## 400. A little bit of everything: interventional pneumology

**P3700**
**Role of medical thoracoscopy in a developing country: A single unit experience from Sri Lanka**
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**Introduction:** Medical thoracoscopy (MT) is proven as an effective tool in managing pleural disease, but is scarcely available in resource poor environments.
**Objective:** To describe the utility and safety of MT in managing exudative pleural effusions in the local settieng.
**Method:** We descriptively analyzed 96 MTs performed during past year in our unit.
**Results:** 8 MTs failed due to non-collapsible lung (6) and poor patient compliance (2). Of the 88 where visualisation of pleural cavity was possible,51 had septate fibro-purulent exudate and 20 had non purulent exudate. Haemorrhagic effussion was seen in 15, while 2 had food particles in the cavity.
Inaddition to biopsies taken from parietal pleura, 36 had abnormal pleural nodules out of which 27 were were amenable for biopsy.
In 56, previous diagnostic procedures had failed to arrive at a specific diagnosis.We diagnosed pleural tuberculosis (38), empyema (28), malignant pleural deposits (19), oesophageal rupture (2) and chylothorax (1) in the cohort. During the diagnostic process 7 had to undergo repeat MT. Therapeutic lavage of the pleural cavity was performed where relevant, while 47 underwent adhesiolysis.MT based pleurodesis was not done.
Pain at incision site (62), persistant discharge (12) and infection (3) at entry site were the common complications noted. Post procedure empyema, visceral organ damage or MT related deaths were not encountered.
**Conclusion:** With MT, we were able to diagnose many previously delayed pleural diseases of different aetiologies, with minimum post procedure complications. MT served as a safe and effective diagnostic tool in our establishment. Therapeutic use should be enhanced to include MT based pleurodesis.

**P3701**
**Thoracoscopic palliative treatment of malignant pleural effusions**
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The aim of this study was to analyze the results of pleurodesis for malignant pleural effusion.
**Methods:** We performed retrospectively study on 743 thoracoscopies for malignant effusions done in our clinic in the period January 2001 and December 2010. There were 336 males (45.2%) and 407 females (54.8%), ranging in age from 18 to 81 years (mean age: 59.4 years). The effusion was on the right side in 379 patients (51%), on the left side in 308 (41.5%), and bilateral in 56 (7.5%). Straw colored effusions were present in 423 cases (57%) and hemorrhagic in 320 cases (43%). The surgical procedure consist in diagnostic of thoracoscopy with drainage of pleural effusion, multiply pleural biopsy, pleurodesis and continuous pleural drainage. In our study, the talc powder (5g) was successfully as sclerosing agent.
**Results:** There was no intraoperative mortality. The primary tumor was: lung- 248 (33.4%), breast-218 (29.4%), mesothelioma-126 (17%), stomach-18, ovarian-24, prostate-9, colon-15, lymphoma-12, leukemia-9, plasmocytoma-4 and unknown primary tumor in 60 cases (8%). Adverse effects included-chest pain-252 cases (34%), fever-135 cases (18%), empyema-27cases, prolonged air leak -24 cases, pulmonary infection-6 cases, acute respiratory failure-5 case, malignant invasion of scar-3 patient. Duration of postoperative pleural drainage ranged between 2 and 10 days (mean: 3.23 days). The postoperative hospital stay ranged from 2 to 21 days (mean: 3.4 days). The results were very good in 654 patients (88%), acceptable in 71 patients (9.6%), and there was a failure in 18 patients (2.4%) after 1 month-follow-up.
**Conclusions:** Thoracoscopic talc pleurodesis is a safe, economical and effective treatment for malignant pleural effusion.

**P3702**
**Classification of findings during medical thoracoscopy: Do they correlate with pathology?**
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Medical thoracoscopy although not always conclusive, has been established as the last step in the diagnostic approach of chronic pleurisy. We aimed to assess its diagnostic value and classify endoscopic findings in correlation with histology diagnosis.
During the last 5 years, 69 patients (55 males) aged 66±14 (mean±st.dev) underwent medical thoracoscopy in our unit for an undiagnosed exudative pleural effusion following extensive workup. Pleural biopsy revealed malignant pleural mesothelioma (MPM) of various subtypes in 16 (23.2%), non small cell lung cancer (NSCLC) in 9 (13%), extrathoracic malignancy in 3, pleural tuberculosis in 3, paramalignant effusion in 2, angiosarcoma in 2 and Non-Hodgkin lymphoma in 1 patient. In 33 cases (47.8%) biopsy revealed chronic inflammation or "non specific pleurisy".
Endoscopic findings were classified as: pleural thickening, bulging, nodules, adhesions, diffuse infiltration, pleural masses, plaques, hemorrhagic appearance, visceral pleura invasion, pulmonary atelectasis. No significant correlations were found between endoscopic and pathology findings. However, parietal pleural mass had a trend of positive correlation with NSCLC (kappa=0.415, p=0.001) and a trend of inverse correlation with non specific pleurisy (kappa -0.35, p=0.001).
Medical thoracoscopy enabled specific diagnoses in more than 50% of prior undiagnosed cases in which all other means had been exhausted. High incidence of MPM in our patients is worth noting. The rest (47.8%) of the cases with non specific findings are continuously under follow up for a possible relapse or change in diagnosis. Endoscopic findings cannot predict final histology which remains the cornerstone of diagnosis.

**P3703**
**Use of indwelling pleural catheters for management of recurrent chylothorases secondary to benign superior vena cava syndrome: A case report**
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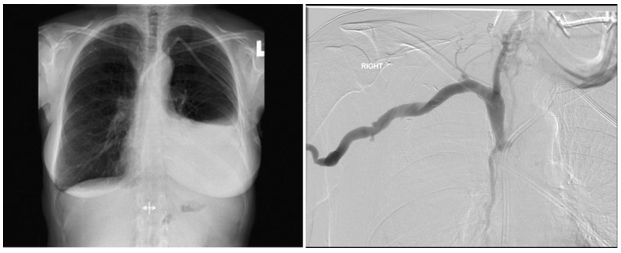
We describe a unique case of intravascular (Hickman[c]) catheter-induced chylothoraces.
They were treated with conservative measures and bilateral indwelling pleural catheters (PleurX[c]) insertion. The uniqueness of this case is that chylothorax re-appeared after re-institution of the patient diet, despite removal of the Port-



A-Cath. The chylothorax was shown on the subsequent chest reontographs on either side or both sides at different times. By reviewing the literature, PleurX[c] has a limited use in the case of chylothorax. This case strengths the indication for using this relatively less invasive therapeutic approach, especially in patients who fails conservative treatment and not found to be good surgical candidates. In addition, we recommend using bilateral catheters if clinically indicated, as was demonstrated in our case.
Furthermore, this case reports that chylothorax in the same patient after therapeutic interventions can present as exudative as well as a transudative. The nature of the fluid has been controversial, being reported in the largest case-series as exudative only.

**P3704**
**Impact of a new bedside thoracic ultrasound service in a large district general hospital: A service evaluation**
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**Background:** In 2008, the UK National Patient Safety Agency (NPSA) issued an alert recommending the use of thoracic ultrasound to aid chest drain insertion (NPSA/2008/RRR003).Our institution is a large district general hospital in North-West England, serving a local population of approximately 330,000 people and a further 12 million holidaymakers who visit the area each year. In 2009, a Physician-Led Ultrasound Service (PL-US) was launched, in addition to the existing Radiology-Led Ultrasound Service (RL-US).
**Aim:** To investigate the demand for PL-US and the impact on workload and training.
**Methods:** We audited the number of procedures performed by physicians and radiologists from May-July 2008, 2009 and 2010.
**Results:** The total number of procedures increased from 24 (all RL-US) in 2008 to 66 (29 RL-US and 32 PL-US). The proportion of RL-US procedures requested by respiratory medicine fell from 46% (11/24) in 2008 to 17% (4/24) in 2009 and 14% (4/29) in 2010, with the remaining RL-US procedures requested by other specialities. In addition, in 2010 a total of 24 thoracic ultrasounds were performed on respiratory patients, 20 of these 24 were performed by the PL-US, with only the remaining 4 by the RL-US.
**Conclusions:** Overall demand for thoracic ultrasound has risen by 275% since the UK NPSA alert in 2008. Since introduction of the PL-US, the total number of chest medicine referrals to the RL-US has fallen by 64%. In addition, 83% of thoracic ultrasounds in respiratory patients are now performed by physicians. Importantly, training opportunities for radiologists have not diminished as a result of this service.

**P3705**
**Impact of teaching and awareness programme on doctors' knowledge of chest drain insertion site**
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**Aim:** To assess if doctors identify correct site for chest drain insertion. To assess impact of teaching programme on their knowledge.
**Method:** In 2008, 111 doctors were asked to identify correct drain insertion site for uncomplicated pneumothorax by marking photographs. Data were collected on grade, specialty and prior experience (Gallagher JL; Stevenson N. Thorax 2009; 64 (Suppl IV):A166). In 2010, 102 doctors surveyed after introduction of teaching programme.
**Results:** We had 108 responses in '08 compared to 100 in '10. 55/108 (51%) correctly marked site in 2008 compared to 75/100 (75%) in 2010.

Incorrect marking by grade; both years

| Grade | 2008, No. (%) | 2010, No. (%) |
|---|---|---|
| Foundation Doctor year 1 (F1) | 14/27 (52) | 8/28 (29) |
| Foundation Doctor year 2 (F2) | 8/11 (73) | 2/6 (33) |
| Senior House Officer (SHO) | 12/27 (45) | 6/19 (32) |
| Specialist Registrar (Spr) | 13/29 (45) | 2/21 (10) |
| Associate Specialist | N/A | 1/4 (25) |
| Consultant | 6/14 (43) | 6/22 (27) |

Incorrect marking by specialty (2010)

| Specialty | Wrong | Total | % |
|---|---|---|---|
| Anaesthesia & Critical Care | 4 | 15 | 26 |
| Medicine | 19 | 71 | 26 |
| Surgery & orthopaedics | 2 | 12 | 16 |
| A&E | 0 | 2 | 0 |

83% doctors with prior respiratory experience were correct in '10 compared with 62% in '08. 75% Associate specialists, 86% Consultants, 100% F2s, 73% SHOs and 95% SpRs who felt confident at performing procedure, correctly identified site. In '10, 68% doctors received formal training.
**Conclusions:** Correct identification of insertion site improved in all grades after structured teaching and awareness programmes. Doctors with previous respiratory experience or in surgical specialties had better knowledge. Most had reasonable assessment of their competence and majority received training. Formal training should be given to all doctors.

**P3706**
**Respiratory acute failure in unknown severe arterovenous malformations (MAV) in both lungs in patient with Williams syndrome (WS)**
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The Williams syndrome is autosomic genetic disorder identified due to genetic elastin deficit, in 96% of patients there is a microdeletion of 7 chromosome. The cardiovascular (valvular stenosis) and the gastrointestinal effect (GER) as well know,but a severe arterovenous malformations in lungs district was never been described in literature. A woman 33 yo periodic controlled by genetist for Williams syndrome was hospitalized in our Dept, for acute respiratory failure with pO2 57mmHg pCO2 27mmHg, the oxygentherapy with Venturi mask 40,50,60% O2,and also with reservoir 15 L/min did'nt modified the pO2 and pCO2 TheThorax XRay showed apparently a double consolidation in the basis of left and right lung, but a Chest computed tomography angiography showed at the lower lobe of the two lungs a severe MAV. The expiratory functional test (EFT) show FEV1=69% of nv.FVC 60% of nv FEF 75 45% of nv, FEF50/40% of nv,PEF 45%of nv.The interventional radiologist decided to for an embolization, in two different day the MAV, (during anesthesia), first in the left lung. 48 h after the embolization the arterial blood gases showed (ABG)pO62mmHg pCO2 32mmHg,.Six week later were embolized the MAV of right lung and the control of ABG 48 after showed pO2 75mmHg pCO2 36mmHg The EFT show FEV1 86% of nv FVC 78%of nv,PEF 88% of nv FEF 75 97% FEF 50 60/% of nv The vascular circulation in the lower lobe of both lung was to much better after the embolization.The patient get out Hospital without needed Oxygen In the W.S need a new approach to identify the presence of respiratory MAV before an acute episode of respiratory failure.

**P3707**
**Transtracheal oxygen therapy as an effective treatment in patients suffering from severe hypoxemia and with high flow oxygen requirement: Description of two cases**
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Patients suffering from severe hypoxemia requiring high flow oxygen administration are very difficult to treat at home and have a poor quality of life. Transtracheal oxygen therapy (TTO) has been used for many years as an alternative to conventional device for oxygen treatment, but it is only used in a small portion of patients requiring long term O2 therapy (LTOT) and nowadays this tecnique is rarely used, al least in our country.
We describe the cases of two patients admitted to our Unit due to severe hypoxemic failure needing very high oxygen flow.
First case: male, age 65, suffering from lung fibrosis, admitted in our RICU in January 2010. Second case: female, age 53, suffering from severe COPD (panlobular emphysema), admitted on december 2010.
Despite optimal medical treatment and respiratory therapist intervention, oxygen requirement remained very high in both cases (12-14 l/min). RR, ABG value and SaO2 improved during TTO as showed in Tables 1 and 2.

Table 1. O2 therapy by mask

| | Pao2, mmHg | PaCO2, mmHg | pH | SaO2, % | O2, l/min | RR |
|---|---|---|---|---|---|---|
| Patient 1 | 44 | 34.2 | 7.456 | 80 | 12 | 36 |
| Patient 2 | 40 | 48 | 7.44 | 78 | 15 | 30 |

Table 2. O2 therapy by TTO

| | PaO2, mmHg | PaCO2, mmHg | pH | SaO2,% | O2 l/min | RR |
|---|---|---|---|---|---|---|
| Patient 1 | 61 | 38 | 7.44 | 91 | 4 | 32 |
| Patient 2 | 62 | 39.8 | 7.46 | 92 | 5 | 24 |

We utilized a modified Seldinger procedure (SCOOP cathether) to perform TTO. We didn't observe significant adverse events during the procedure and the follow-up (one year and 2 months respectively). Dyspnoea (Borg scale) and quality of life improved significantly. TTO should be considered as a safe and effective option in LTOT in a well-defined group of patients, in particular for those requiring high oxygen flow administration.

**P3708**

**Two cases of benign tracheal stenosis successfully treated by minimally invasive endobronchial intervention**

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**Case no. 1:** In Oct. 2008 a 71 y.old lady underwent thyroidectomy. After the operation bilateral vocal cord paralysis appeared causing dyspnea. A tracheostomy tube was placed to ease breathing. In two weeks time vocal cord function came back, however attempt to remove tracheostomy tube was unsuccessful because of symptoms of tracheal obstruction. We met the patient in June 2009. FBS disclosed a mass of granulation tissue obstructing trachea. Microbiologic examination of bronchial aspirate showed MRSA infection. By using rigid bronchoscopy granulation tissue was removed and 15-mm straight silicone stent was placed in the narroved segment of trachea and antibacterial treatment was prescribed. A couple of days later the stent migrated, so it had to be repositioned and sutured to the anterior wall of trachea by transcutaneous transtracheal suture. The stent was removed two months later. There are no signs of tracheal stenosis observed during the fallowing 2 years.
**Case no. 2:** A 76 y.o. lady was operated on in Febr. 2009 for perforative colitis. Postoperatively she had tracheostomy placed with ventilatory support for a week. Soon after discharge from hospital the lady noticed cough and progressive dyspnea. She was admitted to our hospital in Sept.2009. On FBS we found granulation tissue mass obstructing trachea. There was Ps. aeruginosa grown in the bronchial aspirate. Granulations were removed by using rigid bronchoscope and endobronchial argon plasma coagulation and the patient received antipseudomonal antibiotics. The procedure had to be repeated in 3 weeks time. Afterwards our patient recovered well and there has not been recurrence of tracheal stenosis observed.

**P3709**

**Comparison of I-gel and laryngeal mask for fibrobronchoscopy**

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**Background:** The I-gel is a novel supraglottic airway device. Because of it's design, material and small noninflatable cuff we hypothesized that it might be at least as effective as routinely used laryngeal musk (LM) in facilitating fibrobronchoscopy and artificial ventilation, but with less throat complaints.
**Objective:** To evaluate the efficacy of I-gel for providing adequate ventilation, good conditions for fibrobronchoscopy and patient's safety under intravenous anesthesia in comparison with classically used LM.
**Patients and methods:** Two randomized groups were formed: I-gel (22pts) and ML (21pts). Anesthesia was induced and maintained with Propofol, Succinylcholine +/- Atracuruim. Devices were positioned (size 4 for women and 5 for men) and IPPV with 100% O2 was started. We measured: time to successful insertion, success rate of insertionon first attempt, airway peak and leak pressure, We monitored the changes of tidal volumes (VT), airway peak pressures (PAW), end-tidal CO2, gas leakages (% of VT) when bronchoscope was at bronchial level. Postoperatively patients were interviewed for throat complaints, bronchoscopists - for fiberoptic glottic view.
**Results:** The success rates of insertion were 21/22 (95%) for I-gel and 19/21 (90%). I-gel group showed significantly shorter mean time to insertion (12.2±6.9 vs 18.6±8.9s $p<0.05$), better fiberoptic view 3/22 (14%) vs 7/21 (33%) $p<0.05$, less postoperative complains like soar throat, numb tongue, dysphagia, dysphonia, lip and dental trauma: 4/22 (18%) vs 8/21 (38%) $p<0.05$. Other perioperative data revealed no significant differences: VT, leak pressure, lost of VT and others.
Conlusions: I-gel facilitates fibrobronchoscopy and patient's safety to greater extend than classical LM.

**P3710**

**Feasibility and safety of propofol sedation in flexible bronchoscopy**

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**Background:** Propofol is a sedative-hypnotic with a rapid onset of action. There are only limited data evaluating propofol for flexible bronchoscopy. We analyzed the feasibility and safety of propofol for bronchoscopy in a high output tertiary care center.
**Methods:** Prospective data on patients undergoing flexible bronchoscopy at the University Hospital Basel, Switzerland were analyzed. Patient demographics, ASA class, Mallampati class, indication for bronchoscopy, bronchoscopic procedures, duration of examination, medication requirements, minor and major adverse events, hemodynamic parameters, as well as cough scores during the procedure were documented. Patients were followed up to discharge from the bronchoscopy suite.
**Results:** Data on 440 patients with mean age 60 years (± 15.5, 260 male) were analyzed. Main indication for bronchoscopy was suspicion of malignancy. The most common diagnostic procedures were bronchoalveolar lavage in 253 cases (31.5%) and bronchial washing in 174 cases (21.7%). The mean duration of the procedure was 19.6 min (± 12.08). The mean propofol dose was 200 mg (± 107.5) corresponding to 2.89 mg/kg (± 1.70). Minor adverse events included oxygen desaturation in 72 (16.4%), hypotension in 68 (15.4%) and minor bleeding in 11 (2.5%) patients. No major adverse events were recorded. The median decline in systolic blood pressure after initiation of sedation was 14 mmHg (3 - 28). A drop in systolic blood pressure greater than 20 mmHg was observed in 166 of the 440 patients (37%).
**Conclusion:** Propofol sedation for flexible bronchoscopy is feasible and safe.

**P3711**

**Predicting sedation in flexible bronchoscopy**

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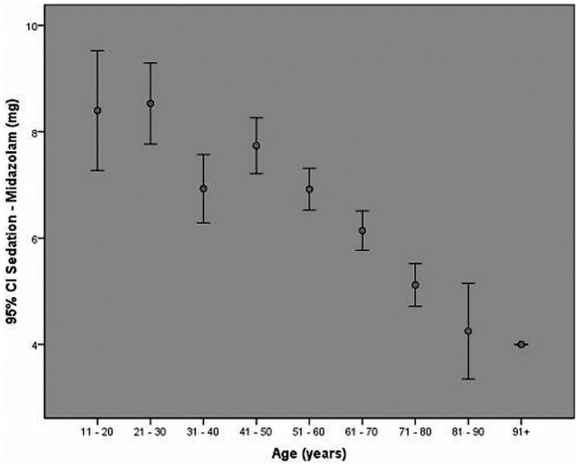
**Introduction:** Since 1985, midazolam has been widely used along with fentanyl for sedation in bronchoscopy. The aim of this study was to establish a correlation between patient age and the amount of midazolam required to produce adequate sedation.
**Methods:** Medical records of all the patients who underwent bronchoscopy in 2010 were accessed. Adequate sedation was defined as "a drug-induced depression of consciousness during which patients respond purposefully to verbal commands". Results were analysed using SPSS software (Version 18).
**Results:** Of all patients (n=511), 54.4% were male and 45.6% female. Median age and dose of midazolam (range) was 60 years (16-91) and 6mg (0-14) respectively. The Spearman Rank correlation between sedatives and age were: midazolam (r= -0.486, p=0.000) and fentanyl (r= -0.396, p=0.000). Analysis of variance showed that every decade of increase in age saw a decrease in the dose of sedation required, and the difference in means of the dosage in each age group was statistically significant (p=0.000).




Regression analysis showed that a change of one standard deviation of midazolam dose produced a change of 0.372 standard deviations of the dose of fentanyl (p=0.000).
**Conclusions:** There is a statistically significant correlation between age and amount of sedative required. We can predict the dose of sedation required in flexible bronchoscopy in different age groups. Dose of one sedative agent can be used to predict the dose of the second.

**P3712**

**A retrospective audit of lidocaine use at bronchoscopy in a UK district general hospital**

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**Introduction and aims:** Bronchoscopy is a commonly used investigation and Lidocaine is widely used as a local anaesthetic agent. Toxic side-effects of Lidocaine include cardiac collapse and seizures. The recommended dose in cardiac/hepatic insufficiency is 5mg/kg and 8.2mg/kg in all other patients. It is postulated that some patients may be given above the recommended dose.
**Methods:** 26 patients were identified retrospectively over a 39 month period. The patients were identified on the hospital bronchoscopy database. Case-notes were also analysed.
**Results:** Patient Mean age was 62.25years (30-86). 12 males (46.15%). Patient weight 71.54kg (42.65-117). 5 patients had cardiovascular disease. 4 patients had hepatic disease. 7 (77%) of these 9 patients received a dose of Lidocaine over the maximum for their weight. None of the patients without cardiac/hepatic disease received over the maximum dose of Lidocaine. All patients who were given over their maximum calculated Lidocaine dose or who were given within 100mg of

their maximum dose were reviewed with particular reference to their weight. The Mean weight in this subset was 60.6kg.
**Discussion:** Patients in this group were frequently given more than their calculated maximum dose of Lidocaine at bronchoscopy. Those most at risk had cardiac or hepatic insufficiency. Patients who were given too much Lidocaine or who were within 100mg of being given too much had a lower Mean weight than that of the whole of the group by 10.94kg.
**Conclusions:** Lidocaine use is necessary for patient comfort and success of bronchoscopy. However, it seems more commonplace than previously thought to give higher doses of Lidocaine than those recommended.

**P3713**
**Patient comfort score at bronchoscopy**
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The aim of this study was to assess the patient comfort score immediately after bronchoscopy (by nursing staff and patient) and later on at follow up (by patient) in a teaching hospital.
**Subjects and methods:** One hundred and four consecutive patients (62 male, mean (SD) age 63.2 (15.6)) were included and complete data was analysed for 96. The indication for bronchoscopy was radiological suspicion of lung cancer (39), haemoptysis (25), slowly resolving pneumonia (18), radiological picture of interstitial lung disease (16), cough (4) and mediastinal lymphadenopaty (2).
The nurses used a patient comfort score (1- mild to 4-severe) and a sedation score (1-awake, 2-sedated). While in recovery and then again at follow up appointment (7-14 days later) the patients were asked to describe their comfort score (1-mild to 4-severe). Patients received Midazolam for sedation (1-7 mg i.v.) and local anaesthetic Lignocaine 2%.
Data was analysed in Spss and corelation coefficients; Chi square Kruskal Wallis used.
**Results:** The comfort score by nurses correlated with the score by patient in recovery (p= 0.006) and at follow up (p=0.03). The two patient scores correlated (p0.001, Pearson's 0.51). No difference in the comfort scores was found when the grade of the operator, dose of Midazolam, type of local anaesthetic, specimens taken, patient's position or the recovery sedation score were taken into account.
To conclude, the patient comfort score assessed by nursing staff is a good indicator of the patient's own perception of their discomfort at bronchoscopy. The patient perceived comfort score is not different after the sedation effect of Midazolam wares off compared to the score assessed immediately after the bronchoscopy.

**P3714**
**Patient satisfaction survey on bronchoscopy explanation**
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**Background:** Bronchoscopy is routinely performed by the Chest physicians and is explained to the patients before they give written consent. We wanted to see if the patients undergoing the procedure at Royal Bolton hospital, UK were satisfied with our explanation and see if anxious patients need higher doses of sedation.
**Methods:** Patients were asked to fill the satisfaction questionnaire with 8 domains just before undergoing procedure. Interpreters were used for the non-English speaking patients.
**Results:** 61 patients, undergoing bronchoscopy between Jan 2009 to Jun 2009 answered survey questions with domains in (Table 1) rating their satisfaction between 1-10. Ratings >6 were considered good response except for domain 8 where <5 considered less anxious.

Table 1

| S. No | Patient satisfaction domains | No | % |
|---|---|---|---|
| 1 | Understand the exact reason for test | 39 / 61 | 64 |
| 2 | Understand procedure | 50 / 61 | 82 |
| 3 | Understand complications | 49 / 61 | 80 |
| 4 | Understand post procedure care | 54 / 61 | 89 |
| 5 | Involvement of patient to have the test | 56 / 61 | 92 |
| 6 | Satisfaction on written information | 48 / 61 | 78 |
| 7 | Satisfaction on time and venue | 59 / 61 | 97 |
| 8 | Anxious about the test? | 27 / 61 | 44 |

22% did not receive written leaflets.
Of 27 anxious patients, only 7 (26%) needed more sedation than the mean dose of 2 mg midazolam and 6/34 (18%) less anxious patients also had bigger doses.
**Conclusions:** Patients were generally satisfied with our bronchoscopy explanation. There is poor correlation between anxiety ratings and doses of sedation.
Educating trainees on broncoscopy explanation, repeating verbal information about procedure with patients at the time of consent and just before the test and giving written leaflets to all the patients at first explanation should improve overall satisfaction.

**P3715**
**Fiberoptic bronchoscopy assisted percuteneous dilatational trecheostomy: How safe is for an intensivist to perform it?**
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**Background:** Intensive care unit (ICU) patients, mainly those who need prolonged ventilator support, may require trecheostomy, which once was done in the operating room. Percuteneous dilatational trecheostomy (PDT) was first described in 1985 and now is a well-established procedure that can be performed at the bedside by an intensivist with less surgical equipment required.
**Aim:** To evaluate the safety of performing percuteneous dilatational trecheostomy (PDT) with Fiberoptic bronchoscopy assistance in patients requiring prolonged mechanical ventilation.
**Material and method:** Sixty three patients 17-78yrs of age, 28 females and 35 males underwent PDT due to prolonged endotracheal intubation between December 2009 and January 2011. The procedures of percuteneous dilatation trecheostomy with guide wire dilator forceps (GWDF) were done bedside with bronchoscopic guidance under general anaesthesia in the ICU department. Operative and post operative complications were observed.
**Results:** Overall complication rate was low and occurred in 5 patients (7, 9%), there was no procedure-related mortality. Subcutaneous emphysema without pneumothorax occurred in one patient, one patient had a transitory hypotension related to sedation and three patients had peristomal oozing.
The mean time for completion of the procedure was 15 minutes and no patient required conversion to surgical trecheostomy. The bronchoscopic examination that was performed in 38 of the patient 20 days after trecheostomy tube removal showed no scar formation.
**Conclusion:** PDT with bronchoscopic guidance is a safe and easy procedure that can be done by an intensivist at the bedside setting.

**P3716**
**Outcomes and complications of bronchoscopy-guided percutaneous dilatational tracheostomy**
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**Background:** Percutaneous tracheostomy (PT) is one of the most frequently performed procedures in Intensive Care Unit (ICU). As many as 10% of patients requiring at least 3 days of mechanical ventilation will receive a tracheostomy. Some of the complications can be severe and can be prevented with bronchoscopic-assistance.
**Aim:** To investigate the outcome and complications of bronchoscopy-guided PT.
**Material and methods:** 59 patients was prospectively included from March-November/2010. Demographic data, time of procedure and complications were studied. Patient's heart rate, blood pressure and continuous pulse oximetry were monitored. All PT were performed under bronchoscopic control at the patient's bedside in the ICU by an medical intensivist and a pulmonologist. Statistical software Sigma-Stat 3.5 was used.
**Results:** 54% of patients: male. Patient mean age: 60. Mean body mass index: 25.2 (Standar Error Mean-SEM 0.5). Mean APACHE index: 20.1. SAPS: 44.5. The reason for admission at ICU was due to medical conditions (70%) and surgical/polytraumatism (30%). Indication for PT: coma (47%), intubation weaning failure (34%), neuromuscular failure (9.4%) and prolongued endotracheal intubation (9,4%). Mean duration of PT: 3.5 mn. Main complications: $O_2$ desaturation <90% (7.7%), submucosal tunnelization of tracheal wall (3.8%), tracheal ring break (15%), bleeding requiring hemostasis (5.7%) and major hemorrhage requiring blood transfusion (2%). Extubation, early decannulation, injury to posterior tracheal wall, and barotrauma were not described.
**Conclusions:** PT is a safe technique. The use of bronchocospy reduces duration of procedure, decreases morbidity and can identify complications missed by a "blind" approach.

**P3717**
**The real-interventional-bleeding simulator: A new training and education model for interventional bronchoscopy**
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**Introduction:** Biosimulation models might play a crucial role to train interventional procedures especially acute endbronchial bleedings.The simulation of an repeated emergency situation enables the bronchoscopist and his team to act professionally.
**Background:** Until now the available models couldn't reproduce this key aspect in interventional bronchoscopy in a satisfactory way.
**Methods:**We developed a new biosimulation model with 2 transparent covers and a free moving diaphragm.The control unit with an vacuum pump allows full

expansion of the pig training lung.A flexible bedded connector adds the trachea of the head to the pig lung.This allows a training in rigid bronchoscopy on an expanded pig lung.We inserted flexible tubes into the bronchial tree to simulate different bleeding situations with artificial blood. The realistic effect was increased by sutured "endobronchial tumors".
**Results:** At an interventional training course in November 2010 organized by the Austrian Society of Pneumology the system allowed the participants to train various kinds of interventions.The feedback given by all the 16 trainees showed a convincing and realistic effect to train interventional procedures.Furthermore the possibility of managing the bleeding situations could be trained.

**Conclusions:**This model might be helpful to develop algorithms for all interventional procedures especially connected to the handling of bleedings.

**P3718**
**Improved diagnostic of electromagnetic navigation bronchoscopy in peripheral lung lesions: Are the size and the bronchus sign important?**
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**Background:** Electromagnetic navigation (EN) is a technique that can be used with bronchoscopy to obtain samples of small peripheral nodular lesions. It enables both transbronchial biopsies and fine-needle aspiration to be performed. EN can obviate the need for more invasive diagnostic procedures thus saving time and avoiding complications.
**Aim:** To evaluate the diagnostic yield of electromagnetic navigation-guided bronchoscopy (ENB) in patients with peripheral lung lesions and analyze the results according to the size of the lesion and the presence of a bronchus sign in the computed tomography (CT).
**Patients and methods:** From April 2009-October2010, 50 consecutive patients were included. We used the Bronchus® system (Superdimension) with a therapeutic bronchoscope (Olympus, working channel 2,8mm). All subjects had CT scans of the chest, configures with slices of 1-2mm thickness at 1-1.5mm intervals in DICOM format.
**Results:** 70%: male. Median age: 69. The average size of the lesions was 22,6mm [≤20mm: 19 (38%) and >20mm: 31 (62%)]. Mean duration of the intervention: 25mn. Diagnosis rate of this procedure was 67%; 61% for lesions ≤ 20mm in diameter, and 71% if>20mm.The bronchus sign (BS) was identified in 44% patients. In cases with BS, the diagnosis yield increased until 82% and when BS was negative: 54% (statistically significant variable).
**Conclusions:** FBEN is a safe method that increases the diagnosis yield of peripheral lung lesions. 67% of cases resulted in obtaining diagnostic tissue. If BS was identified, diagnostic yield was statistically significant increased. There was no relation with lesion's size.

**P3719**
**Transbronchoscopic 3D volumetric optical coherence tomography (OCT) imaging of airways**
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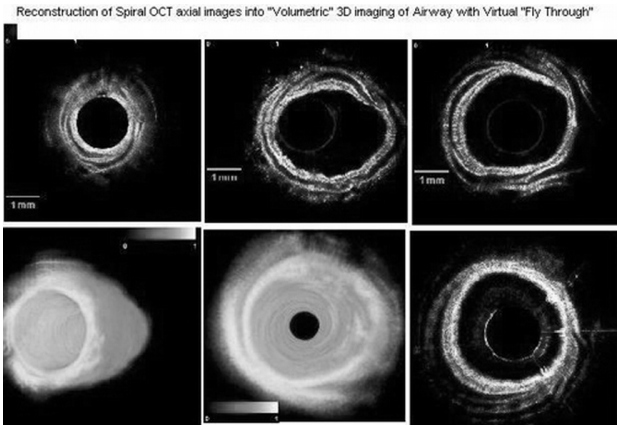
**Introduction:** OCT, a non-invasive optical modality capable of high-resolution cross-sectional imaging of tissue microanatomy, holds potential of "in-vivo" diagnostics of pathology. Development of miniature probes & laser sources have advanced real-time OCT imaging of small structure such as airway morphologies.
**Aim:** To develop 3D volumetric OCT imaging of airways.
**Methods:** IRB approved porcine protocol. Airways imaged with a 1300-nm swept-source OCT at a 40 kHz A-scan rate, placed within a1.3 mm catheter advanced through 2 mm bronchoscope channel. Axial & lateral resolution of the system is ~7 μm and ~20 μm in tissue, respectively. 3D volumetric imaging achieved by rotating the OCT catheter while pulling it back (similar to spiral CT), at an imaging speed of 10 frames/sec & helical rotation pitch of ~100 μm.
**Results:** 3rd to 7th generation airways imaged, spiral scanning data recorded, then processed. In addition to presentation as isolated axial slices, playback can present spiral imaging reformatted as 3D volumes plus virtual fly-through of airways.




**Conclusion/Clinical significance:** Transbronchoscopic OCT imaging can generate high-res axial imaging of airway microstructures. Reconstruction of dataset generates dynamic 3D imaging. In-vivo temporal monitoring of pathologic events such as cancer progression or physiologic effects of bronchoconstriction in airway disease will advance diagnosis and management of lung diseases.