BEEBE HEALTHCARE

Patient Care Manual

IV Therapy & Vascular Access Devices	Date Issued: 8/14
Issued by : Shelly Robinson, Vascular Access Team Lead Christina Lewis, Patient Care Director Approved by: Lynne Voskamp, Interim VP Patient Care Services	Revised: CPC 11/14, CPC 1/15, CPC 5/15, 3/16, 12/16, 7/17, 2/18, 4/18, 11/18, CPRC 1/19, 5/19, 1/2020, 03/2020, 10/2020
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PURPOSE:
To establish guidelines for initiation, use and care of intravenous therapies & vascular access devices.

SCOPE:
All clinical personnel that, as part of their job function, shall care for or initiate intravenous therapies.

DEFINITIONS:

BEC:	Beebe Endoscopy Center
BHC:	Beebe Healthcare
BHCS:	Beebe Homecare Services
BOSC:	Beebe Outpatient Surgery Center
CKD:	Chronic Kidney Disease
CVAC:	Central Venous Access Catheter
CVAD:	Central Venous Access Device
CVC:	Central Venous Catheter
CVP:	Central Venous Pressure
EMR:	Electronic Medical Record
ENIT:	Early Nursing Intervention Team
ESRD:	End-Stage Renal Disease
HD:	Hemodialysis
IFU:	Instructions for Use
IO:	Intraosseous Access
IV:	Intravenous/ Intravascular
IR/IVR:	Interventional Radiology
KVO:	Keep Vein Open
ml/mL:	milliliter
MRI:	Magnetic Resonance Imaging
NS:	Normal Saline
OR:	Operating Room
ORU:	Outpatient Recovery Unit
PIV:	Peripheral IV
PICC:	Peripherally Inserted Central Catheter
PN:	Parenteral Nutrition
PRN/prn:	As needed
RN:	Registered Nurse
SDS:	Same Day Surgery
STT:	Safety Tracking Tool
TCC:	Tunnell Cancer Center
VAD:	Vascular Access Device
VAT:	Vascular Access Team

* For *"attachment"*--see "External links" section above*

POLICY

Current evidence-based practices and manufacturer recommended guidelines will be utilized to insert, maintain, and discontinue devices in a manner to assure patient safety and prevent device associated complications.

The clinician shall collaborate with the provider/practitioner(s) to assist in selection of the most appropriate vascular access device, based on the projected treatment plan.

The device selected shall be of the smallest outer diameter and length, with the fewest number of lumens and is the least invasive device needed for the prescribed therapy.

Based upon current evidence-based practices, a catheter checklist and standardized protocol for central venous access device insertions will be utilized, and documented within EMR.

GENERAL GUIDELINES FOR CARE / MAINTENANCE OF VASCULAR ACCESS DEVICES:

- Keep Vein Open (KVO) fluids are delivered at the rate of 10 ml/hour (unless ordered otherwise)
- Maintain patency, flush with 3-10 ml (pediatric 1-3 ml) pre-filled, preservative-free 0.9% normal saline (NS) at least every shift if saline locked (not necessary to interrupt continuous infusion); and before & after each use. Refer to *Lippincott Procedures* (flushing & locking). *Exception:* Hemodialysis catheters
- Prior to administering medication through a device, slowly inject the NS flush and assess site & patency
- Upon accessing needleless connector or hub, scrub vigorously with 70% alcohol for a minimum of 5 seconds & allow to dry completely
- For incompatible solutions/medications, flush the device with 10ml NS before and after administering medication
- Sites shall be assessed and documented on at least every 4 hours and PRN (at least every 1-2 hours in critically ill or have cognitive deficits, hourly for neonatal/pediatric; more often for patients receiving infusions of vesicant medications)
- Consider labeling VADs inserted emergently or under suboptimal conditions, and plan for removal within 48 hours
- Disinfection cap(s) shall be placed over all needleless connector(s) when lumen is not in use, in addition to each unused access port of all IV tubing
- Refer to *Lippincott Procedures* (IV administration set (tubing) change); routinely change Sunday & Wednesday
- Refer to *Lippincott Procedures* (needleless connector change); routinely change Sunday & Wednesday
- IV tubing, bags, & bottles are to be labeled with: date/time initiated; date/time of expiration; initials
- Refer to *Lippincott Procedures* (IV pump use); Refer to *Baxter Spectrum Infusion Pump IFU* when using
- IV infusion pump is required when administering infusions with additives

Exceptions:

- New blood tubing & NS with each unit of blood (see *Blood: Transfusion of Blood and Blood Components*)
- Parenteral Nutrition (PN) which is labeled from pharmacy with date, time to initiate, and expiration (see policy *Parenteral Nutrition Orders*)
- BEC, BHCS, BOSC, Cath Lab (non-admits), ORU, SDS and TCC are not required to label the IV site, bag, bottle or tubing unless patient is being placed in observation, admitted or transferred

VASCULAR ACCESS DEVICES

I. Peripheral IV Catheter (PIV)

- Insertion of PIV, see *Lippincott Procedures* (IV catheter insertion)
- For assistance, follow *Peripheral IV Start Process Map* *"attachment"*&/or utilize other resources.
- Trained Practitioners/Providers, Nurses, Respiratory Therapists, and Diagnostic Imaging Technologists & Assistants may insert PIVs
- Trained clinicians may perform ultrasound-guided PIV catheter insertion
- Trained clinicians may perform PIV catheter with internal guidewire insertion
- PIV sites other than the upper extremities require a provider/practitioner's order
- Refer to manufacturer's *Instructions for Use (IFU)* when utilizing topical vapocoolant during insertion; separate order is not required
- Refer to *Lippincott Procedures* (Intermittent infusion device insertion)

Indications for Use

- Short term therapy (< 6 days) for selected intravenous therapies/fluids/medications, blood sampling, power injection of contrast media, and blood & blood components
- Guidelines recommend the use of peripheral catheters with infusates that have an osmolality of 900mOsm/L or less
- PIVs should be removed if no longer indicated for patient's plan of care, when it has not been used for at least 24 hours, or if signs or symptoms of complications occur
- Refer to available IFUs in *"attachment"* section for selected PIV devices

Care of PIV Catheter

- Refer to *Lippincott Procedures* (IV dressing change) for dressing change guidelines
- For PIV blood draws, refer to *Lippincott Procedures* (IV catheter blood sampling)
- Clinician shall refer to Refer to *Lippincott Procedures* (IV catheter removal) for removal
- Patients being discharged from facility with IV remaining in place require a provider/ practitioner's order

Neonatal/Pediatric Considerations

- See *Lippincott Procedures* (IV catheter insertion, neonatal)
- See *Lippincott Procedures* (IV catheter insertion, pediatric)
- Chlorhexidine is not recommended for use on infants < 2 months of age. Alcohol (70%) may be used on infants < 2 months of age.
- Transilluminator or Ultrasound device may be used to facilitate visualization of vein

OR Bound Patients

- Patent IV, avoiding IV in the operative extremity, whenever possible
- Large gauge access for patients with active bleeding, unstable, pregnant or having significant fluid issues (e.g. bowel obstruction)

Diagnostic Testing/ Tunnell Cancer Center/ ORU

- An order for IV access is not required when there is an order for IV medication/therapy or test requiring IV placement
- May leave IV in place until end of therapy, unless complications arise

II. Midline Catheter

- Midline catheter is a peripheral infusion device inserted through a large vein in the upper arm, with tip terminating distal to shoulder, not entering central vasculature
- Midline catheters are inserted with maximum barrier precautions by Vascular Access Team (VAT) RNs competent in their insertion using ultrasound or by Interventional Radiologist
- Prior to VAT inserting midline, VAT RN will review/consult patient's chart, noting & addressing any contraindications for midline placement; provider/practitioner may override contraindications at their discretion
- Refer to *Lippincott Procedures* (midline catheter insertion)
- Midline catheters labeled "Power Injectable" are suitable for use with power injectors

Indications for Use

- Short term therapy (< 30 days) for selected intravenous therapies, blood sampling, power injection of contrast media, and blood & blood components
- Not appropriate for continuous vesicant therapy, parenteral nutrition (PN), or infusates with an osmolarity >900mOsm/L
- Duration of use is at provider/practitioner's discretion. Manufacturer suggests that a dwell time of up to 30 days is acceptable
- Refer to manufacturer's *Instructions for Use (IFU)* when utilizing Bard® Power Midline™ catheter

Care of Midline Catheter

- Refer to *Lippincott Procedures* (midline catheter dressing change) for dressing change guidelines
- For midline blood draws, refer to *Lippincott Procedures* (catheter blood sampling); same procedure as PICC lab sampling
- For blood culture collection through a midline, refer to *Lab Manual: Blood Culture Collection Procedure*
- Clinician shall refer to *Lippincott Procedures* (midline catheter removal) for removal

BHCS/TCC/ORU: 0.9% NS flushes to each lumen, dressing & needleless connector caps are changed weekly and prn. TCC & ORU: Standing protocol-No separate provider/practitioner order required.

III. Dual Extended Length Catheter (dELC®)

- Dual extended length catheter (dELC®) is a peripherally inserted device inserted through a large vein in the upper arm, with tip terminating prior to entering central vasculature
- Insertion & use requires an order for aquapheresis therapy
- dELC catheters are inserted with maximum barrier precautions by VAT RNs competent in their insertion using ultrasound
- Prior to inserting dELC, VAT RN will review/consult patient's chart, noting & addressing any contraindications for catheter placement; provider/practitioner may override contraindications at their discretion
- dELC insertion follows same insertion procedure as midline- refer to *Lippincott Procedures* (midline catheter insertion)

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Indications for Use

- Indicated for use in obtaining vascular venous access for use with *aquapheresis therapy*; not intended for infusion of other medications or fluids, for other laboratory sampling, or other venous access needs
- Access ports on blood circuit set may be used to flush, infuse or withdraw as necessary
- Contraindicated in patients where MRI is anticipated
- Consider radiographic visualization upon insertion if catheter tip is expected to terminate proximal to the shoulder
- Duration of use is at provider/practitioner's discretion
- Refer to manufacturer's *dELC Instructions for Use (IFU)* *"attachment"* when utilizing CHF Solutions Coiled Dual Lumen Extended Length Catheter (dELC)
- Refer to *Aquapheresis® Ultrafiltration Therapy Aquadex Flexflow* policy

Care of Dual Extended Length Catheter

- Refer to *Lippincott Procedures* (midline catheter dressing change) for dressing change guidelines
- Needleless connectors are **removed** prior to connecting to an *Aquadex FlexFlow®* circuit tubing set
- Clinician shall refer to *Lippincott Procedures* (midline catheter removal) for dELC removal

IV. Peripherally Inserted Central Catheter (PICC)

- PICC is inserted through a large vein in the upper arm & threaded so tip terminates centrally
- PICCs are inserted with maximum barrier precautions by VAT RNs competent in their insertion using ultrasound or by Interventional (IR/IVR) Provider/Radiologist
- Prior to VAT inserting PICC, VAT RN will review/consult patient's chart, noting & addressing any contraindications for catheter placement; provider/practitioner may override contraindications at their discretion
- Upon insertion, tip termination must be confirmed prior to initial use either by *tip location system (TLS) with ECG,* chest x-ray, or fluoroscopy
- All patients younger than 18 years old that require PICC placement shall be completed in IVR
- Refer to *Lippincott Procedures* (peripherally inserted central catheter, PICC insertion)

Indications for Use

- Short or long term vascular access to the central venous system for intravenous therapy, blood sampling, power injection of contrast media, *medication administration,* blood & blood components, *CVP monitoring,* parenteral nutrition, and chemotherapy
- Duration of use is at provider/practitioner's discretion
- Refer to manufacturer's *Instructions for Use (IFU)* when utilizing PowerPicc Solo2® Polyurethane Valved PICC
- Refer to manufacturer's *Instructions for Use (IFU)* when utilizing PowerPicc® Provena™ Polyurethane Catheter

Care of PICC

- Refer to *Lippincott Procedures* (peripherally inserted central catheter, PICC dressing change) for dressing change guidelines
- Refer to *Lippincott Procedures* (peripherally inserted central catheter, PICC flushing & locking)
- For PICC blood draws, refer to *Lippincott Procedures* (peripherally inserted central catheter, PICC blood sampling)
- Blood sampling shall NOT occur without a provider/practitioner's order through any access device in which PN is being administered
- A dedicated lumen should be used for PN
- For blood culture collection through a PICC, refer to *Lab Manual: Blood Culture Collection Procedure*
- Clinician shall refer to *Lippincott Procedures* (peripherally inserted central catheter, PICC removal) for removal

BHCS/TCC/ORU: 0.9% NS flushes to each lumen, dressing & needleless connector caps are changed weekly and prn. TCC & ORU: Standing protocol-No separate provider/practitioner order required.

V. Central Venous Catheter (CVC)/Central Venous Access Device (CVAD)/Central Venous Access Catheter (CVAC) *NON-TUNNELED*

(e.g. Arrow® CVC or MAC™ Multi-Lumen Central Venous Access Product, PowerHohn without VitaCuff™)

- CVC is inserted via one of the large central veins with the tip terminating centrally
- CVCs are recommended to be inserted with maximum barrier precautions by provider/practitioner competent in their insertion
- Tip termination shall be confirmed prior to initial use either by chest x-ray or fluoroscopy (Exception: during critical care team event, provider/practitioner may temporarily provide override order to use)

Indications for Use

- Short term or long term access to the central venous system for intravenous therapy, blood sampling, power injection of contrast media, medication administration, blood & blood components, *CVP monitoring*, parenteral nutrition, chemotherapy and *aquapheresis/ultrafiltration therapy* (dual or quad lumen)
- Duration of use is at provider/practitioner's discretion
- Refer to *Arrow® CVC IFU* when utilizing the Arrow® CVC device
- Refer to *Arrow® MAC™ Multi-Lumen Central Venous Access Product IFU* when utilizing this device
- Refer to *Bard® CVC IFU* when utilizing PowerHohn™ CVC device

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Care of

- Refer to *Lippincott Procedures* (central venous access catheter insertion, assisting)
- Refer to *Lippincott Procedures* (central venous access device dressing change) for dressing change guidelines
- Refer to *Lippincott Procedures* (central venous access catheter flushing & locking)
- For CVC blood draws, refer to *Lippincott Procedures* (central venous access catheter blood sampling)
- Blood sampling shall NOT occur without a provider/practitioner's order through any access device in which PN is being administered
- A dedicated lumen should be used for PN
- For blood culture collection through a CVC, refer to *Lab Manual: Blood Culture Collection Procedure*
- Clinician shall refer to *Lippincott Procedures* (central venous access catheter removal) for CVC (non-tunneled) removal

BHCS/TCC/ORU: 0.9% NS flushes to each lumen, dressing & needleless connector caps are changed weekly and prn. TCC & ORU: Standing protocol-No separate provider/practitioner order required.

VI. Central Venous Catheter (CVC)/Central Venous Access Device (CVAD)/Central Venous Access Catheter (CVAC) *TUNNELED*

(e.g. Hickman™/ Leonard™/ Broviac ™/ Groshong ™/PowerHohn with VitaCuff™)

- Tunneled CVCs are placed via one of the large central veins, terminating in the superior vena cava, where the proximal end of the catheter is tunneled subcutaneously for several inches to the desired exit site
- Tunneled CVCs are inserted surgically, using maximum barrier precautions by provider/practitioner competent in their insertion
- Tip termination must be confirmed prior to initial use either by chest x-ray or fluoroscopy

Indications for Use

- Short term or long term, surgically inserted access to the central venous system for intravenous therapy, blood sampling, medication administration, blood & blood components & parenteral nutrition
- Refer to manufacturer's guidelines to determine if contrast media injection is suitable
- Duration of use is at provider/practitioner's discretion
- Refer to *Bard Access Systems, Hickman, Leonard & Broviac CVC IFU* when utilizing Hickman™, Leonard™, or Broviac™ CVC device
- Refer to *CRBard® Groshong™ IFU* when utilizing Groshong™ CVC device
- Refer to *CRBard® CVC IFU* when utilizing PowerHohn™ CVC device

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Care of

- Refer to *Lippincott Procedures* (central venous access catheter insertion, assisting)
- Refer to *Lippincott Procedures* (central venous tunneled catheter dressing change) for dressing change guidelines
- Refer to *Lippincott Procedures* (central venous tunneled catheter flushing & locking)
- Refer to *Lippincott Procedures* (central venous tunneled catheter continuous infusion)
- For central venous tunneled catheter blood draws, refer to *Lippincott Procedures* (central venous tunneled catheter blood sampling)
- Blood sampling shall NOT occur without a provider/practitioner's order through any access device in which PN is being administered
- A dedicated lumen should be used for PN
- For blood culture collection through a central venous tunneled catheter, refer to *Lab Manual: Blood Culture Collection Procedure*
- Central venous tunneled catheters shall only be removed by a provider/practitioner

BHCS/TCC/ORU: 0.9% NS flushes to each lumen, dressing & needleless connector caps are changed weekly and prn. TCC & ORU: Standing protocol-No separate provider/practitioner order required.

VII. Implanted Port (MediPort, Portacath, Vascular/Venous Access Port, Implantable Port)

Indications for Use

- Surgically implanted (single or dual lumen) access to the central venous system for intravenous therapy, blood sampling, medication administration, blood & blood components, parenteral nutrition, and chemotherapy
- Refer to manufacturer's guidelines to determine if contrast media injection is suitable
- Duration of use is at provider/practitioner's discretion
- Refer to *Lippincott Procedures* (implanted port insertion, assisting)

Care of Implanted Port

- Refer to *Lippincott Procedures* (implanted port accessing)
- Refer to *Lippincott Procedures* (central venous access device dressing change) for dressing change guidelines
- Refer to *Lippincott Procedures* (implanted port bolus injection)
- Refer to *Lippincott Procedures* (implanted port continuous infusion)
- Accessed implantable ports that are saline locked shall be flushed at least every shift (not necessary to interrupt continuous infusion); and before & after each use with 0.9% NS (normal saline) flush
- Refer to *Lippincott Procedures* (implanted port flushing and locking)
- For implanted port locking, consider using prefilled Heparin flush 10 units/mL (50 units) or as directed by provider/practitioner
- For deaccessing, refer to *Lippincott Procedures* (implanted port noncoring needle removal)
- A dedicated lumen should be used for PN
- For implanted port blood draws, refer to *Lippincott Procedures* (implanted port blood sampling)

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- Blood sampling shall NOT occur without a provider/practitioner's order through any access device in which PN is being administered
- For blood culture collection through an implanted port, refer to *Lab Manual: Blood Culture Collection Procedure*
- Implanted port shall be surgically removed & only by a provider/practitioner
- Refer to *CRBard PowerPort IFU* when utilizing PowerPort™ Implantable Port product
- Refer to *Medcomp IFU* when utilizing Medcomp® Implantable Infusion Port product
- Refer to *Smiths Medical IFU "attachment"* when utilizing Port-A-Cath®, Port-A-Cath® II, and P.A.S. Port® T2 POWER P.A.C.™ product

BHCS: While in use, implanted ports shall have needle exchange, dressing change, needleless connector caps change, & 0.9% NS flush at least weekly and PRN, per physician/practitioner order.

TCC/ORU: Standing protocol-No separate provider/practitioner order required: Implanted ports shall be flushed with 0.9% NS flush, needle exchange, dressing & needleless connector caps are changed weekly and PRN while in use. When not in use, implanted ports are flushed & locked every 6-8 weeks PRN.

VIII. Hemodialysis (HD) Catheter *(Tunneled, Cuffed)*

(e.g. Split Cath®, Palindrome™ HIS-Heparin Coated Catheter)

Indications for Use

- Surgically implanted access to the central venous system for use in attaining long-term vascular access for hemodialysis and apheresis (usually dual lumen)
- Inserted percutaneously and is primarily placed into the internal jugular (subclavian & femoral is alternate)
- Tunneled, Cuffed HD catheters are routinely accessed **ONLY** by the dialysis nurse
- Exceptions: -May be accessed by ICU/ENIT/VAT nursing staff when line is designated for Continuous Renal Replacement Therapy (CRRT) or as requested by nephrologist
  -May be accessed during emergencies, such as critical care team event. Five (5) mL of blood **MUST** be withdrawn and wasted prior to infusing through a HD catheter.
- Duration of use is at provider/practitioner's discretion
- Refer to *Lippincott Procedures* (hemodialysis, double-lumen catheter)
- Refer to *MedComp Long Term IFU Resource* when utilizing Medcomp® HD device
- Refer to *Medtronic IFU Resource "attachment"* when utilizing Palindrome™ HSI-Heparin Coated Catheter

Care of

- Refer to *Lippincott Procedures* (central venous tunneled catheter dressing change) for dressing change guidelines
- Dialysis nurse will lock HD catheter with heparin to maintain patency between treatments, as per contracted facility protocol
- Tunneled, cuffed HD catheter shall be surgically removed & only by a provider/practitioner
- Refer to *Medtronic Cleaning & Handling Guidelines "attachment"* when caring for Palindrome™ HIS-Heparin Coated Catheter

IX. Hemodialysis Catheter *(Non-Tunneled, Non-Cuffed)* (e.g. Bard® Trialysis™)

Indications for Use

- Short-term HD catheter, divided into three separate lumens, which may be inserted in the jugular, femoral or subclavian vein
- Venous (blue) and the arterial (red) lumens may be used for hemodialysis, hemoperfusion, aquapheresis & apheresis treatments and are routinely accessed **ONLY** by the dialysis nurse
- The distal (purple) lumen is completely independent from the two dialysis lumens and may be used for: IV therapy, infusion of medications, blood sampling, power injection of contrast media & CVP monitoring
- Exceptions: -Blue & red lumens may be accessed by ICU/ENIT/VAT nursing staff when line is designated for Continuous Renal Replacement Therapy (CRRT) or as requested by nephrologist
  -Blue & red lumens may be accessed during emergencies, such as critical care team event. Five (5) mL of blood **MUST** be withdrawn and wasted prior to infusing through a HD catheter
- Duration of use is at provider/practitioner's discretion
- Refer to *Bard Trialysis IFU* when utilizing Bard® Trialysis™ device

Care of

- Refer to *Lippincott Procedures* (central venous access catheter insertion, assisting)
- Refer to *Lippincott Procedures* (central venous access device dressing change) for dressing change guidelines
- Refer to *Lippincott Procedures* (needleless connector change) for purple lumen; routinely change Sunday & Wednesday
- Disinfection cap shall be placed over the needleless device on purple lumen, when lumen is not in use, in addition to each unused access port of all IV tubing
- Refer to *Lippincott Procedures* (IV administration set (tubing) change) when administering through purple lumen; routinely change Sunday & Wednesday
- Flush unused purple lumen at least every shift (not necessary to interrupt continuous infusion); and before & after each use with 0.9% NS (normal saline) flush. Refer to *Lippincott Procedures* (central venous access catheter flushing & locking)
- For CVC blood draws (through purple lumen only), refer to *Lippincott Procedures* (central venous access catheter blood sampling)
- Blood sampling shall NOT occur without a provider/practitioner's order through any access device in which PN is being administered
- A dedicated lumen should be used for PN
- For blood culture collection (through purple lumen only), refer to *Lab Manual: Blood Culture Collection Procedure*
- Dialysis nurse will lock red and blue lumens of catheter with heparin to maintain patency between treatments, as per contracted facility protocol
- Non-Tunneled, non-cuffed HD catheter may be removed by provider/practitioner, dialysis nurse, ICU/VAT/ENIT RN competent in the removal, and shall refer to *Lippincott Procedures* (central venous access catheter removal). **Exception:** After removing catheter, apply manual pressure to the puncture site for **10-15 minutes** & until no signs of bleeding are present.

X. Intraosseous (IO) Access Device (e.g. EZ-IO®)

Indications for Use

- IO access allows short-term delivery of fluid, medications or blood into the central circulation when intravenous access cannot be obtained (Excluding: chemotherapeutic agents & TPN)
- IO device should remain in place only until conventional vascular access is possible & within 24 hours from insertion, unless ordered otherwise
- Contraindicated in patients where MRI is anticipated
- Refer to manufacturer's *Instructions for Use (IFU)* when utilizing Arrow® EZ-IO® Intraosseous Vascular Access Driver
- Refer to manufacturer's *Instructions for Use (IFU)* when utilizing Arrow® EZ-IO® Intraosseous Vascular Access Needles
- Refer to *Journal of Infusion Nursing: Infusion Therapy Standards of Practice (Intraosseous (IO) Access Devices)* *"attachment"*

Care of

- Trained provider/practitioner/RN, refer to *Lippincott Procedures* (intraosseous catheter insertion)
- Refer to *Lippincott Procedures* (intraosseous catheter assisting)
- Refer to *Lippincott Procedures* (intraosseous infusion maintenance)
- Flush unused IO lumen/port at least every shift (not necessary to interrupt continuous infusion); and before & after each use with 0.9% NS (normal saline) flush. Refer to *Lippincott Procedures* (flushing)
- If fluids are discontinued, IO should be removed
- Refer to *Lippincott Procedures* (intraosseous infusion device removal)

Central Vascular Access Device (CVAD) Occlusions

- Refer to *Infusion Therapy Standards of Practice: Central Vascular Access Device (CVAD) Occlusion "attachment"*
- Consider radiographic visualization to confirm tip termination
- Refer to *Lippincott Procedures* (central venous access declotting)
- A provider/practitioner's order is needed to administer alteplase to clear an occluded central catheter
- Refer to *CathFlo® Activase® (alteplase) Dosing and Administration* when administering declotting agent

Possible Complications of IV Therapy & Device Use

Local & Systemic			
• Allergic reaction • Catheter damage • Circulatory overload • Embolus (air, clot or particle) • Excessive bleeding	• *Extravasation* • Hematoma • Inadvertent arterial puncture • Infection • *Infiltration*	• Malposition • Nerve, tendon, or ligament injuries • Occlusion • Phlebitis • Thrombosis	• *Thrombophlebitis* • Vasovagal Reaction • Vein irritation or pain at site • Venous Spasm

Infiltration & Extravasation Risk Factors

Refer to *Journal of Infusion Nursing: Infusion Therapy Standards of Practice* (Infiltration and Extravasation) *"attachment"*

Infiltration Management

1. STOP the IV infusion at the first sign of infiltration and remove the device.
2. Assess the site to determine the need for intervention and treatment, which is dependent upon severity of the infiltration, as per provider/practitioner order.
3. Utilize *Infiltration Scale* *"attachment"* to grade and document infiltration. Grade the infiltration according to the most severe, presenting indicator. (Consideration should be given to measurements in proportion to patient's size for neonate or pediatric patient).
4. Complete *Safety Tracking Tool (STT)* on infiltrations, and report any infiltration Grade 2 or higher to the provider / practitioner.
5. Perform & document ongoing observation and assessment of the infiltrated site which shall include, but not limited to motion, sensation and circulation in the affected extremity.
6. All information related to observation, assessment and the event shall be documented in the patient's electronic medical record (EMR).

Extravasation Management

1. STOP the infusion immediately when extravasation is suspected, but DO NOT REMOVE the IV device/ CVAD initially.
2. Refer to *Lippincott Procedures* (extravasation management).
3. Notify pharmacy immediately for initiation of *Protocol Management of Vesicants and Irritants*; obtain extravasation kit, (if indicated).
4. Notify provider/practitioner immediately to obtain additional orders, as needed.
5. All information related to observation, assessment and the event shall be documented in the patient's electronic medical record (EMR).
6. Perform & document ongoing observation and assessment of the extravasated site which shall include, but not limited to motion, sensation and circulation in the affected extremity.
7. Complete *Safety Tracking Tool (STT).*

Oncological Considerations

1. For chemotherapeutic administration, refer to *Lippincott Procedures* (chemotherapy administration, intravascular (IV))
2. For immunotherapy administration, refer to *Lippincott Procedures* (immunotherapy administration)
3. Two (2) chemotherapy certified nurses will confirm blood return from a peripheral site or central venous access device (CVAD) prior to administration of vesicant chemotherapeutic infusion
4. Assessment & documentation of IV site status before, during, and after vesicant chemotherapeutic agent shall be entered into electronic medical record (EMR)
5. Monitor closely for evidence of extravasation; Refer to *Lippincott Procedures* (extravasation management)

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