(1.0%) than never smokers (0.1%) equating to one cancer diagnosis per 101 and 728 CXRs respectively.

Haemoptysis and weight loss had the highest PPVs for months 0–3 and 4–12, although the actual numbers of cancers diagnosed were small. Overall, rates of lung cancer diagnosis between 4 and 12 months were low even in ever-smokers (0.6%). Rates of lung cancer diagnosis between 13 and 24 months were largely similar between symptoms (and remained so with longer follow-up to 48 months – data not shown) and probably reflect background risk in this population.

Conclusions Although PPVs for respiratory symptoms are relatively low, the low cost and harm of CXRs would suggest that a low threshold for CXR especially in ever-smokers remains justified. Investigation with CT instead of CXR for symptoms is likely to expedite diagnosis for some patients currently diagnosed after 3 months, but these data suggest the yield of such a strategy may be relatively low for symptoms other than haemoptysis and possibly weight loss.

S115 IMPROVING CURATIVE-INTENT TREATMENT RATES IN EARLY STAGE LUNG CANCER – RESULTS FROM 775 PATIENTS IN THE NLCA SPOTLIGHT AUDIT

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Background One possible explanation for poor survival in lung cancer patients in the UK is under-utilisation of curative-intent treatment. We carried out a spotlight audit to understand why eligible patients do not receive surgical treatment and whether national guidelines for assessment of early-stage lung cancer were being adhered to.

Methods Details of patients in England with stage I/II NSCLC and a performance status of 0–1 who did not undergo surgical treatment were extracted from the NLCA dataset and used to populate a web-based portal developed in conjunction with the National Cancer Registration and Analysis Service (NCRAS). Trusts were invited to populate their cases with additional data.

Results 82 of 142 trusts in England took part in the audit and data on 775 patients was suitable for analysis (67% stage I and 33% stage II). 46% of patients did receive treatment with curative intent in the form of SABR or radical radiotherapy (including CHART). 8% received other anti-cancer therapy, and 46% received best supportive care. As expected, age over 75 independently predicted best supportive care, even after other factors associated with age (such as co-morbidity and PS) are taken into account.

31% of patients did not have surgery owing to patient choice and, of these, 66% preferred SABR or other radical radiotherapy, while the remainder elected for no treatment.

Only 2% of patients had a second surgical opinion, 14% had a CPEX, 34% had an echocardiogram and 11% had a V/Q scan. Very few patients had a shuttle walk test, or had thoracoscore or a formal cardiac risk assessed.

1 year survival for patients having best supportive care was 37%, for SABR it was 67%, for radical radiotherapy it was 45% and for those undergoing palliative radiotherapy was 27%. After adjustment for age, PS, stage, deprivation index and comorbidity index (ACE-27), both SABR and radical radiotherapy improved survival compared with best supportive care.

Conclusions Although nearly half the patients did receive an alternative treatment with curative intent, patient choice is a common reason for not receiving surgery. It is crucial that patients are assessed according to best practice and that information about their options is delivered and discussed appropriately.

S116 THE IMPACT OF HOSPITAL RESOURCES AND ORGANISATION OF CARE ON PATIENT OUTCOME: A SYSTEMATIC REVIEW AND APPLICATION TO LUNG CANCER PATHWAYS

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Introduction National cancer audit data consistently report variation in care and outcomes which is not entirely explained by case mix. The organisation and delivery of healthcare services has been hypothesised to be a contributing factor. We collate the evidence on the impact of service delivery on patient outcomes and apply our findings to lung cancer pathways.

Methods A narrative synthesis was conducted of eligible studies using standard review methodology. (PROSPERO: CRD42017074510). Included studies investigated a component of service delivery and related this to patient outcomes. After identification of themes, each theme was searched with the term 'Lung cancer'. Risk of bias was assessed appropriately.

Absatrct S116 Table 1 Summary table of outcomes of included studies

		ASSOCIATION			
THEME	Disease Area	Survival	Treatment rates	Patient reported outcomes	Reduced healthcare utilisation
INCREASED STAFF/BED	COPD	+	+	NR	+
	All hospital admissions	+	NR	NR	NR
	AAA	+	NR	NR	NR
	Lung Cancer	NR	+	+	NR
SPECIALIST CARE	Surgical procedures	+	NR	NR	NR
	Stroke units	+	NR	+	+
	Lung Cancer	+	+	+	+
CO-ORDINATION OF CARE	Cancer	NR	NR	NA	NA
	Acute care	NA	NR	NR	NA
	Elderly care	NA	NR	NA	+
	Lung Cancer	NA	+	+	NR
CLINICAL PATHWAYS	All hospital patients	NA	NR	+	+
RECORD KEEPING	All patients in hospital, primary care or community	NA	NA	+	+
USE OF TECHNOLOGY	Heart failure	NA	NR	+	NR
	Diabetes	NR	+	NR	NR
	Lung Cancer	NR	+	NR	NR
HOME CARE	Cataract surgery	NR	NA	NA	NA

Results Fifteen studies, of which 9 were Cochrane reviews, were included. The following themes were identified: staff workload, specialist care, coordination of care, use of technology, home care and clinical pathways. Six out of 11 studies found an association between hospital resources and organisation of care on survival. All six advocated greater provision of specialist staff/units. Evidence in the lung cancer literature demonstrating a link with survival is limited. A stronger association is found between improved active treatment rates and increased access to specialist care achieved through the formation of specialist centres.

Conclusion Review of the medical literature highlight key organisational themes that impact patient outcomes. Applying these themes to lung cancer pathways reveals the change in health service design most likely to improve patient outcomes is the delivery of adequate specialist staff with dedicated time to provide care in specialist centres or with a hub and spoke model.

S117 RISK OF SECOND AND HIGHER ORDER SMOKING-RELATED PRIMARY CANCERS FOLLOWING LUNG CANCER: A POPULATION-BASED COHORT STUDY

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10.1136/thorax-2018-212555.123

Background Five-year survival from lung cancer has doubled over the last fifteen years leading to an increasing number of survivors being diagnosed with second smoking-related primary cancers. However, exact quantification of such risk over time is lacking. We describe the incidence of second or higher order smoking-related primary cancers in lung cancer survivors, to determine high-risk groups and how risk changes over time.

Design and setting Data on all smoking-related primary cancers (lung, laryngeal, head and neck, oesophageal squamous carcinoma and bladder) diagnosed in England between 2000 and 2014 was obtained from Public Health England National Cancer Registration and Analysis Service. We calculated absolute incidence rates and standardised incidence rate ratios, both overall and for various sub-groups of second primary cancer for up to 10 years from initial diagnosis of lung cancer, using Poisson regression.

Results Lung cancer survivors are at substantially increased risk of smoking-related second primary cancers. Elevated risk persists for at least ten years from first lung cancer diagnosis with those aged 50 and 79 at first lung cancer diagnosis at particularly high risk. The most frequent type of second malignancy was lung cancer (1460 of 2313 total diagnoses in 6 months to ten years after first primary), although the highest standardised incidence rate ratios were for oesophageal squamous carcinoma (2.4) and laryngeal cancers (2.8). The standardised incidence rate ratio for second primary cancer was consistently higher in women than in men. The standardised incidence rate ratio for women aged 60–59 was 3.8 at five years. Between 2000 and 2014 the risk of developing a second primary lung cancer has doubled.

Conclusion Lung cancer survivors are at increased risk of subsequent lung, laryngeal, head and neck and oesophageal squamous cell carcinoma. Increased risk persists for at least a decade from first primary lung cancer diagnosis. To improve outcomes, consideration should be given to increasing routine follow-up from 5 years to 10 years for those at highest risk, alongside surveillance for other smoking-related cancers.

Improving outcomes for patients with pulmonary hypertension

S118 CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH) – IS IT CHRONICALLY UNDERDIAGNOSED?

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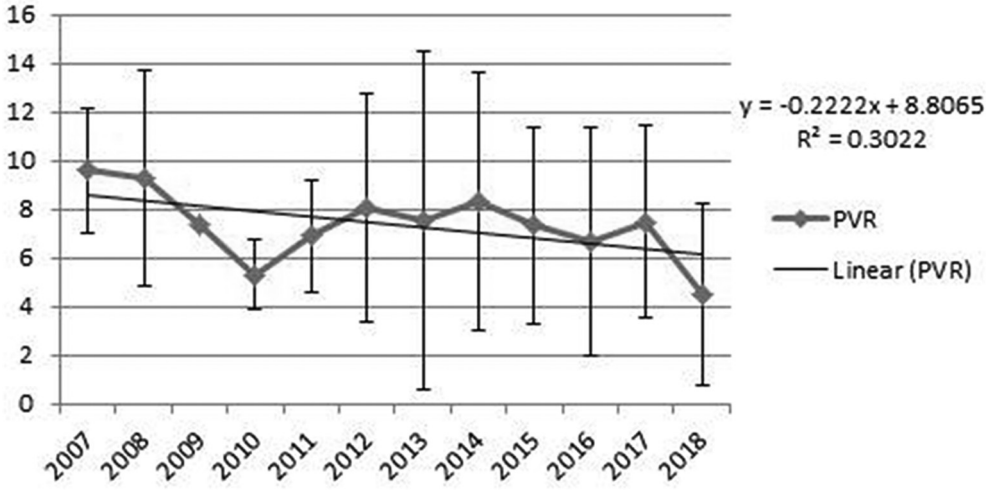
Introduction Chronic Thromboembolic Pulmonary Hypertension (CTEPH) is a potentially curable form of Pulmonary Hypertension (PH), thought to develop as a rare complication of acute pulmonary embolic disease. Although treatable, it is



Abstract S118 Figure 1 PVR