Professional Nursing Skills

Critical Elements and Nursing Intervention Instructions

The following is a collection of critical elements, competencies, and nursing intervention instructions compiled by the faculty of Covenant School of Nursing (CSON). The content is generally modeled after the work of Dr. Carrie Lenburg and is designed to be used in education that is based on the COPA Model.

Universal Competencies

Universal Competencies are to be applied throughout procedures with manikins and patients

Safety & Security

A. **Physical Safety and Security**: Any action or inaction on the part of the student that threatens the patient's well-being or violates the patient's physical security

B. **Emotional Security**: Any action or inaction on the part of the student that threatens the emotional well-being or emotional security of the patient

Critical Elements

1. Verify nursing interventions against healthcare provider orders, standing protocols, and evidence-based nursing practice
2. Identify the patient with 2 identifiers and verify allergies (check armband for name, date of birth, and allergy indicator)
3. Protect the patient from physical harm at all times. Examples include:
    a) Side rails are raised as indicated
    b) Bed is in low position prior to leaving the room
    c) Mobility level is assessed before patient position is altered
    d) If restraints are present, they are secure and safely applied
    e) Hourly rounding with 4 Ps ("Pain, Potty, Position, and Possessions," and tubes, drains, and dressings)
4. Protect the patient and others from psychological harm. Examples include:
    a) Acknowledge, Introduce, Duration, Explanation, and Thank you (AIDET) – Pronounce patient name correctly
    b) Communicate verbally and non-verbally in a manner that promotes trust and respect
    c) Insure privacy during physical care and discussion of sensitive information
    d) Provide accurate information to the patient and/or authorized recipients
    e) Keep all patient-related information confidential
5. Protect the patient and others from both psychological and emotional harm by providing clear, accurate, and relevant teaching

Based on the work C. Lenburg in the COPA model

Documentation

The recording of data required by, or pertinent to, the designated situation

Critical Elements

1) Document according to legal, ethical, professional, and institutional standards. Examples include:
    a) Standardized forms
    b) Electronic Medical Record
    c) Use language, terms, and abbreviations that are consistent with professional standards and agency protocols
2) Record data so that entries are:
    a) Accurate
    b) Clear
    c) Relevant

Based on the work C. Lenburg in the COPA model

Human Caring and Relationship

The use of professional behaviors, attitudes, and interactions with patients and others that incorporate discernible valuing, respect, and advocacy for their circumstances, preferences, and overall well-being

Critical Elements

1) Relate to patients and significant others in a manner that illustrates caring for their well-being
2) Engage in activities that demonstrate caring for the patient
3) Within the confines of the law and agency protocols, implement behaviors that show respect for the patient's uniqueness using interventions that are specific to:
    a) Age
    b) Gender
    c) Ethnicity
    d) Religious beliefs
    e) Cultural differences
    f) Personal preferences
4) Use non-discriminatory principles to guide nursing care of individuals (physiological, spiritual, and cultural needs)

Based on the work C. Lenburg in the COPA model

Professional Role Performance

Demonstration of behaviors that are consistent with Covenant School of Nursing and agency protocols, based on guidelines established by governing bodies and professional nursing organizations

Critical Elements

1) Implement the student role with responsibility and accountability. Examples include:
    a) Comply with policies in Covenant School of Nursing Student Policy Handbook
    b) Prepare for clinical and lab sessions by completing assignments as designated
    c) Use constructive criticism and suggestions for continued self-development
    d) Implement professional roles with responsibility and accountability by using legal, ethical, and professional standards
2) Manage equipment, supplies, and human resources efficiently and economically
3) Interact professionally with peers, faculty, and members of the health care team
4) Maintain a clean working environment

Based on the work C. Lenburg in the COPA model

Standard Precautions

Prevent the introduction or transfer of microbial organisms

Critical Elements

1) Wash or cleanse hands before initiating direct contact with the patient and whenever hands are contaminated by body secretions or substances. **During the examination, cleanse hands in the presence of the CE before beginning care**
2) Wear gloves whenever contact with human secretions is possible
3) Protect self, patient, and others from microbial contamination; e.g. clean stethoscope and other equipment before and after use
4) Confine and/or dispose of contaminated materials according to agency protocol
5) Implement special precautions as required by agency protocols

Based on the work C. Lenburg in the COPA model

Communication

Verbal and non-verbal interactions between the care-giver, the patient and/or significant other that are focused on patient-related or professional concerns

Critical Elements

1) Establish verbal communication with the patient at the beginning of the interaction by:
   a) Introducing self
   b) Explaining actions to be taken, purpose of the interaction, and relevant outcomes
2) Interact with the patient by using one of the following methods:
   a) Ask questions to determine response to nursing actions or/and patient's level of comfort
   b) Direct focus of communication toward patient-oriented interests
   c) Communicate verbal and non-verbal messages consistent with the patient's needs or status (e.g. infant, non-verbal person, non-English speaking person, etc.)
3) Modify language and communication style to be consistent with patient's needs and individual and cultural values
4) Utilize resources to enable communication consistent with agency protocols

Based on the work C. Lenburg in the COPA model

Critical Thinking

Deliberate and rational thinking that focuses on clinical decision-making

Critical Elements

1) Make decisions based on:
   a) Legal, ethical, professional, and institutional standards
   b) Evidence-based practice
   c) Logical analysis of pertinent objective and subjective assessment data
   d) Evaluation of healthcare provider orders, treatment plans, nursing care plan
   e) Revise the plan of care when outcomes are not met
2) Prioritize nursing interventions within the context of evidenced-based practice and agency protocols
3) Include members of the healthcare team in decision-making to facilitate patient outcomes

Based on the work C. Lenburg in the COPA model

Intravenous (IV) Catheter Insertion

The insertion of a catheter into a vessel for the continuous or intermittent infusion of fluids or administration of medications

Critical Elements

1) This procedure is NOT delegated to UAP
2) Gather supplies and prepare workspace
3) Follow Universal Competencies
4) Aseptically start an IV

Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify orders or protocol	Requires an order or agency protocol	The procedure requires an order or a protocol
2) Gather supplies and prepare workspace	IV start kit Containing a tourniquet, chlorhexidine swab, occlusive dressing, 2x2 gauze, and tape INT Connector IV catheter Alcohol infused caps (SwabCap®) Saline flush	Size of catheter is dependent upon vein chosen or intent of use – 22 to 20 gauge is a good starting place, but if blood is going to be given, an 18 g is preferred
3) Follow Universal Competencies	Introduce self Perform hand hygiene Identify patient Teach patient	
4) Prepare for care	Apply tourniquet and select vein Release tourniquet Perform hand hygiene Prepare supplies for use Open IV catheter package Prime connector with saline Prepare tape Scrub insertion site with chlorhexidine prep pad and allow to dry Re-apply tourniquet Don clean gloves	Bactericidal effect is achieved with drying Apply approx. 4-6 inches above insertion site
5) Insert catheter	Anchor the vein Prepare the device for use Pierce the skin with stylet bevel up, holding device at an angle of no greater than 5 degrees Observe for blood return in flashback chamber Lower and advance the entire catheter and needle unit slightly Hold needle assembly stationary Advance catheter off needle approximately 1/8 inch and observe blood return between	Prevents vein from rolling Confirmation of vessel entry Ensures catheter tip is in vessel Observation of blood return between the needle and catheter confirm

Intravenous (IV) Catheter Insertion
The insertion of a catheter into a vessel for the continuous or intermittent infusion of fluids or administration of medications

	the needle and catheter Continue to advance catheter off the needle until the hub meets the skin Release the tourniquet	catheter is in the vessel
6) Complete the job	Gently press the stabilization platform to the skin Withdraw needle in a swift, controlled, and continuous motion and place in original packaging Dispose of needle in sharps container Remove protective cap from end of primed connector tubing, insert into IV catheter hub Flush with saline and clamp Stabilize catheter and apply occlusive dressing Label dressing with initials, date, and time Apply SwabCap® to connector Dispose of used supplies Perform hand hygiene Date and time IV site dressing	Stabilizes the catheter Safety shield will automatically cover the tip of the needle Taping down at greater than an eight (8) degree angle will result in torque on the catheter that can cause phlebitis and/or infiltration Prevents entry of bacteria

Revised by IM2 Faculty, Covenant School of Nursing, Nov 2015, Apr 2016, Apr 2017, Feb 2018
Reviewed: Mar 2019
CHS Policy: Peripheral IV Venipuncture- Starting and Maintaining, 2015
p. 906, 916-925, Potter and Perry 8th ed., 2013
ATI Skills Module, Medication Administration - Module 4, 2015
Manufacturer's recommendations, Introcan Safety 3, B. Braun 2012

Converting a Continuous Infusion to an INT
Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify orders or protocol	Verify order Review any guidelines mandated by agency protocol	
2) Gather supplies	10 mL Saline flush Alcohol infused caps (SwabCap®)	
3) Follow Universal Competencies	Introduce self Perform hand hygiene Identify patient Assess allergies Teach patient	
4) Convert line	Assess the site Stop infusion Disconnect primary tubing Flush with saline according to flush protocol Close clamp on INT extension Apply SwabCap®	Verify healthy IV site Verify patency of IV site Safety and maintenance guidelines vary widely, refer to specific protocols
5) Complete procedure	Discard used supplies Perform hand hygiene Record results and report if indicated	

Revised by IM2 Faculty, Covenant School of Nursing, Nov 2015, Mar 2016, Apr 2017, Feb 2018, Reviewed: Mar 2019
CHS Policy: IX-C-2, IVPB Medications by Gravity or Pump 2013
pp. 632-635, Potter and Perry 8th ed., 2013
ATI Skills Modules, Medication Administration 4, 2015

Pump Use with Primary Intravenous Infusions
Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify primary crystalloid (solution)	Verify order Review any guidelines mandated by agency protocol Check relevant lab work	7 Rights (Right patient, medication, dose, route, time, reason, documentation)
2) Gather supplies	IV Pole CareFusion® IV Pump IV solution CareFusion® Smart Site set (tubing) Tubing label and IV solution label Alcohol infused caps (SwabCap®)	
3) Follow Universal Competencies	Introduce self Perform hand hygiene Identify patient Assess allergies Teach patient	
4) Basic Setup	Assess IV site **Close roller clamp on tubing** Label bag with flow rate and tubing with date and time Remove tab from bag Remove cap from sterile spike Aseptically spike IV solution bag Hang solution Squeeze and release middle of drip chamber until it fills to 2/3 full Invert tubing portion covered with blue plastic sleeve and open roller clamp SLOWLY prime tubing to the end Close roller clamp Remove blue plastic sleeve from tubing Open module door Position white slide clamp into the cassette and listen for click Position upper fitment into top of the cassette Close module door and lock securely Select "System On" then Select "Yes" for new patient – "No," if not Select "Channel Select" on module Select "Guardrails IV Fluids" or "Basic Infusion" Select "Maintenance IVF" Select "Yes" Select "Rate" and enter the number Select "VTBI" and enter the number	 Inversion of sleeve-covered tubing and in-line filters during filling will help prevent accumulation of air bubbles in line Do NOT remove cover off connecting end of tubing to prime tubing

Pump Use with Primary Intravenous Infusions
Nursing Intervention Instruction

	Remove SwabCap® or clean INT connection site Connect infusion to INT Open roller clamp Press "Start" Verify rate on module display is correct Verify Guardrails selection is correct Verify machine is delivering drops Check IV site after infusion starts Apply SwabCaps® to any unused access ports	
5) Discontinue IV fluid	Select "Channel Off" on module and hold for a few seconds Close roller clamp Disconnect from INT and flush Open module door Lift upper fitment from recess and remove cassette	
6) Complete procedure	Discard used supplies if required Perform hand hygiene Record results and report if indicated	

Created by IM2 Faculty, Covenant School of Nursing, Nov 2015
Reviewed: Mar 2019
Revised: IM2 Faculty, Mar 2016, Feb 2018
pp. 1071-1074, Clinical Nursing Skills: Basic to Advanced, Smith, et. Al., Pearson Publishing, 9th ed, 2017
CHS Policy: XI-B-2, Carefusion (Alaris) Pump Delivery with Guardrails 2014
Alaris Carefusion® Quick Reference Guide, 2009

Blood Glucose Monitoring

Collection and analysis of a finger-stick blood sample to determine blood sugar level

Critical Elements

1) This procedure CAN be delegated to certified UAP
2) Gather supplies and prepare workspace and clean equipment as required
3) Follow Universal Competencies
4) Perform finger stick on lateral aspect of finger pad
5) Obtain blood glucose reading

Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify orders	Check Sliding Scale orders	The procedure is invasive and must have an order
2) Gather supplies	Blood Glucose Monitor Approved Cleaning Agent Clean Gloves Lancets Test strips Alcohol pads	
3) Follow Universal Competencies	Introduce self Perform hand hygiene Identify patient Teach patient	
4) Prepare Glucose Monitoring device	Prepare workspace and clean equipment as required Power On Scan staff ID Select "Patient Test" on device Scan patient ID band Scan bar code on test strip container Insert strip into device	Infection Control Verify user Patient Safety Quality Control
5) Perform finger-stick	Perform hand hygiene and don gloves Clean lateral side of finger pad with alcohol swab or soap and water Allow to air dry completely Apply pressure to knuckle below finger pad and hold securely Pierce with lancet Allow blood to collect at puncture site Fill test strip window Apply pressure and place Band-Aid® if needed	Ensure accurate reading, avoid finger pad nerve endings Alcohol can cause blood hemolysis rendering an inaccurate reading Helps ensure large enough sample Wiping away first drop of blood can be advantageous because it ensures the cleansing agent is dry, stimulates blood flow, and clears interstitial fluid from the sample Ensure hemostasis
6) Complete procedure	Obtain reading Dispose of lancet in sharps container Dispose of other used supplies Lancet in sharps container Perform hand hygiene Record results and report if indicated Clean equipment and return to docking station for download of data	

Blood Glucose Monitoring

Collection and analysis of a finger-stick blood sample to determine blood sugar level

Reviewed: Mar 2019
Revised: IM2 Faculty, Covenant School of Nursing, Nov 2015, Mar 2016, Feb 2018
CHS Policy X-G-4: "Operation of Accu-check Glucose Test Station" – Revised June 2013
Skill 44-4, p. 1036, Potter and Perry 8th ed., 2013
https://www.mayoclinic.org/diseases-conditions/diabetes/expert-answers/blood-glucose-monitors/faq-20057902, Revised March 2019
ATI Skills Module: Specimen Collection- Blood Glucose, 2016

Sterile Gloving

The aseptic application of sterile gloves for use in a sterile procedure

Critical Elements

1) This procedure is NOT performed by UAP
2) Check for Latex allergies
3) Gather supplies and prepare workspace
4) If associated with an aseptic procedure, follow Universal Competencies
5) Don gloves without contamination

Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify need for asepsis	Aseptic procedures use sterile gloves	
2) Prepare to don gloves Clean work surface	Check patient for latex allergy Select correctly sized gloves Keep glove packaging dry and **intact (no tears)** Perform hand hygiene Remove sterile glove package from outer wrapper	Patient Safety Moist packaging contaminates the gloves
3) Don sterile gloves	Working at waist level, grasp flaps of package without touching inner surface and pull open Grasp the edge of cuff on the glove with the dominant hand touching only the inside of the cuff Pick glove straight up from the package Carefully pull the glove over the hand and wrist by the fold of the cuff Use gloved hand to pick up remaining glove by inserting all fingers under the cuff of the remaining glove and extend the thumb of the gloved hand as you pull the remaining glove over the hand and wrist Fix fingers and palms – AVOID wrists and back of hand When gloves are on, interlock hands above waist level and away from body	Sterile technique: inner surface of wrapper is sterile Placing fingers in the cuff keeps sterile to sterile Hitchhiker technique: Keeping thumb extended while glove is being applied protects thumb from contamination Interlocking prevents accidental contamination of gloved

Revised by IM2 Faculty, Covenant School of Nursing, Nov 2015, Apr 2017
Reviewed: IM2 Faculty, Apr 2016, July 2016, Mar 2019
Revised: Feb 2018
CHS Policy: Latex Allergy Management, revised Aug 2015
pp.436-437, Potter and Perry, 8th ed., 2013
ATI Skills Modules: Surgical Asepsis-Sterile Gloving – Open Technique, 2015

Urinary Catheter Insertion – Indwelling and Straight

The insertion of a catheter into the bladder to either drain continuously or to obtain a sterile urine specimen

Critical Elements

1) This procedure is NOT delegated to UAP
2) Gather supplies and prepare workspace
3) Follow Universal Competencies
4) Position patient for procedure
5) Prepare and maintain sterile field
6) Aseptically insert catheter

Based on C. Lenburg COPA Model

Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify orders	Requires an order	Requires aseptic technique
2) Gather supplies	Catheter insertion kit containing a sterile Indwelling Urinary Catheter with drainage bag Extra pair of sterile gloves (if needed) Clean gloves	Choose appropriate kit In the adult, 14-16 Fr. is a good starting place for size selection
3) Follow Universal Competencies	Introduce self Perform hand hygiene Identify patient Teach patient	
4) Prepare for care	Clean work surface with antiseptic Perform hand hygiene Don clean gloves Assess bladder Position patient (dorsal recumbent) and assess perineum and pre-clean if needed Open outer packaging of urinary catheter kit and remove tray Position catheter tray between patient's legs Arrow on tray should point toward patient Cleanse genitalia Remove soiled gloves	 Use soap and water if excessive soiling is present Placing tray between legs may not always be feasible Use soap wipes included in kit
5) Prepare for catheter insertion	Perform hand hygiene Open catheter tray to create sterile field Don sterile gloves Position under pad beneath the patient Position fenestrated drape over external genitalia Advance the tray toward the patient so that the outer wrap overlaps the under pad Prepare items in numerical order as listed on the tray 1. Open povidone-iodine 2. Pour solution onto the 3 foam swab sticks 3. Attach syringe filled with sterile water to inflation port 4. Locate green syringe with lubricant.	

The insertion of a catheter into the bladder to either drain continuously or to obtain a sterile urine specimen		
	Pour all of lubricant into tray 5. Remove Foley catheter from the blue wrap and place in lubricant Clean perimeatus area with antiseptic solution: Female: With non-dominant hand, expose meatus by spreading labia. Maintain position throughout procedure. Clean inner aspect of labia minora farthest from you with a downward stroke. Discard swab Repeat on labia minora closest to you Repeat in middle area between both labia minora Male: If not circumcised, retract foreskin with non-dominant hand. Clean beginning at meatus and work in a circular motion to the base of the glans. Repeat with remaining swabs	Fully exposing meatus prevents contamination Closure of the labia requires cleaning procedure be repeated If foreskin is retracted, it MUST be returned to original position when procedure is completed to prevent necrosis of the penis
6) Insert catheter	Hold lubricated catheter approximately 2 inches from tip and insert catheter: Female: Aim upward until meatus is entered, then insert catheter using gentle pressure downward as it is advanced Advance half the length of the catheter into the bladder Male: Hold penis at 90 degree angle and insert catheter in a downward direction and advance catheter to the Y-section Stabilize catheter with thumb and finger of non-sterile hand Inflate balloon to volume directed on catheter Pull back on catheter gently until resistance is met Attach catheter to urinary catheter stabilization device before applying to extended leg Secure drainage bag on bed frame below level of bladder and off the floor Measure urine and document	Aiming upward to enter female meatus helps prevent entry into the vagina Advancing half the length of the catheter into the bladder ensures balloon is fully in bladder Urine should return before catheter is advanced to half-length Holding catheter 2 inches from meatus will allow for additional advancement of sterile catheter if required Monitor patient response to ensure inflation of balloon does not produce pain May use drapes to clean off lubricant from gloves Minimizes possibility of dislodgment, reduces motion of catheter in urethral tract, reducing infection risk
7) Removal of Catheter	Don clean gloves	

Urinary Catheter Insertion – Indwelling and Straight

The insertion of a catheter into the bladder to either drain continuously or to obtain a sterile urine specimen

	Empty drainage unit and measure output Insert 10 mL syringe into balloon port of catheter at Y-site Allow fluid to fill syringe passively. May aspirate to ensure balloon is fully deflated Remove catheter and clean genitalia Dispose of contaminated supplies Provide urinal (male) or specipan (female) for measuring voids after removal Record results and report if indicated	Fluid must be removed from balloon before removal to prevent urethral trauma Voiding should occur within 4 – 8 hours

Created by IM2 Faculty, Covenant School of Nursing, Nov 2015
Reviewed: Mar 2019
Revised: IM2 Faculty, Apr 2016, July 2016, Apr 2017, Feb 2018
CHS Policy: PC36, Indwelling and Straight Urinary Catheters - revised Mar 2015
p. 1071-1078, Potter and Perry 8th ed., 2013
ATI Skills Module: Urinary Catheter Care – Inserting and Indwelling Urinary Catheter: Female, 2015
ud-surestep-in-service-bmd-tray-0717-0128: https://vimeo.com/203967103
Bard Surestep Foley Catheter Utilization & Introduction video
Bard Surestep Foley Catheter Insertion, Male Catheterization
Bard Surestep Foley Catheter Insertion, Female Catheterization

Central Venous Access Device Dressing Change

The aseptic cleaning of a central venous catheter

Critical Elements

1) This procedure is NOT delegated to UAP
2) Gather supplies and prepare workspace
3) Follow Universal Competencies
4) Clean site
5) Allow to completely dry
6) Apply antimicrobial disc
7) Apply occlusive dressing

Nursing Intervention Instruction

Steps	Key Points	Rationale
1) Verify protocol	Agency Policy is to change every 7 days or as needed based on assessment	The procedure requires aseptic technique
2) Gather supplies	Central Line Dressing kit	
3) Follow Universal Competencies	Introduce self Perform hand hygiene Identify patient Teach patient	
4) Prepare for care	Clean work surface with antiseptic and allow to dry Open Cleaning pack and apply mask Have patient turn head away from site (if coughing, have patient wear mask) Perform hand hygiene and don clean gloves Inspect site for redness or drainage and palpate for tenderness	Infection Control **Applying the mask after gloving will contaminate the gloves and the patient**
5) Remove old dressing	Loosen edges of dressing and remove TOWARD the insertion site. Avoid touching insertion site during removal Grasp used dressing in glove and pull gloves over dressing Visually re-inspect site for drainage, odor, and condition of sutures	Removing toward the insertion site will help prevent dislodging the catheter
6) Perform dressing change	Open sterile pack and create sterile field Perform hand hygiene Don sterile gloves Activate chlorhexidine sponge Start at insertion site and use gentle friction back and forth motion for 30 seconds Allow to dry completely (May take as long as 3 minutes)	 Use alcohol swab sticks if patient is allergic to chlorhexidine May use alcohol swab stick to pre-clean if excessively soiled Friction works the solution into the skin. A 30 second rub is evidence-based from the manufacturer Must dry completely for antisepsis
7) Apply dressing	Holding the chlorhexidine disk by its edges, apply to insertion site Center transparent bio-occlusive dressing	**Do not use if patient is allergic** Disk is impregnated with antimicrobials to prevent microbial

Central Venous Access Device Dressing Change
The aseptic cleaning of a central venous catheter

	over insertion site, press from site outward and seal edges Label dressing with initials, date, and time	growth and must come in contact with the skin Transparent occlusive dressing acts as a barrier to microbes, allows skin to "breathe" and allows visualization of site
8) Assess need to change needleless ports and antiseptic caps	Refer to facility policy. Change needleless ports for following criteria: every 96 hours, with blood draws, precipitate in connector, cracks, leaks, defects, contamination, or removal of needleless port	Safety and maintenance guidelines vary widely, refer to specific protocols
9) Complete procedure	Dispose of used supplies Perform hand hygiene Record results and report if indicated Teach patient to keep site dry and avoid touching site and tubing as much as possible Teach patient to report changes to healthcare workers, such as: loose dressing, wetness, soreness, redness, and onset of fever or chills	Moisture at site encourages bacterial growth. Touching tubing and site will contaminate with bacteria from hands. Early intervention with impaired integrity of dressing will help prevent bacterial invasion. Early intervention with signs of infection will help prevent sepsis

Created by IM2 Faculty, Nov, 2015
Revised: IM2 Faculty, Apr 2016, July 2016, Sep 2016, Apr 2017, July 2017, Feb 2018, Mar 2019
CDC: "Central Line-associated bloodstream infections: Resources for Patients and Healthcare Providers", Mar 2016
pp. 1119-1120, Clinical Nursing Skills: Basic to Advanced, Smith, et. Al., Pearson Publishing, 9th ed., 2017
CHS Policy VIII-E-5, Revised April 2015
ATI Skills Modules: Central Venous Access Devices, 2016