highly predictive of free lung. The presence of visceral thickening on TUS may also predict NEL, although there was only limited data to support this finding.

Conclusion In-depth TUS assessment can be delivered and interpreted quickly in the day-case setting using widely available portable ultrasound equipment, with potential implications for patient care and non-invasive diagnosis of NEL. Further research is needed to evaluate the ability of M-mode and other TUS parameters to predict NEL and symptom response prior to invasive intervention.

REFERENCE

1 Salamonsen MR, *et al*. Novel use of pleural ultrasound can identify malignant entrapped lung prior to effusion drainage. *Chest* 2014;**146**(5):1286–93.

P3 THORACIC ULTRASOUND EXPERIENCES AMONGST RESPIRATORY TRAINEES – A NATIONAL SURVEY

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Introduction Level 1 proficiency in thoracic ultrasound is a mandatory curriculum requirement for respiratory speciality trainees in the UK. Guidance on attaining and maintaining this competency is outlined by The Royal College of Radiologists (RCR).[1] This has been a focus of the GMC survey specialty specific questions.

Aims To further evaluate thoracic ultrasound competencies and training experiences amongst respiratory registrars in England.

Methods We invited all respiratory trainees in England to complete an online survey. Responses were collected between October 2015 and June 2016.

Results 202 (of approximately 600) respiratory trainees completed the survey from 14 deaneries.

65.8% (131/199) trainees are level 1 accredited with 20.6% (22/107) of these performing fewer than 20 ultrasounds in the past year. Figure 1 illustrates the self-reported confidence in identifying pathology.

59% (107/171) of all respondents are never or rarely supervised. 60% (102/169) of queries are answered by real time evaluation or review of stored media. The remaining 40% reported that advice was based on verbal descriptions.

29.2% (50/171) of trainees reported that access to an ultrasonographer for advice was either "not easy" or "impossible". 9% (15/167) reported that there were no level 1 or level 2 accredited consultants at their current hospital.

Conclusion Most trainees are level 1 accredited, but many do not perform the minimum 20 scans/year to maintain their competency.[1] Access to supervision is also limited. Though not a requirement, trainees are less confident in identifying pathology pertinent to acute and respiratory medicine, particularly pulmonary oedema and pneumothorax.

Encouragingly ultrasound training has evolved considerably in recent years, but ongoing work needs to focus on improving supervision and training. There is a case for reviewing current guidance and to consider tailoring training and expectations to align with the specific needs of respiratory registrars.

REFERENCE

1 The Royal College of Radiologists. Ultrasound training recommendations for medical and surgical specialties. 2nd edn. London: The Royal College of Radiologists, 2012.

P4 A PROSPECTIVE ASSESSMENT OF THE CLINICAL UTILITY OF INTERCOSTAL ARTERY IDENTIFICATION IN PLEURAL INTERVENTION

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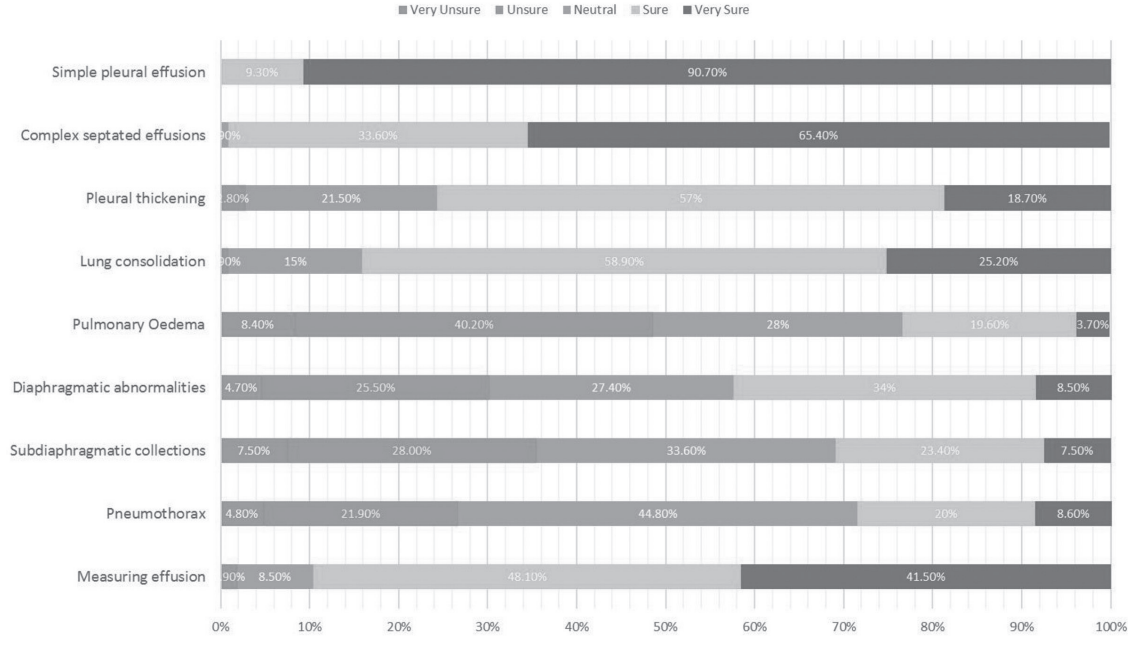
Background Respiratory Specialists perform an increasing number of complex pleural procedures. With this comes a greater focus on patient safety and risk reduction. There is strong evidence that ultrasound guidance in procedure site selection for pleural effusion reduces organ puncture and pneumothorax, but



Abstract P3 Figure 1 Confidence in identifying thoracic pathology amongst level 1 accredited trainees

Abstract P4 Table 1

Pleural Procedure	Total Performed over Study Period	Intercostal Artery (ICA) Identification		Cases where ICA Identification Altered Site Selection		
		Attempt to Identify & (% of total performed)	Successfully Identified & (% of Attempted Identification)	Number of Cases	(% of ICA Cases Successfully Identified)	(% of all procedures performed)
Medical Thoracoscopy	74	71 (95.9)	25 (35.2)	7	(28.0)	(9.5)
Image Guided Pleural Biopsies	47	46 (97.9)	32 (69.6)	16	(50.0)	(34.0)
Intercostal Chest Drain	43	38 (88.4)	20 (52.6)	6	(30.0)	(14.0)
Indwelling Pleural Catheter	33	32 (97.0)	11 (34.4)	2	(18.2)	(6.1)
Therapeutic Aspiration	166	159 (95.8)	80 (50.3)	19	(23.8)	(11.4)
Diagnostic Aspiration	41	40 (97.6)	24 (60.0)	6	(25.0)	(14.6)
All procedures	**404**	**386 (95.5)**	**192 (49.7)**	**56**	**(29.2)**	**(13.9)**

it remains important to choose intervention sites to avoid the intercostal arteries (ICA). Previous data suggest that the ICA can follow a tortuous course especially in the elderly. The use of colour Doppler to identify intercostal and collateral arteries has been shown to be accurate in research studies and may assist in selecting a safe intervention site.

This study aimed to prospectively assess identification of the ICA in routine practice and the effect on procedure site selection.

Methods Data on identification of the ICA was prospectively collected as part of routine clinical care and documented in the pleural procedure records in a tertiary centre between July 2015 and July 2016. Successful identification of the ICA and its influence in choosing the procedure site was recorded.

Results 404 procedures were carried out over the study period. The mean age of the patients was 69.3 years (sd 14.2).

Identification of the ICA was attempted in 386 (95.5%) procedures and the ICA was identified within the intercostal space in 192 (49.7%) of cases.

The site of the procedure was altered after ICA detection in 56/192 (29.2%) of procedures and in 16/32 (50.0%) of image guided pleural biopsies.

In 7/192 (3.6%) procedures the ICA was identified in all rib spaces at potential intervention sites, leading to the procedure not being attempted. No complications related to post procedure haemorrhage were reported.

A more detailed analysis of the identification of the ICA and its influence on practice by procedure type is shown in Table 1.

Conclusion Screening for the ICA in routine clinical practice influences procedural site selection.

In some cases identification can result in abandoning a procedure, which may have led to intercostal bleeding. Patient position and potential rib crowding may explain differences in the rates of successful identification between procedures.

If these findings are replicated in larger prospective studies, identification of the ICA may become routine practice to maximise safety.

P5 BLOODY EFFUSIONS: DO THE PATIENT'S CLOTTING RESULTS OR ANTITHROMBOTIC MEDICATIONS MATTER?

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Introduction and objectives Current British Thoracic Society Guidelines state that a non-urgent pleural aspiration should be delayed in anti-coagulated patients until the international normalised ratio (INR) is <1.5.[1] There is no specific guidance around the use of antiplatelet/other medications, which may further increase bleeding risk. This creates dilemma for clinicians regarding the best timing of performing pleural procedures to reduce bleeding risk. This study reviewed the potential impact of abnormal clotting results and/or anti-thrombotic medications on the occurrence of blood-stained pleural fluid at aspiration.

Methods This was a retrospective study, in a large teaching hospital, of all pleural procedures performed between 2013–15, where potential bleeding risk data was available. Diagnostic and therapeutic aspirations as well as intercostal chest drain insertions performed by the Respiratory team were included. An anti-thrombotic medication score for prescribed medications was recorded as follows: aspirin/prophylactic low molecular weight heparin (LMWH) = 1, clopidogrel/ticagrelor = 2, warfarin/therapeutic LMWH = 3, in addition to pre-procedure INR, APTT and platelet count. Pleural effusions were divided into 'blood-stained' and 'non blood-stained' and the medication score, INR, APTT and platelet count compared between the two groups.

Results 207 cases were analysed: 73% exudates, 27% transudates. Pleural fluid cytology was available in 77% cases, of which 25% were malignant. The results for the total sample size (n = 207) is shown in the attached table. For blood stained effusions, 33% were malignant vs. non blood stained, 17% malignant. Sub group analysis of malignant and benign effusions showed the same trend for blood stained vs. non blood stained effusions.

Abstract P5 Table 1 Comparison of pre-pleural procedure bleeding risk variables for blood stained versus non-blood stained pleural effusions

Potential pre-procedure bleeding risk variable	blood-stained (n = 60)	non-blood stained (n = 147)	statistical significance
Mean anti-thrombotic medication score	1.21 (0–4)	1.19 (0–4)	p = 0.91
Mean pre-procedure INR	1.24 (1–4.2)	1.21 (1–3)	p = 0.63
Mean pre-procedure APTT	30.74 (19–93.8)	31.74 (19.6–56.2)	p = 0.50
Mean pre-procedure platelet count	341 x 10^9 (72–614)	293 x 10^9 (44–1156)	p = 0.06

Conclusion Deranged coagulation or prescribed antithrombotics pre-pleural procedure do not appear to significantly increase the likelihood of a obtaining a blood-stained pleural effusion. The aetiology of blood stained pleural effusions is more likely multifactorial and should not always be attributed to a coagulation results or medication related increased bleeding risk. Further study could help determine how to better assess bleeding risk prior to pleural procedures.