Providence HEALTH CARE	**RESPIRATORY SERVICES**	DATE CREATED: April 2006 DATE REVIEWED/REVISED: **September 2015**
PROCEDURE	TITLE: Pulmonary Diagnostics: Forced Vital Capacity (FVC) (Respiratory Therapy) NUMBER: B-00-12-12112	RELATED DOCUMENTS:

SITE APPLICABILITY:

ST. PAUL'S HOSPITAL
MOUNT SAINT JOSEPH HOSPITAL

GENERAL INFORMATION:

Forced Vital Capacity (FVC) is the maximal volume of air exhaled with maximally forced effort from a maximal inspiration. FVC measurement is the first measurement in the *Complete Pulmonary Function* testing sequence.

INDICATIONS:

- To determine the presence or absence of lung disease
- To measure the severity of disease on lung function
- To quantify the effects of exposure to occupational or environmental triggers
- To see if therapy is useful or if there are any side effects
- To evaluate the risk for surgical procedures
- To measure the level of disability or impairment

CONTRAINDICATIONS:

- Hemoptysis of unknown origin
- Pneumothorax
- Unstable cardiovascular status (recent MI or PE)
- Thoracic, abdominal, or cerebral aneurysms
- Recent thoracic, abdominal, or ocular surgeries
- Acute nausea or vomiting

CAUTIONS:

Patients should be observed for signs of dizziness and trials stopped accordingly. Instruct patient to not tense their shoulders and neck in order to reduce the likelihood of syncope.

SPECIAL CONSIDERATIONS:

If patients require supplemental O_2 they should have access to wall O_2 in order to conserve their own supply. Patients with significant kyphosis or scoliosis maybe have difficulty with mouthpiece height and angle.

REQUIRED SUPPLIES & EQUIPMENT:

- Jaeger Masterscreen Spirometer
- Microgard Filter
- Silicone Mouthpiece
- Nose clip

PROCEDURE:

1. Check to make sure the patient does not have any contraindications to testing.
2. The patient should be sitting comfortably, with both feet flat on the floor and the mouthpiece adjusted to a comfortable height.
3. Explain procedure to patient and demonstrate appropriate technique.
4. Double click on the **Spirometry** icon on the main screen.
5. Press **F3** to start measurement.
6. Check to make sure that there is no drift in the baseline prior to placing patient on the mouthpiece.
7. Ask the patient to place the mouthpiece in their mouth and place the nose clips on their nose.
8. Instruct the patient to breathe normally in and out through their mouth.
9. Have the patient take a large breath in and without hesitation exhale forcefully and completely (minimum 6 seconds, maximum 15 seconds) then quickly breathe in until they are full.
10. Press **F7** when maneuver is completed to calculate results.
11. Give feedback and encouragement when appropriate.
12. Watch patient for signs of distress during maneuver – stop if patient becomes dizzy as syncope could follow.
13. A minimum of 3 acceptable maneuvers is required (maximum of 8).
14. Repeatability is achieved when the difference between the two best FVC and FEV_1 is less than 0.15 L and the peak flow is within 10%.
15. The largest combined value of FVC and FEV_1 from acceptable maneuvers should be reported
16. Press **F12** to save results and exit screen.

REFERENCES:

1. American Thoracic Society Series *ATS/ERS Task Force: Standardization of Spirometry.* European Respiratory Journal 2005 Volume 26
2. *ATS Pulmonary Function Laboratory Management and Procedure Manual (2005).*

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