Spirometry Screening

Setting:  [ ] Lab  [ ] Clinical  Evaluator:  [ ] Peer  [ ] Instructor

Conditions (describe):  ____________________________________________________________

Equipment Used

______________________________________________________________________________

Equipment and Patient Preparation
1. Verifies, interprets, and evaluates physician’s order or protocol
2. Selects, gathers, and assembles the necessary equipment
3. Checks for adequate paper supply
4. Checks for functional recording pens (if applicable)
5. Plugs the unit in if applicable; enters the date and time
6. If a volume displacement spirometer is used, checks the unit for leaks
7. If possible, turns on the recording device and makes sure the pen is recording on the baseline
8. Checks and enters the room temperature
9. Using a 3-L calibration syringe, checks the spirometer for accuracy; calculates or records the percent accuracy; repeats the calibration while varying the speed of volume injection
10. Washes hands and applies standard precautions and transmission-based isolation procedures as appropriate
11. Identifies subject; introduces self and department
12. Explains purpose of the procedure and confirms subject’s understanding

Assessment and Implementation
13. Assesses subject by obtaining the following information:
   a. Name and identification number
   b. Age on day of testing
   c. Height in stocking feet
   d. Gender
   e. Race (indicate white or nonwhite for purposes of race correction according to NIOSH and OSHA regulations for spirometry)
14. Determines whether previous testing has ever been done and whether it was done sitting or standing
15. Elicits a respiratory history, including cough/sputum production, smoking history, dyspnea at rest and on exertion, medications, employment history, and previous illnesses
16. Determines whether there are any contraindications to the performance of a baseline spirometry screening at this time by asking the subject the following questions:
   a. Upper respiratory tract illness, influenza, or bronchitis within the last 3 weeks?
   b. Any tight or restrictive clothing that may interfere with the performance of the test?
   c. Eaten a heavy meal within the last 2 hours?
   d. Any dental appliances, loose teeth, caps, gum or candy in mouth? Remove as appropriate
   e. Smoked within the last hour?
   f. Recent surgeries?
   g. Used an aerosolized bronchodilator within the last 4 to 6 hours?
   h. How are you feeling today? Any acute illness at the present time?
17. If a positive response is obtained to any of the preceding questions, corrects problems or postpones test for the appropriate time period

18. Aseptically attaches clean disposable mouthpiece or flow sensing device to the main tubing; calibrates as needed

19. Instructs the subject in the performance of the SVC maneuver and confirms subject’s understanding

20. Places the noseclips on the subject and verifies that there are no leaks

21. Positions the subject by instructing him or her to sit or stand straight, as appropriate, with chin slightly elevated; places a chair without wheels behind the subject if standing

22. Activates the machine and recording device; actively coaches the subject throughout inspiration and expiration and performs the SVC

23. Observes the subject for adequate effort and proper performance during the maneuver; reinstructs as necessary

24. Notes the volume obtained

25. Allows for adequate recovery of the subject

26. Repeats the SVC maneuver with active, forceful coaching until three tracings within 200 ml or 5 percent of each other are obtained

27. Instructs the subject in the performance of the FVC maneuver and confirms understanding

28. Places the noseclips on the subject and verifies that there are no leaks

29. Repositions subject

30. Activates machine and performs the FVC with active forceful coaching throughout inspiration and expiration

31. Observes the subject for adequate effort and proper performance during the maneuver; reinstructs as necessary

32. Notes the volume obtained and the shape and appearance of the graphic representation, if available

33. Allows for adequate recovery of the subject

34. Determines validity of the test

   a. Three acceptable tracings free from cough or glottic closure, early termination of expiration, variable effort, leaks, and baseline error

   b. Excessive hesitation at start of test; extrapolated volume must be less than 5 percent of the FVC or 200 ml, whichever is greater

   c. Plateau defined as no change in volume in the last 1 sec of the tracing; test should be at least 6 sec in duration

   d. Excessive variability: should be less than 5 percent or 150 ml difference between the two best FVC and FEV1 results

35. Has the subject sign and date the spirometer tracing

36. Compares the SVC and FVC volumes and explains any discrepancies

37. If a postbronchodilator test is ordered, administers the medication, waits an appropriate length of time, and repeats the FVC

38. Calculates the percent change in FEV1

39. Calculates the percent change in FEV1/FVC ratio (FEV1%)

i. Ear infections in the last 3 weeks?
40. Instructs the subject in the MVV maneuver, if appropriate, and confirms understanding

41. With the subject seated, has subject begin breathing as rapidly and deeply as possible; activates the machine and actively coaches test performance for 12 to 15 sec

42. Allows for adequate recovery of subject

43. Multiplies the volume achieved by 6 or 4 to obtain the volume per minute; records the results

Follow-up
44. Discards any disposable noseclips, mouthpieces, or flow sensors in an infection waste container; disinfects any nondisposable mouthpieces and tubings

45. Washes hands

46. Records pertinent data in chart and departmental records

47. Notifies appropriate personnel and makes any necessary recommendations or modifications to the patient care plan

Signature of Evaluator

Signature of Student
PERFORMANCE RATING SCALE

<table>
<thead>
<tr>
<th>5</th>
<th>EXCELLENT – FAR EXCEEDS EXPECTED LEVEL, FLAWLESS PERFORMANCE</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>ABOVE AVERAGE – NO PROMPTING REQUIRED, ABLE TO SELF-CORRECT</td>
</tr>
<tr>
<td>3</td>
<td>AVERAGE – THE MINIMUM COMPETENCY LEVEL, NO CRITICAL ERRORS</td>
</tr>
<tr>
<td>2</td>
<td>IMPROVEMENT NEEDED – PROBLEM AREAS EXIST; CRITICAL ERRORS, CORRECTIONS NEEDED</td>
</tr>
<tr>
<td>1</td>
<td>POOR AND UNACCEPTABLE PERFORMANCE – GROSS INACCURACIES, POTENTIALLY HARMFUL</td>
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PERFORMANCE CRITERIA

<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>SCALE</th>
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<tbody>
<tr>
<td>1. DISPLAYS KNOWLEDGE OF ESSENTIAL CONCEPTS</td>
<td>5 4 3 2 1</td>
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<tr>
<td>2. DEMONSTRATES THE RELATIONSHIP BETWEEN THEORY AND CLINICAL PRACTICE</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>3. FOLLOW DIRECTIONS, EXHIBITS SOUND JUDGEMENT, AND DEMONSTRATES ATTENTION TO SAFETY AND DETAIL</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>4. EXHIBITS THE REQUIRED MANUAL DEXTERITY</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>5. PERFORMS PROCEDURE IN A REASONABLE TIME FRAME</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>6. MAINTAINS STERILE OR ASEPTIC TECHNIQUE</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>7. INITIATES UNAMBIGUOUS GOAL-DIRECTED COMMUNICATION</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>8. PROVIDES FOR ADEQUATE CARE AND MAINTENANCE OF EQUIPMENT AND SUPPLIES</td>
<td>5 4 3 2 1</td>
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<tr>
<td>9. EXHIBITS COURTEOUS AND PLEASANT DECIABOR</td>
<td>5 4 3 2 1</td>
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<tr>
<td>10. MAINTAINS CONCISE AND ACCURATE RECORDS</td>
<td>5 4 3 2 1</td>
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ADDITIONAL COMMENTS: INCLUDE ERRORS OF OMISSION OR COMMISSION, COMMUNICATIVE SKILLS, AND EFFECTIVENESS OF PATIENT INTERACTION:

SUMMARY PERFORMANCE EVALUATION AND RECOMMENDATIONS

Satisfactory Performance – Performed without error or prompting, or able to self-correct, no critical errors.

_______ LABORATORY EVALUATION. SKILLS MAY BE APPLIED/OBSERVED IN THE CLINICAL SETTING.

_______ CLINICAL EVALUATION. STUDENT READY FOR MINIMALLY SUPERVISED APPLICATION AND REFINEMENT.

Unsatisfactory Performance – Prompting required; performed with critical errors, potentially harmful.

_______ STUDENT REQUIRES ADDITIONAL LABORATORY PRACTICE.

_______ STUDENT REQUIRES ADDITIONAL SUPERVISED CLINICAL PRACTICE.

SIGNATURES

STUDENT: _______________________________ EVALUATOR: _______________________________

DATE: _______________________________ DATE: _______________________________