only those with non-small cell cancer were more likely to receive a form (16/22 vs 30/78 χ^2=8.1, p=0.004). Only three patients with a clinical diagnosis and three with small cell received forms (both p=NS). Overall median survival was 216 days [IQR 405], with 57 alive at 6 months and 33 at 1-year. Median survival was 193 [268] days for those with DS1500 compared with 224 [458] in the remainder (p=NS), and 31 (57%) of those who died within 6 months did not benefit from early DS1500 status.

Conclusion While the DS1500 use was appropriate, the number identified represented less than a half of those who died within 6 months of presentation, and those with the poorest prognosis (small cell type or a clinical diagnosis) did not benefit the most. It seems we are missing an opportunity to support this unfortunate group of patients at the time of their greatest need.

P159 RATE OF CHEST X-RAYS (CXR) TWELVE MONTHS PRIOR DIAGNOSIS OF LUNG CANCER

doi:10.1136/thoraxjnl-2011-201054c.159

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Introduction UK 5 year survival from lung cancer lags behind other developed nations, and one suggested reason is late stage at diagnosis. Efforts are therefore underway to encourage patients to present earlier to primary care with chest symptoms, and to encourage earlier referral in primary care for CXR or clinic review. Stage at presentation varies between geographical areas, suggesting variability in referral even within UK regions. The reasons underlying this variability are unknown, but one possible explanation could be different patient behaviours or clinical practice in primary care.

Aim To analyse the number of CXRs done 12 months prior to a confirmed diagnosis of lung cancer according to stage at presentation.

Method We reviewed all patients with lung cancer discussed at the Lung MDT between December 2008 and May 2009. Cases of Small Cell Lung Cancer were excluded. The stage (IASLC 6th system), and number of CXRs performed within 12 month prior to diagnosis were recorded. Numbers of CXRs for each group were compared using Kruskal–Wallis test with Dunn's post-test comparison.

Results 223 NSCLC (stage 1 & 2=61, stage 3=61, stage 4=101) and 32 SCLC (limited-12 & extensive-20) were diagnosed. Median, IQR and range of number CXRs in the previous 12 months are displayed in Abstract P159 table 1. Patients presenting with stage IV lung cancer had undergone significantly fewer CXRs in the year prior to diagnosis compared to patients diagnosed with stage I/II lung cancer ($p<0.05$) and those diagnosed with stage III disease ($p<0.05$). There was no significant difference between the stage I/II and stage III disease.

Abstract P159 Table 1

	Median	IQR	Range
I&II (n=61)	2	0–3	0–14
III (n=61)	2	1–3	0–12
IV (n=101)	1	0–2	0–7

Conclusion Patients with late stage disease (Stage IV) appear to have fewer CXRs in the year prior to diagnosis than patients presenting with earlier disease. This may represent a reluctance to seek medical review for persistent respiratory symptoms, or reluctance among GPs to refer for CXR. Ongoing analysis is investigating rates of GP consultation and antibiotic prescription among these patients to try to discriminate between then possible explanations.

P160 TURNING ROUND LUNG CANCER CARE IN LIVERPOOL: A 15-YEAR AUDIT

doi:10.1136/thoraxjnl-2011-201054c.160

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Background Liverpool has the highest incidence of lung cancer in England and Wales, and a citywide audit in 1996 identified significant deficiencies in the secondary care sector management of suspected cases. As a result of this, major reforms were made to benefit the majority of Liverpool residents in 1999, including the collaboration of competing hospitals to provide a unified service, a dedicated one stop rapid access clinic with same-day CT and bronchoscopy facilities, the employment of lung cancer specialist nurses, and parallel clinics for speedy onward referral. We have continued to refine this service, the largest in the region, and wished to compare outcomes to date.

Methods We compared the results of the service at three time points: at the 1996 audit, immediately after the inception of the service in 2001 and in 2010.

Results The results are summarised in the Abstract P160 table 1. In addition by 2010, two thirds had CT and bronchoscopy (6 EBUS) on the same day as their rapid access clinic appointment, and 48 underwent EBUS (mean wait 5 days). The average waiting time for PET scan in 2010 was 10 days.

Abstract P160 Table 1

Year	1996	2001	2010
Total no	123	134	408
Mean time to see chest physician (days)	14.8	4.4	4.0
Number presenting via A&E (%)	67	42.5	38
Proportion undergoing Bronchoscopy (%)	54	85.8	88.7
Average time interval to bronchoscopy (days)	14.6	4.4	1.23
No of patients undergoing staging CT scan (%)	60 (N=74)	83.5 (N=112)	99.2 (N=405)
Histological diagnosis achieved (%)	61 (N=75)	75.3 (N=104)	80.85 (N=330)
Surgical resection rate (%)	6.50 (N=8)	8.20 (N=11)	16.8 (N=69)

Conclusion This study confirms that the care of lung cancer patients in Liverpool has improved since the introduction of these new services, which we encourage other units to emulate.

P161 COMBINED 18F-FDG PET/CT AS PART OF A SURVEILLANCE PROGRAMME OF PATIENTS WITH NEWLY DIAGNOSED PRE-INVASIVE ENDOBRONCHIAL LESIONS DETECTS SYNCHRONOUS LUNG CANCERS

doi:10.1136/thoraxjnl-2011-201054c.161

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Background Patients with bronchial pre-invasive lesions represent a significant management challenge due to the risk of lung cancer both at the site of known dysplasia and at remote sites within their lungs. The role of combined positron emission tomography/CT (PET/CT) in those patients is unknown.

Aims To evaluate the diagnostic and clinical utility of 18F-FDG PET/CT in a surveillance programme for patients with pre-invasive endobronchial lesions. This was defined as the ability of abnormal 18F-FDG uptake to detect invasive bronchial carcinomas adjacent to known pre-invasive lesions or at remote sites in the lung. The

prognostic value of 18F-FDG uptake at dysplasia sites was also assessed with surveillance. Can 18F-FDG uptake predict progression of pre-invasive lesions or cancer elsewhere?

Methods 39 patients with pre-invasive endobronchial lesions underwent 18F-FDG PET/CT examination prior to autofluorescence bronchoscopy. Pre-invasive lesions were classified as either high-grade (carcinoma in situ or severe dysplasia) or low grade (mild to moderate dysplasia). The degree of uptake of 18F-FDG was analysed without knowledge of the bronchoscopic or other clinical findings.

Results 8/39 patients (all with high grade dysplasia) had increased 18F-FDG uptake at known dysplasia sites. Of these 8 patients 1 had surgical resection of invasive carcinoma and two patients were diagnosed and treated as invasive cancer based on imaging and follow-up. Eight patients had 18F-FDG uptake at sites remote from known dysplasia; 2/8 patients had synchronous invasive lung carcinoma (pT1N0M0), 2/8 recurrent cancer in hilar and mediastinal nodes, and 4/8 patients had inflammatory uptake in lung, mediastinal or hilar nodes. During surveillance of up to 3 years, 3/5 patients with positive 18F-FDG uptake developed biopsy proven invasive cancer at site of dysplasia. 3/31 patients with negative 18F-FDG uptake developed invasive cancer at high grade dysplasia sites during surveillance. No low grade lesion showed 18F-FDG uptake or progressed to invasive cancer during surveillance.

Conclusions PET/CT was able to detect early synchronous cancers in patients with pre-invasive endobronchial lesions. PET/CT was also able to detect 18F-FDG uptake in a proportion of patients at known dysplasia sites suggesting adjacent or underlying occult invasive carcinoma.

P162 COMPARISON OF CLINICAL CHARACTERISTICS AND OUTCOMES OF PATIENTS WITH PET POSITIVE VS PET NEGATIVE SOLITARY PULMONARY NODULES MANAGED BY A LUNG MDT

doi:10.1136/thoraxjnl-2011-201054c.162

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Background PET-CT is an important test in the management of patients with solitary pulmonary nodules (SPNs). There is a paucity of data on clinical characteristics, follow-up and outcomes of patients with PET negative nodules as compared to PET positive ones.

Objective To compare the clinical characteristics and outcomes of patients with PET positive vs PET negative SPNs managed by the Lung MDT at a large teaching hospital in North England.

Methods 144 patients (age range 32–92 years, 76 females) with SPNs measuring 8–29 mm discussed at the Lung MDT who had PET-CT scans over a 3 year period between 1st January 2007 and 31st December 2009 were identified retrospectively through the Lung Cancer database. Demographic data, nodule characteristics, MDT decisions, median time to diagnosis, and outcomes were evaluated. We tested for differences in characteristics between patients with PET positive and negative nodules using t test and Mann–Whitney U test for continuous variables, and χ^2 tests or Fisher exact tests as indicated for categorical variables.

Results In comparison to PET positive nodules, PET negative ones were smaller, less likely to be spiculated, more often associated with an MDT decision to follow-up with serial CT scans, less likely to undergo surgical resection or have radical radiotherapy, had a longer median time to diagnosis, and were less likely to be malignant. The overall prevalence of malignancy in patients with PET negative nodules, however (15/41 [36.6%]) was higher than that reported in previous studies. This may be due to the higher prevalence of adenocarcinoma in our series.

Conclusions Significant differences in clinical characteristics and outcomes have been demonstrated between patients with PET positive and PET negative solitary pulmonary nodules. The overall prevalence of malignancy in patients with PET negative nodules (15/41 [36.6%]) was higher than that reported in previous studies.

Abstract P162 Table 1 Comparison of clinical characteristics and outcomes of patients with PET positive and PET negative solitary pulmonary nodules

	PET positive (n=103)	PET negative (n=41)	p Value
Clinical and radiologic			
Age	70.4 (9.2)	69.2 (10.0)	0.506
Male gender	47 (45.6%)	21 (51.2%)	0.367
Smoking history (Current or former)	81 (78.6%)	29 (70.7%)	0.368
Diabetes	7 (6.8%)	4 (9.8%)	0.546
Outline of nodule			0.008
Spiculated	65 (63.1%)	17 (41.5%)	
Lobulated	28 (27.2%)	13 (31.7%)	
Smooth	6 (5.8%)	10 (24.4%)	
Other	4 (3.9%)	1 (2.4%)	
Morphology of nodule			0.794
Solid	89 (86.4%)	33 (80.5%)	
Subsolid	14 (13.6%)	8 (19.5%)	
Pure ground glass	–	–	
Median (range) nodule size (mm)	17.0 (9–28)	13.0 (8–23)	<0.001
Growth on serial CTs/CT and PET			<0.001
Yes	27 (26.2%)	12 (29.3%)	
No	19 (18.4%)	24 (58.5%)	
Data not available	57 (55.3%)	5 (12.2%)	
Outcomes			
MDT decision			<0.001
Histology	81 (78.6%)	8 (19.5%)	
CT follow-up	4 (3.9%)	29 (70.7%)	
Other	18 (17.5%)	4 (9.8%)	
Treatment			<0.001
Surgical resection	58 (56.3%)	12 (29.3%)	
Radical RT	23 (22.3%)	3 (7.3%)	
Other	22 (21.4%)	26 (63.4%)	
Median (range) time to diagnosis (days)	45 (15–721)	145 (6–801)	<0.001
2 year mortality	22 (21.4)	6 (14.6)	0.357
Final diagnosis			<0.001
Lung cancer	82 (79.6%)	11 (26.8%)	
Adenocarcinoma	61	12	
Non-adenocarcinoma	21	1	
Other cancer	9 (8.7%)	4 (9.8%)	
Benign	10 (9.7%)	22 (53.7%)	
Indeterminate	2 (1.9%)	4 (9.8%)	

P163 FACTORS INFLUENCING HISTOLOGICAL CONFIRMATION OF DIAGNOSIS IN LUNG CANCER PATIENTS

doi:10.1136/thoraxjnl-2011-201054c.163

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Background The National Lung Cancer Audit routinely reports to each unit the percentage of their patients who have received histological confirmation of a diagnosis of lung cancer. This could therefore be interpreted as a key performance indicator for a cancer unit. We studied the factors that influenced the rate of histological confirmation of diagnosis in our population.

Methods Data were extracted from our existing lung cancer database from January 2009 to May 2011. Demographics and clinical data were analysed to assess the factors that led to failure of confirmation of histological diagnosis.