

## **DST-FC-401 Cardio-Respiratory Assessment: Adult**

This decision support tool is effective as of August 2020. For more information or to provide feedback on this or any other decision support tool, email [ncertifiedpracticedst@nnpbc.com](mailto:ncertifiedpracticedst@nnpbc.com).

Nurses with RN First Call Certified Practice designation (RN(C)s) are able to conduct an assessment, make nursing diagnoses, implement nursing interventions, and provide education. RN(C)s with RN First Call Certified Practice designation cannot diagnose cardio-respiratory medical conditions and must consult with and/or refer to a physician or NP as appropriate.

The following assessment must be completed and documented. Cardiac and respiratory systems can significantly interact, and thus, examination of both systems is presented in this DST.

### **CARDIO-RESPIRATORY ASSESSMENT**

#### **History of Present Illness and Review of Systems**

##### **General**

The following characteristics of each sign or symptom should be elicited and explored:

- Onset (sudden or gradual)
- Chronology
- Current situation (improving or deteriorating)
- Location
- Radiation
- Quality
- Timing (frequency, duration)
- Severity
- Precipitating and aggravating factors
- Relieving factors
- Associated symptoms
- Current situation (improving or deteriorating)
- Effects on Activities of Daily Living (ADL)
- Previous diagnosis of similar episodes
- Previous treatments and efficacy

#### **Cardinal Signs and Symptoms**

In addition to the general characteristics outlined above, additional characteristics of specific symptoms should be elicited, as follows:

##### **Cough**

- Quality
- Severity
- Timing
- Duration: If duration greater than 2 weeks screen for tuberculosis (TB)

##### **Sputum**

- Colour
- Amount
- Consistency

- Purulence, odour, foul taste
- Time of day when sputum increases

### **Hemoptysis**

- Amount of blood
- Frank blood or frank blood mixed with sputum
- Association with leg pain, chest pain, shortness of breath

### **Shortness of Breath**

- Exercise tolerance (number of stairs client can climb, or distance client can walk)
- Posture – orthopnea or tripodding
- Shortness of breath at rest
- Association with paroxysmal nocturnal dyspnea (PND)
- Associated swelling of ankles or recent weight gain

### **Cyanosis**

- Central vs peripheral
- Frequency and/or triggers of occurrence
- Any recent changes in pattern
- Associated wheeze

### **Chest Pain**

- Associated symptoms such as nausea, sweats, shortness of breath, anxiety, palpitations
- Relation to effort, exercise, meals, bending over
- Explore all aspects of the pain – include location, quality, radiation, severity, timing, and others

### **Fainting or Syncope**

- Weakness, light-headedness, loss of consciousness
- Relation to postural changes, vertigo, or neurological symptoms

### **Extremities**

- Edema:
  - site and extent of edema
  - relation of edema to activity or time of day
- Intermittent claudication (exercise-induced leg pain)
  - distance client can walk before onset of pain related to claudication
  - time needed to rest to relieve claudication
  - temperature of affected tissue (warm, cool or cold)
- Tingling
- Leg cramps or pain at rest
- Presence of varicose veins

### **Associated Symptoms**

- Fever
- Malaise
- Fatigue
- Night sweats
- Weight loss
- Palpitations
- Nausea and vomiting
- Gastroesophageal reflux

### **MEDICAL HISTORY**

#### **Medical Conditions and Surgeries**

- Medical conditions and surgeries
- Allergies (seasonal, environmental, medication)
- Medication currently used:
  - Prescription, contraceptive, over-the-counter
  - Herbal preparations, vitamins, minerals, supplements and traditional therapies
- Immunizations status (e.g. pneumococcal, annual influenza)
- Medical conditions:
  - Frequency of colds and respiratory infections, recent viral illness, joint pain or swelling
  - History of rheumatic fever
  - Nasal polyps, chronic sinusitis, asthma, bronchitis, pneumonia, chronic obstructive pulmonary disease, TB (disease or exposure), cancer, cystic fibrosis
  - Dyslipidemia, hypertension, diabetes mellitus, thyroid disorder, chronic renal disease, systemic lupus erythematosus
  - Coronary artery disease, angina, myocardial infarction,
  - History of thrombosis, prolonged immobilization
  - Cardiac murmurs, valvular heart disease
  - Down Syndrome
- Admissions to hospital and/or surgery for respiratory or cardiac illness
- Date and result of last Mantoux test and chest x-ray
- Blood transfusion

#### **Family History**

- Others at home with similar symptoms
- Allergies, atopy
- Asthma, lung cancer, TB, cystic fibrosis, bronchitis
- Diabetes mellitus
- Heart disease: hypertension, ischemic coronary artery disease, MI (especially in family members less than 50 years of age), sudden death from cardiac disease, dyslipidemia, hypertrophic cardiomyopathy

### Personal and Social History

- Substance use such as smoking tobacco, chewing tobacco, alcohol, cannabis, illicit drugs
- If substance abuse history, note amounts, duration, last used and others
- Exposure to second-hand smoke, wood smoke, pets, mould
- Crowded living conditions
- Poor personal or environmental cleanliness
- High stress levels (personal or occupational)
- Institutional living
- Occupational or environmental exposure to respiratory irritants (miner, firefighter)
- Human immunodeficiency virus (HIV) risks
- Obesity
- Immigration or travel abroad

### Physical Assessment

Examination of the ear, nose, and throat should also be carried out because of the interrelatedness between these systems and structures and the functioning of the lower respiratory tract

### Vitals

- Temperature
- Pulse
- Respiration
- SpO<sub>2</sub>
- Blood pressure
  - Orthostatic changes
  - Pulsus paradoxus
- Ankle-brachial index (ABI)
- Pain

### General

- Apparent state of health
- Appearance of comfort or distress
- Position to aid respiration (e.g. tripod)
- Diaphoresis
- Ability to speak a normal-length sentence without stopping to take a breath
- Colour: skin
- Nutritional status
- Hydration status
- Mental status
- Hygiene
- Match between appearance and stated age
- Acutely or chronically ill

### Inspection

- Colour, cyanosis
- Shape of chest
- Symmetry of chest movement
- Rate, rhythm and depth of respiration, respiratory distress
- Intercostal indrawing
- Use of accessory muscles
- Precordium: visible pulsations
- Chest wall scars, bruising, signs of trauma
- Jugular venous pressure
- Colour of conjunctiva
- Extremities
- Hands: edema, cyanosis, clubbing, nicotine stains, cap refill greater than 2 seconds
- Feet and legs:
  - Changes in foot colour with changes in leg position (blanching with elevation, rubor of dependency)
  - Ulcers, edema (check sacrum if client is bedridden)
  - Colour (pigmentation, discolouration)
  - Distribution of hair
  - Varicose veins
- Skin – rashes, lesions, xanthomas

### Palpation

- Tracheal position (midline)
- Chest wall tenderness or crepitus
- Respiratory excursion
- Tactile fremitus
- Spinal abnormality
- Lymph nodes (axillary, supraclavicular, cervical)
- Masses
- Apical beat:
  - Point of maximal impulse (PMI) normally located at the fifth intercostal space, mid-clavicular line
  - Assess quality and intensity of apical beat
  - Apical beat may be laterally displaced, which indicates cardiomegaly
- Identify and assess pulsations and thrills
- Hepatomegaly, right upper quadrant (RUQ) tenderness
- Assess peripheral pulses – radial, brachial, femoral, popliteal, posterior tibial, dorsalis pedis
  - Check for synchrony of radial and femoral pulses
- Edema: pitting (grade 1 to 4) and level (how far up the feet and legs the edema extends); sacral edema

### **Percussion of Lung Fields**

- Resonance
  - Increased resonance over hyperinflated areas
  - Dullness to percussion over areas of consolidation
  - Location and excursion of the diaphragm

### **Auscultation of Lungs**

- Listen for sounds of normal air entry before trying to identify abnormal sounds
- Degree of air entry throughout the chest (should be equal)
- Quality of breath sounds (e.g. bronchial, bronchovesicular, vesicular)
- Ratio of inspiration to expiration
- Adventitious sounds:
  - Wheezes (rhonchi), crackles (rales), pleural rub, stridor, decreased breath sounds

### **Auscultation of Heart**

- Listen to normal heart sounds before trying to identify murmurs
- Auscultate at aortic, pulmonic, Erb's point, tricuspid and mitral valve
- Attempt to identify:
  - Rate and rhythm
  - S1 and S2 sounds and their intensity
  - Added heart sounds (S3 and S4), rubs, splitting of S2
  - Murmur
- Auscultate carotid arteries, abdominal aorta, renal arteries, iliac arteries, and femoral arteries for bruits

### **Associated Systems**

- A complete respiratory assessment includes the Ear, Nose and Throat (ENT) system

### SYMPTOMS REQUIRING URGENT REFERRAL

The first step is to differentiate acute cardio-respiratory distress and cardio-respiratory conditions that can be managed safely by RN(C)s.

New onset of the following signs and symptoms require immediate emergency care and referral to a physician or nurse practitioner:

- Severe dyspnea and inability to lay flat
- Inability to speak or fragmented speech
- Tracheal shift
- Unrelieved chest pain
- Unable to maintain SpO<sub>2</sub> 92% or greater on room air
- Cyanosis (central or peripheral cyanosis)
- Severe increasing fatigue
- Silent chest or crackles throughout lung fields
- Decreased level of consciousness
- Diminishing respiratory effort
- Nasal flaring or tracheal tug
- Intercostal indrawing
- Recent hospitalization for heart failure (HF)

### Diagnostic Tests

The RN(C) may consider the following diagnostic tests in the examination of the cardio-respiratory system to support clinical decision making:

- Electrocardiogram (ECG)
- Complete Blood Count (CBC)
- Cardiac troponins
- Sputum for Culture and Sensitivity (C&S)

## REFERENCES

More recent editions of any of the items in the Reference List may have been published since this DST was published. If you have a newer version, please use it.

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