overall hospitalisation of patients with COPD. This fits with the National COPD Resources and Outcomes Project (NCROP) audit observation that only 142/239 (59%) Trusts operated early discharge policies.

Total bed days per patient may be a useful indicator of the combined hospital and community quality of care for patients with COPD.

S133 JOINED UP THINKING: CONCEPT OF A LUNG/RHEUMATOLOGY MDT IN A DGH SETTING

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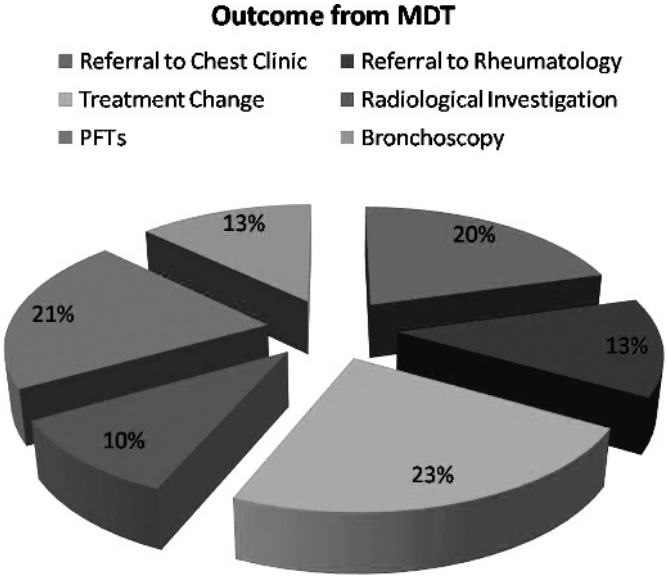
doi:10.1136/thx.2009.127100c

Introduction and Objectives The benefits from delivering healthcare in a coordinated multidisciplinary team (MDT) have long been established in the treatment of cancer. These expert forums allow for the provision of the most up-to-date and relevant treatment options for individual patients. Connective tissue diseases (CTDs) are a group of complex multisystem disorders that often affect the lung. Both rheumatologists and pulmonologists can find treating these diseases in isolation difficult and challenging. We have taken a novel MDT approach involving expertise from a wide variety of disciplines including pulmonology, rheumatology, pharmacy, physiology, immunology and radiology to improve the treatment of these patients.

Method Regular 2 monthly MDTs were organised over a 12-month period and patients were discussed, with their radiology, physiology and immunology also presented. The cohort of patients included those suffering from CTDs with pulmonary complications as well as patients with primary pulmonary pathology with either clinical or immunological features suggesting an underlying CTD. There was also an overlap group of patients who were under investigation for the pulmonary complications of immunosuppressive medication.

Results The demographic data demonstrate that 22 patients (17 female, 5 male) were discussed over an 12-month period. The most common reason for presentation was the pulmonary complications of rheumatoid arthritis (n = 9). Other diseases included pulmonary complications of scleroderma (n = 5), sarcoidosis (n = 3) and the other CTDs including Wegner granulomatosis (n = 5). The outcomes of the MDT (see fig 1) were direct cross-referral from Rheumatology to Chest clinic (n = 8) and vice versa (n = 5). Changes in treatment included escalation of immunosuppressant (n = 9). Other outcomes included further referral to diagnostics (radiology, n = 4), pulmonary function (n = 8) or for bronchoscopic procedures including transbronchial biopsy (n = 5).



Abstract S133 Figure 1 MDT, multidisciplinary team; PFT, pulmonary function tests.

Conclusion Traditionally patient care is centred on distinct specialties working in isolated silos. CTDs par excellence are a group of disorders that defy this model and by their nature demand a more universal approach. We have demonstrated that by coordinating healthcare provision through an MDT model and bringing distinct specialties together, patient care is improved. We propose this model should be adopted in both tertiary institutions and District General Hospitals.

S134 A STORY WITH NO BEGINNING AND AN ILL-DEFINED END: A SERIAL QUALITATIVE STUDY OF END-STAGE COPD

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doi:10.1136/thx.2009.127100d

Background Palliative care services are extending to meet the needs of people with non-malignant disease, often extrapolating models of care originally designed to meet the needs of patients dying with cancer.

Methods We undertook serial in-depth interviews with people with severe chronic obstructive pulmonary disease (COPD) and their nominated informal and professional carers to identify the end-of-life needs in the context of the story of their illness. Interviews were transcribed and analysed using thematic and narrative analysis.

Results 21 patients, 12 carers and 16 professionals provided a total of 82 interviews over 18 months. 11 patients died during the study. In contrast to cancer narratives, the ''story'' of people with COPD lacked a clear beginning, was impossible to distinguish from their life story and had an ill-defined unpredictable end. Severe symptoms causing major disruption to normal life were described, but often in terms implying acceptance of the situation as a ''way of life'' rather than an ''illness''. Deprived social circumstances, which many patients seemed unable to influence, contributed substantially to suffering. The insidious progression of symptoms due to a lifetime of smoking made it impossible for patients to describe the beginning of their COPD, and contributed to clinicians' difficulty defining end-stage disease and the point of transition to palliative care.

Conclusion Acceptance of COPD as ''a way of life'' by patients has important implications for clinical care. The policy focus on identifying a time point for inclusion on a palliative care register has little resonance for people with COPD or their clinicians, and is potentially counterproductive if it distracts from early provision of supportive care.

Funding: Chief Scientist's Office, Scottish Government. HP is supported by a PCRCA from the Chief Scientist's Office, Scottish Government

Thoracic surgery and transplantation

S135 10-YEAR SURVIVAL FOR ROUTINE LUNG CANCER RESECTION BY A MINIMALLY INVASIVE ANTERIOR APPROACH: COMPARISON WITH OPEN STANDARD THORACOTOMY

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doi:10.1136/thx.2009.127100e

Objectives Does a minimally invasive approach (MI) for routine lung cancer resection offer similar 10-year survival to standard

thoracotomy (ST)? We attempt to compare the two techniques, for which there are no long-term studies.

Methods All patients undergoing lung resection with curative intent for primary lung cancer between July 1998 and October 2008 primarily by a single surgical team were included. Surgical access was obtained through a mini 5–6 cm anterior thoracotomy with video assistance and direct visualisation. Follow-up was through a prospective lung cancer registry, PAS and NHS records. Univariate and Cox proportional hazards regression were used to identify independent predictors of late survival and the Kaplan–Meier product for actuarial survival.

Results 207 MI patients (81%) included 11 pneumonectomies and 3 sleeve resections. 50 ST patients (19%) included 5 pneumonectomies and 1 sleeve. All 257 had full lymph node resections. In-hospital mortality was 1.6%; conversion to an open procedure was 1.9%. Univariate analysis suggested that N2 disease ($p = 0.02$) and cancer stage ($p = 0.03$) were significant potential predictors of survival. Multivariate analysis showed stage III to be the significant independent predictor with hazard ratio 3.16 (1.36–7.36). There was no significant effect on survival for sex, histology, T3/4 status or incision type: 1.047 (0.62–1.75). Kaplan–Meier showed that survival differed significantly for stage I+II cancers, 73 ± 4 months compared with stage III 51 ± 7 months, with log rank χ^2 of 5.1 and $p = 0.024$.

Conclusions 10-year survival for non-selected routine lung cancer resection relates to staging and not to the minimal access approach, which can be applied to 80% of resectable primary lung cancers.

S136 IDENTIFYING RISK FACTORS FOR RESCUE MINI-TRACHEOSTOMY: SHOULD PATIENTS WITH COPD AND/OR OVER THE AGE OF 75 UNDERGOING LUNG RESECTION RECEIVE ONE PROPHYLACTICALLY?

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doi:10.1136/thx.2009.127100f

Postoperative pulmonary complications (PPCs) following lung resection have significant clinical and economic impact. Mini-tracheostomy (MT) is used to treat sputum retention and so reduce PPCs. The primary objective of this study was to determine any independent factors associated with the need for rescue mini-tracheostomy (RM) and prophylactic mini-tracheostomy (PM). The secondary objective was to observe the outcome of patients requiring MT.

Methods From May 2008 to July 2009, 271 consecutive patients underwent thoracotomy for planned lung resection. Data were collected prospectively regarding MT insertion, PPCs, length of stay (LOS) and high dependency unit (HDU) admission. Univariate analysis was used to test differences in outcome, and binary logistic regression to determine independent risk factors associated with RM and PM ($p<0.05$).

Results There were 150 males (55%). Mean age was 65 (± 12) years and mean forced expiratory volume in 1 s (FEV_1) was 77% (± 19). Forty-four patients underwent MT (16%) of which 24 were inserted prophylactically (PM), based on the surgeon's perioperative clinical assessment. Twenty patients with sputum retention had RM during the subsequent postoperative period. Age >75 years (odds ratio (OR) 2.9, CI 1.0 to 9.0) and chronic obstructive pulmonary disease (COPD; OR 4.1, CI 1.2 to 13.3) were independently associated with need for RM on multivariate analysis, and characterised 75% of the RM group. There was a significantly increased LOS, HDU stay and rate of PPCs in the RM group compared with patients not requiring MT and compared with the PM group ($p<0.05$). Age >75 years (OR 4.6 CI 1.7 to 12.3) and COPD (OR 3.7 CI 1.3 to 10.5) were also independently associated with PM. If all patients with COPD and/or those over the age of 75 ($n = 95$) received PM, 75% of RM ($n = 15$) could have been avoided in this patient population. Only minor complications of MT were noted in 2 patients (surgical emphysema, hoarseness of voice).

Conclusion Age >75 years and COPD were independently associated with the need for MT. RM is associated with significantly worse outcome, but PM in high risk patients has been shown to improve outcome. In our study, if all patients >75 years and/or with COPD received a PM, 6 would have to be performed to prevent 1 RM.

S137 DEBRIDEMENT ALONE WITHOUT DECORTICATION CAN ACHIEVE LUNG RE-EXPANSION IN PATIENTS WITH EMPYEMA: AN OBSERVATIONAL STUDY

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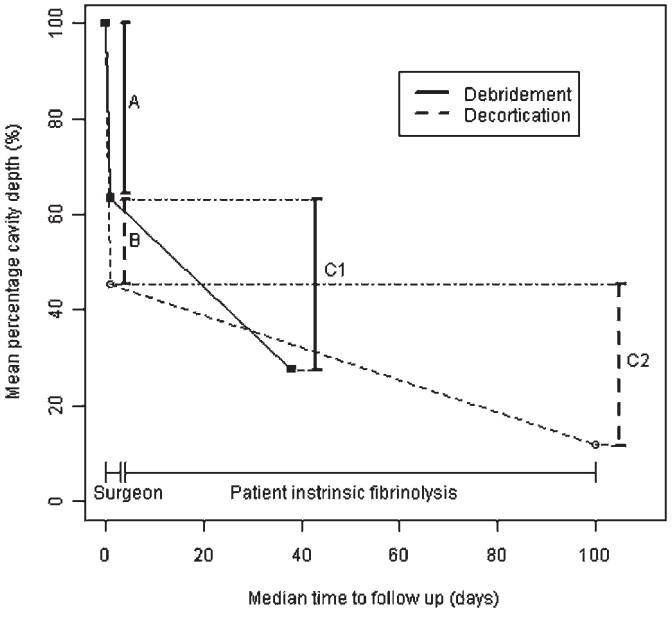
doi:10.1136/thx.2009.127100g

Decortication is widely performed for empyema, but the effectiveness in achieving lung re-expansion has never been formally reported. The aim of this study is to quantify the degree of lung re-expansion in comparison with that achieved naturally after debridement alone.

Methods A retrospective review of patients who underwent either decortication or debridement for empyema between 2007 and 2009. The change of the cavity size with time was standardised and recorded before surgery, immediately after surgery and on follow-up. Differences were expressed as mean percentage change, and multivariable regression was used to compare the adjusted differences with time.

Results Of 25 patients who underwent surgical management of empyema, 16 (64%) underwent debridement alone and 9 (36%) underwent decortication. The mean age (SD) was 58 (19) years and 15 (60%) were men. There was immediate reduction in cavity depth in the debridement alone group by 36% and a further 18% reduction achieved in the decortication group. On radiological follow-up at a median (interquartile range (IQR)) of 45 (36–116) days, further reduction of 36% and 34% was achieved, leaving 27% and 12% of the original cavity size in the debridement and decortication groups, respectively. Procedure (debridement or decortication) was not associated with any difference in the eventual follow-up cavity size ($p = 0.937$).



Abstract S137 Figure 1.

Conclusions Resolution of an empyema collection and cavity occurs immediately after surgery, and continues in the postoperative period. Similar follow-up results were achieved by debridement alone without decortication in patients presenting with empyema despite the presence of an underlying trapped lung.

S138 RECOVERY OF CALCINEURIN INHIBITOR-RELATED NEPHROTOXICITY WITH SIROLIMUS AFTER LUNG TRANSPLANTATION

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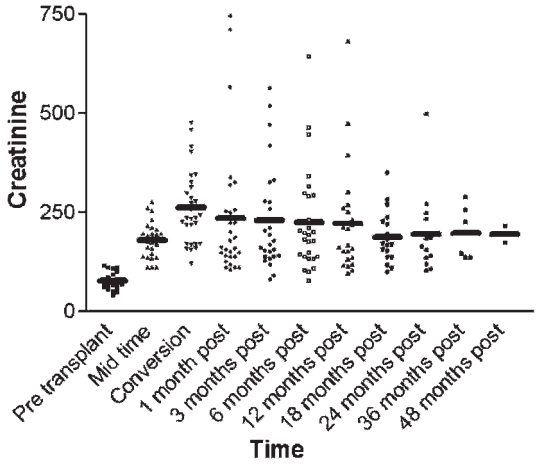
doi:10.1136/thx.2009.127100h

Introduction and Objectives Calcineurin inhibitor (CNI)-based immunosuppression regimens have contributed to the success of lung transplants by reducing early immunological injury and acute rejection rates. However, CNI-induced renal injury is a significant problem, with 16.5% of all non-renal transplant recipients having chronic renal failure at 36 months. Withdrawal of the CNI is a potential mechanism to prevent further damage. Sirolimus is a macrolide immunosuppressant with little impact on renal function. It inhibits T lymphocyte activation and proliferation, and antibody production. We report the medium term outcomes following institution of a ''renal-sparing'' protocol involving withdrawal of the CNI and replacement with sirolimus.
Methods Retrospective data were obtained on 29 lung transplant recipients with CNI nephrotoxicity who were converted to sirolimus between 1990 and 2008. Creatinine levels were followed up at regular intervals or until sirolimus was discontinued. Infective and rejection episodes per year were observed.
Results CNIs were withdrawn in 27 patients (93%), tapered in 1 patient and continued in 1 patient at a low dose due to an ABO mismatch transplant. Steroid cover with prednisolone was given in 23 patients until therapeutic sirolimus levels were obtained (5–10 ng/ml). All patients continued or were commenced on mycophenolate. Mean serum creatinine at conversion was 260 ± 94 μmol/l compared with 77 ± 20 μmol/l pretransplant. A switch to sirolimus showed a decrease in serum creatinine (fig 1) at 12 months ($n = 24$ $p<0.05$ Cr -31 μmol/l) and 24 months ($n = 14$ $p<0.05$ Cr -65 μmol/l). Our longest period of follow-up was at 48 months ($n = 2$ $p<0.05$ Cr -65 μmol/l) where the benefit of sirolimus was still maintained. The creatinine of nine patients remained unchanged and thus sirolimus was discontinued due to the need for renal transplantation/haemodialysis. Rates of infection and rejection were the same preconversion and postconversion to sirolimus (<1 episode/year). However, there were twice as many fungal infections postconversion to sirolimus. Treatment was well tolerated.



Abstract S138 Figure 1.

Conclusions Conversion to a sirolimus-based immunosuppression regimen can allow for stabilisation of renal function in the mid and long term, as well as some renal recovery in lung transplant patients with CNI nephrotoxicity.

S139 AN AUDIT OF SURVEILLANCE BRONCHOSCOPY IN LUNG TRANSPLANT RECIPIENTS

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doi:10.1136/thx.2009.127100i

Introduction Acute allograft rejection (AR) is the most important risk for obliterative bronchiolitis (OB) in lung transplant recipients (LTRs). Transbronchial lung biopsy (TBBx) is the gold standard for distinguishing AR from infections. Opinion is divided between surveillance bronchoscopy (SB) and clinically indicated bronchoscopy (CIB) as the procedure is not without risk.
Method We audited our current practice for SB performed in the year 2008. According to the unit guideline, SB and TBBx are performed at week 3, 6 and 12 after transplantation. The audit was designed to look at the adequacy of TBBx samples, microbiology results and complications.
Results A total of 28 transplants were performed in 2008 which included 25 (89%) bilateral lung transplants, 2 (7%) heart–lung transplant and 1 (3%) single lung transplant. 74 bronchoscopies and TBBx were performed besides CIB, depending on the patient's clinical conditions. Results of only SB were reviewed. Reportable adequacy of TBBx samples was obtained in 65 (88%) patients. Adequacy was low in the first biopsy, 20/27 (74%), as compared with the second, 26/27(96%), and third, 19/20 (95%). There were 7 (10%) A1 rejections and 9 (13%) A2 rejections. Bacteriology was positive in 29/74 (39%) samples, mycology in 4/74 (7%) and virology positive in 1/74 (1%). *Pseudomonas* was the most common isolate, 16/74 (22%), and *Aspergillus* was isolated on 4/74 (5%) occasions. One of 74 samples was positive for Epstein–Barr virus and metapneumovirus. Two of 74 (3%) patients had pneumothorax. No pneumothorax required chest drain. There was no major bleeding requiring blood transfusion or intubations and there was no mortality as a result of SB.
Conclusion SB has a high yield of diagnosing asymptomatic AR and infections in LTRs. The risk of serious complications is low. Identification and treatment of asymptomatic rejection may prove beneficial in preventing OB and we believe the low risk of TBBx with high yield makes this a beneficial approach.

Managing the airway defect in cystic fibrosis

S140 TOWARDS GENE THERAPY FOR CYSTIC FIBROSIS USING A LENTIVIRUS PSEUDOTYPED WITH SENDAI VIRUS ENVELOPES

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doi:10.1136/thx.2009.127100j

Gene therapy for cystic fibrosis (CF) is making encouraging progress into clinical trials. However, further improvements in transduction efficiency are desired. To develop a novel gene transfer vector that is improved and truly effective for CF gene therapy, a simian immunodeficiency virus (SIV) was pseudotyped with envelope proteins from Sendai virus (SeV), which is known to transduce unconditioned airway epithelial cells efficiently from the apical side. This novel vector was evaluated in vivo and in vitro directed