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Spirometry Accreditation Awards and Ongoing Quality Control Monitoring

Introduction

Spirometry accreditation follows a different path from other Diagnostic Accreditation Program (DAP) accreditation programs. In all other cases, the accreditation award is granted by the DAP Committee based on review of the report generated from an on-site assessment. In pulmonary function level 3 (PF3) hospitals where spirometry is performed, spirometry is assessed as part of the PF3 on-site assessment for accreditation.

By contrast, pulmonary function level 2 (PF2) facilities conducting only spirometry testing are not assessed on their premises, but rather assessed using a quality control (QC) program (also referred to as a desktop audit). Successful QC performance will lead to the issuing of an accreditation award every four years for these testing sites. Where unsuccessful QC performance is observed, it will be escalated to the DAP Committee for decision.

This introduction is intended to define the conditions under which a PF2 facilities' QC performance will be escalated to the DAP Committee for action.

Spirometry Performance Review: QC Report Grading and Escalation

Spirometry results are reviewed by the pulmonary function consultants each cycle. There are two cycles per year: January to June, and July to December.

From the data submitted by each facility, three components are reviewed:

- medical interpretation of patient results by the physician
- technical performance of the spirometry test
- quality control, including biologic normal results, and verification of spirometry system linearity with a calibration syringe

The following tables (A and B) describe how medical and technical performance of spirometry QC is graded by pulmonary function experts. Table C summarizes the conditions under which follow-up and escalation to the DAP Committee is recommended. The DAP Committee would then determine follow-up actions for the facility in order to maintain their accreditation award.

Performance criteria for the medical interpretation and technical components were developed in conjunction with the Pulmonary Function Advisory Group and the pulmonary function consultants.

Table A – Medical interpretation grade

DAP grade	Definition	Escalation criteria	Potential risks	Escalation to committee
A	Complete agreement with interpretation	N/A	None	No
B	Slight variation, unlikely to affect patient care	N/A	None	No
C	Interpretation varies, slight effect on patient care	N/A	Reporting a lesser or greater degree of abnormality than is warranted by the data	No
D	Significant variation with immediate effect on patient care	Two in one cycle ***or*** one in each of two consecutive cycles	• Reporting a patient as normal who is abnormal and vice versa • Use of inappropriate parameters or criteria to form a diagnosis • This could potentially lead to incorrect treatment or unnecessary follow-up	Yes

Table B – Technical Interpretation Grade

DAP grade	Definition	Escalation criteria	Potential risks	Escalation to committee
A	FVC <3% C.V. (Biologic QC) FEV1 <3% C.V. (Biologic QC)	N/A	None	No
B	FVC >3% <10% C.V. (Biologic QC) FEV1 >3% <10% C.V. (Biologic QC)	N/A	Inconsistent results with potential impact on patient results	No
C	Missed cycle	Once	Compromised oversight of facility	No
D	FVC >10% C.V. (Biologic QC) FEV1 >10% C.V. (Biologic QC)	Once	Severe inconsistency with strong potential for impact on patient results	Yes
D	Missed cycle	Two	Compromised oversight of facility	Yes
D	**Unacceptable maneuvers** • Cough or artifact in the first second • Excessive back extrapolated volume – slow start • End of test criteria not met • Poor effort **Unacceptable test session** • Poor FVC repeatability • Poor FEV1 repeatability • Only one or two acceptable maneuvers • No acceptable maneuvers **Post-bronchodilator administration** • Inadequate wait time for post-testing **Calibration syringe not validated routinely** • Revalidation is required every one to two years as required by syringe supplier. Failure to comply with revalidation may result in incorrectly measured volumes and potentially incorrect diagnosis	Any of these technical issues occurring in three consecutive cycles with no sign of improvement will result in escalation to consulting Respirologist for advice	Poorly performed spirometry compromises the ability of the physician to interpret the result and may result in misdiagnosis	Yes (upon recommendation from Respirology medical consultant)

Table C – Summary of QC findings for escalation to DAP Committee

If	Then
Two or more reports with a medical review grade "D" on a single submission	1. Request next five patients and resubmit to consultants 2. Prepare a briefing note with the outcome to the DAP Committee.*
Two consecutive submissions containing a medical review grade "D"	1. Request next five patients and resubmit to consultants. 2. Prepare a briefing note with the outcome to the DAP Committee.*
Two consecutive missed submission cycles	1. Prepare a briefing note to the DAP for decision regarding withdrawal of accreditation award.
FVC >10% C.V. and/or FEV1 >10% C.V. (Biologic QC)	1. Request the facility submit five replicates of this test within one month accompanied by a written ***action plan***. 2. If data is still unacceptable, forward to consulting Respirologist for risk assessment and next steps. 3. Prepare a briefing note with the outcome to the DAP Committee.*
Three consecutive cycles demonstrate unacceptable technical component elements (unacceptable maneuvers, test sessions, or validation of calibration syringe)	1. Forward to consulting Respirologist for risk assessment to determine whether to escalate. Escalate as directed.

*If reports correlate and problem has resolved, the DAP Committee briefing note is for information only. If quality assurance concern persists, the briefing note is submitted to the DAP Committee for decision.