Invasive Vascular Procedures

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.13

Perform invasive vascular procedures on patients in a clinical setting

E13.1 Perform vascular access through IV

- P13.1.1 Describe purpose, sites and techniques for vascular access through IV
- P13.1.2 Identify complications and corrective action associated with IV procedures
- P13.1.3 Compare types of equipment set-ups and accessories commonly utilized
- P13.1.4 Prepare equipment and patient per hospital protocol in a clinical setting
- P13.1.5 Perform vascular access through IV in patients per hospital protocol in a clinical setting
- P13.1.6 Assess and monitor equipment function and patient and take corrective action in the advent of complications in a clinical setting
- P13.1.7 Document procedures and related information in patient ‘s chart per hospital protocol in a clinical setting

E13.2 Assist with vascular access through central lines/pulmonary artery catheter

- P13.2.1 Compare indications, sites and techniques for central line cannulation and pulmonary artery catheterization
- P13.2.2 Identify normal values and perform calculations related to pulmonary artery catheterization
- P13.2.3 Prepare the set-up equipment and patients for central line / PA line cannulation per hospital protocol in a clinical setting
- P13.2.4 Prepare the set-up equipment and patients for pulmonary artery catheterization per hospital protocol in a clinical setting
- P13.2.5 Assist with central line cannulation and pulmonary artery catheterization in patients per hospital protocol in a clinical setting
- P13.2.6 Monitor and interpret central venous pressure measurements in patients in a clinical setting and apply corrective action in the advent of complications

P13.2.7 Monitor and interpret pulmonary artery catheterization values and calculations in patients in a clinical setting and apply corrective action in the advent of complications
P13.2.8 Document procedures and related data in patient ‘s chart per hospital protocol in a clinical setting

E13.3 Use indwelling catheters to collect arterial samples

P13.3.1 Describe the methods for obtaining arterial line samples from indwelling catheters, including calibration
P13.3.2 Describe complications and corrective action associated with arterial line sampling form indwelling catheters
P13.3.3 Prepare the equipment and patient for arterial line sampling from an indwelling catheter per hospital protocol in a clinical setting
P13.3.4 Collect arterial blood samples from indwelling catheters in patients per hospital protocol in a clinical setting
P13.3.5 Monitor patient and indwelling catheter for possible complications and take corrective action in a clinical setting
P13.3.6 Assure effective transfer of blood samples to lab for analysis
P13.3.7 Document procedure and relevant data in patient ‘s chart per hospital protocol in a clinical setting

E13.4 Use indwelling catheters to collect venous samples (e.g., central line)

P13.4.1 Describe the methods for obtaining venous blood samples from indwelling catheters, including calibration
P13.4.2 Describe complications and corrective action associated with venous blood sampling form indwelling catheters
P13.4.3 Prepare the equipment and patient for venous blood sampling from an indwelling catheter per hospital protocol in a clinical setting
P13.4.4 Collect venous blood samples from indwelling catheters in patients per hospital protocol in a clinical setting
P13.4.5 Monitor patient and indwelling catheter for possible complications and take corrective action in a clinical setting
P13.4.6 Assure effective transfer of blood samples to lab for analysis and document procedure and relevant data in patient ‘s chart per hospital protocol in a clinical setting

E13.5 Perform insertion of arterial lines

P13.5.1 Describe indications, sites and methods for insertion of arterial lines
P13.5.2 Compare relative and absolute contraindications and corrective action per insertion of arterial lines
P13.5.3 Identify equipment and accessories required for arterial line insertions
P13.5.4 Describe procedures for insertion of arterial lines
P13.5.5 Identify pre-procedural recommendations, patient position and assessment of coagulation profile and platelets
P13.5.6 Prepare set-up and patient per hospital protocol in a clinical setting

P13.5.7 Insert arterial lines in patients per hospital protocol in a clinical setting
P13.5.8 Monitor post-procedure set-up and patient in a clinical setting and take corrective action in the advent of complications
P13.5.9 Document procedure and relevant data in patient's chart in a clinical setting

E13.6 Assist with insertion of arterial lines

P13.6.1 Prepare set-up and patient per hospital protocol in a clinical setting
P13.6.2 Assist during the insertion of arterial lines in patients per hospital protocol in a clinical setting
P13.6.3 Monitor post-procedure set-up and patient in a clinical setting and take corrective action in the advent of complications
P13.6.4 Document procedure and relevant data in patient's chart in a clinical setting

E13.7 Perform capillary puncture

P13.7.1 Describe indications and methods for obtaining blood samples from capillary punctures
P13.7.2 Describe complications and corrective action associated with capillary puncture
P13.7.3 Prepare the equipment, accessories and patient for capillary puncture per hospital protocol in a clinical setting
P13.7.4 Perform capillary puncture per hospital protocol in a clinical setting
P13.7.5 Assure effective transfer of blood samples to lab for analysis and document procedure and relevant data in patient 's chart per hospital protocol in a clinical setting

E13.8 Perform blood gas analysis

P13.8.1 Describe the basic components of standard blood analysis instruments
P13.8.2 Compare the application and principles of operation of the electrodes
P13.8.3 Summarize the procedure used to perform sample analyze, including handling of samples
P13.8.4 Perform blood gas analysis procedure according to hospital protocol in a clinical setting
P13.8.5 Document and report results of analysis per hospital protocol in a clinical setting
P13.8.6 Describe regular maintenance of blood gas analyzers
P13.8.7 Describe quality control of blood gas analysis

E13.9 Perform radial artery puncture

P13.9.1 Describe the procedure for performing a radial artery puncture, including indications and contraindications
P13.9.2 Identify the hazards and complications and corrective action related to radial artery puncture
P13.9.3 Prepare the equipment and material for radial artery puncture per hospital protocol in a clinical setting

P13.9.4 Prepare patient for radial artery puncture in a clinical setting
P13.9.5 Perform radial artery puncture on patients per hospital protocol in a clinical setting
P13.9.6 Assure effective transfer of blood samples to lab for analysis and document procedure and relevant data in patient ‘s chart per hospital protocol in a clinical setting

E13.10 Perform brachial artery puncture

P13.10.1 Describe the procedure for performing a brachial artery puncture, including indications and contraindications
P13.10.2 Identify the hazards and complications and corrective action related to brachial artery puncture
P13.10.3 Prepare the equipment and material for brachial artery puncture per hospital protocol in a clinical setting
P13.10.4 Prepare patient for brachial artery puncture in a clinical setting
P13.10.5 Perform brachial artery puncture on patients per hospital protocol in a clinical setting
P13.10.6 Assure effective transfer of blood samples to lab for analysis and document procedure and relevant data in patient ‘s chart per hospital protocol in a clinical setting

E13.11 Perform femoral artery puncture

P13.11.1 Describe the procedure for performing a femoral artery puncture, including indications and contraindications
P13.11.2 Identify the hazards and complications and corrective action related to femoral artery puncture
P13.11.3 Prepare the equipment and material for femoral artery puncture per hospital protocol in a clinical setting
P13.11.4 Prepare patient for femoral artery puncture in a clinical setting
P13.11.5 Perform femoral artery puncture on patients per hospital protocol in a clinical setting
P13.11.6 Assure effective transfer of blood samples to lab for analysis and document procedure and relevant data in patient ‘s chart per hospital protocol in a clinical setting

E13.12 Interpret blood gas analysis and co-oximetry results

P13.12.1 Explain the role of the lungs with respect to acid-base balance
P13.12.2 Explain the role of the kidneys with respect to acid-base balance
P13.12.3 Identify for adults, children and neonates the normal sea level values for blood gas components and co-oximetry
P13.12.4 Describe the various concepts of acid-base balance and its regulation in the body
P13.12.5 Explain the composition and action of the chemicals buffers
P13.12.6 Compare acid-base disturbances including mixed disturbances with respect to clinical manifestations and management

P13.12.7 Interpret acid-base status in patients in a clinical setting
P13.12.8 Explain the concept of oxygenation in relation to the respiratory and cardiovascular systems
P13.12.9 Explain external respiration in relation to ventilation-perfusion matching, deadspace, shunting and diffusion
P13.12.10 Describe the relationship of oxygen transport and internal respiration
P13.12.11 Describe the oxyhemoglobin relationship with oxygenation
P13.12.12 Evaluate oxygenation status from blood gas values in patients in a clinical setting
P13.12.13 Describe the mechanisms of hypoxemia
P13.12.14 Assess for signs and symptoms of hypoxemia and hypercarbia, including compensated status, in patients in a clinical setting

E13.13 Interpret blood electrolytes and metabolites

P13.13.1 Compare extracellular and intracellular fluid compartments
P13.13.2 Explain the basic principles of body fluid balance
P13.13.3 Describe basic concepts of fluid deficit including clinical manifestations and management
P13.13.4 Describe basic concepts of fluid overload including clinical manifestations and management
P13.13.5 Identify normal plasma electrolyte values and their respective functions
P13.13.6 Describe regulation of cation levels in the body
P13.13.7 Describe concepts of electrolytes imbalance including clinical manifestations and management
P13.13.8 Explain the basic physiological interactions between electrolyte imbalance and acid-base balance
P13.13.9 Describe basic regulations of albumen, glucose and lactate
P13.13.10 Interpret blood electrolytes and metabolites results in patients in a clinical setting