Spirometry

Purpose

The objective of Spirometry is to assess ventilatory function. Spirometry includes but is not limited to the measurement of Forced Vital Capacity (FVC), Forced Expiratory Volume in one second (FEV_1), and Peak Expiratory Flow (PEF).

Audience

Respiratory Care Services Clinical Personnel.

Indications

To determine the presence or absence of lung dysfunction suggested by medical history or physical indicators:

- Age
- Smoking history
- Family history of lung disease
- Chronic cough
- Other abnormal diagnostic tests

To quantify the severity of known lung disease:

- Assess changes in lung dysfunction over time or following the administration or change of therapy
- Assess the risk for surgical procedures known to effect lung function

Guidelines

Limitations of Methodology/Validation of results

Spirometry is an effort-dependent test that requires careful instruction and the cooperation of the test subject. Inability to perform acceptable maneuvers may be due to poor subject motivation or failure to understand instructions. Physically impaired or young age (e.g. children <5 years of age) may also limit the subject's ability to perform spirometric maneuvers. The test should still be attempted with these limiting factors noted and taken into consideration when the results are interpreted

Acceptability

At least three acceptable FVC maneuvers should be performed

If the patient is unable to perform a single acceptable maneuver after eight attempts, testing can be discontinued.

An acceptable test is:

- No hesitation or false starts
- A rapid start to rise time
- No early termination of exhalation
- No cough during procedure

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Guidelines Continued

Adverse Reactions

- Bronchospasm
- Pneumothorax
- Increased intracranial pressure
- Syncope, dizziness, light-headedness
- Chest pain
- Paroxysmal coughing
- Contraction of nosocomial infection
- Oxygen desaturation due to interruption of oxygen therapy

Relative Contraindications

- Hemoptysis of unknown origin
- Untreated pneumothorax
- Unstable cardiovascular status
- Thoracic, abdominal or cerebral aneurysm
- Recent eye surgery
- Presence of an acute disease process

Procedure

Step	Action
1	Check patient's chart for orders and current status.
2	Wash hands.
3	Perform procedure.
4	Compare to predicted values.
5	Document results in the patient record.

Corresponding Policies

Respiratory Care Services Policy #7.2.7; Assessing patient Response to Bronchodilator Therapy

Respiratory Care Services Policy #7.3.50; Renaissance Spirometry System Operating Procedure

Respiratory Care Services Policy #7.3.59; Micro Plus Spirometer Operating Procedure

Reference

AARC Clinical Practice Guidelines; Respiratory Care; 1996; 41 (7) 629-636, Spirometry, 1996 Update

Micro Spirometer USA Operating Manual