



Spirometry Factsheet – February/March 2023

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 working through the Spirometry Online blended learning with ARTP and the Spirometry Refresher Programme with ARTP.

Support Available

We are changing 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=VsTAAthQqkWkqjh96Vc-WY9ZFgW_JFBDmuyqYm8_KopUMTBUNIIJMVVVRTZXSDY3R0JJCQ0xJUDZKVC4
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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.



- **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.



How to I 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 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> **These were updated by the ARTP in February 2023 so please do access them.**

Spirometers

If you have any questions around spirometer, we encourage to contact the manufacturers in the first instance.

Questions from February on-line Tutorial

Q. I have completed the eLearning until chapter 5 and want to start putting my portfolio together. Do we use the Pebblepad and would we get access to this via education for health?

The appropriate eLearning chapter for your module will give you access to the form you need to complete. Access to PebblePad is then arranged by the ARTP.



Once you have had a PebblePad account created for you, you will receive an email providing you with a link to the login page. The ARTP recommend that you make a start on your portfolio and submit by month 6 of your ARTP enrolment to allow for any amendments.

Q. Do we need to only use a spirometer that reports the Zscore?

In clinical practice, many older spirometers may not have the Z-score software. When purchasing a replacement in the future, spirometry manufactures will provide equipment with in-built z-scores. You will be required to know about and interpret z-scores for your MCQ exam regardless of whether your current spirometer provides the z-score in its report.

Q. I am struggling to get our spirometers updated.

You will need to contact the manufacturer of your spirometer; however, it is less likely that the spirometer can have an update of its software to include z-score, it is more likely that a new spirometer would need to be purchased. Please contact the manufacturer.

Q. We use SpiroConnect portable machines

SpiroConnect is an example of a spirometer that is integrated into the clinical system, importing the spirometry results directly to the patient records. SpiroConnect is a compact spirometer which uses a Bluetooth Dongle. Other manufacturers also produce more portable spirometers which integrate directly into patient records.

Q. what is the difference between post bronchodilator spirometry and reversibility testing?

There are different types of spirometry, such as baseline used in screening situations, reversibility used for diagnostic spirometry, for example in asthma and post bronchodilator spirometry, another form of diagnostic spirometry, looking for airflow limitation in suspected COPD. Reversibility testing would include both baseline spirometry, followed by administration of a bronchodilator, dose according to local protocol. After 15-20 minutes if given a short acting β_2 agonist



or 45 minutes if given a short acting muscarinic antagonist, spirometry is repeated. The purpose is to look for a bronchodilator response.

Q. Do we do post bronchodilator test for all COPD patients, if not what is the criteria?

Post bronchodilator spirometry is required for the diagnosis of COPD, looking for airflow limitation and its severity (GOLD 2023).

Q. Is that under 18 years?

Routine lung function measurements can now be performed in paediatrics from the age of 3 years through to the age of 16–18, where they are commonly seen in adult physiology services. Young children would almost certainly be seen in paediatric services. The ARTP provide a paediatric top up certificate. The age range of children encompasses a large and dramatic change in both the lung physiology and the cognitive development of the child.

Q. We have some 6-year-olds due to have spirometry, do we reduce the dose down to 200mcg Salamol rather than 400mcg?

In the assessment of bronchodilator response, the standard procedure should be to administer 400 µg of salbutamol via a metered dose inhaler plus spacer device. A nose clip should be worn to ensure mouth breathing, and in younger children a face mask with the spacer may be required (ARTP 2020).

Q. I am struggling to get my spirometry to connect to system one, it is a MicroLoop, despite trying 2 different software updates.

Please contact your manufacturer.

Q. Where do I find the SOP please?

https://www.artp.org.uk/resources/spirometry_sop_2023

Q. How relevant is the lung age?

It has not yet been widely used or fully exploited due to the doubt regarding the current lung age estimation methods Liang et al (2022) estimation of lung age via a spline method and its application in chronic respiratory diseases

[*Primary Care Respiratory Medicine* volume 32](#), Article number: 36



Q. Would you not use the VC/FEV1 as VC was higher?

Yes

Q. Do we have to do spirometries at the end of clinics?

When planning spirometry lists, if possible, patients with an infection should be booked at the end of the list, whereas immunocompromised patients should be at the start of the list.

Spirometry should be conducted in a well-ventilated room to maximise airflow. A minimum of 6 air changes per hour in the room is recommended. There are High Efficiency Particulate Absorbing (HEPA) filters available which can filter most particulate matter, including COVID-19 particles. These can be purchased and, depending on the number of air changes in the room, can be set to clear the air within 15 minutes. This is not essential but depending on local protocols can be utilised to help reduce infection risk. (ARTP 2023)

Q. In order to complete the portfolio, am I right in thinking we need to start practicing on patients. Can we start doing spirometry before completing OSCE?

Performing quality assured spirometry is essential. By following the recommendations in the guidelines for patient safety, ensuring all the equipment has been prepared in line with the recommendations and appropriate documented, spirometry performing will start. As with all tests there is a duty of care and accountability. It is up to the healthcare professional to ensure they are practising in line with their professional code. The order of the OSCE, MCQ and Portfolio submission is a personal choice.

Q. Do I need to wear nose clips for the forced blows?

The following refers to adults. In paediatric spirometry a nose clip should be worn to ensure mouth breathing, and in younger children a face mask with the spacer may be required (ARTP 2020).



The use of a nose clip in adults has caused a significant amount of discussion. As with all policies and procedures, it is prudent to discuss with senior colleagues and agree the protocol for the area where you work. There are many considerations other than applying a nose clip for relaxed vital capacity, such as age of patient, co-morbidities, cognition, and purpose of spirometry. For instance, is this for monitoring or diagnosis?

The following extracts may be helpful to inform your clinical decision making and protocol development.

- **ARTP Standard Operating Procedure (SOP) Performance of Spirometry in Adults**

Relaxed Vital Capacity:

Connect the mouthpiece and/or filter to the spirometer and use a nose peg (essential for SVC, optional for FVC)

Forced Vital Capacity:

Connect patient to the mouthpiece; nose clips are optional.

- **ARTP: Statement on pulmonary function testing (2020)**

A nose clip is not essential for the measurement of forced expiratory manoeuvres; however, it is required for forced inspiratory manoeuvres and for relaxed manoeuvres

The tests are usually performed wearing tight-fitting nose clips to avoid unnecessary leaks

- **ATS/ERS (2019) Technical statement: standardisation of spirometry**

Patients should be relaxed, seated erect with a nose clip in place, and asked to breathe normally until the end-expiratory lung volume is stable.

- **BTS (2013). A guide to performing quality assured diagnostic spirometry**

Prepare patient and equipment to perform the baseline VC. Apply nose clip.

Prepare the patient and the equipment to perform the baseline FVC. Nose clip is not essential.



- **Newel et al (2007)** Is it necessary to use a nose clip in the performance of spirometry using a wedge bellows device?

“The use of nose clips during the performance of spirometry remains a controversial area and there is currently no worldwide consensus on the best practice to adopt. Whichever method is adopted should be recorded and consistency between measurements obtained in the same patient must be maintained in order to ensure any changes are attributable to clinical variation rather than testing technique”.

Chronic Respiratory Disease 2007; 4: 53–57