Patient Testing – Forced Vital Capacity Profiler & Elite Plethysmograph

**Audience**
All personnel in the Pulmonary Function Clinic.

**Purpose**
To describe the procedure for performing Forced Vital Capacity (FVC) on the Profiler and Elite Plethysmograph in the Pulmonary Function Clinic.

The Forced Vital Capacity measures the maximal volume of gas that can be expired as forcefully and rapidly as possible after a maximal inspiration to total lung capacity. This measurement will help determine if the patient has any obstructive or restrictive diseases of the airways.

**Requirements**
The following are required for Forced Vital Capacity testing:

- An abrupt and unhesitating start.
- Smooth and continuous exhalation until complete.
- No coughing during first second.
- Full inspiration.
- Minimum six-second expiratory time.
- Minimum of three acceptable efforts.
- Repeatable, acceptable efforts (the two largest FVC’s within 150 ml of each other. The two largest FEV1’s within 150 ml of each other).

**Caution:** The opening at the end of the pneumotach must not be obstructed. Make sure the patient does not obstruct it with his/her fingers. This will result in erroneously high volume and flow results.

**Procedure**
The following is the correct procedure for performing a Forced Vital Capacity on a patient:

- Before beginning the test, zero the pneumotach by clicking the Zero Flow button. There must be no flow through the pneumotach during this procedure.
- Click the FVC tab. The FVC Data Collection screen appears.
- Place nose clips on the patient.
- Tell the patient to breathe normally through the pneumotach. If you have the Keystroke to Start Test option turned on (default), press the spacebar to begin data collection. If not, breathing on the system starts the testing procedure and begins data collection. The patient’s breathing efforts are immediately displayed on the screen. Observe the patient’s tidal breathing until the patient is comfortable.
- Instruct the patient to inspire fully.
- Instruct the patient to exhale as rapidly, forcefully, and completely as possible (a minimum of six-seconds of exhalation is recommended).
- Instruct the patient to inspire fully, as rapidly as possible.
- Press the spacebar or click the Stop button to end the effort.
• Instruct the patient to return to normal breathing. The data and graph are displayed immediately.
• Repeat until consistent, reproducible results are obtained.

Acceptability Criteria

The following are the acceptability criteria for FVC testing:

• At least three efforts should be obtained, with the best two FVC efforts within 150 ml of each other and the two best FEV1’s within 150 ml of each other. The efforts should also meet the ATS acceptability criteria.
• Once this criterion has been met, the screen will display a message stating Repeatability Criteria Met.

This form documents the approval and history of the policies and procedures for the Pulmonary Function Laboratory. The Medical Director signs all policies verifying initial approval. Annually thereafter, the Director and/or designee may approve reviews and revisions.

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<td>Medical Director Pulmonary Laboratory</td>
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