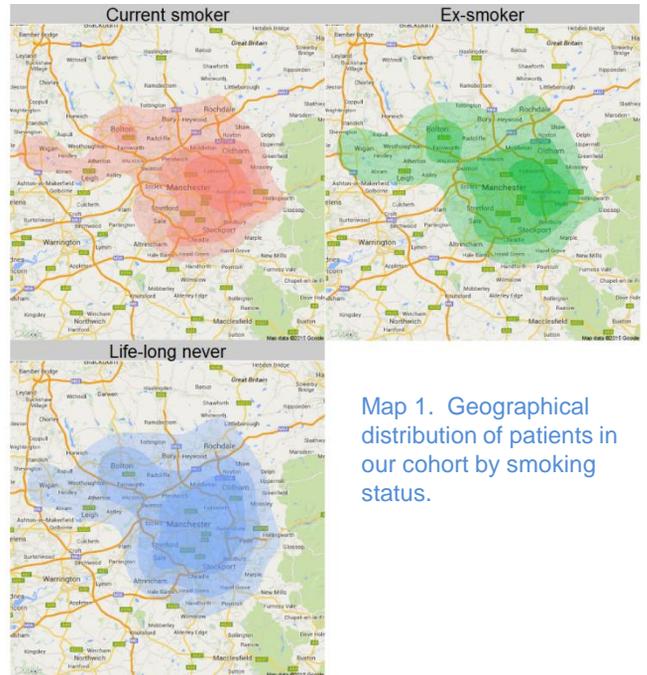
Christie Clinical Outcomes

Smoking prevalence among Christie patients

Smoking and cancer treatments

Evidence suggests that patients who smoke are at increased risk of treatment related adverse events and poorer outcomes compared to non-smokers. Current smokers with prostate cancer receiving radiotherapy treatment are at increased risk of recurrence, metastasis and cancer-related mortality. Current and former smokers, are at an increased risk of long-term genitourinary toxicity following radiotherapy (Steinberger et al 2015). Small cell lung cancer patients who continued to smoke during concurrent chemo-radiotherapy were found to have worse survival rates than those who do not (Videtic et al 2003). Christie clinicians therefore counsel their patients on the risk of continuing to smoke following their cancer diagnosis.

Smoking status is recorded by Christie clinicians, along with diagnosis and demographic information, when a patient is referred for treatment. We analysed smoking status for 4,063 patients first seen at The Christie between January 2013 and March 2015. Approximately half (53%) of the patients we reviewed were male. Median age was 69 years. Our cohort included lung, gynaecological, head and neck, genito-urinary, gastro-intestinal and neuro-endocrine cancers. We reviewed the number of patients who are referred to the Christie who are current or previous smokers. Pack-years is currently recorded for lung cancer and head and neck cancers only.



Map 1. Geographical distribution of patients in our cohort by smoking status.

Smoking prevalence

Within our cohort of patients 31% are current smokers, 51% ex-smokers and 18% have never smoked (Map 1). Males are more likely to be current or ex-smokers (86%) than females (77%) and smoking prevalence varies by cancer type (Fig 1). Patients with lung cancer are more likely to be smokers or ex-smokers than all other cancer types. Within the gastro-intestinal, gynaecological and neuro-endocrine cancer groups over 40% of patients have never smoked.

Pack-years smoked

Pack-years is a measure of how much an individual has smoked over time calculated by multiplying the number of packs of cigarettes smoked per day by the number of years the person has smoked. Pack-years are considered to be an indicator of risk of cancer.

For patients with lung cancer or head and neck cancers in our cohort pack-years ranges from just one pack-year to over 100. Median pack-years smoked is 32. One quarter of the patients smoked more than 50 pack-years (Map 2). Lung cancer patients who are current smokers smoked an average of 50 pack-years (95% CI 48-52). Ex-smokers with lung cancer smoked less (average 38 pack-years; 95% CI 37-39). Among patients with head and neck cancer the average pack-years smoked is 44 (95% CI 39-49) and 38 (95% CI 32-43) for current and ex-smokers respectively.

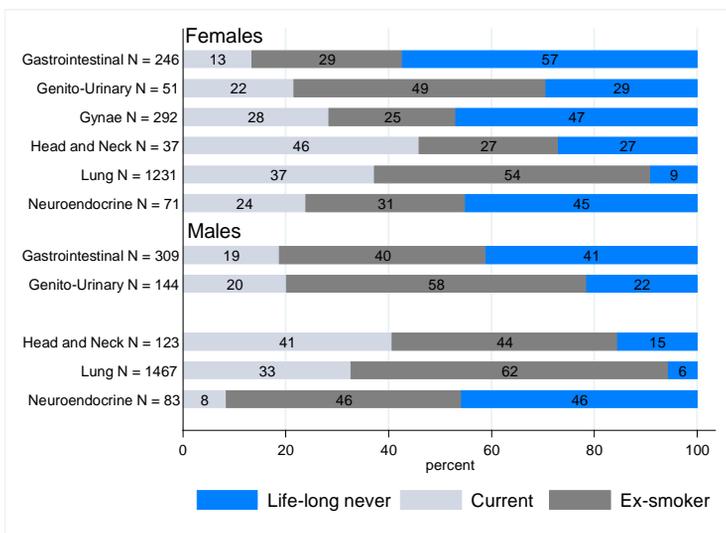


Fig 1. Smoking status by cancer type and gender. Numbers in bars are % patients for each smoking status for that cancer group. N = number of patients.



Map 2. Geographical distribution of pack-years smoked

Among both current smokers and ex-smokers females smoke less than males (Fig 2).

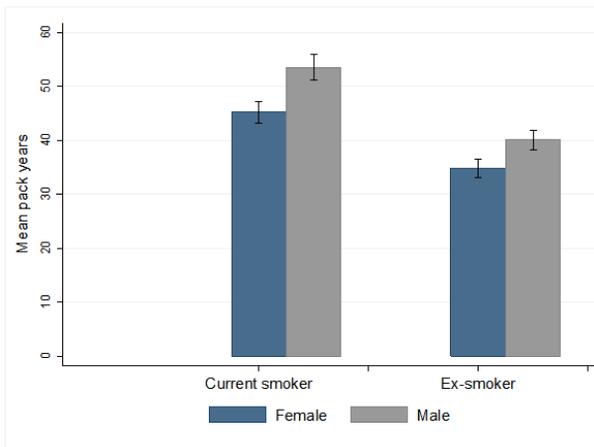


Fig 2. Pack-years smoked by patients with Lung cancer or Head and neck cancer by smoking status

Comorbidities, performance status and smoking

Comorbidities are diseases, other than cancer that patients may have at the same time as their cancer. All Christie patients are assessed for comorbidities on a scale of no comorbidity to severe. In addition all Christie patients are assessed for performance status (ECOG) using a scale of 0 (patient is fully active) to 4 (completely disabled by poor health). Both comorbidity and performance status can impact on treatment and outcome.

Patients in our cohort who were either current or ex smokers are more likely to have a moderate or severe comorbidity than those that never smoked. Ex-smokers are more likely to have moderate or severe comorbidity than current smokers (Fig 3). The probability of having a moderate or severe comorbidity increases with pack-years for both males and females (Fig 4) as does the probability of having a performance status of 2 or higher (Fig 5).

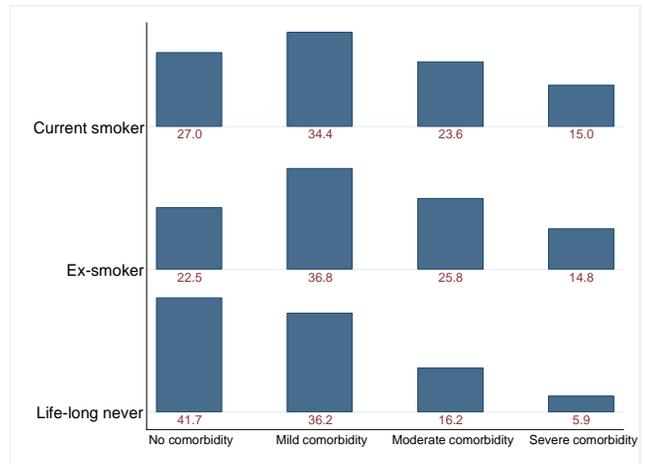


Fig 3. Comorbidity status for patients by smoking status. Numbers are percent of patients in each comorbidity category for each of the smoking status groups

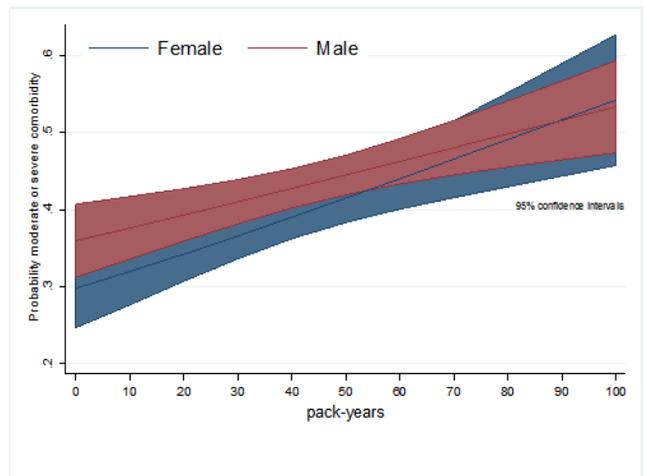


Fig 4. Predicted probability of having a moderate or severe comorbidity for males and females who smoke 0 to 100 pack-years

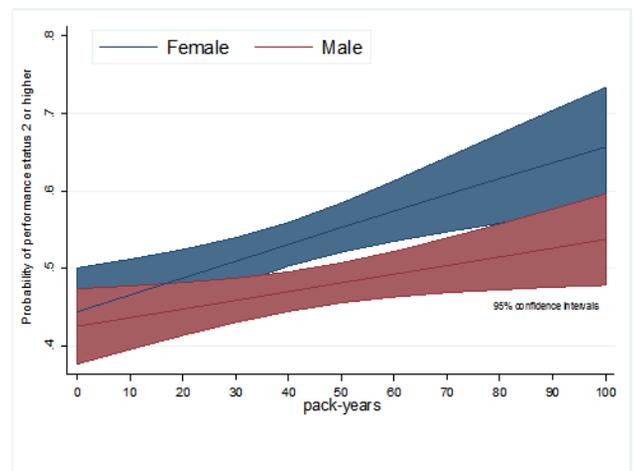


Fig 5. Predicted probability of having a performance status of 2 or higher for males and females who smoke 0 to 100 pack-years