

10 steps to checking your spirometry result

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The 10-step process, outlined in Figure 1, ensures that best practices for data validation, interpretation and record keeping are adhered to in the assessment of every spirometry test. This 10-part series briefly outlines each step, one-by-one.

STEP 3: ACCEPTABILITY AND USABILITY

Acceptability

Acceptability is the guideline for checking the performance of each individual blow. The ATS/ERS Guidelines of 2005 suggest that three acceptable manoeuvres should be achieved. An acceptable manoeuvre is one in which the following is achieved:

- An explosive start (no hesitation or sigmoid curve) with a back-extrapolation volume < 150 ml or 5%, whichever is higher
- A maximal inspiration and expiration
- No glottis closure or cessation of airflow (e.g. by hesitation or blocking the mouthpiece)
- No coughs (particularly during the first second), inspirations during the trace, or evidence of leaks
- The end-of-test criteria are met (exhaling for ≥ 6 s with < 50 mL being exhaled in the last two seconds)

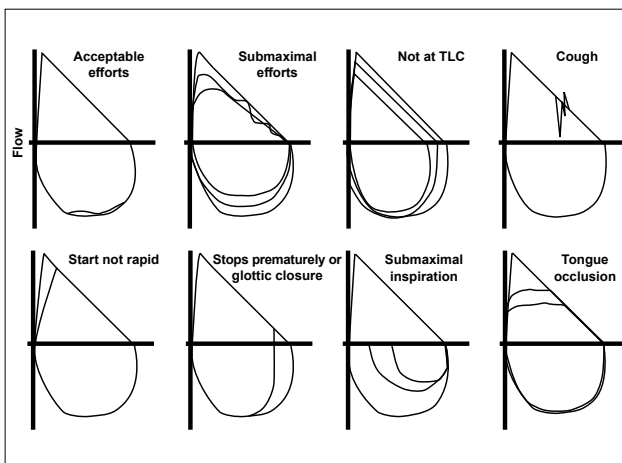


Figure 2: Examples of unacceptable spirometry flow volume loops when compared to acceptable flow volume loops¹



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10 STEPS TO CHECKING YOUR SPIROMETRY RESULT

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| Step 1 | Calibration and patient data |
| Step 2 | Reference values and ethnicity |
| Step 3 | Acceptability and usability |
| Step 4 | Repeatability |
| Step 5 | Lower levels of normal/Z-scores |
| Step 6 | Best test/Best curve |
| Step 7 | Interpretation |
| Step 8 | Grading |
| Step 9 | Recording and reporting |
| Step 10 | Trends and record keeping |

Figure 1. The recommended 10-step process to ensure your spirometry result derives from best practices for data validation, interpretation and record keeping

USABILITY

When every effort has been made to achieve three acceptable blows, but acceptability criteria have not been met, the technician may assess the tests for usability.

There are two usability criteria:

- The start of the test must be smooth and unhesitating;
- There must be no cough or artefact in the first second of the blow.

Usability criteria should be used with caution. The technician should be sure they have done at least eight blows first. He/she should record why acceptability criteria could not be met. The person interpreting the test is to decide if this blow should be used for interpretation.

The most common reason for inconsistent readings is subject technique. Errors may be detected by observing the subject throughout the manoeuvre and by examining the resultant trace.

REFERENCES

- 1: Johns D, Pierce R. Pocket Guide to Spirometry, 2nd ed: McGraw-Hill Australia; 2007.



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