Spirometry Standards Document

National Spirometry Certification

Spirometry Standards Document	Spirometry
Purpose Statement	To outline the expectations for spirometry training providers and the minimum requirements candidates must meet to achieve **ARTP Spirometry Certification**
Author(s):	ARTP Spirometry Committee
Date of Original Document	November 2020
Update(s)	June 2026
Document Version:	V7
Review Date:	1 June 2027
Notes:	

Contents

1. Introduction 3
2. Standards for Provision of Spirometry Training 3
2.1. Trainer Requirements 3
2.2. Course Duration 4
2.3. Course Content 4
3. Pre-Requisites for Spirometry Candidates 7
3.1. General Knowledge 7
3.2. Basic PC Skills 7
4. Levels of Spirometry Certification 7
4.1. Full (Performing & Reporting) Certification 8
4.2. Performing Only Certification 8
4.3. Reporting Only Certification 8
5. Registration Process 8
6. Certification Registration Fee 9
7. Candidate Communication Information 9
8. Spirometry Portfolio Overview 10
8.1. Portfolio Requirements 10
9. Portfolio Contents 10
9.1. Full and Performing Portfolios 10
9.2. Reporting only Portfolio 13
9.3. Top Up Portfolio FULL (Paediatric) (For Adding Paediatric Certification to an Adult Certificate): 13
9.4. Top Up Portfolio Performing only (Paediatric) 13
9.5. Audit Portfolio 13
10. Multiple-Choice Question (MCQ) Examination 13
10.1. MCQ for the Full and Reporting Portfolios 13
10.2. MCQ for Top-Up Certification 14
10.3. MCQ for Audit candidates 14
10.4. Special Requirements 14
11. The Objective Structured Clinical Examination (OSCE) 14
11.1. OSCE for the Full/Performing Certificate 15
11.2. Practical Assessment 15
11.3. OSCE Process 15
11.4. The Spirometer 16
11.5. The Test Patient 16

11.6. Technical Viva 16
11.7. Completion of the OSCE and Notification of Outcome 16
12. Certification Completion 16
12.1. Components to Certification 17
12.2. Allowances for Failed Attempts 17
13. National Spirometry Register 17
14. Re-Accreditation of Spirometry Certification 18
14.1. Annual Audit 18
14.2. Assessments for the CPD Audit 18
15. Extensions 19
16. Complaints Process 20
17. Appeals Process 21
18. Appendix 1: Acceptability and Repeatability Criteria (Adult & Paediatric) 22
1. Adults 22
1.2. Repeatability Criteria (Adults) 23
2. Paediatrics 23
19. Appendix 2: Verification or Calibration Log 25
Templates Available: 25
20. Appendix 3 Reporting Strategy for MCQ Examinations 26
Key Reporting Guidelines: 26

1. Introduction

The following document describes the standards set by the **Association for Respiratory Technology and Physiology (ARTP)** as the provider of spirometry certification. It outlines the expectations for spirometry training providers, and the minimum requirements candidates must meet to achieve **ARTP Spirometry Certification**. The certification is intended to ensure the delivery of quality assured diagnostic spirometry in accordance with current ARTP guidance and good clinical governance principles.

2. Standards for Provision of Spirometry Training

To successfully achieve **ARTP Certification in Spirometry**, candidates must undertake both theoretical and practical skills training with a qualified provider. This could be with an external provider or within the normal workplace environment if there is the required experience in the workforce. The ARTP recommends that all training providers meet the minimum standards outlined here.

Candidates should be performing spirometry regularly in the workplace prior to enrolling on the certification process. Regular exposure will put candidates in the best position to succeed in the Spirometry Certification and ensure competency in gaining quality assured diagnostic spirometry results for patients.

2.1. Trainer Requirements

2.1.1. Training providers must have an in-depth understanding of the **ARTP Spirometry Certification** process to effectively guide and support candidates.

2.1.2. Trainers should hold a **minimum of the ARTP Full Certificate in Spirometry** (or equivalent) and maintain competency in performing, reporting and interpreting quality-assured diagnostic spirometry in clinical settings.

2.1.3. Trainers should possess a **recognised teaching or training qualification** relevant to healthcare.

2.1.4. The following maximum trainer-to-candidate ratios are recommended:

- For theoretical training, the student-teacher ratio should be up to **30:1**.
- For practical skills training, the ratio should be up to **5:1** to ensure adequate supervision.

2.1.5. Training providers must ensure candidates receive **ongoing support** via face-to-face workshops, email, virtual platforms, or telephone throughout the duration of their certification.

2.1.6. Trainers are encouraged to attend an **ARTP Spirometry Update session** at least bi-annually to stay informed of any changes in the certification process.

2.1.7. Please note that ARTP does not accredit trainers. It is the responsibility of training providers to ensure that their trainers meet the appropriate standards and qualifications to deliver high-quality spirometry education.

2.2. Course Duration

2.2.1. **Practical skills:** A minimum of **4.5 hours** of practical skills training is required, following the ratios mentioned above.

2.2.2. **Theoretical teaching:** Between **9-12 hours** of theoretical training is recommended, also following the stated ratios above.

2.2.3. Candidates should also engage in **self-study** using resources such as **distance learning tools** and **web-based platforms** to reach the necessary competency level for performing diagnostic spirometry. There is a free e-learning module available, consisting of six sessions, on the NHSE learning hub. These modules are designed to support practical experience- and they are NOT a substitute for supervised practical training.

2.2.4. The above is intended as a minimum for training providers. Course attendance alone does not demonstrate competency.

2.3. Course Content

ARTP recommends that training courses cover the following areas to ensure candidates achieve **proficiency** in both **adult** and **paediatric** spirometry testing.

2.3.1. Training courses should ensure coverage of **appropriate content** for the role of the candidate (e.g., adult or paediatric spirometry).

2.3.2. Candidates focused on **paediatric-only** testing should have specific sections targeted towards **paediatric testing**.

2.3.3. **On completion of the training, candidates should demonstrate an understanding of the following areas:**

2.3.3.1. Basic Anatomy, Physiology, and Pathophysiology of the Respiratory System

- Anatomy and physiology of the respiratory system
- Pathophysiology of common respiratory disorders
- Lung growth and development, especially for paediatric candidates

2.3.3.2. Definitions of Spirometric Values

- **FEV_1**, **FVC**, **FEV_1/FVC**
- **PEF**, **$FEF_{25-75\%}$**
- **VC**
- Quality indicators such as **BEV, PEFT and FIVC**
- Ability to locate these values on the **volume-time curve** and **flow-volume loop**

2.3.3.3. Spirometer Use and Maintenance

- **Minimum recommendations** for spirometers

- It is recommended that spirometers used in clinical practice meet ISO technical standard 26782:2009 – most modern spirometers meet this requirement

- Understanding **measurement principles** of spirometers
- Recognising **advantages and limitations** of different spirometer types
- Spirometer **cleaning** and **maintenance**, including fault detection and correction

2.3.3.4. Infection Control

- **Infection prevention** methods for spirometry, including **universal precautions**
- Importance of regular **cleaning** and the processes involved
- Importance of local infection control policies
- Management of infectious patients and immunocompromised patients

2.3.3.5. Quality Control of Spirometers (Physical and Physiological)

- Performing **calibration and/or verification** with an appropriate syringe
- Defining the purpose of **calibration** and **verification** and understand the difference between them
- Conducting **physiological quality control** using a healthy patient
- Summarising equipment **quality control** requirements

2.3.3.6. Pre-Test Considerations, Indications, and Contraindications

As per the latest **ARTP** guidelines and recommendations:

- Indications for spirometry testing
- Understanding **contraindications** to spirometry testing (relative and absolute and the difference between them)
- Understanding how contraindications may be relative or absolute depending on the local pathway
- Importance of effective **communication** to optimise test results
- Providing appropriate **pre-test instructions** for patients
- **Special considerations** when testing children

2.3.3.7. Reference Values

- Defining and explaining **reference values** in spirometry
- Understanding which reference values are recommended and why
- Understanding the importance of local policies on the choice of reference values
- Factors influencing **reference values**
- Demonstrating a basic understanding of limitations of reference values
- Demonstrating the use of **Z-scores** and **Standardised Residuals**

2.3.3.8. Performance of Spirometry

Candidates must be able to:

- **Prepare the spirometer** for testing as per manufacturer's instructions
- Conduct accurate **height** and **weight measurements** and record findings accurately
- Apply **infection control procedures**
- Correctly **instruct** patients on spirometer use
- Describe the **correct position** for spirometry
- Record **relevant patient information** (e.g., medication, smoking history)
- Record duration of smoking history (in pack years) and time of last cigarette if appropriate
- Ask **pre-test questions** and identify **contraindications**
- Explain the **spirometry testing procedure** to the patient
- **Demonstrate** and **coach** the patient during testing
- Obtain accurate spirometry results per the latest **ARTP guidelines**
- Understand the difference between technical acceptability criteria and repeatability criteria and the impact of not meeting criteria on results
- Recognise **improperly performed manoeuvres** and advise corrective actions
- Document any relevant events that occur during the spirometric assessment
- Ensure **optimal effort** from paediatric patients through incentives such as games

2.3.3.9. Performance of Bronchodilator response

- Outline considerations for performing a bronchodilator response test
- Situations when it is appropriate to perform the test
- Pre-requisites for performing the test including:
    - Referral and governance process for prescription of the bronchodilator
    - Performance of technically acceptable and repeatable baseline spirometry
    - With-holding of bronchodilators and appropriate washout times
- Awareness of different guidelines for interpreting significant change and limitations of each, importance of having local policy in place for guideline use

2.3.3.10. Assessment and Review of Spirometry Results

Candidates must be able to:

- Identify if results meet **acceptability / usability** and **repeatability** criteria according to the latest **ARTP Guidelines**
- Apply **quality grading** to individual FVC and FEV_1 measurements
- Select the **best values** from test results
- Compare results with **reference values**
- **Evaluate changes** in individual test patients
- Report **bronchodilator response**
- Recognise and describe **restrictive**, **obstructive and mixed patterns** on **volume-time** and **flow-volume curves**
- Record and report **comments** on the spirometry tests
- Understand how to **store electronic data**

3. Pre-Requisites for Spirometry Candidates

Alongside appropriate training and workplace exposure to spirometry, it is recommended that candidates possess the following general knowledge and basic computer skills to ensure successful completion of the certification process. It is the candidate's responsibility to confirm that they meet these prerequisites before starting the certification process.

3.1. General Knowledge

3.1.1. Ability to perform basic mathematical operations, such as multiplication, division, handling decimals, and percentages.

3.1.2. Understanding and ability to calculate ratios.

3.1.3. Proficient use of a basic calculator to perform necessary calculations.

3.2. Basic PC Skills

3.2.1. Familiarity with basic computer operations, including navigating software programs required for spirometry testing.

3.2.2. Basic understanding of data entry, especially handling spirometry test data.

3.2.3. Ability to use drop-down menus and select appropriate options during spirometry test entries.

4. Levels of Spirometry Certification

The **ARTP** classifies spirometry certification into three levels:

1. **Full (Performing & Reporting)**,
2. **Performing Only**
3. **Reporting Only**

Certification can be obtained for adult testing, paediatric testing, or both. Further information for combined portfolios or top-up certifications is provided in **Section 9**.

4.1. Full (Performing & Reporting) Certification

This certification level assesses a candidate's competency in both performing and reporting quality-assured diagnostic spirometry. Candidates must complete:

4.1.1. A portfolio of evidence demonstrating proficiency in the practical performance of spirometry

4.1.2. A **Multiple-Choice Question (MCQ) Examination** focused on the technical and clinical reporting of spirometry results.

4.1.3. An **Objective Structured Clinical Examination (OSCE)** assessing practical competency in performing spirometry.

4.2. Performing Only Certification

This certification assesses the competency of a candidate in performing spirometry without requiring clinical reporting. Candidates must complete:

4.2.1. A portfolio of evidence demonstrating proficiency in the practical performance of spirometry.

4.2.2. An **Objective Structured Clinical Examination (OSCE)** assessing practical competency in performing spirometry.

4.3. Reporting Only Certification

This certification assesses a candidate's ability to clinically report spirometry results. Candidates must complete:

4.3.1. A portfolio of evidence demonstrating awareness of technical factors influencing spirometry quality and interpretation.

4.3.2. A **Multiple-Choice Question (MCQ) Examination** focused on the technical and clinical reporting of spirometry results

5. Registration Process

All applications for spirometry certification are completed online via the **ARTP spirometry portal.** Registration details and instructions for payment can be found at https://spirometry.artp.org.uk/portal

Candidates must provide personal details and select their preferred method of payment during registration. Group bookings are available as well as booking on behalf of candidates.

**Once enrolled candidates will be given access to all the resources available on the ARTP Spirometry portal, including templates, booking links, assessment forms and guidelines for exam preparation.*

Whilst enrolling candidates will be required to provide the following background information:

- The **range of tests** performed in their workplace
- The **frequency of testing** (weekly/monthly)
- The **types of patients** tested
- The **staff groups responsible** for performing the tests
- The **location where the tests are conducted**
- The **referral methods** for lung function testing

6. Certification Registration Fee

The registration fee covers certification costs and the candidate's registration onto the **ARTP Spirometry Register** for the first year. The following fees apply:

Full (Performing & Reporting) Certification:	£250
Performing Only Certification:	£250
Reporting Only Certification:	£195
Joint Adult and Paediatric (Full) Certification:	£265
Joint Performing Only Certification:	£265
Joint Reporting Only Certification:	£210
Top-Up Paediatric (full Certification):	£195
Top-Up Paediatric (performing only):	£125

**Certificate fees may be revised or may be subject to change; prices were last updated in June 2026.*

7. Candidate Communication Information

7.1. Upon successful registration, candidates will receive an automated email booking confirmation.

7.2. Additional details, including access to the PebblePad e-portfolio system, will be sent on or around the 1st working day of the month of enrolment.

7.3. Candidates will receive a support guide within their portfolio to ensure candidates are familiar with navigating PebblePad and submitting their portfolios.

8. Spirometry Portfolio Overview

The **ARTP Spirometry Portfolio** is a key component of the certification process. Candidates must demonstrate their knowledge and skills through a series of tasks and evidence submissions.

8.1. Portfolio Requirements

8.1.1. The spirometry portfolio consists of **several sections**. The sections that must be completed will depend on the level of certification that the candidate has registered for.

8.1.2. All sections of the portfolio must be completed to the defined minimum standard.

8.1.3. Candidates must **provide evidence of competency for each required section**, which may involve uploading documents, answering questions, or completing specific tasks.

8.1.4. When answering questions, the candidate will be required to **write in the text boxes and tables** provided or the candidate may have the option to **upload a document or image**.

8.1.5. When completing sections requiring evidence of competence, an upload option is provided for each piece of evidence required.

8.1.6. The candidate will be able to **amend any part of their portfolio until it is submitted**; once submitted no further amendments can be made.

8.1.7. There are **two outcomes** to the portfolio:

- Pass
- Fail (not yet achieved)

8.1.8. Portfolios will be marked based on the quality of evidence provided, and feedback will be given for any sections needing improvement. In the case of a “Not yet achieved” being awarded, the portfolio will be referred back to the candidate with appropriate standardised feedback outlining the amendments that are required to achieve a pass.

8.1.9. Following an initial fail (not yet achieved), a **further two portfolio submissions are permitted** within the initial registration fee.

8.1.10. If additional submissions are required to complete the portfolio, **evidence of further training** which must be completed after the third unsuccessful attempt, must be submitted to ARTP within 6 months. An administration fee of £50 will be applied for each additional submission.

9. Portfolio Contents

Using the **PebblePad e-portfolio system**, candidates must provide information about their spirometry work.

9.1. Full and Performing Portfolios

The Full and Performing portfolio is comprised of the following sections for both adults and paediatrics. Where differences arise, these will be highlighted.

9.1.2. Performance Criteria

The candidate must demonstrate **adherence to safety standards and protocols** when performing spirometry. To complete this section successfully, the candidate is required to:

- Provide a **local standard operating procedure** for the performance of quality-assured diagnostic spirometry. This should be an uploaded procedure/policy document. References must be included.
    - ARTP have provided an SOP which candidates can adapt to their local workplace or use their own locally devised SOP. Required sections are highlighted in the ARTP SOP
    - Candidates must ensure that each of these sections is included to ensure safe practice of spirometry within their local workplace.

9.1.3. Calibration & Verification

The candidate must demonstrate an understanding of calibration and verification processes. To successfully complete this section, the candidate is required to:

- Explain the concepts of calibration and verification, outline their purposes, and highlights the key differences between the two.
- Outline the **acceptable ranges for calibration/verification** and the **actions to be taken if calibration/verification fails.**
- Upload a **fully completed calibration or verification log** that meets validity requirements (further guidance is provided in Appendix 2).

9.1.4. Physiological Control

The candidate must **explain the purpose of regular physiological quality control** and demonstrate its application. To complete this section, the candidate is required to:

- Describe the purpose of using a physiological control person for quality assurance in spirometry services and the process required to obtain normal values.
- Describe how often physiological control testing should be performed
- Describe actions that should be taken if values fall outside the normal range

9.1.5. Patient Tests

- The candidate must provide evidence of competence in patient testing by uploading **ten anonymised** patient tests:
    - For the **Adult Portfolio**, all patients must be aged **16 or older**.
    - For the **Paediatric Portfolio**, all patients must be **under 16 years**, with **at least three younger than 10 years** old.
    - For the **Joint Adult & Paediatric portfolio**, **five** patients must be **under 16 years**, with at least **one younger than 10 years old**.
    - For the **Top-Up portfolio**, **five patient** tests are required, all of whom must be **under 16 years**, with **at least one younger than 10 years** old.
- The candidate must have **performed the tests themselves**. It is not acceptable to submit tests performed by others.

- Only test results obtained within the duration of the certification process, or 12 months prior to enrolment may be used (therefore candidates have 21 months to achieve this).
- All results must meet ARTP **acceptability and repeatability criteria** (refer to Appendix 1).
- The flow-volume loop for **ALL** traces should be included to allow assessment of technical acceptability
    - Spirometers which meet the required standard will allow a report to be generated showing all loops.
    - It is advised that candidates speak to the manufacturer to help facilitate this.
    - Candidates can also submit photos of individual loops as evidence.
- **Bronchodilator Responsiveness Tests:** While bronchodilator responsiveness testing is NOT mandatory, if submitted, it will be assessed according to ARTP guidelines:
    - Both baseline and post bronchodilator spirometry tests must meet the acceptability and repeatability criteria outlined in Appendix 1 (including post VC)
    - Post bronchodilator spirometry values should not show a reduction compared to baseline spirometry values (less than 150mls or less than 100mls if FVC is under 1L for VC, FVC, and FEV_1; and less than 40L/min or 0.67L/sec for PEF).
    - Candidates must submit baseline and post-bronchodilator results as part of a single test example; they cannot be used separately as two individual tests.
- **Quality Review of Test Reports:**
    - Test reports that do not meet criteria will be returned to the candidate with feedback, explaining the deficiencies.
    - To comply with professional standards (NMC, RCP, HCPC), all submitted results must be fully anonymized. This includes date of birth and any unique identifier produced by the spirometer. If there is a confidentiality breach, the portfolio will be returned in its entirety for revision, and the submission will be marked as a failed attempt.
    - Candidates must have performed the tests themselves and must not submit tests performed by others.

9.1.7. Problems Encountered During Testing (Full, Performing & Reporting Levels)

The candidate will be provided with **five technically unacceptable spirometry** test reports. They must review each and:

- Identify the **technical error**
- Explain **how to rectify it**

9.1.8. Declaration (Full, Performing & Reporting Levels)

- All candidates must download and complete a self-declaration form confirming that all work within the e-portfolio is their own.
- This should be signed in pen **NOT** electronic signature
- The declaration form must be countersigned by a Head of Service, Deputy Head, GP, Senior Nurse, Supervisor, or another senior staff member.

9.2. Reporting only Portfolio

For candidates enrolled on the "reporting only" level a shortening portfolio is required consisting of

9.2.1 A local "standard operating procedure"

9.2.2 Problems encountered section

9.2.3 Signed declaration

9.3. Top Up Portfolio FULL (Paediatric) (For Adding Paediatric Certification to an Adult Certificate):

To complete the Full Paediatric Top-Up portfolio, the following is required:

9.3.1. A **shortened portfolio**, which includes only five patient test uploads

9.3.2. A **condensed multiple-choice questionnaire (MCQ)** consisting of ten questions

9.4. Top Up Portfolio Performing only (Paediatric)

9.4.1 A shortened portfolio which includes only five patient test uploads (1 of which must be under 10 years old)

9.5. Audit Portfolio

Every year 5% of the register are asked to take part in the audit. More information on this can be found here Audit | ARTP Spirometry

The Audit Portfolio requires the completion of the following (depending on certificate level):

9.5.1. A **shortened portfolio** that includes SOP, calibration and 10 patient test uploads

9.5.2. A **condensed multiple-choice questionnaire (MCQ)** with ten questions

10. Multiple-Choice Question (MCQ) Examination

10.1. MCQ for the Full and Reporting Portfolios

The MCQ exam is mandatory for candidates pursuing the Full or Reporting level certificate.

10.1.1. The MCQ consists of 20 spirometry test reports, which may or may not include associated clinical information.

10.1.2. Candidates must complete the assessment under examination conditions, defined as within a set time limit, without access to reference materials, and under the supervision of a nominated invigilator. An invigilator form must be submitted to spirometry@artp.org.uk no later than 2 days before the scheduled MCQ exam date.

10.1.3. The exam has a time limit of 60 minutes.

10.1.4. Candidates must follow a pre-defined reporting strategy outlined in Appendix 4, which provides the guidelines for reporting the results of each question.

10.1.5. Candidates must demonstrate the ability to identify abnormal spirometry results using the lower limit of normal (LLN) and, in some cases, by applying Z-scores.

10.1.6. Candidates will also be required to grade the severity of airflow obstruction using Z-scores (for both adults and paediatrics) as per latest ARTP guidelines, and FEV_1 percent predicted using NICE 2019 guidelines (adults only).

10.1.7. A score of 14 out of 20 (70%) is required to pass the exam.

10.1.8. Candidates will be notified of their results immediately upon completion, and then officially via email within 5 working days of completing the assessment.

10.1.9. If a candidate does not achieve a pass, they will be given up to two further attempts within their initial registration fee to succeed. Each further attempt must be conducted on a separate day.

10.1.10. If additional attempts are needed, evidence of further training undertaken after the third unsuccessful attempt, must be submitted to ARTP within 6 months, along with an administration fee of £50 per additional attempt.

10.2. MCQ for Top-Up Certification

10.2.1. Candidates completing the Top-Up portfolio will take a shortened MCQ focused on their additional or optional modality.

10.2.2. To pass, candidates must correctly answer at least 7 out of 10 questions (70%).

10.2.3. The questions will pertain to the relevant population (adult or paediatric) and will cover both technical and clinical aspects of spirometry test data interpretation and test performance.

10.3. MCQ for Audit candidates

10.3.1 Candidates completing the audit certification will take a shortened MCQ.

10.3.2 To pass candidates must correctly answer at least 7 out of 10 questions (70%) and they will be given 45 minutes to complete this assessment.

10.4. Special Requirements

10.4.1 Candidates who require additional time to complete their MCQ examination can apply using the special requirements form found at https://www.artp.org.uk/resources/special-requirements-form

11. The Objective Structured Clinical Examination (OSCE)

The **OSCE** is a mandatory assessment for candidates pursuing the **Full** or **Performing** certification levels. It is designed to assess both practical spirometry skills and theoretical knowledge.

11.1. OSCE for the Full/Performing Certificate

The **OSCE** consists of two components:

1. **Practical Assessment**
2. **Technical Viva**

Both components must be passed for successful completion of the **OSCE**.

11.2. Practical Assessment

The ARTP has transitioned to a **virtual OSCE format**. Candidates will complete the assessment using a cloud-based video conferencing platform such as Zoom or Microsoft Teams. **The link for the assessment will be sent by the assessor to the candidate.**

11.2.1. During the virtual session, the candidate will perform spirometry on a chosen volunteer to reflect their normal working practice

11.2.2. Candidates can view an instructional video demonstrating the process to familiarise themselves with the virtual format available here: https://youtu.be/P_ZIvExBI-g?si=0o1pNZDpMs3DWlBx

11.2.3. The practical component includes calibration/verification of the spirometer and the performance of quality-assured diagnostic spirometry on a patient.

11.2.4. Candidates will have 45 minutes to complete the whole assessment

11.2.5. If the candidate does not successfully complete an element of the practical assessment, follow-up questions will be asked to provide an opportunity to demonstrate competence in the area.

11.2.6. To pass the OSCE, candidates must successfully complete the practical assessment and the technical VIVA.

11.3. OSCE Process

Upon enrolling the candidate will be required to recruit a volunteer to act as a patient during the assessment. This individual should be free of respiratory disease and willing to be recorded. They will be required to sign a consent form, and this should be sent to the assessor prior to the assessment date. The candidate will also be required to inform the assessor of the make and model of the spirometer that will be used in the assessment.

Upon completion of the assessment candidates will be required to share the results with the assessor. This can be done in one of three ways

1. Share the computer screen

2. Show the screen to the assessor
3. Email the assessor with the results

The candidate should inform the assessor prior to the date of the examination how they intend to share their results.

Before beginning the **OSCE**, the examiner will:

11.3.1. Introduce themselves and outline the structure of the assessment.

11.3.2. Explain the time allocated for each part and the specific details of the spirometer used.

11.3.3. Answer any questions the candidate may have before starting the assessment.

11.4. The Spirometer

Candidates will use the spirometer they use on a normal day to day basis in their own workplaces.

11.5. The Test Patient

For the virtual assessment, the candidate will "test" a colleague or subject of their choice, who will act as the patient. For detailed information on this process please see the OSCE guide for candidates and video available on the ARTP website.

11.6. Technical Viva

11.6.1. Candidates will have **10 minutes** to complete the technical viva.

11.6.2. The viva will include predefined questions based on the spirometry performed during the practical assessment or general questions regarding the technical aspects of spirometry.

11.7. Completion of the OSCE and Notification of Outcome

11.7.1. Upon completing the OSCE, candidates will be thanked for their participation.

11.7.2. Candidates will not receive their results immediately. Results will be added to their spirometry portal within **5 working days** communicated via email to check these results.

11.7.3. If the candidate does not achieve the required pass mark, structured feedback will be provided in their spirometry portal, and they will be allowed one further attempt to pass within their initial registration fee.

11.7.4. Should the candidate require additional attempts after the second failure, they must submit evidence of further training within **6 months** and will incur a £50 administrative fee per additional attempt.

12. Certification Completion

12.1. Components to Certification

Spirometry certification is awarded when a candidate successfully completes all components of their registered certification level:

12.1.1. **Performing Spirometry Certification** requires completion of the **E-portfolio** and the **OSCE**.

12.1.2. **Full Spirometry Certification** requires completion of the **E-portfolio**, **MCQ**, and the **OSCE**.

12.1.3. **Reporting Spirometry Certification** requires completion of the **E-portfolio** and the **MCQ**.

12.2. Allowances for Failed Attempts

12.2.1. In the event of a failure at any stage of the certification process, candidates may make additional attempts to complete each stage.

12.2.2. The initial registration fee includes a maximum of:

- 3 portfolio submissions
- 3 MCQ attempts
- 2 OSCE attempts

12.2.3. If additional attempts are required, candidates must provide evidence of further training, completed after the final failed attempt. This evidence must be submitted to ARTP within 6 months, and an administration fee of £50 per additional attempt will apply.

12.2.4. Candidates pursuing full certification who do not successfully complete either the OSCE or MCQ may apply for a certification level change to "Performing" or "Reporting" only.

13. National Spirometry Register

13.1. Upon completing certification, candidates will automatically be added to the National Spirometry Register which can be found here - https://spirometry.artp.org.uk/register/

Their details will be searchable unless they have specifically requested not to be included in the searchable feature.

13.2. All data on the Register will be stored and managed in accordance with GDPR regulations.

13.3. The National Spirometry Register is now solely hosted by the ARTP.

13.4. Healthcare professionals listed on the Register are required to demonstrate ongoing competency and high standards of conduct, providing assurance to both employers and patients.

13.5. The first year of registration on the Register is included in the spirometry certification registration fee for all new candidates.

13.6. To maintain registration, candidates must renew annually. The annual renewal fee is £35, payable to the ARTP.

13.7 Healthcare professionals on the Register are also automatically made an ARTP Spirometry Certified Practitioner Member. This provides membership rates on ARTP courses and conferences but no voting rights.

14. Re-Accreditation of Spirometry Certification

14.1. Annual Audit

14.1.1. Association for Respiratory Technology and Physiology (ARTP) is required to conduct Continuing Professional Development (CPD) audits to re-accredit registrants in line with Professional Standards Authority (PSA) regulations. This audit occurs annually, with approximately 5% of spirometry registrants selected at random for review.

14.1.2. Candidates selected for audit must submit a portfolio of evidence demonstrating continued practice in quality-assured diagnostic spirometry. Those holding the Full or Reporting certificate are also required to complete an MCQ exam.

14.2. Assessments for the CPD Audit

14.2.1. Portfolio Exam

All candidates are required to submit a portfolio based on their certification level.

14.2.1.1. Portfolio for Full & Performing Certificate Holders

Candidates with a Full or Performing certificate must complete the following sections:

- **Performance Criteria:**
    - Upload their local Standard Operation Procedure (SOP)
- **Syringe verification**
    - **20** calibrations or verifications
- **Patient Testing:**
    - **Adult Certification:**
        - **10** spirometry tests
    - **Paediatric Certification:**
        - **10** spirometry tests (all patients must be younger than 16 years old with at least **3** patients younger than 10 years old).
    - **Adult and Paediatric (Joint) Certification:**
        - **10** spirometry tests consisting of **5** adult spirometry tests and **5** paediatric spirometry tests (with at least **1** younger than 10 years old).
- **Declaration:**
  The candidate must sign a declaration confirming the work is their own.

14.2.1.2. Portfolio for Reporting Certificate Holders

Candidates with a Reporting Certificate must complete the following sections:

- **Performance Criteria:**
    - Upload their local Standard Operation Procedure (SOP)
- **Problems Encountered:**
  The candidate is provided with 5 problem spirometry tests and must identify the following:
    - Description of the problem
    - The most appropriate solution
- **Declaration:**
  The candidate must sign a declaration confirming the work is their own.

14.2.2. Multiple-Choice Questionnaire (MCQ) Exam

Full and Reporting spirometry certificate holders are required to complete an MCQ exam, which consists of reporting on 20 spirometry test reports that may or may not include associated clinical information.

15. Extensions

15.1. All candidates are required to complete the certification process and submit all assessments within 9 months of registration.

15.2. In certain unforeseen circumstances, it may become difficult or impossible to meet the original deadline. In such cases, candidates may apply for an extension for either:

- 2 months
- 6 months

15.3. Candidates wishing to apply for an extension must complete the ARTP Extension Form via their **spirometry portal** and going to **'manage my extensions'**

15.4. 6-month extensions are granted only under exceptional circumstances, such as long-term illness or family bereavement. Supporting evidence, such as a sick note or a letter/email from a senior staff member, must be submitted with the application.

15.5. Maternity leave may qualify for a 12-month deferral upon submission of a MATB1 form.

15.6. All requests must be submitted to the ARTP Spirometry Administrator no later than two weeks before the candidate's deadline.

15.7. Each candidate is entitled to two extensions at no charge. Any additional requests will incur an administrative fee of £35 per request, granting an extra 6 months from the current deadline (not the payment date).

15.8. Upon enrolment for the ARTP Spirometry Certificate, candidates are given 9 months to complete. While extensions outlined above may be granted if required, the total time

allowed cannot exceed **two years.** If more time is needed beyond this period, candidates will be required to **re-enrol.**

16. Complaints Process

16.1. If a candidate or any other person feels dissatisfied with any aspect of the ARTP Spirometry Certification process, they may submit a formal complaint in writing.

16.2. Complaints should be acknowledged by the ARTP Spirometry Administrator (spirometry@artp.org.uk) within 5 working days of receipt. The acknowledgement will include details of who is handling the complaint and an expected timeframe for a response. A copy of the ARTP complaints procedure will be attached.

16.3. Ideally, a definitive response should be provided within four weeks of receiving the complaint. If this is not possible, a progress report should be sent with an indication of when a full response will be provided.

16.4. Whether the complaint is upheld or not, the response should outline the steps taken to investigate the complaint, the conclusions of the investigation, and any actions resulting from it.

16.5. If the complainant is not satisfied with the initial resolution, they can request that the complaint be escalated for review at the ARTP Council level. At this stage, the ARTP President will review the case.

16.6. The request for Council-level review will be acknowledged within 5 working days, specifying who will handle the review and when the complainant can expect a reply.

16.7. The ARTP President may investigate the complaint personally or delegate the task to a senior representative. This may involve reviewing case documents and consulting the person who initially handled the complaint.

16.8. If the complaint involves a specific individual, that person will be informed and given the opportunity to respond.

16.9. The individual who managed the complaint at Stage One will be kept informed of the case's progress.

16.10. As with Stage One, the complainant should ideally receive a definitive response within four weeks. If delays occur, a progress update will be provided with a revised timeline for the final response.

16.11. Whether the complaint is upheld or not, the final response should outline the investigation process, its conclusions, and any resulting actions.

16.12. The decision at this stage is final unless the ARTP Council determines that external assistance is necessary for resolution.

16.13. External Review Stage

16.13.1. The complainant may escalate the issue to the Charity Commission at any stage.

16.13.2. Further information on complaints handled by the Charity Commission can be found on their website (https://www.gov.uk/government/publications/complaints-about-charities).

17. Appeals Process

17.1. If a candidate believes they have been unfairly assessed or under-graded in any aspect of their certification, they have the right to appeal the decision.

17.2. To submit an appeal, the candidate must send a written request to the ARTP Spirometry Administrator (spirometry@artp.org.uk) within two weeks of receiving their assessment outcome. The ARTP Spirometry Administrator will acknowledge receipt of the appeal within 5 working days, including a copy of the ARTP Appeals Procedure.

17.3. The appeal will be reviewed by the ARTP Spirometry Committee, which will consist of one or two members from the Executive Board. All members of the committee must have no direct involvement with the individual appeal case.

17.4. All relevant documentation will be reviewed, and a second assessor will re-evaluate the case following standard assessment procedures. As the OSCE is an observed assessment, the Appeals Committee may also contact both the candidate and the assessor for additional information before reaching a decision.

17.5. Candidates should receive a definitive reply within 8 weeks of submitting their appeal. If further time is required due to the complexity of the investigation, a progress update will be provided, indicating when a full response can be expected.

17.6. Whether the appeal is upheld or not, the response should outline the steps taken to investigate the appeal, the conclusions drawn, and any resulting actions.

18. Appendix 1: Acceptability and Repeatability Criteria (Adult & Paediatric)

For the purpose of **ARTP Spirometry Certification**, candidates submitting spirometry test reports must adhere to the **acceptability** and **repeatability** criteria outlined in this appendix, in accordance with the **ARTP Statement on Pulmonary Function Testing 2020 Guidelines**. (Download the full guidelines here). Various aspects of the manoeuvre need to be considered to be sure the Patient has achieved the very best result.

1. Adults

A good quality acceptable blow in adults is determined by assessing the flow/volume and volume/time graphs and numerical values. **All three graphs** should be submitted. A **minimum of three efforts** must be performed for both forced and relaxed manoeuvres, with results for all efforts provided (SVC, FEV_1, FVC, and PEF). The following acceptability criteria apply.

1.1. Acceptability Criteria (Adults)

There should be:

1.1.1. A **smooth unhesitating start** and **rapid rise** to a sharp peak flow to the test without hesitation as indicated by:

- A back-extrapolated volume ≤5% of FVC or ≤0.1L if FVC <2.0L
- PEF achieved within 0.15s / 150 ms. I.e. Peak Expiratory Flow Time (PEFT) within 0.15s / 150ms.

1.1.2. A **linear decline** to the point of FVC/RV. There should be:

- **No cough** within the first second of the manoeuvre, or any cough later that significantly affects the blow.
- **No leak** at the mouth
- **No obstruction** of the mouthpiece
- **No glottis closure** during the manoeuvre.

1.1.3. **No early termination.** Plateau in expiratory flow with less than 0.025L being expired over the last 1s of the test.

1.2.1. Evidence that the patient inhaled to full TLC at the start of the test. If the maximum forced expiratory manoeuvre is followed immediately by a full inspiration back to TLC and recorded as a single manoeuvre, then the Forced Inspiratory Vital Capacity (FIVC) must not exceed the FVC by more than 100mL or 5% of FVC, whichever is the greater. If FIVC exceeds FVC by more than this, then it suggests the blow was not started from TLC

All three graphs should be submitted to ensure assessors can review if all attempts included were technically acceptable.

1.2. Repeatability Criteria (Adults)

Patients must perform a minimum of three technically acceptable relaxed manoeuvres (VC / SVC) and three technically acceptable forced expiratory manoeuvres (FVC / FVL) before repeatability is assessed:

1.2.2. The difference between the highest to the second highest (technically acceptable) **FVC** should be ≤150mL. If the FVC is <1.00L, the difference between the two highest values should be ≤100mL.

1.2.3. The difference between the highest to the second highest (technically acceptable) **FEV_1** should be ≤150mL. If the FVC is <1.00L, the difference between the two highest FEV_1 values should be ≤100mL.

1.2.4. The difference between the highest to the second highest (technically acceptable) **SVC** should be ≤150mL.

1.2.5. The **PEF** values of the **3 best blows** (blows with acceptable FVCs and FEV_1s that have the highest sum of FVC and FEV_1) should be ≤40L/min (or ≤0.67l/s) of each other. i.e. the highest to the third highest PEF from the three best blows should be ≤40L/min (or ≤0.67l/s) of each other.

1.2.6. The highest technically acceptable **FVC should not exceed the highest technically acceptable SVC** by ≥ 150ml. *Explanation: 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.*

2. Paediatrics

A good quality acceptable blow in children is determined by assessing the flow/volume and volume/time graphs and numerical values. A minimum of three efforts of forced manoeuvres must be performed with the results of all efforts provided (FEV_1^*, FVC and PEF). The following acceptability criteria apply (SVCs are not conducted in children).

2.1. Acceptability Criteria (Children)

There should be:

2.1.1. A **smooth unhesitating start** and **rapid rise** to a sharp peak flow to the test without hesitation as indicated by:

- If >6 years old, back-extrapolated volume ≤5% of FVC or ≤0.1L, whichever is greater.
- If <6 years old, back-extrapolated volume ≤10% of FVC or ≤0.075L, whichever is greater.
- PEF achieved within 0.15s / 150 ms. I.e. Peak Expiratory Flow Time (PEFT) within 0.15s / 150ms.

2.1.2. A **linear decline** to the point of FVC/RV. There should be:

- **No cough** within the first second of the manoeuvre, or any cough later that significantly affects the blow.
- **No leak** at the mouth
- **No obstruction** of the mouthpiece
- **No glottis closure** during the manoeuvre.

2.1.3. No early termination. Visually determined plateau in expiratory flow, with the exception of preschool children, where rapid lung emptying may prevent a full plateau.

***Note:** FEV_1 should not be reported if the forced expiratory time is <1 second. Instead, **$FEV_{0.75}$** should be used.

2.2 Repeatability Criteria (Children)

Patients must perform a minimum of three technically acceptable forced expiratory manoeuvres before repeatability is assessed. Children do not need to conduct slow vital capacity manoeuvres:

2.2.1. In school-aged children the difference between the highest to the second highest technically acceptable values for **FVC and FEV1** should be ≤100mL or 5% whichever is the greater value.

2.2.2. In preschool-aged children the difference between the highest to the second highest technically acceptable values for **FVC and FEV1** should be ≤100mL or 10% whichever is the greater value.

Technical comments on the acceptability and repeatability should always be included in the report, particularly when the technique is suboptimal.

Note: If the repeatability criteria are not achieved, then the manoeuvre can be repeated up to eight times, after which the probability of getting a better result is greatly reduced. If after all manoeuvres have been performed the above repeatability criteria have not been achieved, the results must not be rejected. The operator should label the results as not being repeatable allowing the interpreter to use the data accordingly. Poor repeatability means that the patient's results are not a reliable estimate of their best function, so a further test may yield a different result due to the inherent variability in the patient.

19. Appendix 2: Verification or Calibration Log

Candidates are required to provide evidence of regular **verification** and/or **calibration** of their spirometer. The evidence should include at least **20 calibration/verification logs**, performed regularly over a minimum of least 10 separate days.

The log must include:

- **Test date**.
- **Volume measured at three different flow rates (low, medium, high)**.
- The **difference** between the input value (3L) and the measured value, expressed as a percentage or volume.
- Indication of **pass or fail**.

All measurements must meet the acceptable standard of within **±3%** of the **3L syringe volume**, regardless of software programming or manufacturer's instructions, as older software may rely on outdated guidelines for verification checks.

Templates Available:

If candidates do not have their own recording method, they can download templates provided by ARTP for this purpose:

- **Template**: For recording **three verification measurements at three different flows**

20. Appendix 3
Reporting Strategy for MCQ Examinations

Candidates taking the **MCQ examination** are expected to follow a consistent reporting strategy based on the **ARTP 2020 Spirometry Guidelines** and **NICE 2019 Guidelines for COPD**.

Key Reporting Guidelines:

- For **adults and paediatrics**, candidates should refer to the **Lower Limit of Normal (LLN)** and **Z-scores** to define normal, obstructive, restrictive, and mixed spirometry results.
- For **airflow obstruction severity**, candidates should refer to **FEV_1 Z-scores** and use the **ARTP 2020 guidance**. The following table is used to grade severity:

Z-score threshold	Severity Grade
<-1.64	Mild
<-2	Moderate
<-2.5	Moderately Severe
<-3	Severe
< -4	Very Severe

For example: an FEV_1 Z-score of **-1.82** is classified as **mild.**

* ***Mild classification would include any FEV1 z-score ≥–2 in the context of a reduced FEV1/FVC.***

Candidates are also expected to apply a range of recognized guidelines, including:

- **ARTP 2020 Pulmonary Function Testing Guidelines**.
- **ATS/ERS 2005 and 2019 Spirometry Guidelines**.

Document Approval Table

Approved by:	Claire Francis
Contributing Committees	ARTP Spirometry Committee
Document Author(s):	Lindsay Zurba, Claire Francis and Chris Harding
Version Author (s)	
Release date:	June 2026
Current Version:	V6.5
Review Date:	June 2027
File name:	ARTP Spirometry Standards

ARTP Association for Respiratory Technology & Physiology

ARTP c/o Executive Business Support
Stowe House, St. Chad's Road,
Lichfield, Staffordshire, WS13 6TJ
Tel: 01543 442141
E-mail: admin@artp.org.uk
Website: www.artp.org.uk