

•KINECT | TRAINING

5 Critical Factors for High Quality Spirometry Testing



Do you know what it takes to perform industry standard spirometry tests?

Spirometry is one of the simplest tests available in primary health care settings to assist in the diagnosis of lung disease but not doing it correctly means not identifying potential health issues or meeting your professional standards.

High quality spirometry requires the skills and knowledge to not only perform the physical assessments but also to contribute effectively to the interpretation of results. Ensuring spirometry assessments are conducted accurately every time is critical for accurate diagnosis of conditions for medical providers from hospitals to pre-employment assessments.

Spirometry standards in Australia are stipulated by The Thoracic Society of Australia and New Zealand (TSANZ). In certain situations the quality of the performance of assessments is overseen by other governing bodies such as Queensland Health through The Standards for Spirometry Training Courses for the delivery of Spirometry for Coal Mine Workers.

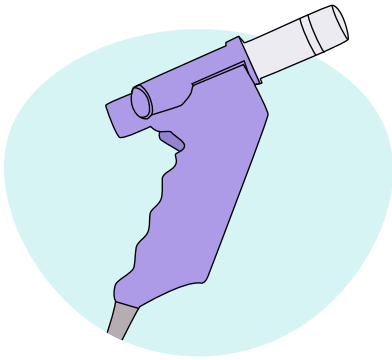
Knowing the standard that needs to be performed and the environment you are working in is critical to the role of a spirometry clinician. The right training and professional development is going to help you achieve that standard.

Spirometry whilst simple can be frustrating! How often do you struggle with achieving acceptable results from your patient?

Fundamental to achieving high quality spirometry is the knowledge on how to correct patient errors. Valuable time will be saved once you have mastered this. However, correcting patient error is only one element of obtaining high quality spirometry.



There are 5 Critical Factors for High Quality Spirometry



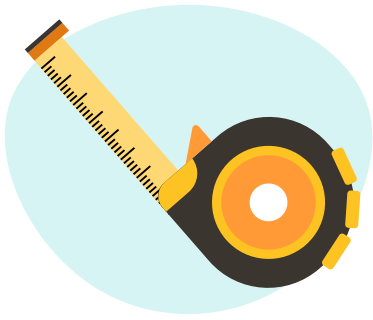
1. Calibrated Equipment

Accurate spirometry cannot be achieved without a properly calibrated spirometer. Spirometers should have a calibration check done before every testing session. Further checks such as linearity checks and biological controls should be performed regularly to ensure equipment meets current standards.



2. Properly Prepared Subject

Subjects undergoing spirometry should withhold from taking bronchodilators, nicotine, and any substances which may affect co-ordination during the test. The subject must also be seated correctly throughout the test.



3. Correct Reference Values

Incorrectly chosen reference values can have a significant effect on the results. Therefore, it is essential to record the correct height (to the nearest mm), correct age (to one decimal place) and appropriate ethnic status (GLI is the most modern set of reference equations with 5 different ethnic status options). Have you updated your spirometry software lately to access these reference values?



4. Accurate Instructions and Effective Troubleshooting

The instructions which the clinician gives the subject should be easy to understand and must follow the three phases of spirometry.

1. **Deep breath in:** this must be maximal to ensure that values are not underestimated
2. **Blast out as fast as possible:** the wording here is crucial as words such as 'blast' or 'force' ensure the subject knows that the effort is maximal. A sub maximal exhalation can affect the FEV1.
3. **Continue exhalation for as long as possible:** Most normal subjects may take up to 6 seconds to empty all the air from the lungs, children and restrictive patients tend to be shorter.

The 2019 Spirometry Standard requires that FIVC be reported and mandates that the flow-volume loop is an integral part of spirometry.

An additional inspiration (FIVC) after the end of expiration is a useful way to check if the subject started from a maximal breath in (FIVC-FVC should be < than 100 ml or 5% of FVC, whichever is greater).

The clinician should be aware of possible technical errors and how to coach the subject to resolve these errors.

Standards have been produced by the American Thoracic Society (<https://www.thoracic.org/statements/resources/pfet/PFT2.pdf>), and have recently been updated in Oct 2019 (<https://www.thoracic.org/statements/resources/pfet/PFT2.pdf>), these standards should be adhered to during spirometry testing.



5. Interpretation

Accurate interpretation of data is of utmost importance in spirometry. Until 2012 most physicians interpreted spirometry utilising percent predicted (e.g. GOLD). This method is slowly being eclipsed by Lower Limit Normal (LLN), which is a more appropriate method of assessing spirometric values.

Become a skilled spirometry clinician with the right training and support

The right and ongoing professional development will allow you as the clinician to -

- Provide accurate and repeatable spirometry assessments and have confidence in the results obtained;
- Be an authority in instructing the performance of spirometry and interpreting the results;
- Manage quality control in your spirometry setting.

To build your skills in performing spirometry, interpreting results and ensuring quality outcomes book into the course that is going to give you the edge in industry.

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