Message	Labels
When should quadriceps strength be tested. Should this be between SWTs? If so, does this mean the rest period between tests be increased?	**Q**
You can do this at any time, as it isn't a cardiovascular max test you wouldn't need a long rest period. May be useful to do ahead of walking through to prevent influence of leg fatigue, but if it is the same pre-post shouldn't matter too much!	**Reply**
Endurance shuttle walk we complete on same session as ISWT. Is there a need for a 30 min rest also between incremental and endurance. We also sometimes may stop patients at 7min if making Endurance look easy and they feel they could continue. Is a further 30 min rest needed? rest	**Q**
Yes, you still need a rest period. We also stop the test and increase the speed if they achieve 8mins on the ESWT, but would also require an additional rest at least until returned to baseline obs	**Reply**
What is the best practice for assisting patients with communication needs during education?	**Q**
Hi - we are going to cover the delivery of education and health literacy issues tomorrow, does that cover what you mean by communication needs?	**Reply**
Any suggestions in how to better engage GPs in providing more/ better quality referrals to PR? Emails unanswered telephone calls	**Q**
Improving the quality of PR referrals is important. Engaging with primary care, local teaching, ICB level webinars, circulating referral advice - referral criteria, exclusions and how to refer. Anything to make referral easier - integrated forms also useful. Very brief advice that they can use when offering PR.	**Reply**
Wow, I'm blown away by this information. That makes me wonder why we have to chase GP referring patient to us if they are all armed with this information. Is there a reason why GP don't often refer patients to some services, and also do spirometry often?	**Q**
Often, they are unaware of the importance of non-pharmacological management in COPD. Education of referrers is the key. Access to spirometry has been difficult during COVID but significant national investment now into diagnostics in primary care - and in particular delivering quality assured spirometry. Historically the spirometry in primary care was not quality controlled and access to equipment limited.	**Reply**
Do we know why the COPD patients muscle fibres move from type 1/type 2?	**Q**
This is a phenomenon seen in muscle deconditioning. Multifactorial aetiology including epigenetics, oxidative stress etc	**Reply**
Are patients on virtual wards better off than those actually in hospital regarding reduction in skeletal muscle	**Q**
There is no evidence to my knowledge to support this, but theoretically by keeping them at home and having to manage their own ADLS rather than being admitted to hospital, they may maintain more physical activity.	**Reply**
How soon after an exacerbation is it safe to get a patient on PR	**Q**
Current recommendation is to start PR within 4 weeks of hospital discharge after an acute exacerbation to reduce the short-term risk of hospital readmission, improves the quality of life and exercise capacity of people with COPD. The Cochrane review which reviewed the adverse events reported by various studies concluded that PR was a safe intervention for patients with COPD after they have experienced an exacerbation. The key is a comprehensive assessment before starting PR to ensure that PR is safe at the individual level.	**Reply**

Will the slides from each presentation be emailed to attendees after the course?	**Q**
Hi all recordings and slides will be available after the course	**Reply**
Rehabilitation in inpatients is not prioritised and therefore patients start Pulmonary Rehabilitation at a lower level of activity. Should there be a greater push for rehabilitation to start at admission not after discharge?	**Q**
I think NHS resources mean that this is unlikely feasible - lack of space, workforce.	**Reply**
Is there any plan from BTS to consider rebranding to encourage patient uptake, most patients don't understand the term Pulm rehab. Also, that it is not a 6/8/12 week treatment but actually a support to make lifestyle change	**Q**
I am not aware of any plan from the BTS to rebrand PR. Agree that PR may not be self-explanatory for patients. Hopefully referrals understand that PR is an exercise and education program for people who have chronic (ongoing) breathing problems. Patient leaflets/videos that can be given out/shared via internet at time of referral to help patient understand may be useful. There certainly has been innovation in this area to improve uptake at service, ICB and regional levels.	**Reply**
Do all these non COPD have the same skeletal muscle issues?	**Q**
Skeletal muscle dysfunction and muscle impairment has been shown in other lung disease e.g. bronchiectasis, ILD	**Reply**
Does the inclusion criteria include post COVID 19 with nil other resp diagnosis?	**Q**
Several factors need to be considered with regards of individualisation of prescribed exercise due to fatigue, post exertional malaise (pacing) given potential for deterioration following over-exertion. This has been referred to in the updated BTS Clinical Standards	**Reply**
Is there any evidence out there that indicates whether pulmonary rehabilitation is beneficial for people with heart failure	**Q**
Yes. There is evidence available which suggests combining PR and CHF is beneficial (Chaplin et al 2021) and effective. It also is part of the Long Term Plan to develop more combined programmes. Research is also in progress looking at multi-condition rehab	**Reply**
MRC2 would increase waiting lists significantly	**Q**
Yes, it would but they should be functionally limited/symptomatic to get most benefit. Services should look at waiting well for patients on waiting lists, triaging referrals to ensure suitability /prioritisation and consider whether external or voluntary services would be benefit for the fitter patients e.g. gyms. Understandably this is difficult but there are projects looking at supporting local gyms with instructors with appropriate qualifications and teaching to understand the chronic disease cohort more appropriately	**Reply**
How about MRC grade 1 but recently diagnosed with a lung condition?	**Q**
BTS Guidelines state patients must be functionally limited/symptomatic, ideally MRC2 and below. MRC 1 patients will benefit from education but not necessarily PR.	**Reply**
Do we include Lung cancer patients in PR. give further inputs	**Q**
Yes. Prehab prior to surgery improves clinical outcomes however, traditional programmes may need adaptations to be able for these patients to slot in/out of the sessions dependent on surgery date and recovery. Advanced lung cancer isn't a contraindication but caution needs to be given to anyone on active chemo/radiotherapy given side effects, increased fatigue and lack of immune system. Please see updated BTS Clinical Statement	**Reply**

We have recently started incorporating the ISWT in our service, due to recommendations a practice walk test is always advised to our patients along with a recovery test of 30 mins. I have noticed that often the walking distance is reduced on the patients who have participated in the practice. What are your thoughts / experiences of this?	**Q**
The learning effect is a mean average so some people do worse and some do better. If your patients are performing the test correctly and achieving a full maximal test then it is likely they could do worse on their second test	**Reply**
Can we use an alternative to the modified borg breathless chart as patients find the wording 'severe' unrelatable and other charts use better descriptive words to explain breathlessness?	**Q**
It's up to you what you use, as long as it is validated	**Reply**
Don't we consider maintaining exercise capacity is a benefit even if there were no improvement?	**Q**
If their symptoms improve, I think you can consider that an improvement	**Reply**
what do you advise concern patient with Astma related to exercise induced asthma? and how can we know when we such case	**Q**
Optimise medication prior to exercise- pre exercise (20min before) have their salbutamol inhaler	**Reply**
Some COPD patients say the PR program made them feel worse. How this would be explained?	**Q**
Some considerations. Is the diagnosis correct? Co-morbs interfering with rehab? Is the pacing correct for that individual? Probably one of the most difficult things to get right in a group setting. Post exertional malaise research is now more common in Post Covid but suspect COPD/ILD experience similar given skeletal muscle dysfunction/weakness etc. **Do they have adequate rest time? Overtraining can reduce immune system -Is their progression/weights appropriate? What's their BMI - do they have adequate nutrition/hydration and thinking about pre & post exercise? Are they getting enough sleep? Have they warmed up and cooled down properly (esp at home)**	**Reply**
Inclusion criteria: PHTN is that all types would you accept Thromboembolic PHTN?	**Q**
Provided it is stable disease with no requirement for further investigation. If unsure, speak to the named consultant. See grunting Mackenzie peacock et al (2021) standardised exercise training is feasible, safe and effective e in chronic thromboembolic pulmonary hypertension: results from a large European multi centre RCT	**Reply**
What's the average duration of an assessment?	**Q**
Very difficult to answer given the variation in programme delivery. Depends whether services can offer a one stop assessment or not due to range of factors such as venue availability staffing and equipment etc	**Reply**
To gain accreditation status do we need to complete the HADs and EQ5D questionnaires	**Q**
I don't think PRSAS expect specific HR-QOLs in order to 'pass' but they do expect appropriate relevant evidenced based measures to be used. I. E you wouldn't use the CAT in ILD patients as it's not validated in that population	**Reply**
HADS VS GAD-8?	**Q**
Either is valid!	**Reply**
Should we be using CAT for bronchit	**Q**

The CAT has been validated for use in bronchiectasis. It has been proven to be reproducible and easy to interpret, so services may choose to use it to reduce number of different HR-QOLs used.	**Reply**
If patients show definite anxiety and depression, do we need to sort an onward referral	**Q**
Yes. Your team should have a protocol in place for this especially if a patient expresses suicidal ideation or is a suicide risk. The team have a duty of care to escalate these.	**Reply**
What would you recommend for a patient with high risk of fall	**Q**
Unsure if this relates to assessment or treatment but for either consider environment structure to reduce risk, and staff resources as to how you manage risk in assessments and classes plus what equipment you have access to as this also varies. Studies which have included balance training exercise into PR programme is something covered more in Advanced PR course in more detail	**Reply**
For a falls assessment, would you just use a FRAT or an additional measure such as timed single leg stance?	**Q**
https://pubmed.ncbi.nlm.nih.gov/307/89019/ **paper on balance assessment in COPD based on guidance in older adults. Identifying a history of falls- be clear what we mean by fall. Often people dismiss falls, underreporting for various reasons inc stigma. Defined as ending up on the floor or another surface e.g. sofa when you didn't intend to. Or if they've not fallen, do they regularly feel unsteady or grab furniture/other people to steady themselves? If yes, to those questions, can screen balance with a single leg stance or timed up and go.** **Would do above as a minimum, often not frailest looking individuals with a falls history. FRAT is interesting, as although doesn't consider balance (which is impaired in COPD, other conditions not investigated enough yet) it can give you an idea of areas beyond balance that could be looked at to reduce falls risk further and signpost/refer on, so good if time in local assessment. Some services inc this as standard in assessments as per NICE CG161.**	**Reply**
Will all the questions be answered by the end of the course	**Q**
We will try our best! Some will be picked up during the appropriate session, it may be combined with others. We may respond in the app or pick these up at the expert session tomorrow.	**Reply**
If there are groups where patients are on a range of levels for the ESWT it is difficult to allow patients to walk for as long as they can. Is it possible to give patients a target of number of laps to complete in 5mins based off of their level? i.e. if level 1 takes 20secs per length/lap is it fair to prescribe 15 laps in 5mins. This still encourages pacing and means that multiple patients at different speeds can walk at the same time.	**Q**
Yes- excellent idea!	**Reply**
If you repeat a non-standardised, e.g. 10m track, that is repeatable?	**Q**
There is no evidence of repeatability on a non-standardised track.	**Reply**
If continuous track might increase distance, does it matter if you do the same pre and post and take this into account at exercise prescription	**Q**
You would not meet the technical standards for the test, nor accreditation standards. It would also mean the calculations for prescription would be inaccurate	**Reply**
Is it necessary to do RPE for the ISWT, and why?	**Q**

Not essential, personal choice.	**Reply**
Aerobic prescription if we only do the ISWT what do you advise	**Q**
You can directly prescribe from the ISWT using the formula in the Revitt paper. OR use the pre-set table from the Leicester hospitals website.	**Reply**
Where can we obtain copy of audio instructions	**Q**
You should be able to order it from Leicester hospitals https://www.leicestershospitals.nhs.uk/aboutus/departments-services/pulmonary-rehabilitation/for-health-professionals/swt-mp3format/	**Reply**
What website was that which lists the SOP?	**Q**
The Pulmonary Rehabilitation Services Accreditation Scheme has a log in area for registered services which contains useful resources and materials for services to use. There is also an FAQ area https://www.prsas.org/faqs	**Reply**
How do you determine if they need 20 mins or 30 mins rest between the walks?	**Q**
Check the obs are back to baseline including Borg	**Reply**
What will be considered safe for respiratory rate.	**Q**
Assume you mean during exercise? Normal lungs have to increase workload by approx. three-four fold during exercise. E.g. person A normal RR=15 we would expect it to increase somewhere between 40-60 times/min. Assess what's normal for your patient at rest first and heavily educate on proper breathing technique to avoid dynamic hyperinflation in COPD and therefore controlling overall RR. With each disease being different, you must look at RR in conjunction with other parameters HR, BP and symptoms e.g. dizziness **In rest at assessment consider using NEWS2 (understanding some patients automatically score higher as they have a normal high RR) so essential you assess what's normal for your patient.**	**Reply**
We find cohorts have better attendance, and rolling prog's people drop out as not very cohesive	**Q**
There are pros and cons to each method of delivery. Services can choose how they operate provided they are sure they can meet NRAP/ Long Term Plan targets	**Reply**
How do you prescribe cycling from ESWT	**Q**
Unfortunately, you can't prescribe cycling from the ESWT	**Reply**
What do you include in warm up and how long do you do it for, at what intensity	**Q**
I always increment warm up so starting with legs only and moving to arms and legs. It should be at least 5 minutes to allow for vasoldilation which means that patients are less likely to get early onset lactic acidosis as they are better able to deliver oxygen to the muscles. In patients with cardiac disease this should be 10 minutes	**Reply**
Does it make a difference if patients do their resistance training before their aerobic training? Just trying to avoid bottlenecks and patients standing around waiting for equipment if it is in use.	**Q**
No, I think you can do either and it will work and may help with access to equipment and patient flow	**Reply**
We do sit to stands for 1 minute at assessment is this any different from only doing 5 STS?	**Q**

They are slightly different tests but either are fine to use.	**Reply**
For assessments where we have been to a patient's home for a virtual face to face appointment, strength testing with equipment is impossible/really challenging. Things like 5RSTS and oxford scale are the only real options. What would suggest for areas with equipment issues?	**Q**
Estimated 1RM assessment using ankle weights	**Reply**
Skin condition/oedema for strength testing: how would you prescribe for patients who can't have quads strength assessed?	**Q**
Although quads strength assessment is preferable if this is impossible on either leg then you would have to assess upper limb and use the RPE scale to try and gauge lower limb strength prescription	**Reply**
Can you use sit to stands in class to work the quads with or without the patient holding weights	**Q**
Functional exercises like STS are great and can really help improve leg strength but shouldn't be the only strength training in PR	**Reply**
If we choose the wrong staring weight, would you change legs when changing weight?	**Q**
No, you just need to allow enough rest for the patient unless they have ongoing symptoms of pain or fatigue	**Reply**
What kind of weights do you use to test knee extension? Ankle weights or particular equipment?	**Q**
Either depending on your set up	**Reply**
For 10 rep max it is trial and error or we may need to repeat several times. How long should you give it between trying different weights?	**Q**
For any strength assessment you should have at least a 2 minute rest between tests	**Reply**
We so not have a wide range of weights available. What range of weights is recommended bearing in mind we have very limited storage in a church hall	**Q**
Could you do a QI audit of the last 6months of the average weights used? Then keep a small selection of heavier weights?	**Reply**
We have hand hold weights only and resistance bands. Will not get anywhere near 50kg!!!	**Q**
Remember the 50KG was bilateral knee extension on the machine whereas estimating using ankle weights is only single leg.	**Reply**
Should be using the RPE scale for all resistance training instead of the BORG?	**Q**
There is no right or wrong scale but we use BORG breathlessness for aerobic exercises and RPE for strength as we find it difficult to assess strength training with a breathlessness score as the main symptom is usually muscle ache.	**Reply**
How do you manage recording this in a busy class?	**Q**
Some services use patient held records to complete during the class.	**Reply**
Should you be doing strength, endurance or both, quads exercises at the class?	**Q**
Individualised programmes depending on patients goals, fatigue levels, weights available, etc	**Reply**
How would you recommend doing both strength and endurance quads strength training in a community setting? Can only do one leg at a time, with a 2 min rest, looking at 24 minutes for both legs o do strength and endurance on just one muscle. We don't have enough weights for everyone to do this at the same time, so what would you suggest?	**Q**

There are different ways to tackle this depending on your set up. Half the class can do strength while half are doing aerobic. Some PR programmes do 'strength classes' and 'aerobic classes', another way is to prescribe walking or strength for home if you run out of time in class.	**Reply**
What exercises can you do for resistance if you don't have gym equipment at the venue	**Q**
Use the estimated 1RM assessment formulas	**Reply**
Should we only be assessing lower limb and not upper limb? We do a bicep curl for 1RM also	**Q**
Both is great if you are able	**Reply**
Aside dynamometer is there any other medical portable hand held device for strength assessment	**Q**
No	**Reply**
What other method of strength testing can be used if someone can't use ankle weights (e.g. joint damage/pain?)	**Q**
You can assess 1RM for other muscle groups	**Reply**
With limited resources and time would you say sit to stand exercises or seated knee extension with ankle weights are more beneficial for quad strengthening?	**Q**
Difficult to say in general as it will depend on the patient. for example, if you have a patient that cannot STS without using their arms then they may need to work on seated knee extension first or perhaps do mini squats. Or if you have a fitter/stronger patient who can easily lift the ankle weights you have in class then STS holding weights may be better. The key is individualising each patient's programme.	**Reply**
with aerobic exercise prescribing, we have a number of patients that report 'I walk for ages on the flat, it's when I'm on an incline that I struggle.' Do you have any suggestions regarding prescribing the walk during the programme for these patients?	**Q**
You can encourage hill walking in their home exercise plan- if you are able to use incline on the treadmill but if not incorporate in HEP	**Reply**
Should we be assessing lower limb strength rather than upper limb? Our service is currently measuring grip strength	**Q**
Ideally yes lower limb strength.	**Reply**
If we are doing both upper and lower limb strengthening exercises in the group surely, we would have to do strength assessment on both muscle groups to be able to accurately prescribe? so do knee extension for lower limbs (quads) and maybe bicep curl for upper limb?	**Q**
Yes, you're correct. It also reduces risk of injury because they've been tested and not given a random weight and allows appropriate exercise progression	**Reply**
ILD more quickly progressive?	**Q**
Don't forget that ILD is a heterogeneous group of approx. 200+ types which have differing disease trajectories. Idiopathic Pulmonary Fibrosis a one of the most common types (6,000 new cases per year) but with high mortality. It is often poorly recognised leading to delays in diagnosis.	**Reply**
Could you explain a bit more about exercises that make clients reach their ventilatory limit before reaching cardiac training effect, especially regarding ILD clients.	**Q**

partition training (e.g. one-legged cycling) leads to greater improvements in peak oxygen uptake than 2-legged cycling because it allows people who are ventilatory compromised to sustain a high-intensity stimulus to the muscle in one limb for more time before reaching their ventilatory limit - to find out more please read Evans et al 2015, Annals of the ATS; Dolmage et al 2020, Annals of the ATS	**Reply**
Would you mix groups of patients, due to capacity?	**Q**
Yes. You may have a generic breathlessness programme for lots of conditions. Just consider the staff training/ skill/ confidence and how you'll deliver disease specific education	**Reply**
Initial assessment should include a nutritional component?	**Q**
Absolutely. Good nutrition is essential for numerous reasons. Although focussed on COPD this is an excellent resource with leaflets that can be given to patients (recognise some work needs to be done to improve accessibility) https://www.bapen.org.uk/pdfs/copd-guidance/copd-managing-malnutrition-brochure.pdf	**Reply**
In one slide you implied that remote PR works and in another that it might?	**Q**
In the literature, remote models are broadly equivalent to centre-based programmes if delivered in a similar format (e.g. supervised, twice/ week). However, the data for changes in walking tests is lower than we'd see in clinical practice/ audit. Therefore, you should offer a supervised centre based programme first and if the patient declines, remote options are a back up	**Reply**
So should we definitely do a home visit for their first assessment for safety reasons before a remote course?	**Q**
You should bring them in for a face to face assessment if you can then offer a remote programme if they can't do a centre- based one.	**Reply**
Digital literacy and access was taken into account but we are also finding a lot of illiteracy both written/reading and numerical	**Q**
Yes, good point. We'll be thinking about health literacy and reading age etc in the education talk this afternoon	**Reply**
Do we include the patients who is active smoker to PR Initial assessment?	**Q**
Yes definitely!	**Reply**
Sorry, this was a question from yesterday's presentation delivered by Laura. Is a diagnosis of cor-pulmonale contraindicated/excluded from PR?	**Q**
Not contraindicated unless unstable disease that requires further investigation or better management	**Reply**