

Pulmonary Diagnostics & Investigations

Presentation guide

DC = Statement of the competence for a particular domain

E = Elements of the competence for a specific statement of competence

P = Performance criteria for competency; associated with a specific element of the competence

Domain of competence DC.17

Perform pulmonary diagnostics and investigation testing on patients in a clinical setting

E17.1 Measure static and dynamic lung compliance

- P17.1.1 Differentiate between static and dynamic lung capacity
- P17.1.2 Describe methods utilized to evaluate pulmonary mechanics
- P17.1.3 Identify the indications and contraindications for measurement of static and dynamic lung compliance
- P17.1.3 Identify the indications for early and/or timely termination of a test
- P17.7.4 Describe the variables measured during the measurement of static and dynamic lung compliance and their respective significance
- P17.2.5 Prepare the equipment and material necessary to evaluate pulmonary mechanics in a clinical setting
- P17.1.6 Prepare the patient for evaluation of pulmonary mechanics in a clinical setting
- P17.1.7 Perform evaluation of patient pulmonary mechanics in a clinical setting
- P17.1.8 Report and chart procedure and patient results in a clinical setting
- P17.1.9 Perform routine equipment cleaning and maintenance in a clinical setting

E17.2 Perform walking oximetry

- P17.2.1 Compare the methods utilized for a walk test
- P17.2.2 Identify the indications and contraindications for distinct walk tests
- P17.2.3 Describe the variables measured during a walk test including pulse oximetry and their respective significance
- P17.2.4 Identify the indications for early and/or timely termination of a test
- P17.2.5 Prepare the equipment and the patient for a walk test in a clinical setting
- P17.2.6 Initiate and monitor patient during a walk test in a clinical setting
- P17.2.7 Report and chart patient observations and data from a walk test in a clinical setting

E17.3 Perform flow/volume loop measurement (spirometry)

- P17.3.1 Describe the principle of a flow/volume loop measurement
- P17.3.2 Compare the indications and contraindications for a flow/volume measurement test
- P17.3.3 Describe the variables measured during a flow/volume loop and their respective significance
- P17.3.4 Describe how predicted values are determined for various spirometry tests
- P17.3.5 Explain the rationale for pre and post bronchodilator testing
- P17.3.6 Identify the indications for early and/or timely termination of a test
- P17.3.7 Compare the principles of operation, advantages and disadvantages of devices used to perform spirometry tests
- P17.3.8 List the advantages and disadvantage of using computerized systems for spirometry tests
- P17.3.9 Prepare the equipment and material for a flow/volume measurement in a clinical setting
- P17.3.10 Prepare the patient for a flow/volume measurement in a clinical setting
- P17.3.11 Perform a flow/volume measurement on patients in a clinical setting
- P17.3.12 Report and chart observations and patient results from a flow/volume measurement in a clinical setting
- P17.3.13 Perform routine equipment cleaning and maintenance in a clinical setting

E17.4 Measure lung volume, airway resistance and conductance by body plethysmography

- P17.4.1 Describe the method used for measuring lung volume, airway resistance and conductance by body plethysmography
- P17.4.2 Compare the indications and contraindications for measuring lung volume, airway resistance and conductance by body plethysmography
- P17.4.3 Explain the variables measured during a lung volume, airway resistance and conductance by body plethysmography and their respective significance
- P17.4.4 Identify the indications for early and/or timely termination of a test
- P17.4.5 Explain the functional principal of a body plethysmograph
- P17.4.6 Prepare the equipment and material for lung volume, airway resistance and conductance measurement by body plethysmography in a clinical setting
- P17.4.7 Prepare the patient for lung volume, airway resistance and conductance measurement by body plethysmography in a clinical setting
- P17.4.8 Perform lung volume, airway resistance and conductance measurement by body plethysmography on patients in a clinical setting
- P17.4.9 Report and chart observations and patient results from lung volume, airway resistance and conductance measurement by body plethysmography in a clinical setting
- P17.4.10 Perform routine equipment cleaning and maintenance in a clinical setting

E17.5 Perform functional residual capacity (FRC) measurements

- P17.5.1 Describe the method used for measuring FRC and its significance
- P17.5.2 Compare the indications and contraindications for measuring FRC

- P17.5.3 Identify the indications for early and/or timely termination of a test
- P17.5.4 Explain the functional principal of the devices used to measure FRC
- P17.5.5 Prepare the equipment and material for FRC measurement in a clinical setting
- P17.5.6 Prepare the patient for FRC measurement in a clinical setting
- P17.5.7 Perform FRC measurements on patients in a clinical setting
- P17.5.8 Report and chart observations and patient results from FRC measurements in a clinical setting
- P17.5.9 Perform routine equipment cleaning and maintenance in a clinical setting

E17.6 Measure pulmonary diffusion capacity

- P17.6.1 Describe the method used for measuring pulmonary diffusion capacity
- P17.6.2 Compare the indications and contraindications for measuring pulmonary diffusion capacity
- P17.6.3 Explain the variables measured during the measurement of pulmonary diffusion capacity and their respective significance
- P17.6.4 Identify the indications for early and/or timely termination of a test
- P17.6.5 Prepare the equipment and material for the measurement of pulmonary diffusion in a clinical setting
- P17.6.6 Prepare the patient for pulmonary diffusion capacity measurement in a clinical setting
- P17.6.7 Perform pulmonary diffusion capacity measurement on patients in a clinical setting
- P17.6.8 Report and chart observations and patient results from pulmonary diffusion capacity measurement in a clinical setting
- P17.6.9 Perform routine equipment cleaning and maintenance in a clinical setting

E17.7 Perform bronchoprovocation testing

- P17.7.1 Describe the method used for bronchoprovocation testing
- P17.7.2 Compare the indications, contraindications and hazards associated with bronchoprovocation testing
- P17.7.3 Explain the variables measured during the bronchoprovocation testing and their respective significance
- P17.7.4 Identify the indications, contraindications and hazards associated with specific drugs utilized for bronchoprovocation testing and how the provocation dose is determined
- P17.7.5 Identify the indications for early and/or timely termination of a test
- P17.7.6 Prepare the equipment and drugs necessary for bronchoprovocation testing in a clinical setting
- P17.7.7 Prepare patient for bronchoprovocation testing in a clinical setting
- P17.7.8 Perform bronchoprovocation testing in patients in a clinical setting.
- P17.7.9 Continue with dosing and testing protocol until a clear indication of bronchial reactivity or maximum dose has been reached in a clinical setting
- P17.7.10 Evaluate the results of a bronchoprovocation test and determine the degree of reactivity in a clinical setting
- P17.7.11 Report and chart procedure and patient results in a clinical setting

P17.7.11 Perform routine equipment cleaning and maintenance in a clinical setting

E17.8 Measure inspiratory and expiratory pressure by occlusion

- P17.8.1 Describe the method used to measure inspiratory and expiratory pressure by occlusion
- P17.8.2 Compare the indications, contraindications and hazards associated with the measurement of inspiratory and expiratory pressure by occlusion
- P17.8.3 Explain the variables measured during the measurement of inspiratory and expiratory pressure by occlusion
- P17.8.4 Identify the indications for early and/or timely termination of a test
- P17.8.5 Prepare the equipment and material necessary for the measurement of inspiratory and expiratory pressure by occlusion in a clinical setting
- P17.8.6 Prepare patient for the measurement of inspiratory and expiratory pressure by occlusion in a clinical
- P17.8.7 Perform the measurement of inspiratory and expiratory pressure by occlusion in patients in a clinical setting
- P17.8.8 Evaluate the results and ensure reproducibility of the measurement of inspiratory and expiratory pressure by occlusion in a clinical setting
- P17.8.9 Report and chart procedure and patient results in a clinical setting
- P17.8.10 Perform routine equipment cleaning and maintenance in a clinical setting

E17.9 Perform testing to American Thoracic Society (ATS) standards

- P17.9.1 Define and summarize the importance of ATS standards
- P17.9.2 Identify the factors affecting validity of spirometry test results according to ATS standards
- P17.9.3 Perform spirometry testing in accordance with hospital protocol and ATS standards

E17.10 Interpret and validate pulmonary function test results

- P17.10.1 Describe how pulmonary function tests are validated
- P17.10.2 Describe how pulmonary function tests are interpreted
- P17.10.3 Identify factors utilized to determine predicted values for particular pulmonary function tests
- P17.10.4 Determine validity of procedure and derived results from pulmonary function tests in a clinical setting
- P17.10.5 Report and chart validated results from pulmonary function test in a clinical setting

E17.11 Perform/teach peak flow monitoring

- P17.11.1 Describe the purpose and applications for peak flow monitoring
- P17.11.2 Describe how predicted values are determined for peak flow measurement
- P17.11.3 Compare the principles of operation, advantages and disadvantages of devices used to measure peak flow
- P17.11.4 Prepare/teach the patient for peak flow measurement in a clinical setting

- P17.11.5 Perform peak flow measurements in patients in a clinical setting
- P17.11.6 Report and chart observations and patient results from a peak flow measurement in a clinical setting
- P17.11.7 Perform routine equipment cleaning in a clinical setting

E17.12 Assist with bronchoscopy procedures

- P17.12.1 Describe the application and purposes for a bronchoscopy procedure
- P17.12.2 Identify the indications and contraindications and hazards associated with a bronchoscopy procedure
- P17.12.3 Describe corrective actions in the advent of various complications associated with a bronchoscopy procedure
- P17.12.4 Differentiate between flexible (fiberoptic) and rigid bronchoscopes
- P17.12.5 Describe the purpose of various drugs commonly used during a bronchoscopy procedure
- P17.12.6 Describe methods of obtaining and preparing samples during a bronchoscopy procedure
- P17.12.7 Describe modifications required for bronchoscopy in an intubated and ventilated patient
- P17.12.8 Prepare the equipment, accessories and drugs necessary for a bronchoscopy procedure in a clinical setting
- P17.12.9 Prepare patient for a bronchoscopy procedure with special attention to monitoring in a clinical setting
- P17.12.10 Assist during a bronchoscopy procedure on patients in a clinical setting
- P17.12.11 Assume responsibility for monitoring and sample collection during the patient's recovery period in a clinical setting
- P17.12.12 Report and chart procedure in a clinical setting
- P17.12.13 Perform routine equipment cleaning and maintenance in a clinical setting

E17.13 Perform laryngoscopy procedures

- P17.13.1 Describe the application and purposes for a laryngoscopy procedure
- P17.13.2 Identify the indications and contraindications and hazards associated with a laryngoscopy procedure
- P17.13.3 Describe corrective actions in the advent of various complications associated with a laryngoscopy procedure
- P17.13.4 Prepare the equipment and accessories necessary for a laryngoscopy procedure in a clinical setting
- P17.13.5 Prepare patient for a laryngoscopy procedure with special attention to monitoring in a clinical setting
- P17.13.6 Perform a laryngoscopy procedure in patients in a clinical setting and apply corrective action in the advent of complications
- P17.13.7 Monitor patient during laryngoscopy procedure and recovery period in a clinical setting
- P17.13.8 Report and chart procedure in a clinical setting
- P17.13.9 Perform routine equipment cleaning and maintenance in a clinical setting

E17.14 Assist with laryngoscopy procedures

- P17.14.1 Prepare the equipment and accessories necessary for a laryngoscopy procedure in a clinical setting
- P17.14.2 Prepare patient for a laryngoscopy procedure with special attention to monitoring in a clinical setting
- P17.14.3 Assist during a laryngoscopy procedure in patients in a clinical setting
- P17.14.4 Monitor patient during laryngoscopy procedure and recovery period in a clinical setting
- P17.14.5 Report and chart procedure in a clinical setting
- P17.14.6 Perform routine equipment cleaning and maintenance in a clinical setting

E17.15 Perform transcutaneous monitoring (e.g., transcutaneous oxygen and carbon dioxide pressure [TcP02, TcPC02])

- P17.15.1 Describe the purpose and applications for transcutaneous monitoring
- P17.15.2 Describe the indications and contraindications for transcutaneous monitoring
- P17.15.3 Identify the complications and corrective action associated with transcutaneous monitoring
- P17.15.4 Describe the basic principle of operation for transcutaneous blood gas monitoring
- P17.15.5 Prepare the equipment and material for transcutaneous monitoring in a clinical setting
- P17.15.6 Prepare patient for transcutaneous monitoring in a clinical setting
- P17.15.7 Institute and monitor transcutaneous monitoring in patients in a clinical setting
- P17.15.8 Report and chart procedure and patient data in a clinical setting
- P17.15.9 Perform routine equipment cleaning and maintenance in a clinical setting

E17.16 Perform end-tidal carbon dioxide monitoring (e.g., set-up and interpretation)

- P17.16.1 Describe the applications and limitations of end tidal carbon dioxide analyzers/monitors
- P17.16.2 Describe monitoring of end-tidal carbon dioxide via capnography including purpose and applications
- P17.16.3 Describe the indications and contraindications for end-tidal carbon dioxide monitoring
- P17.16.4 Compare the technical operation of end-tidal carbon dioxide analyzers/monitors: side stream versus mainstream sampling
- P17.16.5 Identify complications and corrective action associated with end-tidal carbon dioxide monitoring
- P17.16.6 Interpret end-tidal carbon dioxide waveforms and trends
- P17.16.7 Prepare the equipment and material for end-tidal carbon dioxide monitoring in a clinical setting
- P17.16.8 Institute and monitor end-tidal carbon dioxide monitoring in patients in a clinical setting
- P17.16.9 Report and chart procedure and patient data in a clinical setting
- P17.16.10 Perform routine equipment cleaning and maintenance in a clinical setting

E17.17 Perform basic sleep studies (e.g., oximetry plus one or more channels)

- P17.17.1 Explain the significance of recordings obtained during sleep studies
- P17.17.2 Explain the principles of operation of commonly used measuring devices (e.g., single channel)
- P17.17.3 Prepare the equipment and accessories, including the room, for sleep studies per protocol in a clinical setting, including oximeter
- P17.17.4 Prepare patient for a sleep study per protocol in a clinical setting
- P17.17.5 Perform sleep study and ensure patient compliance per protocol in a clinical setting
- P17.17.6 Monitor patient and equipment during sleep study per protocol in a clinical setting
- P17.17.7 Evaluate, document and report the results of a sleep study in a clinical setting
- P17.17.8 Perform routine equipment cleaning and maintenance in a clinical setting

E17.18 Perform overnight oximetry

- P17.18.1 Describe overnight oximetry monitoring including purpose and applications
 - P17.18.2 Describe the indications and contraindications for overnight oximetry monitoring
 - P17.18.3 Identify complications and corrective action associated with overnight oximetry monitoring
 - P17.18.4 Prepare the equipment and material for overnight oximetry monitoring in a clinical setting
 - P17.18.5 Prepare patient for overnight oximetry monitoring in a clinical setting
 - P17.18.6 Initiate and monitor overnight oximetry monitoring in patients in a clinical setting
 - P17.18.7 Report and chart procedure and patient data in a clinical setting
 - P17.18.8 Perform routine equipment cleaning and maintenance in a clinical setting
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