

## Spirometry Factsheet – 29<sup>th</sup> February 2024

The following factsheet has been designed to support you as you progress through your spirometry learning. This factsheet will be provided to you every month after each tutorial.

### **New to the programme?**

Please ensure that you have viewed the meet and greet video for those of you working through the Spirometry Online blended learning with ARTP and the Spirometry Refresher Programme with ARTP.

### **Support Available**

We have changed the way you can contact us to ensure your questions and queries are managed effectively. If you have a question or query, please can we ask that you access the following link and complete the form rather than emailing us. A member of the team will contact you. Alternatively, you can use the form if you would like a particular topic to be covered at the monthly tutorial.

[https://forms.office.com/Pages/ResponsePage.aspx?id=VsTAAthQqkWkgjh96Vc-WY9ZFgW\\_JFBDmuyqYm8\\_KopUMTBUNIIJMVVVRTZXSDY3R0JCO0xJUDZKVC4](https://forms.office.com/Pages/ResponsePage.aspx?id=VsTAAthQqkWkgjh96Vc-WY9ZFgW_JFBDmuyqYm8_KopUMTBUNIIJMVVVRTZXSDY3R0JCO0xJUDZKVC4)  
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### **Your monthly tutorial**

We are continually looking to review the way in which we deliver the course. We want to ensure that each monthly tutorial is catered to the learning needs of our learners. Therefore, we are changing the names of the tutorial so that you can be really clear around which tutorial you would like to attend. These will now be:

- **Performing**

These sessions are designed to provide you with an overview of how to perform spirometry. Here we will be discussing key components such as calibration and verification as well as providing some key hints and tips to support your patient getting ready to undertake spirometry.

## **Spirometry Factsheet – 29<sup>th</sup> February 2024**

- **Performing and Reporting (interpreting)**

These sessions are designed for those learners who will be involved in performing spirometry and reporting (interpreting) on spirometry traces. We will cover a step-by-step process on how to report (interpret) a basic spirometry trace. You should attend this tutorial if you are confident on performing spirometry and are ready to report (interpret) a spirometry trace.

- **Reporting and getting ready to undertake your ARTP certification**

These sessions are designed for those learners who are nearing completion of their spirometry eLearning and are ready to apply for their ARTP certification (assessment). Within this tutorial we will be covering how to report (interpret) more complex traces and providing you with hints and tips to the ARTP certification process.

Please ensure that you have attended the performing and performing and reporting tutorials.

### **Occupational Health**

These sessions have been designed for those learners who are operating outside of primary and secondary care and are currently operating in the following area of practices Army, Ministry of Defence and occupational health settings.

### **Which tutorial to attend?**

These tutorials are rolling and therefore as you work through your programme, you can move from one tutorial to another so for instance you can attend the performing tutorial initially. Once you are confident with performing spirometry then you can attend the performing and reporting tutorial and so on.

There will be an opportunity to ask questions during the monthly tutorials; any questions that may come in advance and are not covered on the rolling programme, will be addressed on the day.

### **How to work through the Spirometry Online blended learning programme?**

The Spirometry online blended learning programme consists of eLearning units and monthly tutorials. We encourage you to work through the chapters in a linear format so that you gain a thorough understanding of the spirometry

## Spirometry Factsheet – 29<sup>th</sup> February 2024

process. Depending on your role in spirometry you may wish to spend more or less time on some chapters versus others. Please check your welcome pack for further details. **Please note this does not apply to those of you on the Spirometry Refresher programme.**

### **I am completing the Spirometry Blended Online Programme with ARTP certification. Do we have to complete the eLearning before we access the ARTP certification?**

Education for Health's learning is independent of the ARTP assessment. We would recommend that you apply for your ARTP once you have completed all the eLearning chapters and have undertaken practical training in your area of practice.

### **Frequently Asked Questions (FAQs):**

The Association for Respiratory Technology and Physiology (ARTP) have put together a number of FAQs: <https://www.artp.org.uk/Spirometry-FAQs>

### **Spirometers**

If you have any questions around spirometers, we encourage you to contact the manufacturers in the first instance. Education for Health does not endorse any particular spirometer for use in the clinical situation. For advice re: suitability of spirometers, please refer to the manufacture's website for detail of the variety and performance of their products.

### **Questions from 29<sup>th</sup> February 2024 on-line Tutorial**

**Q 1. Should we be using nose pegs for forced blows as that is what is shown on demo video? We have only been using them on relaxed blows.**

1. **A Guide to Performing Quality Assured Diagnostic Spirometry (2013)** states a nose clip is not essential for the forced manoeuvre
2. **The ATS/ERS Standardization of Spirometry 2019** Update offers a table – table 6, Procedures for FVC Manoeuvres, Instruct and demonstrate the test to the patient attaching a nose clip

3. **The ARTP Statement on Pulmonary Function Testing (2020)** states forced blows are usually performed wearing tight-fitting nose clips to avoid unnecessary leaks though a nose clip is not essential for the measurement of forced expiratory manoeuvres; it is however, required for inspiratory manoeuvres and for relaxed manoeuvres.

It is therefore important that you agree with your pulmonary function labs and agree a Standard Operating Procedure for all to adopt.

**Q 2. I want to check what to do with the Biological controls PEF. Do we need to work out 40L/min plus or minus from the mean or the 5%? In the guidance it says 5% only for: VC,FVC and FEV1?**

The 40L/min or 0.67L/sec upper and lower limit range from the mean value (mean value  $\pm$  40L/min or 0.67L/sec) for PEF.

**Q 3. For diagnostic spirometry, do we always do baseline before post-bronchodilator, or can we just do post-bronchodilator straight away if pt. has suspected COPD?**

If considering COPD, it is always post bronchodilator spirometry. Please see chapter 2 of GOLD (2024) page 20 and page 7 of NICE (2018) guidelines for more information.

**Q 4. If the VC is not within 150mls of the FVC therefore not meeting ARTP criteria (and lower not higher), would you repeat baseline spirometry again? Can you proceed with post bronchodilator?**

ARTP: "The SVC and FVC should technically be similar in normal and restrictive disease states. There is no physiological reason for the FVC to be significantly >SVC, this only really occurs due to technical error underestimating the SVC unlike in obstructive patterns, where the FVC may be significantly reduced compared to the SVC due to significant dynamic airway compression during a forced effort.

In line with the most recent ARTP guidelines 2020, reproducibility should be within 150mls for FEV1, FVC and SVC, therefore it would be expected that the SVC

and FVC fall within the similar criteria of 150mls”:

<https://www.artp.org.uk/spirometry-faqs>

### **Q 5. Does it matter whether we use z-scores or LLN?**

Lower Limit Normal (LLN) normally refers to the use of the Global Lung Initiative (GLI 2012) reference equation using the z-score, i.e., one of the same.

### **Q 6. We have a column on our results that is headed LLN and is a %, as is FEV1/FVC so we compare those two figures.**

When reporting the ratio, it is important that you report the actual ratio and not the % predicted.

### **Q 7. My spirometer has a column for LLN and predicted. Which do we use to diagnose restriction? - is it % predicted, or the % below the LLN. I had a patient the other day who's FEV1/FVC/VC were all reduced below 80% predicted normal, but recordings was still above LLN (elderly frail person).**

Typical spirometry findings in restrictive lung disease include:

- Reduced FEV1 (<80% of the predicted normal)
- Reduced FVC (<80% of the predicted normal)
- FEV1/FVC ratio normal (>0.7)

Any Red Flags identified as part of the structured clinical history and examination requires a referral as per local guidelines.

### **Q 8. Will an asthmatic with obstruction result always reverse to normal?**

This will depend on the phenotype and severity of asthma. For most patients, due to the variability of the condition, spirometry should return to normal after appropriate treatment.

### **Q 9. For the 10 pebblepad submissions- do the tracings have to be completely 'blemish free'- i.e., no coughs, etc? Very difficult to get perfectly smooth curves on every breath.**

#### **ARTP: Portfolio Patient Tests**

“You are required to perform and upload **10** good quality **anonymised** spirometry test reports. These must be obtained from patients who **you** have tested and must not contain duplicate tests (e.g. same patient, different days)”

**Q 10. So, my spirometer reports have columns for "LLN" and "% predicted" next to the patients results. It doesn't show the Z-score. How should I diagnose restriction? Would the criteria still be <80% predicted normal for FEV1, FVC, and VC, with a normal ratio? and ignore the LLN without Z-scores.**

If you are considering a restrictive condition, the patient would be referred to secondary care for assessment. If a restrictive pattern is an incidental finding, the patient would still be referred to secondary care.

**Q 11. Did you have an example of mixed obs/restrictive please?**

This will be added to the data base in forthcoming lectures.