were noted for 1 year prior to and 1 year post rehabilitation. Our data showed that there was a 74% reduction in hospital admissions and a 51% reduction in out patient follow-up appointments in the 1-year after pulmonary rehabilitation. Our calculations showed that pulmonary rehabilitation was a cost effective intervention. In an attempt to identify patients who would respond well/poorly to pulmonary rehabilitation we looked at the baseline characteristics of “responders” vs “non responders”.

Responders Mean age 67.4 (range 50–82), mean FEV1 -0.84 (range $0.38-1.6$), (FEV1% -37.2), mean FVC -1.93 (range $0.8-2.96$), (FVC % 64), mean VC -2.08 (range $1.03-3.17$), 54% were male, 46% female, 36% lived alone, mean pack years smoked 36.9 (range 0–80).

Non responders Mean age 68 (range 44–80), mean FEV1 -1.29 (range $0.65-3.11$), (FEV1% -45.9), mean FVC -2.51 (range $0.86-3.65$), (FVC% 79.1), mean VC -2.71 (range $0.98-4.67$), 50% were male, 50% female, 31% lived alone, mean pack years smoked 27.46 (range 1–80). This study raises questions with regard to the importance of current CRDQ assessment in rehabilitation. It also shows that the cost of pulmonary rehabilitation is at least offset by reduction in healthcare utilisation.

Lung cancer: advances in diagnosis and delivery of care

P152 THE NATIONAL LUNG CANCER AUDIT: YEAR 6 COMPLETENESS AND OUTCOMES

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Introduction The National Lung Cancer Audit is run jointly by the Royal College of Physicians and The Information Centre for health and social care, and is commissioned by the Healthcare Quality Improvement Partnership (HQIP). Its development was driven by the realisation that lung cancer outcomes vary widely across the UK and are poor compared to other western countries. The aim of the audit is to facilitate service improvement by recording elements of process and outcomes in lung cancer on a large scale and, using case-mix adjustment, to explain the wide variations noted and improve standards of care. Although several other countries also submit data to the audit, this abstract presents provisional results for England only.

Results In Year 6, participation has again increased and all trusts have now contributed data at some time. Completeness of data on individual cases remains high although it is noteworthy that 18% of cases are submitted without a disease stage and 16% without performance status. This year the results show that the histological confirmation rate has risen substantially to nearly 77%, and 96% of patients have been discussed in an MDT, although the surgical resection and anti-cancer treatment rates have not increased further.

Conclusions Participation remains high and the audit continues to collect data on close to 100% of cases of lung cancer and mesothelioma that present to secondary care. Overall treatment rates seem to have stopped improving, although it is acknowledged that some of the earlier annual improvements reflected improvements in data quality. The rise in HCR is likely to reflect a real change in practice, possibly due to the new found importance of tissue (choice of chemotherapy, use of EGFR antagonists) and possibly due to the focus given to HCR by the audit itself. It is of concern that a significant minority of patients appear to be managed without information on disease stage and PS—key variables needed for appropriate management of patients.

Abstract P152 Table 1

	2005	2006	2007	2008	2009	2010
Data completeness						
Number of cases	10 920	16 922	20 639	25 757	30 158	30 329
PS	66%	77%	80%	87%	88%	84%
Staging	51%	55%	70%	77%	80%	82%
Treatment	66%	72%	79%	82%	89%	89%
Process and outcomes						
Confirmed histological diagnosis	68%	66%	65%	66.7%	69.5%	76.5%
Histology						
NSCLC	44.8%	43.9%	45.5%	52.2%	56%	57%
SCLC	10.3%	10%	9.6%	10.3%	10.5%	10.9%
Mesothelioma	3.7%	3.5%	4.2%	4.4%	5.0%	5.5%
NSCLC NOS rate	—	36%	32%	33.6%	30%	24%
Discussed at MDT?	79%	84.3%	86.8%	88.6%	93.2%	96.1%
Any anti-cancer treatment?	45%	50%	52%	54%	58.9%	58.5%
Overall surgical resection rate	9%	9.4%	10.3%	11.2%	13.9%	13.9%
NSCLC resection rate	13.8%	14.3%	15.2%	16%	19%	18.3%
SCLC chemotherapy rate	57.7%	61.7%	64.5%	63%	66%	65%
1 year survival	35.5%	35.0%	34.6%	34.7%	35.2%	35.8%

P153 MEASURING VARIATION IN DECISION MAKING WITHIN LUNG CANCER MULTIDISCIPLINARY TEAM (MDT) MEETINGS—A PILOT STUDY

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Introduction MDT meetings are now an essential and integral part of lung cancer services but no formal measurement of the variability of decisions made by these teams has been studied. Variation in decision making may be an important factor influencing the UK-wide differences in lung cancer outcomes and survival.¹

Aim The aim of this pilot study was to develop and trial a tool for measuring variation in decision making within MDTs.

Method Seven anonymised clinical cases were provided for discussion with accompanying radiology and histology to 12 MDTs in two regional lung cancer networks. MDTs were asked to provide a comprehensive plan for further investigation (if necessary) and treatment for each case. They were encouraged to specify modality of treatment. Treatment decisions were compared across the participating MDTs and a simple scoring system devised to rate concordance. 10 MDTs provided enough data for analysis. Straight-forward cases were considered by the investigators to have only one clear preferred treatment. Complex cases were less clear cut and

Abstract P153 Table 1 Decisions made by MDTs

Case	Preferred treatment	MDT 1	MDT 2	MDT 3	MDT 4	MDT 5	MDT 6	MDT 7	MDT 8	MDT 9	MDT 10
Straight-forward cases											
1	Surgery	S	S	S	S	S	U	S	U	S	U
2	Palliative	P	P	P	P	P	P	XR	P	P	P
3	Palliative	P	XR	P	P	P	P	P	P	P	P
Complex cases											
4	Radical radiotherapy	P	XR	XR	XR	XR	P	XR	P	P	P
6	Surgery	S	S	S	U	XR	S	S	S	P	P
7	Palliative	P	XR	P	P	P	P	P	P	P	P

S, surgery; XR, radical radiotherapy; P, palliative; U, unspecified.

selected to pose more of a challenge to MDTs. Nevertheless, each of these cases had a pre-defined preferred treatment option.

Results The three cases rated straight-forward produced good agreement between MDTs, (Abstract P153 table 1) for radical vs palliative treatment. More complex cases resulted in less agreement between MDTs. One case (number 5) was excluded from analysis as it was clearly too ambiguous for MDTs to properly assess.

Conclusions We conclude this method to compare decision making by MDTs is a feasible tool. A roll-out is now planned to a further 50 MDTs to document more clearly the variation in decision making UK-wide. Even with this small sample of MDTs for just two Networks, complex cases clearly produce greater variation in the proportion of patients offered radical treatment.

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P154 THE IMPROVING LUNG CANCER OUTCOMES PROJECT: A STUDY OF THE FEASIBILITY OF A NATIONAL RECIPROCAL PEER REVIEW AND FACILITATED QUALITY IMPROVEMENT PROGRAMME

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Background Variation exists in lung cancer outcomes in the UK, which does not appear to be wholly explained by differences in case mix. The Improving Lung Cancer Outcomes Project aims to address this via a 2 year programme of national reciprocal peer review and facilitated quality improvement. We describe the feasibility and acceptability of delivering this programme over the first year.

Methods All NHS trusts in England were invited to take part. Those who agreed were paired on the basis of contrasting results in four headline indicators from the national lung cancer audit. 15 pairs were randomised to the intervention arm and the remaining pairs acted as controls. The intervention group were invited to participate in workshops, reciprocal site visits, patient experience surveys and facilitated quality improvement (QI) work. Evaluation of this activity was performed using anonymous feedback, interviews with participants and observations of programme activities by external researchers.

Results 92 of 156 (59%) trusts agreed to participate. The site visits for the 15 pairs in the intervention arm took 6 months to complete and were attended by a total of 210 MDT members. The visits were seen as supportive yet opened up the possibility of legitimate challenge to existing ways of working. All 30 trusts in the intervention group were represented in the first patient survey, which had an overall response rate of 49%. However returns for individual trusts were low which reduced perceived credibility in some cases. 71 QI plans were submitted by 29 of the 30 trusts. These focused on a range of areas including data collection, diagnostics, and access to clinical nurse specialists. Considerable revision of the QI plans was required to ensure alignment with the overall project aims.

Conclusions We have demonstrated that reciprocal peer review and facilitated quality improvement planning is both feasible and acceptable as part of a national lung cancer improvement project. Organising timely site visits, providing credible patient feedback and maintaining the focus of quality improvement plans is challenging and requires considerable resource. The overall effect of the programme on patient experience and outcomes is awaited with interest.

P155 GP EDUCATION OF THE EARLY SYMPTOMS OF LUNG CANCER: DOES IT IMPROVE OUR EARLIER DIAGNOSIS OR STAGING OF LUNG CANCER?

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Introduction Detection of lung cancer at an earlier stage generally leads to a better prognosis. In the UK, there is a 62-day target from GP referral to cancer treatment; therefore the opportunity to improve earlier detection of lung cancer, in terms of stage, is dependent on earlier "red flag" symptom recognition and referral. We hypothesised that GP education of the early symptoms of lung cancer should lessen time from symptom onset to time seen in the Respiratory outpatients (OPA).

Methods We introduced a health campaign across Essex consisting of GP education and public awareness. Phase 1 involved GP education and phase 2 patient and public education. We compared patients referred with a diagnosis of lung cancer, in one centre in 2010 and 2011 prior to and after GP education, to ascertain if time of onset of symptoms to first attendance at lung cancer OPA improved. Patients who had a diagnosis of lung cancer were entered into a prospective database. Data collected included symptom duration, referral times and staging. GP education comprised of seminars and group visits to the multidisciplinary members in GP practices, as well as provision of information packs. Data were collected by members of the lung cancer team.

Results Data demonstrated no significant difference in mean symptom duration, nor the number of patients being referred at an earlier stage (Abstract P155 table 1). However, there was a 50% increase in the number of GP referrals during the period following intervention.

Conclusions These results demonstrate that GP education has not significantly increased early detection of lung cancer, although it has dramatically increased the number of 2-week referrals, this is noteworthy, since awareness of lung cancer symptoms may have improved in the GP population following education. It may be that targeting the public/patients themselves, will reduce the time of symptom onset to presentation to the medical profession. We will address this in the next phase of our study when we aim the education at the general public. This will help determine the impact

Abstract P155 Table 1 Comparison of data from pre and post GP education

	PRE GP education January–July 2010	POST GP education January–July 2011
Number of 2 week referrals from GPs	140	210
Lung cancer patients referred by GP	77 (55%)	72 (34%)
Mean age and SD	69.8 years ± 10.66	73.1 years ± 9.74
Mean onset of symptoms: (no of patients)		
≤ 3 weeks: mean (n)	1 week (9)	2 weeks (3)
1–6 months: mean (n)	3.2 months (51)	3.2 months (53)
≥ 6 months: mean (n)	13.8 months (4)	11.3 months (3)
Unknown/incidental (n)	(13)	(13)
Stage of NSCLC		
IA	3 (4%)	6 (8%)
IB	3 (4%)	2 (3%)
IIA	4 (5%)	6 (8%)
IIB	3 (4%)	2 (3%)
IIIA	11 (14%)	10 (14%)
IIIB	6 (8%)	3 (4%)
IV	31 (40%)	29 (40%)
Mesothelioma	9 (12%)	4 (6%)
Small cell	7 (9%)	8 (11%)