

Improving the quality of diagnostic spirometry in adults: the National Register of certified professionals and operators



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Assessing and certifying the competence of healthcare professionals and operators who perform and/or interpret diagnostic spirometry

Foreword

Spirometry is one of the main investigations used for diagnosing respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma.

Although it may appear to be a fairly simple test to perform, the ability to produce an accurate picture of volume versus time under forceful effort is dependent on multiple factors, both technical and patient-related. The interpretation of the results relies not only on the test performance and outcome but must be considered in the context of other clinical information. Given the intricacy of these factors, there is evidence to suggest that there is significant misdiagnosis of respiratory disease and less than optimum or appropriate treatment for patients.

This document should be used alongside the *Guide to Performing Quality Assured Diagnostic Spirometry*, published in 2013, which describes how high quality diagnostic spirometry could be delivered and provides a clear outline of the standards required.

Diagnostic spirometry is provided in a variety of settings; GP practices and community services as well as secondary care and for workplace surveillance¹. Whatever the particular service model, the professionals delivering the service should be appropriately certified as competent and follow the recommendations set out in this document.

The All Party Parliamentary Group (APPG) Report on inquiry into Respiratory Deaths 2014 called for a system to assess and certify the competence of all healthcare professionals undertaking and interpreting diagnostic spirometry². This document – which is part of a suite of resources relating to quality assured diagnostic spirometry - sets out a framework for taking forward the APPG recommendations.

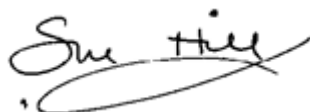
Key to this framework is the establishment of a National Register of certified healthcare professionals and operators. This Register will ensure that commissioners, employers, and patients can be assured that healthcare staff performing and/or interpreting diagnostic spirometry hold a valid, current certificate of competence.

Improving the quality of diagnostic spirometry will improve clinical diagnosis and the long term monitoring of the one in five people in the UK affected by respiratory disease.

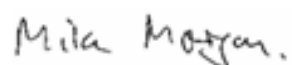
¹ See M C Townsend and the Occupational and Environmental Lung Disorders Committee. 2011. Spirometry in the Occupational Health Setting – 2011 update, American College of Occupational and Environmental Medicine 2011

² https://www.networks.nhs.uk/nhs-networks/london-lungs/documents/appg-report-on-inquiry-into-respiratory-deaths-june-2014/file_popview

This work is integral to the delivery of the Five Year Forward View and the efficient use of diagnostics to ensure that medicines are optimised and used appropriately in line with NICE and other guidance. This, in turn, is central to personalising care for now and in the future to secure improved patient outcomes.

A handwritten signature in black ink that reads "Sue Hill". The signature is written in a cursive style with a large, sweeping underline.

Professor Sue Hill, Chief Scientific Officer, NHS England

A handwritten signature in black ink that reads "Mike Morgan". The signature is written in a cursive style.

Professor Mike Morgan, National Clinical Director Respiratory, NHS England

1. Introduction

Spirometry is one of the essential lung function investigations in the diagnosis, assessment of severity, and monitoring of a number of respiratory conditions. It is the recommended objective test performed to identify abnormalities in lung volumes and air flow³. It is used in conjunction with history taking, other physical assessment, blood tests and imaging to exclude or confirm lung diseases such as asthma and COPD, enabling timely diagnosis and treatment. Regular workplace spirometry is also used to screen for occupational respiratory disease.

To be of clinical value, diagnostic spirometry has to be performed to a high standard. If it is not, there is a significant risk that the diagnosis will be incorrect and patients may receive inappropriate and potentially harmful treatment as a result, or be denied appropriate treatments that could potentially improve their condition. To be valid, diagnostic spirometry must be quality-assured⁴. It should only be performed by people who have been appropriately assessed as competent, demonstrating that they have achieved the standards established by the ARTP for the performance and interpretation of spirometry measurements. Without this overall quality assurance, the accuracy of the diagnosis cannot be relied upon.

Commissioners and providers of diagnostic spirometry therefore need to ensure that diagnostic spirometry testing meets the quality assurance standards defined by the ARTP⁵, which require all healthcare professionals/operators performing and interpreting spirometry to be assessed and certified as being competent against ARTP standards. This certification can be achieved via ARTP approved training and assessment providers. In order to maintain certification, individuals will need to demonstrate that they are regularly performing and/or interpreting spirometry and re-certify every three years.

The purpose of this document is to set out the process by which healthcare professionals/operators can become certified and join the National Register, through a process of assessment and certification. It takes into account the following principles:

- diagnostic spirometry must meet the ARTP standards
- education and training must be flexible and accessible
- the assessment and certification process must include recognition of prior experience and competence.

The document proposes the establishment of an independent National Spirometry Quality Scrutiny Board (NSQSB) to oversee the quality assurance process and provide external quality assurance for it. This Board will be hosted and supported by the ARTP, but there will be an external Chair. The document also describes:

³ National Institute for Health and Clinical Excellence. Management of chronic obstructive pulmonary disease in adults in primary and secondary care (partial update). 2010. www.nice.org.uk/CG101

⁴ PCC 2013 A Guide to Performing Quality Assured Diagnostic Spirometry

⁵ Association for Respiratory Technology and Physiology. www.artp.org.uk/

- how healthcare professionals performing and/or interpreting diagnostic spirometry should be trained, assessed and certified by approved training and assessment providers
- the range of acceptable routes available to gain initial certification
- the process for joining the National Register
- the process of recertification

It also outlines a phased timetable for implementation over the 3 years up to 31 March 2021.

2. Achieving a Certificate of Competence

Diagnostic spirometry tests and interpretation of the results can be separate functions performed by different individuals. There are different competences associated with each function. This document relates to the performance and interpretation of spirometry in adults and therefore applies to those healthcare professionals/operators testing individuals aged 16 years and over⁶.

Competency for the performance of spirometry with or without competence in interpretation is recorded on a single national register (hereinafter referred to as The National Register) maintained by the ARTP. This Register lists individuals' names according to whichever of three categories of certification that person has achieved: Foundation (=Performing Only), Full (=Performing and interpretation) or Interpretation Only:

- I. **Foundation:** those who have been assessed as competent to perform safe, accurate and reliable spirometry tests without interpretation
- II. **Full:** those who have been assessed as competent to perform and interpret spirometry in terms of physiological changes
- III. **Interpretation Only:** Those who have been assessed as competent in interpretation only (ie those with no responsibility/ requirement to perform spirometry but who do have a requirement to interpret accurately the results of spirometry).

The National Register will also indicate the date when certification was obtained.

A more detailed description of each of the three competency levels and the routes available for achieving the relevant certificates of competence are outlined below.

2.1 The Competency levels

Most people will attain competency by attending training, applying the learning gained into the clinical setting and then being assessed as competent.

⁶ For children <12 years it is recommended that practitioners achieve the ARTP certificate in paediatric spirometry. For older children aged 12-16 years, practitioners competent at testing adults would be deemed competent - however if there was a regular requirement to test children aged 12-16 years, contact with a specialist paediatric service would be recommended.

There are two distinct elements: performing and interpreting. Not all health care professionals/operators will need to be competent at both elements as they may be performed by different individuals.

For the sake of clarity, the competency levels set out below apply to people from a wide range of professional backgrounds. This includes, but is not limited to, physiologists Band 2-4 (eg cardiology physiologists, exercise physiologists), physiotherapists, research staff as well as primary care nurses and doctors.

2.1.1 Foundation - performing tests

A range of operators regularly perform spirometry tests without needing to interpret the results. These operators must understand how to make these measurements accurately and safely and be able to identify a poor quality tracing, to ensure measurement quality. Such operators should have achieved the ARTP Foundation Certificate of Competence in the performance of diagnostic spirometry.

Assessment at Foundation level includes completion of a professional portfolio relating to all aspects of preparation for, and performance of, spirometry. This comprises compilation or creation of protocols, cleaning and calibration logs that ensure safety of the patient, checking for contraindications and preparation of the equipment to ensure accuracy etc. This will include 10 patient tests. Applicants will also complete a practical assessment of competence where spirometry is performed and observed by an ARTP approved assessor.

2.1.2 Full - performing tests and interpretation

Healthcare professionals who both perform diagnostic spirometry tests and interpret the results should have achieved the ARTP Full Certificate of Competence in performing and interpreting diagnostic spirometry.

Assessment at Full level includes both an observed practical assessment of competence and submission of a professional portfolio as required at the Foundation level. However, the 10 spirometry tests cover a range of scenarios (obstruction, restriction and reversibility) and within this, these will then be interpreted within the context of the history of the patient described. There is also a written assignment.

2.1.3 Interpretation Only - interpreting tests without performing

Healthcare professionals who interpret spirometry that has been performed by others should have achieved ARTP Interpretation Only Certificate of Competence. Some prior knowledge of spirometry interpretation is advisable (refreshers courses are likely to be made available by a variety of organisations).

There is no observed practical assessment at this level. A portfolio of 10 tracings that the individual has interpreted is required, plus a written assignment.

2.2 Experienced healthcare professionals

Acquiring and maintaining recognised competence in interpretation of spirometry is already required for some of these professional groups. For example, Respiratory Physicians must demonstrate competence during their training before they achieve CCT, and update this regularly as part of appraisal and revalidation. Likewise, GPs with a Special Interest must be suitably trained and accredited. These assessments are separate from those described in this document.

2.2.1 Experienced Practitioner Scheme (EPS)

Individuals with significant experience in the performance and/or interpretation of spirometry can apply to be confirmed as competent by having their skills assessed against ARTP standards. The Experienced Practitioner Scheme enables them to undertake an assessment of competence without attending any specific training.

To achieve a certificate of competence at either the Foundation or Full levels, individuals must undertake an observed assessment of competence which is carried out at their workplace. Portfolio requirements (described in paragraphs 2.1.1 and 2.1.2), are assessed at the same time. This means there is no need to submit a separate portfolio. For the Full level, there is also an interpretation viva and a written assignment.

For the Interpretation Only level, a portfolio of 10 tracings plus interpretation is required (see paragraph 2.1.3). There is no written assignment.

It is recommended that those individuals deemed not to be competent at assessment undertake training to improve their skills prior to being reassessed.

2.2.2 European Spirometry Driving Licence (ESDL)

The European Spirometry Driving Licence certification programme is designed to cover all aspects of spirometry, enabling practitioners to become high-quality performers of spirometric tests and has equivalence with the ARTP Foundation Certificate. More details can be found in Appendix II.

It is envisaged that experienced individuals from outside Europe may apply for equivalence via the EPS route described above.

2.2.3 Summary of requirements

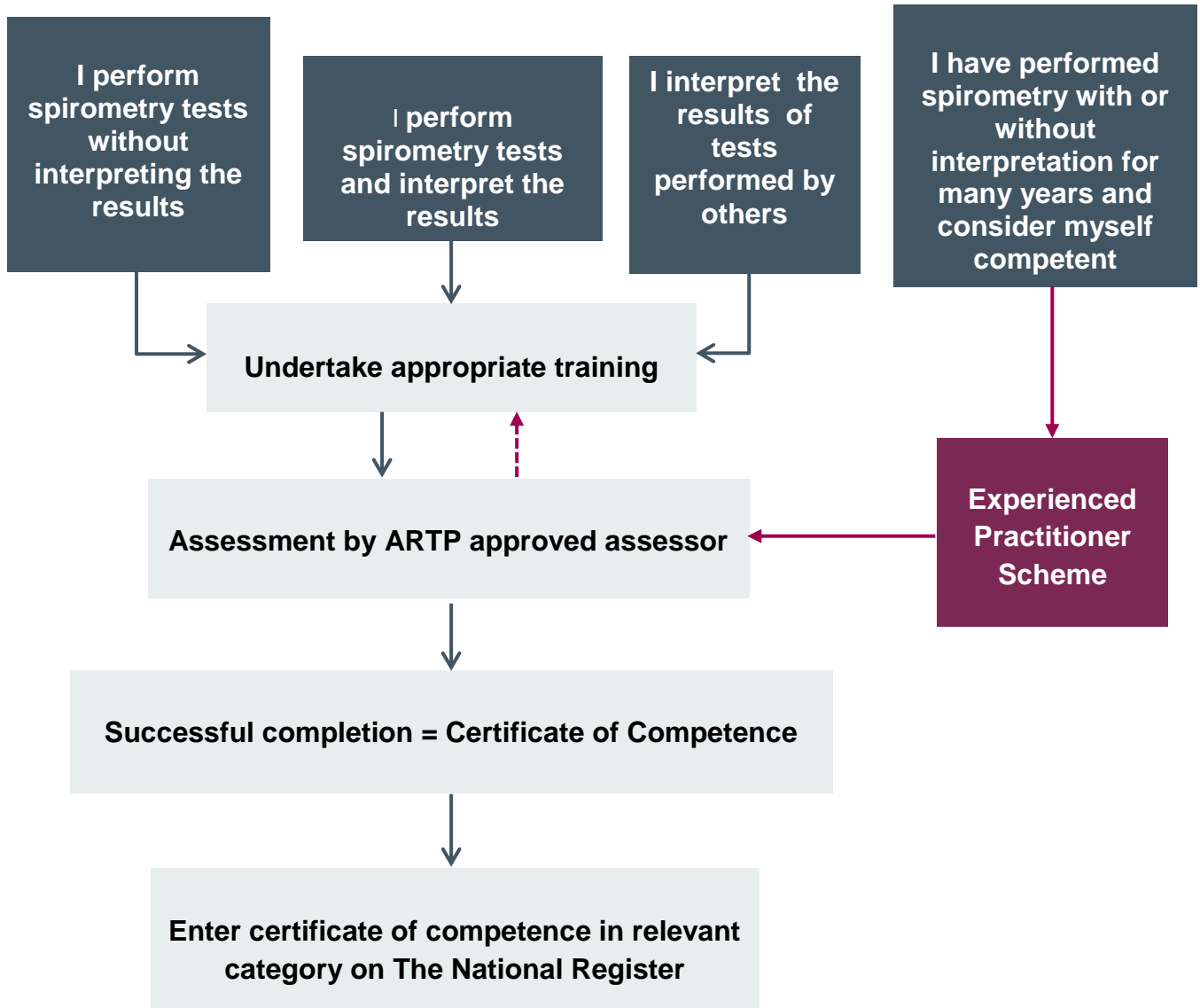
The table below summarises the requirements at each of the three levels of competency for both new and experienced practitioners. For completeness, the requirements for those seeking re-certification are included.

Competency level		Portfolio required	Practical assessment (observed by assessor)	Written assignment
New practitioners – not on The National Register	Foundation	yes	yes	no
	Full	yes	yes	yes
	Interpretation Only	yes	no	yes
Experienced practitioners – not on The National Register	Expert Practitioners Scheme (Interpretation Only)	yes	no	no
	Expert Practitioners Scheme (Foundation)	practical assessment at individual's workplace, including checking portfolio requirements		no
	Expert Practitioners Scheme (Full)	practical assessment at individual's workplace, including checking portfolio requirements and interpretation viva		yes
Practitioners already on The National Register	Recertification (Foundation)	yes	no	no
	Recertification (Full)	yes	no	no
	Recertification (Interpretation only)	yes	no	no

2.3 Routes to certification

The routes described above to achieve a certificate of competence in the various categories are illustrated in Figure 1.

Figure 1: Process for achieving certification of competence in performing diagnostic spirometry



KEY	
Training needed	↔
No training required	↔
Training requirement identified following EPS assessment	↔

A range of training providers offer ARTP approved training courses leading to certification. Links to available courses and training centres can be found at <http://www.artp.org.uk/en/spirometry/current-courses.cfm> and <https://www.educationforhealth.org/education/courses/spirometry/>

Organisations can apply to the ARTP to become an approved training centre. Requirements for ARTP Training centres can be found on the ARTP website at <http://www.artp.org.uk/en/spirometry/artp-spirometry-centres/index.cfm>

Note: whilst it is not mandatory to attend training at an ARTP approved provider, only an ARTP approved provider can assess competence at Foundation, Full and Interpretation Only levels. This also applies to individuals taking the EPS route or seeking re-certification.

3. The certification process

3.1 The certifying body

Through its standards of training and quality assurance, the ARTP is the professional guardian of physiological measurements in respiratory medicine in the UK. In conjunction with the British Thoracic Society (BTS), a national and professionally recognized qualification in spirometry has been established. The ARTP oversees the certification process to ensure that individuals are trained, assessed and certified as competent in performing and interpreting spirometry results to nationally acceptable standards.

As the certifying body the ARTP will:

- set the competence standards and processes for performing and interpreting spirometry and monitor the education, training, assessment and certification of individuals achieving these, in consultation with the NSQSG
- approve and quality assure existing and new training and assessment providers
- approve recommendations for certification and re-certification received from ARTP assessment providers
- issue all certificates of competence in the performance and interpretation of diagnostic spirometry
- maintain a national register of healthcare professionals/operators who have been assessed as competent and who are certified to perform and/or interpret diagnostic spirometry.

3.2 The National Register

To ensure that commissioners, employers, individual healthcare professionals/operators and patients have the assurance that those undertaking spirometry assessments and interpretation have achieved the required standard of

practice, the ARTP will maintain an up-to-date national register (referred to as The National Register) of certified healthcare professionals/operators. Once certified as competent, all those performing and/or interpreting diagnostic spirometry will be required to record their qualification on the National Register.

3.2.1 Re-certification of competence

It is proposed that operators and/or healthcare professionals performing diagnostic spirometry with or without interpretation, are required to demonstrate their continued competence on a three yearly basis (subject to an initial evaluation of the certification process following implementation by the NSQSB).

Healthcare professionals currently on the National Register will remain on it for a period of three years. Certified individuals are expected to review their own performance critically in order to sure that they are continuing to perform to the required standard on an ongoing basis.

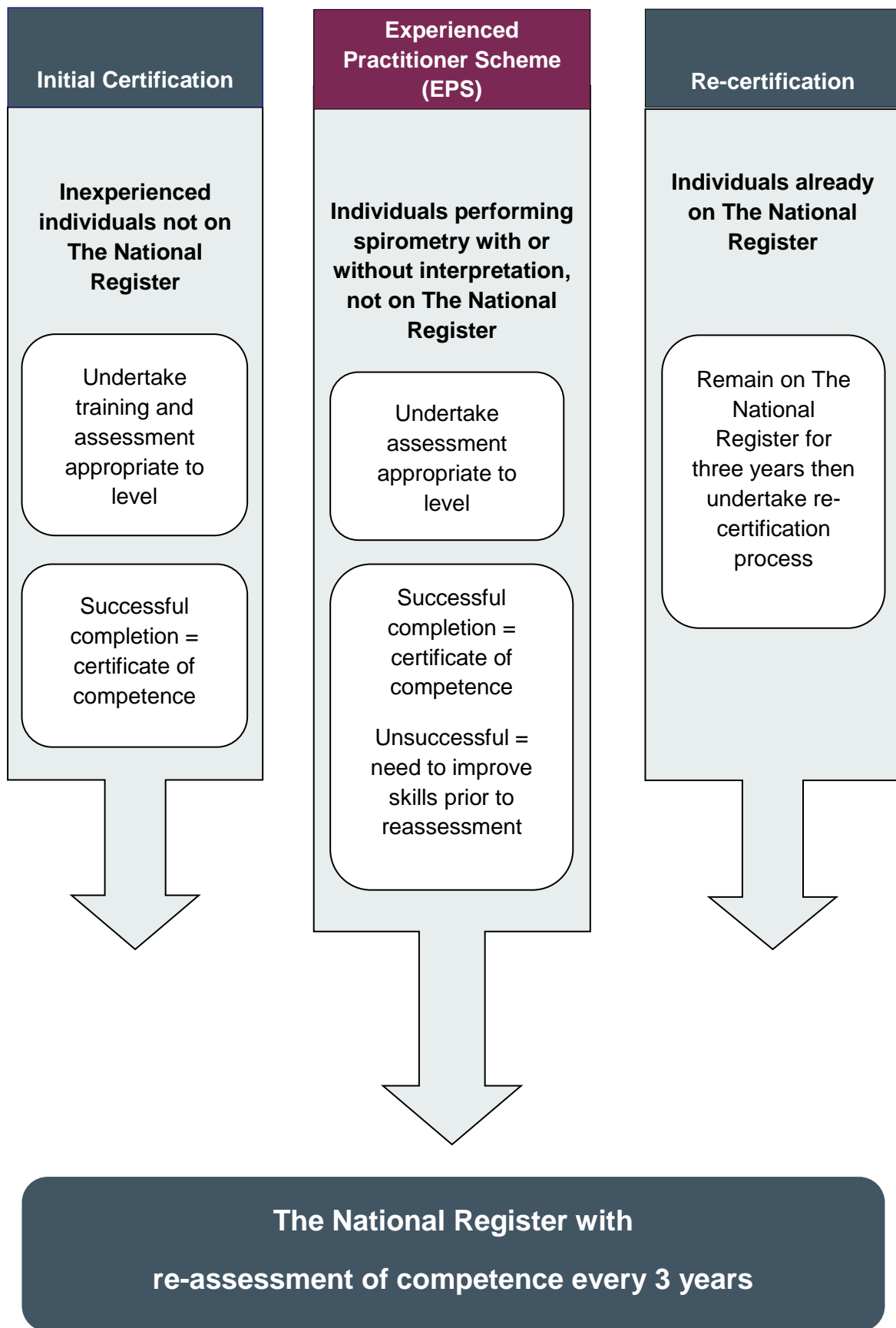
Re-certification of competency for the performance of diagnostic spirometry with or without interpretation will involve an observed assessment of competence plus submission of a comprehensive portfolio. This portfolio will include evidence of continued calibration, quality assurance and infection control procedures, evidence of quality spirometric measurements and where interpretation is required, an analysis of 5 spirometry traces provided by the ARTP to review for technical quality and interpretation.

Submission will normally be within 3 months prior to the certification expiry date.

Once deemed competent, ARTP certification can then be renewed. Further information on the re-certification process can be found on the ARTP website <http://www.artp.org.uk/en/spirometry/reaccreditation.cfm>.

An overview of the certification and re-certification process for quality assured diagnostic spirometry is summarized in Figure 2.

Figure 2: Certification and re-certification process



3.3 The National Spirometry Quality Scrutiny Group (NSQSB)

A National Spirometry Quality Scrutiny Board will be established, with representation from a wide range of stakeholders (including patient representatives) involved in and with an expertise and interest in respiratory teaching, learning and assessment.

The NSQSB will be hosted by, but independent of, the ARTP. Its role will be to provide external quality assurance to the processes underpinning training, assessment and the practice of spirometry.

The Terms of Reference of the NSQSB are set out in Appendix 1.

4. Guidance for commissioners

Commissioners need to ensure that the delivery of diagnostic spirometry meets the quality assurance standards described in this document, as well as ensuring that there are sufficient numbers of certified performers and interpreters of spirometry for the services they commission.

This document is part of a suite of resources relating to quality assured diagnostic spirometry, and should be read in conjunction with the *Guide to Performing Quality Assured Diagnostic Spirometry* published in 2013, information on the ARTP website and forthcoming guidance for commissioners (to be developed). These will help to ensure that national standards and the certification process for spirometry are incorporated as standard requirements of contracts and service specifications of NHS England commissioned diagnostic services.

4.1 Implementation

To allow sufficient time for the necessary training, assessment and certification infrastructure to be set up, it is proposed to phase the implementation of the recommendations over the four years 1 April 2017 – 31 March 2021.

Healthcare professionals currently performing and interpreting spirometry will have until 31 March 2021 to ensure they have been assessed and entered on to the national directory of certified healthcare professionals.

5. Accessible Information Standard

By 31 July 2016 all organisations that provide NHS or publicly funded adult social care must have fully implemented and conform to the Accessible Information Standard, which tells organisations how they should make sure that disabled patients receive information in formats that they can understand and receive appropriate support to help them to communicate. For further information, see <https://www.england.nhs.uk/ourwork/patients/accessibleinfo/>

Appendix I – Proposed terms of reference for National Spirometry Quality Scrutiny Board (NSQSB)

The role of the NSQSB is to provide external quality assurance to the processes underpinning training, assessment and the practice of spirometry. The NSQSB will be hosted by, but independent of, the ARTP.

Aims

Its two main aims will be to provide governance and oversight of the certification process for quality assured diagnostic spirometry, and to advise the ARTP on continuous quality improvement and best practice with respect to diagnostic spirometry, the certification process and the national register.

The NSQSB's specific objectives will be to:

- Support the implementation of the certification process as set out in this document
- Provide scrutiny of the education, training, assessment and certification of competence processes for performing and/or interpreting diagnostic spirometry
- Receive and respond to regular reports from the ARTP. This will include: the numbers and roles of healthcare professionals/ operators certified to perform and/or interpret diagnostic spirometry to help identify trends, patterns and issues with the certification process; how many healthcare professionals/operators are on The National Register compared to the number expected; whether there are sufficient healthcare professionals/operators undertaking spirometry and/or interpretation to meet demand; and other issues relating to education, training and assessment provision
- Determine the procedures for consideration of appeals about the certification process
- Act as the review panel for escalation of appeals and complaints about the certification process (NB the NSQSB will not consider appeals and complaints regarding the *outcome* of the certification process)
- Review standards and provide evidence-based recommendations on the certification process, the provision of education, training and assessment, and continuous quality improvement and best practice with respect to spirometry

Membership

The Board will have representation from a wide range of stakeholders with relevant expertise including:

- The Association of Chartered Physiotherapists
- The Association of Respiratory Nurse Specialists
- The British Thoracic Society
- The British Lung Foundation
- Education for Health

- Health Education England
- NHS England
- Patient/Public Representatives (a minimum of two)
- Professional educator specialising in teaching, learning and assessment
- The Primary Care Respiratory Society UK
- The Royal College of General Practitioners

Chair

The NSQSB will have an independent Chair with expertise within education, training and certification. The Chair will be elected by a simple majority vote of the members of the Board.

Secretariat

Support to the Board will be provided by the ARTP.

Frequency of meetings

The Board will have a minimum of one face-to-face meeting per year. Further meetings may be called at the discretion of the Chair.

Minutes

Minutes of the NSQSB will be available on the ARTP website.

Appendix II - European Spirometry Driving Licence

The European Spirometry Driving Licence certification programme is designed to cover all aspects of spirometry, enabling practitioners to become high-quality performers of spirometric tests and has equivalence with the ARTP Foundation Certificate. It is divided in to 2 separate parts:

Part I: consists of a 9 - 12 hour course covering spirometry theory and practice utilising online modules and classroom learning. Participants will only be awarded Part I certificate after passing an on-line knowledge based test at the end of the training programme. Successful participants will be awarded their provisional Spirometry Driving Licence but are not yet considered competent in the practice of spirometry.

Part II: Before commencing Part II, a number of assignments relating to the practice of spirometry must be completed in the ERS Spirometry workbook. This workbook will form the basis of Part II competency based training and assessment. It is recommended that participants complete Part II training within 6 -12 calendar months after completing Part I.

Part II consists of a 7 - 10 hours training course which will focus on competency - based training and will require participants to successfully complete exercises and submit a portfolio of spirometry tests. The award of the European Spirometry Driving Licence will be dependent on a successfully completed portfolio and practical competency assessment.

Appendix III – Glossary of terms as used in this document

Approved Assessor (or Training and Assessment Centre)	An individual (or organisation) approved by the ARTP to assess healthcare professionals /operators for recommendation of the award of a Certificate of Competence
Approved Trainer (or Training Centre)	An individual (or organisation) approved by the ARTP to deliver spirometry training leading to certification and re-certification.
ARTP	Association for Respiratory Technology and Physiology
BTS	British Thoracic Society
EPS	Experienced Practitioner Scheme
ESDL	European Spirometry Driving Licence
Equivalence	In this document, equivalence is deemed to exist when the learning outcomes of two processes are directly comparable even though the paths to achieving them are different. When equivalence demonstrated between a new qualification and the qualification or experience a person already has, further education or training is unnecessary.
HCA	Health Care Assistant
Healthcare professional/Operator	This term is used to describe the range of people delivering spirometry (whether tests or interpretation or both)
NSQSB	National Spirometry Quality Scrutiny Board
The National Register	The National Register is maintained by the ARTP. It lists individuals according to the competency that they have achieved: Foundation, Full or Interpretation Only.
Spirometry	Spirometry is a method of assessing lung function by measuring the volume of air that the patient is able to expel from the lungs after a maximal inspiration.