difference between HFNT and NIV, Lee *et al*. (OR 0.85 95% CI 0.28, 2.59). No difference in hospital stay between patients in HFNT and NIV groups.

Conclusion Our systematic review has identified a small number of trials related to AT2RF patients with variability of outcomes measured. The benefits of HFNT for AT2RF patients are supported by low to very low quality of evidence. Thus use of HFNT for AT2RF cannot be recommended. Current evidence does suggest similar improvements in PaCO2, pH, intubation and mortality rate with HFNT when compared to NIV suggesting potential benefit. However, there is an urgent need for high quality randomised controlled trials.

P236 ABSTRACT WITHDRAWN

P237 DYNAMIC CHEST RADIOGRAPHY: A NOVEL TOOL FOR THE ASSESSMENT OF DIAPHRAGM PALSY

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Introduction Although traditional assessment of diaphragm palsy requires ultrasound or fluoroscopy, ultrasound is dependent on operator experience and may suffer from poor reproducibility, and fluoroscopy may confer a higher radiation dose, requires radiologist oversight, and is not available in all centres.[1 2] We have therefore explored the utility of dynamic chest radiography (DCR) using a novel dynamic X-ray imaging tool to assess diaphragm palsy, and present our experience.

Methods DCR is a low-dose, large field-of-view X-ray imaging system (Konica Minolta, Inc., Japan) that takes sequential PA images of the thorax at 15fps to provide a moving image. It is performed in the same position as an erect PA CXR, carries an effective dose of <0.125 mSv for a 10s exposure, and can be done rapidly without specialist input. Automated computer identification of the diaphragm allows calculation of diaphragm position and velocity. DCR is also of sufficient quality to interpret as a standard PA CXR.

We undertook DCR in 8 cases of suspected diaphragm palsy (mean age 60 years, 3 female), where images were acquired over 10–19 seconds. Three sharps sniffs were followed by a forced maximal deep inspiration.

Results See table 1. Paradoxical diaphragm motion was demonstrated in cases 1 to 6. In cases 7 and 8, abnormal but non-paradoxical motion was demonstrated, in both cases confirmed by fluoroscopy. DCR was well tolerated by all subjects.

Conclusions DCR is a useful tool to quantify diaphragm kinetics. Its low radiation dose and rapid image acquisition make it an attractive alternative to traditional imaging modalities when assessing diaphragm paralysis.

Abstract P237 Table 1 Details of abnormal diaphragm motion, excursion and peak velocity

Case	Paradoxical motion		Inspiratory apex-diaphragm excursion (mm)		Peak inspiratory diaphragm velocity (mm/s)	
	R	L	R	L	R	L
1	N	Y	29	-11	49	-25
2	Y	N	-36	36	-76	77
3	Y	N	-15	19	-53	54
4	Y	N	-6	32	-22	62
5	Y	N	-10	32	-11	64
6	Y	N	-20	25	-31	47
7	Elevated, very poor movement	N	15	48	21	49
8	Elevated, very poor movement	N	5	48	5	28

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Respiratory physiology: planes, training and mobility

P238 MINIMAL CLINICALLY IMPORTANT DIFFERENCE FOR PEDOMETER STEP COUNT IN COPD: A PROSPECTIVE ANALYSIS

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Background Infection control precautions arising from the COVID-19 pandemic has led to challenges undertaking face-to-face exercise testing required for pulmonary rehabilitation (PR) exercise prescription and evaluation.[1] Self-management programmes, incorporating physical activity, have been advocated as an alternative to PR when face-to-face assessment is not possible.[1] Daily step count is the most commonly used physical activity outcome and does not require face-to-face assessment. We aimed to estimate the minimal clinically important difference (MCID) for daily pedometer step count in COPD, using response to PR as a model of improvement and longitudinal decline following PR as a model of deterioration.

Methods This was a secondary analysis of a trial that investigated the effectiveness of pedometer-directed step count targets in COPD as an adjunct to PR, with the study arms combined as the intervention did not result in significant between-group differences.[2] We measured spirometry, Medical Research Council score, incremental shuttle walk test, Chronic Respiratory Questionnaire and pedometer step count (Yamax Digiwalker CW700) pre-, post- and six months following PR. Post-PR and six months post-PR, participants completed a Global Rating of Change Questionnaire: *'How do you feel your physical activity levels have changed following rehabilitation?'* and rated the response on a five-point Likert scale (*'1: I feel much more active'* to *'5: I feel much less active'*). The MCID for improvement was defined as the median for *'2: I feel a little more active'* at the post-PR assessment. The MCID for deterioration was the median for *'4: I feel a little less active'* at the six-month assessment (compared to post-PR).

Results 152 participants enrolled in PR; 80% and 70% attended the post-PR and six month assessments respectively. Baseline characteristics and change with PR and over time are