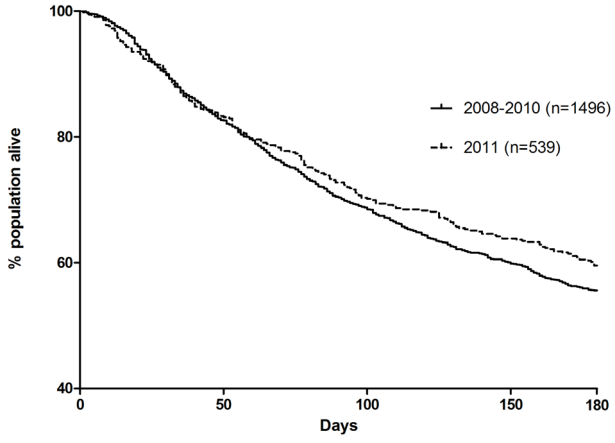
suggest advanced disease at presentation. Patients diagnosed with lung cancer following emergency presentation to hospital have poorer survival than those patients referred to outpatient clinic (1 year survival 9% vs 39% respectively). Leeds has an excess of lung cancer deaths per year compared with the rest of UK, and Leeds Teaching Hospitals NHS Trust (LTHT) sees the highest number of lung cancer cases nationwide.

Methods NHS Leeds and LTHT undertook a 12 month campaign to encourage earlier diagnosis of lung cancer comprising four key elements: a marketing communications campaign, a community education programme, a primary care educational programme, and a self request chest X-ray service. Outcome measures for the intervention year (2011) were compared to historical controls (2008–2010).

Results The number of community-ordered CXRs increased from 18,909 per annum (2008–2010) to 29,278 in 2011 (55% increase, p<0.0001). The 2011 figure includes 2,515 patients who self-referred for CXR. Overall diagnoses of lung cancers rose by 8% in 2011 compared to 2008–2010 (mean±SD 44.9±8.6 vs 41.6±6.4 respectively, p=0.15). There was no significant change in stage of lung cancer or patient performance status at presentation (although the study was not powered to demonstrate this). The proportion of patients diagnosed with lung cancer following emergency presentation reduced from 32.9% (2008–2010) to 27.8% (2011, p=0.035). There was an increase in the proportion of lung cancer patients first seen in the fast-track lung cancer clinic following GP referral or CXR recall (39.3% in 2008–2010 compared to 46.6% in 2011, p=0.02). 180 day mortality (assessed in July 2012) was 44.7% for 2008–2010 and 40.4% in 2011 (p=0.10) and survival curves are shown below. Further mortality data will be available in late 2012.

Conclusion Improvements in survival and a reduction in emergency admissions are likely to reflect increase referral of symptomatic patients for CXR. Further analysis of Cancer Registry survival data will allow comparison with other UK centres over the same time period. No stage or performance status shift was seen.



Abstract S91 Graph 1

S92 RISK FACTORS AND OUTCOME FOR EMERGENCY PRESENTATION IN LUNG CANCER PATIENTS

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[1]P Beckett, [2]R Stanley, [1]I Woolhouse, [3]R Hubbard, [3]L Tata. *[1]Royal College of Physicians, London, England; [2]The Information Centre for healthsocial care, Leeds, England, [3]University of Nottingham, Nottingham, England*

Introduction The National Cancer Intelligence Network recently published an analysis of 226,000 cases of cancer and showed that 23% of all cancers had an emergency presentation as their "route to diagnosis". This figure was higher for lung cancer at 38% with an indication that survival is particularly poor for these patients, but the analysis lacked detailed information on other key clinical characteristics. We have used data from the National Lung Cancer Audit to investigate the characteristics of, and outcomes for, patients with emergency presentation.

Methods We obtained data on 100,884 cases of histologically-confirmed or presumed NSCLC and used multivariate logistic regression to quantify the association of emergency presentation, allowing for age at diagnosis, sex, stage, performance status, co-morbidity and socioeconomic status. Survival was calculated using the Kaplan-Meier method and Cox proportional hazards model.

Results 51% were referred by their GP, 21% by another secondary care consultant, 14% following an emergency admission to hospital, 7% following an emergency presentation to A&E and the remaining 7% by other routes.

A binary variable was created by combining those referred following emergency admission or emergency presentation to A&E ('Acute') and by combining all other cases ('Non-Acute').

Table 1 shows the multivariate odds ratios for acute presentation, demonstrating that higher disease stage and worse performance status are characteristics most associated with an acute presentation.

At 1 year, there were 17,165 deaths in the acute group, leaving 16.3% still alive (median survival 77 days), compared to 49,177 deaths in the non-acute group, leaving 38.8% still alive (median

Abstract S92 Table 1 Multivariate Odds Ratios for Acute Presentation (Mutually adjusted for all other variables in the table)

	OR	CI	p
Male	1	-	-
Female	1.03	0.99–1.07	0.116
<40	1.85	1.41–2.41	<0.001
40–49	1.63	1.44–1.83	<0.001
50–59	1.16	1.08–1.25	<0.001
60–69	1.01	0.96–1.06	0.736
70–79	1	-	-
80–89	1.09	1.02–1.14	0.008
>90	1.68	1.50–1.89	<0.001
Stage IA	1	-	-
Stage IB	1.03	0.89–1.19	0.693
Stage IIA	1.32	1.03–1.68	0.025
Stage IIB	1.25	1.07–1.46	0.006
Stage IIIA	1.27	1.11–1.46	<0.001
Stage IIIB	1.77	1.57–2.01	<0.001
Stage IV	2.28	2.03–2.56	<0.001
Stage Unknown	1.78	1.58–2.01	<0.001
PS 0	1	-	-
PS 1	1.58	1.46–1.70	<0.001
PS 2	2.86	2.64–3.09	<0.001
PS 3	4.93	4.55–5.33	<0.001
PS 4	7.19	6.54–7.91	<0.001
PS Unknown	2.63	2.42–2.85	<0.001
Co-morbidity absent	1	-	-
Co-morbidity present	0.93	0.89–0.98	0.008
IMD Quintile 1 (least deprived)	1	-	-
IMD Quintile 2	1.02	0.96–1.08	0.601
IMD Quintile 3	0.99	0.93–1.06	0.833
IMD Quintile 4	1.09	1.02–1.16	0.007
IMD Quintile 5 (most deprived)	1.06	1.00–1.13	0.059

survival 259 days). The unadjusted hazard ratio for death at 1 year in those with an emergency presentation was 2.2 (95% CI 2.16–2.24, p<0.001), and after adjustment for age, sex, stage, performance status, co-morbidity and socioeconomic status, the corresponding value was 1.56 (95% CI 1.53–1.60, p<0.001).

Conclusions Emergency presentations are associated with poorer outcomes, but they also consume large amounts of healthcare spending which could be better utilised in a rapid and efficient referral and diagnostic pathway. Efforts to better understand the gaps in current service provision that allow so many patients to present so late are long overdue.

S93 COPD AND RISK OF LUNG CANCER: THE IMPORTANCE OF SMOKING AND TIMING OF DIAGNOSIS OF COPD

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[1]HA Powell, [2]B Iyen-Omofoman, [3]DR Baldwin, [2]RB Hubbard, [2]LJ Tata. *[1]Nottingham Respiratory Research Unit, University of Nottingham, Nottingham, UK; [2]Division of Epidemiology and Public Health, University of Nottingham, Nottingham, UK; [3]Nottingham University Hospitals NHS Trust, Nottingham, UK*

Background The majority of cases of both lung cancer and COPD are attributable to cigarette smoking. Some consider COPD to be an independent risk factor for lung cancer, even after accounting for smoking, with estimates of increased risk up to 9-fold in previous studies. We undertook a large case-control study using prospectively collected data which allowed us to quantify this association in the UK population, whilst carefully controlling for smoking and the impact of timing of diagnoses.

Methods We used The Health Improvement Network, a UK general practise database, to identify incident cases of lung cancer and controls matched on age, sex and the practise with which they were registered. Using conditional logistic regression, we assessed the effects of timing of first diagnoses of COPD, pneumonia and asthma on the odds of lung cancer, adjusting for smoking habit and socioeconomic status.

Results Of 11,888 incident cases of lung cancer, 23% had a prior diagnosis of COPD compared with only 6% of the 37,605 controls. The odds of lung cancer in patients who had COPD diagnosed within 6 months of their cancer diagnosis were eleven-fold those of patients without COPD. However, when restricted to earlier COPD diagnoses, with adjustment for smoking, the effect markedly diminished (for COPD diagnoses >10 years before lung cancer diagnosis OR 2.18, 95% CI 1.87–2.54). The pattern was similar for pneumonia (see table). There was some diagnostic overlap between asthma and COPD but analyses which accounted for this produced similar results.

Conclusion The association between COPD and lung cancer is largely explained by smoking habit, strongly dependent on the timing of COPD diagnosis and not specific to COPD. There is, however, an extremely strong unadjusted relationship of both COPD and pneumonia with lung cancer in the 6 months immediately prior to lung cancer diagnosis. This is useful in a clinical context highlighting the need to consider a diagnosis of lung cancer when making new diagnoses of COPD or pneumonia, and supporting the current NICE recommendation that all patients should have a chest radiograph looking for evidence of lung cancer at the time of COPD diagnosis.

S94 STEREOTACTIC RADIOTHERAPY FOR STAGE 1 NON SMALL CELL LUNG CANCER: HOW MUCH OCCULT NODAL DISEASE ARE WE MISSING?

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JM Robson, S Vaidyanathan, MEJ Callister. *St James's University Hospital, Leeds, UK*

Introduction and Objectives Stereotactic Ablative Body Radiotherapy (SABR) has been developed over the last two decades as a

Abstract S93 Table 1 Odds ratios for lung cancer (N=49493, 11,888 cases and 37,605 controls)

		Odds ratio (OR) 95% CI		Adjusted OR* 95% CI	
Smoking	Never	1.00		1.00	
Highest ever recorded	Trivial/light	6.00	5.42–6.65	5.88	5.31–6.52
prior to index date	Moderate	9.67	8.87–10.54	9.33	8.56–10.18
	Heavy/very heavy	15.58	14.35–16.91	14.88	13.71–16.16
	Smoker but unknown quantity	3.48	3.20–3.78	3.44	3.17–3.74
	Missing smoking status	1.79	1.59–2.02	1.76	1.56–1.99
COPD	No diagnosis prior to index date	1.00		1.00	
Interval between	within 6 months	11.47	9.38–14.02	6.81	5.49–8.45
first diagnosis &	6 months up to 1 year	4.76	3.85–5.89	2.52	2.00–3.19
index date	1 year up to 5 years	4.34	3.95–4.78	2.48	2.24–2.75
	5 years up to 10 years	4.83	4.29–5.44	2.68	2.36–3.05
	10 years or more	3.74	3.25–4.31	2.18	1.87–2.54
Pneumonia	No diagnosis prior to index date	1.00		1.00	
Interval between	within 6 months	14.91	11.75–18.94	13.33	10.24–17.35
first diagnosis &	6 months up to 1 year	3.37	2.42–4.70	2.89	1.99–4.18
index date	1 year up to 5 years	2.59	2.22–3.02	2.16	1.82–2.57
	5 years up to 10 years	2.52	2.04–3.10	2.11	1.66–2.67
	10 years or more	1.68	1.35–2.09	1.46	1.15–1.86

OR, Odds ratio. CI, confidence interval. COPD, Chronic obstructive pulmonary disease.
*Adjusted for smoking & Townsend quintile (a measure of socioeconomic status).