Aim: To compare the radiologic preoperative size of the primary tumor in LC with their pathologic size following excision.

Materials and methods: 88 LC patients who undergone surgery in our institution from 2008 - 2011, CT-staged T1 or T2 were included. Images were reviewed by two independent observers. Tumor maximal diameter on axial-plane was obtained using PACS caliper segmentation algorithm and adjusted based on a radiologist's input; largest single diameter from Pathology gross report was utilized. Agreement was evaluated between CT and Pathology using Bland-Altman methods for measurements and using Cohen-Kappa for T-staging classification.

Results: 46 adenocarcinoma, 31 squamous cell carcinoma. The mean CT measurement was 30.27mm, pathology was 30.63mm. The mean difference between CT and Pathology measurements was -0.35 mm (95% Confidence Interval -2.15; 1.45, p-value < 0.001). The lower and upper 95% limits of agreement were -1.73mm and 16.62mm. Clinical T-staging based on CT was T1A=21, T1B=34, T2A=20, T2B=13 and on pathology was T1A=30, T1B=22, T2A=27, T2B=9. Stage agreement was seen in T1A=17/30 (57%), T1B=16/22 (73%), T2A=14/27 (52%) and T2B=8/9 (88%) with a moderate agreement (κ = 0.491).

Conclusion: There was moderate agreement between CT and pathology measurements. Clinical and pathological T-stage revealed a moderate agreement. These results may have implications in clinical decisions.

P261
Staging of non-small-cell lung cancer with FDG-PET/CT: Is there a correlation of morphologic tumor characteristics and metabolic activity?
Hilmar Kuehl1, Ute Sommerwerck2, Stefan Mueller3, Tina van Eijk4, Andreas Boeckisch5

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Aim: FDG-PET/CT is widely accepted for staging of non-small-cell lung cancers [NSCLC]. The aim was to determine morphological data as well as the metabolic activity in patients with NSCLC. These data were correlated with TNM stage and histology to test for possible predictive values.

Methods and materials: This retrospective study examined lung cancer patients which received a whole-body PET/CT for tumor staging. The maximal and mean size and the maximal and mean density in Hounsfeld units [HU] of the primary tumor were measured in CT. Metabolic activity was measured as standardized uptake value [SUVMax]. The individual tumor stage (clinical and postoperatively) as well as histology and grading were determined. Univariate analysis was performed between all tumor parameter.

Results: 202 patients were included in our study. Mean tumor size was 49.22 mm, the mean tumor density was measured with 53 ± 64 HU. The SUVMax ranged from 0.4 to 42. In 123 cases histological grading and in 144 patients complete TNM staging was documented with c or p N-stage. Tumor size (r = -0.13) as well as density (r = 0.095) and metabolic activity (r = 0.077) showed no relevant correlation. There was no correlation between tumor grading and size (r = -0.15), volume (r = -0.097), and metabolic activity (r = -0.085). Multivariate analysis will be added.

Conclusion: There was no significant correlation between the different metabolic and morphologic tumor parameter from PET/CT and clinical data of patients with NSCLC. Up to now we could not identify a combination of imaging data from PET/CT with a predictive capability for tumor staging.

P262
Performance of segmentation software on large longitudinal database of pulmonary nodules in the Danish Lung Cancer Screening trial (DLCST)
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1Department of Respiratory Medicine, Gentofte Hospital, Helsingør, Denmark; 2Fraunhofer MEVIS, Bremen, Germany; 3Department of Radiology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; 4Department of Computer Science, University of Copenhagen, Denmark; 5Department of Medical Informatics and Radiology, Erasmus MC - University Medical Center, Rotterdam, Netherlands

Introduction and aim: Growth measurements of pulmonary nodules are subject to great interest due to the risk of malignancy. We examined the reproducibility of lung nodule volumetric software that offers two different volumetric algorithms.

Materials and methods: In the Danish Lung Cancer Screening trial, 2,052 par- ticipants with high risk of lung cancer where randomized to five annual multislice low-dose scans. All scans were double-read by two experienced chest radiologists and the location and size of nodules were registered. Subsequently the nodules were linked chronologically (same nodule in different scans) and independently reviewed by two readers using volumetric software. The software offers readers two different analysing algorithms, “solid nodule algorithm” and “partsolid/nonsolid algorithm”. We compared the inter-observer variability regarding use of algorithm and rate of success.

Results: 1442 nodules were measured 5988 times. The readers reviewed the segmentations visually and were able to segment and measure 94% and 97% of the nodules, respectively. In 90% of these cases, the readers chose the same algorithm.

Conclusion: Using this volumetric software on a large database with longitudinal data shows a high success rate and large agreement in choosing algorithm.
P263 Usefulness of magnetic resonance imaging with optimized conventional and non-conventional sequences in the assessment of solitary pulmonary nodules and large size lesions: Preliminary experience

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Despite the current availability of diagnostic procedures, the diagnosis of solitary pulmonary nodules still remains challenging. The aim of this clinical study is to evaluate the lung magnetic resonance imaging (MRI) with focused conventional sequences and diffusion weighted imaging.

Methods: We assessed 55 subjects with pulmonary lesions under blinded conditions using a MRI scanner. The exam was carried out with diffusion-weighted sequences (B500 and B1000 DWIBS) and ADC map with a qualitative and quantitative study.

Results: Out of 5 mm nodules (n=23) studied with DWIBS, 16 did not show abnormalities and were unchanged in 1 year follow-up and 3 were not identified compared with CT. DWIBS was positive in 2 cases, false-positive in 1 case and false-negative in 1 case. In 32 lesions >10 mm, histologically confirmed, DWIBS helped the biopsy planning, the definition of neoplastic tissue within atelectatic lung parenchyma, the differentiation of parietal pleura from pleural effusion and the characterization of mediastinal lymph nodes.

Conclusion: The study on large size lesions and nodules showed a considerable statistical significance (p < 0.001; diagnostic accuracy 86.5%). The technique, despite the limitations of a preliminary study, may increase nodules detection and, with CT or PET, provide additional useful information.

P264 Contrast-enhanced ultrasound examination of pulmonary lesions

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Aim: The aim of this study is to assess the clinical value of contrast-enhanced ultrasound (CEUS) for the diagnosis of peripheral pulmonary lesions (PPL).

Materials and methods: We examine 30 patients using a 2nd generation transpulmonary contrast Sonovue and US system Philips EX-11 equipped with low acoustic power mode software.

Results: By 15 patients (8 with pneumonia and 7 with atelectasis), the baseline US examination presents PPL with preserved bronchial and vascular structure. CEUS establishes a short time to enhancement (TE) < 6 sec (‘x ± SD = 4.1 ± 1.1 sec.) and hyperchogenic tissue enhancement during the parenchymal phase, due to preserved pulmonary artery (PA) blood supply. By 6 patients (PTE n=2; abscess in the infiltrated lung tissue n=2; pneumosclerosis n=1; metastasis n=1), CEUS does not show contrast enhancement. Peripheral lung cancer (n=8pts) as well as some types of pulmonary metastasis are characterized by delayed TE >7sec. (‘x ± SD = 15.1 ± 5.7 sec.) and sparse tissue enhancement, suggesting bronchial arterial (BA) supply.

Conclusion: CEUS is a safe and effective method for differentiating PA from BA blood lesions supply. It could be a useful method for diagnosis of pneumonia/atelectasis and is particularly valuable to differentiate them from PTE. CEUS improves the US control of transbronchic needle biopsies especially in lesions among atelectasis or inflammatory infiltrate. It is reasonable to carry out further research to clarify the role of CEUS among the diagnostic procedures in patients with PPL.

P265 Radiological features of solitary pulmonary nodule (SPN) and application of two lung cancer prediction models

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Objective: To summarize the imaging features of solitary pulmonary nodules, and compare the two types of lung cancer prediction models for solitary pulmonary nodules.

Methods: A retrospective study of Rujin Hospital between 2002 and 2009 with newly discovered SPNs which is less than 30mm. The patients all received pathological diagnosis. Summarize the clinical and imaging characteristics, then validate and compare the diagnostic accuracy of two lung cancer prediction models for estimating the probability of malignancy in patients with SPNs.

Results: 90 patients were enrolled, of which 32 cases are benign, 58 cases are malignant. Our study showed that we can identify the SPNs between benign and malignant by the SPN edge features of lobulation (P < 0.05). The area under ROC curve of VA model was 0.712 (95% CI 0.606 to 0.821); Area under ROC curve of Mayo Clinic model was 0.753 (95% CI 0.652 to 0.843), and it is superior to VA model.

Conclusion: It is meaningful for the identification of benign and malignant SPNs by the lobulation sign in CT scan. We can integrate the clinical features and the lung cancer predicting models to direct our clinical work.

P266 Does PET-CT predict the results of CT-guided core biopsy in the diagnosis of peripheral lung lesion?

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Introduction: Percutaneous CT-guided transthoracic needle biopsy (CT-Bx) and Positron emission tomographic scanning (PET-CT) aids in the diagnosis of a peripheral pulmonary lesion (PN) where bronchoscopy is unhelpful. Our aim was to evaluate the diagnostic yield of CT-Bx in relation to standardised uptake value (SUV) on PET-CT.

Method: A retrospective analysis was performed of all patients who had PET-CT and CT-Bx from Jan 2008 to June 2010. CT-Bx was performed with a Temno biopsy needle by an experienced radiologist. The SUV on PET-CT, size of nodule and diagnosis were recorded.

Results: 95 subjects who had the PET-CT and CT-Bx were included. The mean age was 66.05 years (range 30-90years) 48 (51%) were male. 61 (64%) had diagnostic CT-Bx whereas as 34 (36%) subjects had non-diagnostic CT-Bx. The mean size of lesion was 2.47cm in subjects with diagnostic CT-Bx whereas as it was 2.38cm in non-diagnostic subjects, the difference which was not statistically significant (p value 0.27). The Mean SUV on PET-CT was higher in subjects where the CT-Bx was diagnostic compared to where CT-Bx was non-diagnostic (12.750 Vs 7.982; p value 0.002).

Conclusion: The SUV on PET-CT may predict the diagnostic yield of CT-Bx. The high value of SUV may result in diagnostic outcome of CT-Bx.

P267 Epicardial fat mass is increased in patients with COPD: A non-invasive cardiovascular marker in a high risk population

Jorge Zaïza Zagueza Guevara, Gorka Bastarrika Ateleman, Javier Zuñeta Frances, Aranzazu Campo Eguisbela, Ana Belen Alcaide Ocaña, María Sánchez-Carpintero Abad, Pablo Sánchez Salcedo, Juan Bertó Botella, Pilar Rivero, Luis Segio Macieras, Juan Pablo De Torres Tajes. Pulmonary Clinic, University Clinic of Navarra, Pamplona, Navarra, Spain

Background: Epicardial Fat Mass is associated with an increased cardiovascular events in the general population. This marker has not been explored in patients with COPD.

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Variables with statistically significant differences were included in the multivariate analysis to determine those that independently predict EFMV. Male gender, hypertension, pack years history and COPD diagnosis were predictors of EFMV.

**Conclusions:** COPD is an independent risk factor for an increased EFMV. Further studies should assess the impact of this finding as a non-invasive marker of cardiovascular events in this high-risk population.

**P269**

**Phantom-based evaluation of computed tomography parameters:**

Understanding the differences in automated emphysema scoring (Johan Coolen), Frederik De Keyster, Walter De Wever, Els Wattez, Wim Janssens, Marc Decramer, Johnny Verschakelen.

**Purpose:** Automated lung emphysema (E) measurements vary strongly between examinations. We examined the effect of CT scanners, acquisition parameters, kernels and windowing on the software-based E scoring (S) in a phantom.

**Material and methods:** A human preserved torso in epoxy was used as phantom and was scanned on 5 different scanners using various settings of the following parameters: KV, mAs, care dose, slice/increment, window and kernel. For each of these data sets, the E was evaluated. The ES was performed using both 2D and 3D software. A multiple linear regression analysis (LRA) was used to evaluate the importance of each parameter.

**Results:** Measured E values ranged between 17.0% and 70.5% for 3D software evaluation. A similar range could be seen at 2D evaluation, ranging between 13.9% and 66.8%. The used kernels had a very strong impact on the measured ES, and a strong effect could also be seen for slice/increment, mAs, window and KV. However, the scanner-dependent parameters and the usage of the care dose option proved to have only a minor impact on the measurement of E. The LRA found a very strong correlation between the measured values, and the estimated values based on the optimal regression formula, with R2 values of 0.828 and 0.772 for the right and left lungs on 3D evaluation, and 0.872 and 0.851, resp., on 2D evaluation.

**Conclusion:** A fixed phantom allows assessing the influence of different scanners, acquisition parameters and evaluation techniques on the software-based ES. The current dataset indicates that scan parameters and the used kernels have the strongest effect, and that the induced differences can be estimated using multiple LRA.

**P270**

**Interobserver variability in visual evaluation of thoracic CT scans and comparison with automatic computer measurements of CT lung density:**

Mathilde M. W. Wells, Laura H. Thomsen, Saher B. Shaker, Asger Dyrskov, Jesper H. Pedersen, Department of Respiratory Medicine, Gentofte University Hospital, Hellerup, Denmark; Department of Computer Science (DIKU), University of Copenhagen, Copenhagen, Denmark.

**Introduction:** Emphysema is defined by pathology, but is most precisely evaluated in vivo by computed tomography (CT). Aims were to determine the reproducibility of visual evaluation of emphysema, i.e. the observer variability, and furthermore to compare the visual evaluations to automated CT lung density measurements, i.e. density measurements.

**Methods:** In a pilot study 60 CT scans were selected from a sample of 3980 CT scans from The Danish Lung Cancer Screening Trial (DLCST). The amount of emphysema in these scans was scored independently by two observers, who were blinded regarding clinical information.

The lung was segmented automatically by in-house developed computer software, and the percentage of pixels below -950 HU was used as a surrogate marker for emphysema. The observer variability, as well as the correlation with the lung density measurements, was analysed using Spearman's rank correlation.

**Results:** Spearman's correlation coefficient between the two observers was r = 0.85, p < 0.001. However, the combined observations for both observers had a correlation with the CT lung density measurements of r = 0.25, p = 0.05.

**Conclusion:** We found a high degree of interobserver consistency in emphysema grading. However, the agreement with the CT lung density measurement was poor, indicating that the two types of evaluation represent different aspects of emphysema.

Most likely, they should be seen as complementary rather than competitive evaluations. Future comparison with physiological tests might elucidate the reason for differences and demonstrate the usefulness of these evaluations.

**P271**

**A new method for evaluation of severity in COPD using dynamic chest x-ray examination:**

Norichika Motohashi, Misako Aoki, Takahiko Abe, Yui Shiraih, Hideo Ogata, Shoji Kudoh.

**Respiratory Medicine Division, Respiratory Diseases Center, Fukujuji Hospital, JATA, Tokyo, Japan; Department of Radiology, Fukujuji Hospital, JATA, Tokyo, Japan; Chest Surgery Division, Respiratory Disease Center, Fukujuji Hospital, JATA, Tokyo, Japan.

**Purpose:** Spirometry which requires maximum effort tasks in COPD patients. In dynamic chest X-ray examination, a very strong correlation between the measured values, and the estimated values based on the optimal regression formula, with R2 values of 0.828 and 0.772 for the right and left lungs on 3D evaluation, and 0.872 and 0.851, resp., on 2D evaluation.

**Methods:** In a pilot study 60 CT scans were selected from a sample of 3980 CT scans from The Danish Lung Cancer Screening Trial (DLCST). The amount of emphysema in these scans was scored independently by two observers, who were blinded regarding clinical information.

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**Conclusion:** We found a high degree of interobserver consistency in emphysema grading. However, the agreement with the CT lung density measurement was poor, indicating that the two types of evaluation represent different aspects of emphysema.

Most likely, they should be seen as complementary rather than competitive evaluations. Future comparison with physiological tests might elucidate the reason for differences and demonstrate the usefulness of these evaluations.
Methods: We calculated the maximal differential values in each ventilation phase at the corresponding small local area of lung in the series of dynamic chest X-ray. The regional relative flow rate ratio was obtained from the peak values of inspiratory phase divided by the peak values of expiratory phase. All groups were compared about the standard deviation of flow rate ratio.

Results: The average of the ratio in normal volunteers, in mild COPD pa-
tients and in severe COPD patients were 0.21±0.03, 0.22±0.04 and 0.26±0.04 (mean±SD), respectively. Significant difference was confirmed between the normal volunteers and the severe COPD patients (p=0.0047), and between the mild COPD patients and the severe COPD patients (p=0.0092), respectively.

Conclusion: The variation of the inspiratory/expiratory flow rate ratios in COPD patients were larger than those of healthy volunteers. The new method for ventilation function has possibility to evaluate severity of COPD.

P272

Ultrasonographic assessment of the diaphragm in patients with chronic obstructive pulmonary disease (COPD): Relationships with pulmonary function and the influence of body composition
Andrea Smargiassi, Riccardo Inchingolo, Linda Tagliaboschi, Alessandro Di Marco Berardino, Giuseppe Maria Corbo, Salvatore Valente. Pulmonary Medicine, Università Cattolica DelSacro Cuore, Roma, Italy

Background: Skeletal muscle weakness and loss of fat-free-mass (FFM) is one of the main systemic effects of COPD. Also diaphragm is involved leading to disadvantageous conditions and poor contractile capacities. We measured the thickness (TD) of diaphragm by ultrasonography to evaluate the relationships between echographic measurements, parameters of respiratory function and body composition data.

Material and methods: 24 patients (17 males) underwent: a) pulmonary function tests; b) echographic assessment of TD in the zone of apnoea at various lung volumes (TDRV, TDFRC, TDTLC); c) bioelectrical body impedance analysis.

Results: Mean FEV1 as percentage of the predicted value was 49.6% (min 22%, max 86%). Mean BMI was 27±5.3 kg/m² (min 17.2 max 38.8). TDRV, TDFRC and TDTLC measured 3.28, 3.58, 9.22 mm respectively. Reproducibility of measures was good (R2=0.93, 0.93, 0.77 for TDR, TDFRC, TDTLC respectively). All the TD were found correlated to FFM being the relationship greater for TDFRC (R²=0.51, p=0.0002). As regards lung volume IC, was found related to TDRV (R²=0.21, p=0.025). TDFRC (R²=0.16, p=0.05). TDTLC (R²=0.36 p=0.002). A significant association was found between TD and TLC, FRC, RV. Using a multiple regression model TD was found related to RV/TLC, FEV1/FVC and FFM (R² 0.55 p=0.004). Lastly, the difference between TDTLC and TDRV was closely related to FVC (R²=0.33, p=0.036).

Conclusion: Ultrasonographic assessment of the diaphragm could be a useful tool to study the progression of the disease in COPD patients in terms of static hyperinflation and loss of FFM.

P273

Longitudinal imaging characterisation of a model of chronic allergic lung inflammation in mice
Kumar Changani1, Catherine Pereira2, Simon Young2, Robert Shaw1, Tony Nials1, Simon Campbell1, Khimnara Pindoria2, Heath Marsh2, Steve Jordan1, Michael Haase1, Mike Pedrick1, Richard Knowles1. 1 RRRI & LAS, GlaxoSmithKline, Stevenage, Hertfordshire, United Kingdom; 2Department of Radiology, Hospital Gorticher Heiland, Heiland, Austras, 1Department of Radiology, Academic Medical Center, Amsterdam, Netherlands

Introduction: This collaborative study was carried out part of the U-BIOPRED project.

Objectives: To survey the current HR-CT protocols used by members of the European Society of Thoracic Imaging (ESTI) to evaluate patients with interstitial lung diseases.

Materials and methods: A questionnaire was e-mailed to 173 ESTI members. The survey focused on questions regarding the practice of CT protocols in patients with suspected interstitial lung diseases. In particular, the members were asked whether they used discontinuous HR-CT or volume CT protocols, performed additional expiratory scans, or obtained scans in the prone position. In addition, the questions focused on dose considerations and on which reconstructions were performed routinely.

Results: The overall response rate was 37%. Seventy-seven percent of the respondents indicated that they evaluated their patients with routine protocols; 85% used either volume CT alone or in combination with discontinuous HR-CT, only a minority of 15% performed discontinuous HR-CT only. Fifty-three percent reported that they applied a low-dose volume CT protocol. Expiratory scans or scans in prone position were performed by a majority of the respondent on demand only (58% and 59%, respectively). The number of reconstructions ranged from two reconstructions to up to eight standard reconstructions. Fifteen respondents reconstructed two series, 18 respondents routinely reconstructed three or four series, and 16 respondents reconstructed five series or more.

Conclusion: ESTI members seem to prefer volume CT to investigate patients with suspected interstitial lung diseases. The reported and surprisingly high prevalence of low-dose CT protocols may be due radiation dose considerations and requires further investigation.

P274

Using micro-CT to map the small airways
Katherine Scoll1, Dmytry Grinev1, Sam Kayees2, Peter Lackie1, Jane Warren1, 1Faculty of Medicine, University of Southampton, United Kingdom; 2Engineering Materials Group, Faculty of Engineering and the Environment, University of Southampton, United Kingdom

Introduction: The loss or narrowing of small airways (<2mm) leads to an increase in peripheral resistance and is a major site of airway disease in COPD. The quantitative studies of the three dimensional architecture and organisation of the lung are required to assess this. Micro-CT permits direct examination of the small airways and microvasculature. However, most studies to date have used osmium or other contrasting agents precluding the use of historical samples.

Aim: To use micro-CT to identify and measure the small airways in paraffin embedded tissue without contrasting agents.

Methods: Tissue from the distal airways was fixed and embedded in paraffin wax. It was scanned with a Nikon/Metrax HMX XCT scanner at the µ-VE5 X-ray imaging centre, University of Southampton to obtain CT data with a scan time of four hours. An acquired voxel resolution of 7.94μm allowed examination of alveolar lumen along its length and a 3D volume reconstruction of a branching small airways network created using VG Studio Max (v2.1) and Avizo 8 image processing software.

Results: Lung tissue was clearly distinguishable from the airspaces in scans permitting a clear 3D reconstruction of all airways and blood vessels in the sample. Airway cross section measurement was possible down to the respiratory bronchioles at <0.55μm. This will permit the estimation of potential volumetric air flows from the alveoli to the small airways.

Conclusion: We have shown that it is possible to use micro-CT to analyse and reconstruct small airways structure in human tissue down to the respiratory bronchioles with a resolution of 7.94μm. Using formalin fixed and paraffin embedded tissue without any contrasting agents can provide robust 3D structural data from archival material.

P275

CT protocols in interstitial lung diseases – A survey among members of the European Society of Thoracic Imaging (ESTI)
Helmuth Prosch1, Cornelia Schaefler-Prock1, Edith Eisenhuber2, Daniela Kienz1, Christian Herold1, 1Department of Radiology, Medical University of Vienna, Austria; 2Department of Radiology, Hospital Gorticher Heiland, Heiland, Austras, 1Department of Radiology, Academic Medical Center, Amsterdam, Netherlands

Objective: To survey the current HR-CT protocols used by members of the European Society of Thoracic Imaging (ESTI) to evaluate patients with interstitial lung diseases.

Results: The survey focused on questions regarding the practice of CT protocols in patients with suspected interstitial lung diseases. In particular, the members were asked whether they used discontinuous HR-CT or volume CT protocols, performed additional expiratory scans, or obtained scans in the prone position. In addition, the questions focused on dose considerations and on which reconstructions were performed routinely.

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Conclusion: ESTI members seem to prefer volume CT to investigate patients with suspected interstitial lung diseases. The reported and surprisingly high prevalence of low-dose CT protocols may be due radiation dose considerations and requires further investigation.

P276

Cumulative exposure to ionising radiation in adults with non-CF bronchiectasis
Lannis Taha, Dilem Nazareth, Syed Kazmi, Martin Walshaw. Department of Respiratory Medicine, Liverpool Heart and Chest Hospital, Liverpool, United Kingdom

Background: As treatments improve and patients with non-CF bronchiectasis are surviving longer, the cumulative exposure to potentially carcinogenic ionising radiation is important. We looked at the amount of ionising radiation given to adults with this condition (n=66) attending our Respiratory clinic over a 12-month period.

Method: All ionising radiation studies were reviewed for their impact on management. Radiation was calculated using standard reference doses and expressed as mSv [mSv].

Results: See Table. The average radiation dose was 11.43 mSv. Overall, only 15%
Radiation exposure and % impacting care

<table>
<thead>
<tr>
<th>% predicted FEV1 [SD]</th>
<th>Mean Radiation Dose (mSv)</th>
<th>% impacting care</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients (n=66)</td>
<td>68 [27]</td>
<td>11.4</td>
</tr>
<tr>
<td>Underlying COPD (n=27)</td>
<td>53 [21]</td>
<td>11.1</td>
</tr>
<tr>
<td>Pseudomonas (n=14)</td>
<td>56 [24]</td>
<td>13.6</td>
</tr>
<tr>
<td>Non-Pseudomonas (n=52)</td>
<td>59 [26]</td>
<td>10.9</td>
</tr>
</tbody>
</table>

of chest X-rays and 62% of Chest CT’s resulted in a change in management. Those with more severe disease had a greater cumulative dose of radiation.

**Conclusion:** Patients with bronchiectasis receive significant medical radiation each year, but most impacts on their management. Those colonised with *Pseudomonas* are associated with greater levels, in keeping with the more significant disease burden in these individuals. Care should be taken when ordering investigations associated with ionising radiation, to reduce the long term effects of potentially harmful investigations.

**P277**

**Cumulative exposure to ionising radiation in adults with interstitial lung disease (ILD)**

Lamis Taha, Dilip Nazareth, Syed Kazmi, Martin Walshaw. Department of Respiratory Medicine, Liverpool Heart and Chest Hospital, Liverpool, United Kingdom

**Background:** The cumulative exposure to potentially carcinogenic ionising radiation is important in patients with ILD as they are exposed to multiple radiological investigations. We looked at the amount of ionising radiation given to adults with ILD (n=41) attending our Respiratory clinic over a 12-month period.

**Method:** All ionising radiation studies were reviewed for their impact on management. Radiation was calculated using standard reference doses and expressed as milliSievert (mSv).

**Results:** See Table. The average radiation dose was 12.33 mSv with 56% of investigations impacting care. Those with UIP pattern of fibrosis had a greater cumulative dose of radiation.

<table>
<thead>
<tr>
<th>Radiation doses and % impacting care</th>
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<tbody>
<tr>
<td>Mean Radiation Dose (mSv)</td>
</tr>
<tr>
<td>All patients (n=41)</td>
</tr>
<tr>
<td>UIP (n=24)</td>
</tr>
<tr>
<td>NSIP (n=8)</td>
</tr>
<tr>
<td>Other fibrosis (n=9)</td>
</tr>
</tbody>
</table>

**Conclusion:** Patients with ILD receive significant medical radiation each year, but most impacts on their management. Those with NSIP had a greater number of investigations impacting care as compared to those with UIP, in keeping with the wider spectrum of disease and more treatment options being available in this sub-group of patients. Care should be taken when ordering investigations associated with ionising radiation, to reduce the long term effects of potentially harmful investigations.