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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Dialysis Center Equipment Maintenance

Purpose

To provide a policy for equipment maintenance in the dialysis center.

Policy

A. Dialysis Bio Med department provides equipment that meets all standards for safety, performance, and efficiency.

1. Equipment subject to regular maintenance will include:
    a. Water room
        i. Acid concentrate and bicarbonate mixing and distribution system
        ii. Rinse, drain functions properly flow to drains located in the water room
    b. Hemodialysis machines: B Braun
    c. Scaletronix scale
    d. Patient scale lift
    e. Non-invasive blood pressure (NBP) machines
    f. pHoenix pH/conductivity meters
    g. Any other medical device that may require regular maintenance
2. Preventative Maintenance

a. Preventative maintenance will be performed as established by the manufacturer and other accrediting agencies on all dialysis equipment. The Preventative Maintenance Task List identifies the tasks, frequencies, and responsible person by type of equipment. The frequency listed will be increased when indicated by an identified problem.

b. Any problem identified through the preventative maintenance process will be addressed immediately.

    i. If unable to resolve the problem, the equipment will be tagged with an orange Defective Equipment label and removed from service.

    ii. The problem will be entered as a work order through the hospital reporting system and timely follow up by BioMed will be scheduled.

    iii. In the event the equipment is urgently needed for patients, the problem will be reported to the Technical Coordinator for decision making.

3. Repair

    a. All repairs to dialysis equipment will be performed by a factory-trained technician trained in biomedical electronics.

    b. Machine problems will be reported to the renal technical staff by the primary nurse.

    c. For home hemodialysis patients: When a home hemodialysis patient calls with a machine problem or concern, a home dialysis nurse will provide an initial assessment to determine if the problem is equipment related or a result of operator error. If it is determined to be equipment related, the home nurse will direct the patient to call the NxStage 24-hour technical support. Arrangements will be made with the outpatient dialysis center for treatment if the machine problem cannot be resolved before the next scheduled treatment.

4. Home Installations, as applicable

    a. NxStage home hemodialysis machine will be installed in the home by a Munson home training nurse just prior to the first at-home treatment. NxStage machines are leased from Fresenius Medical Care-NxStage division. Preventative maintenance/repair is provided by manufacture. Activities are coordinated with MDC Home Dialysis Department.

    b. Peritoneal dialysis machines are shipped from the manufacture and installed by the home dialysis department. Peritoneal dialysis machines are leased from Baxter/Vantive. Preventative/repair is provided by manufacture. Activities are coordinated with MDC Home Dialysis Department.

5. Monthly Bio Med department reports percentage of equipment repair/scheduled preventative maintenance to the Quality Assurance and Performance Improvement

(QAPI) committees.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	8/5/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	8/5/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	7/15/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	7/1/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Dialysis Center Infection Control - Employee Safety

Purpose

All employees will have the responsibility for maintaining compliance with infection control practices in conjunction with the Infection Control Committee.

Policy

Orientation and Continued Education

A. All personnel will receive thorough instructions regarding the infection control policies of the unit and demonstrate knowledge thereof.

B. There will be an annual in service to review and update infection control knowledge according to core curriculum.

Routine Hepatitis B Surveillance

A. All new staff will be tested for Hepatitis B surface antigen (HBsAg), Hepatitis B surface antibody (anti-HBs) at the time they begin employment in order to determine their serologic status for surveillance purposes.

B. All staff will get the vaccine for Hepatitis B at the expense of the hospital.

C. Seronegative patient care staff will be tested for HBsAg and anti-HBs every six (6) months.

D. Patient care staff who are anti-HBs positive and HBsAg negative will not require additional testing.

E. Results of all hepatitis surveillance lab work will be maintained in the Munson Employee Health Department. Any staff who exhibits a positive HBsAg will be referred to the Medical Director for further serodiagnostic assessment to determine infectivity status. The Employee Health Nurse will communicate results to the employee and the Director of Dialysis.

Task Classification - Exposure/Protection Required

A. All routine dialysis related tasks will be classified into one of two categories for potential exposure:
    1. Category I - Tasks that involve exposure to blood, body fluids or tissues.
    2. Category II - Tasks that involve no exposure but employment may require performing unplanned Category I tasks.

B. The type of fluid, the extent of exposure, the workers exposed, and the protective measures required are listed for each.

Protective Equipment

A. The following protective equipment is to be used in the dialysis treatment areas:
    1. Disposable non sterile gloves
    2. Waterproof gown available in tech room
    3. Eye protection/masks/face shields

Use of Gloves

A. Gloves should be worn whenever caring for a patient.

B. Gloves should be worn when touching the patient's medical equipment or handling lab specimens or used dialyzers. Includes machine setup and alarm situations.

C. Gloves should be worn when cleaning machines, cleaning stations, or wiping up blood or other body fluid spills.

D. Gloves should be changed whenever moving from one patient or machine to another.

E. Gloves should be changed when moving from a dirty to a clean site/task on the same patient.

F. Gloves should be changed after cannulation.

G. Removal of gloves should always be followed with hand hygiene.

H. Staff should never touch surfaces with gloved hands that will subsequently be touched with ungloved hands before being disinfected (phones, charts, computers, etc.).

I. All abrasions, lacerations and breaks in the skin must be covered. Any staff member having contacted dermatitis, allergic rashes, or similar disorders is to wear gloves at all times when working in the unit.

J. Hands must be washed with soap and water.
    1. Before beginning patient care, upon entering the unit.
    2. After skin contact with blood, contaminated materials or peritoneal effluent

3. When obviously soiled.
4. After use of the lavatory.
5. After coughing or sneezing
6. Before eating.
7. During the care of patients with suspected or confirmed infection during outbreaks of *C. difficile* and Norovirus.
8. At completion of duty

K. Hand sanitizer: Minimum **60%-95% alcohol sanitizer can be used in the following instances, except when hands are visibly soiled.**
    1. .Before and after patient care.
    2. Between individual patients.
    3. Before and after removing gloves.
    4. Before and after administration of medications.

Employees Gowns

A. Fluid resistant gown.
B. Cover arms and be closed in front.
C. Gown must be removed if it becomes soiled or wet.
D. Gown must be removed prior to leaving the unit and for breaks and lunch.
E. Be worn when there is a likelihood of body fluid contact, i.e. initiating/discontinuing dialysis, drawing labs, giving intravenous (IV) medications during dialysis, reversing blood lines, repositioning fistula needles.
F. Cleaning and disinfecting equipment post dialysis.
G. Patient has any draining wounds, incontinence, or secretions.

Face Protection (Face Shield, Mask)

A. **Face Shield**
    1. Worn during initiation and discontinuation of dialysis.
    2. Worn when there is a possibility of splash, i.e. manipulating fistula needles, reversing catheter, drawing labs, etc.

B. **Mask**
    1. Worn by staff and the patient during the initiation and discontinuing of dialysis with a catheter. For staff, this is in addition to using a face shield that is required when initiating/discontinuing dialysis.
    2. Worn by staff and the patient when applying dressing care to a patient.
    3. Worn at any time deemed appropriate by the staff.

Miscellaneous Information

A. Staff will not eat/drink in the dialysis treatment area. Food/drink must not be stored in the treatment area.

B. Oral contact with objects in the dialysis unit (nail biting, chewing on pens, etc.) should be avoided. Keep hands away from eyes, nose and mouth.

C. Separate lavatory facilities are designated for dialysis patients and dialysis staff and should not be shared by either group.

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Approval Signatures

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Policy & Procedure Chair	Wendy Walter: Registered Nurse	3/6/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	2/27/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	2/18/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Dialysis Daily Testing of Chlorine in Treated Water

Purpose

To provide a process for daily testing of chlorine in treated water.

Policy

A. As stated in the Centers for Medicare and Medicaid Services (CMS) Conditions of Coverage for End-Stage Renal Disease (ESRD) Facilities (2008), testing for free chlorine, chloramine, or total chlorine should be performed at the beginning of each treatment day prior to patients initiating treatment and again prior to the beginning of each patient shift.

B. If there is no set patient shifts, testing should be performed every 4 hours.

C. Results of monitoring of free chlorine, chloramine, or total chlorine should be recorded in a log sheet. Samples should be drawn when the reverse osmosis (RO) unit has been operating for a minimum of 15 minutes.

D. If result is greater than .05 at any testing port, immediately obtain a sample at the “Chlorine Port” on the RO. Make sure you rinse out the sample cup, prior to obtaining the sample. Repeat Steps 3 through 6.

E. Results of total chlorine than 0.05-0.09 ppm mg/L, require repeat testing. Notify Dialysis Bio Med, repeat testing is required every 30 minutes.

F. If result is greater than or equal to 0.1 immediately place patients in bypass and discontinue hemodialysis treatments. Bio Med is notified including System Director of Dialysis Services, Facility Medical Director.

G. Patients will be observed for any conditions related to total chlorine that is equal or exceed

CMS standards of total chlorine less than or equal to 0.1 ppm mg/L of total chlorine. (CMS ESRD Interpretative Guidelines, Reference V196)

Procedure

A. Follow the competency for each of the facilities.

B. See the attached documents.

Document ID: 108.020

Attachments

Chlorine Testing at MDC and E. Hosick.docx

Chlorine Testing at KDC .docx

Chlorine Testing at MMC

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	9/4/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	9/4/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	9/2/2025
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Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, KMHC, MHC Corporate, POMH
Tags	Policy

Dialysis Prescription Orders

Purpose

To provide a process for dialysis prescription orders.

Policy

Dialysis prescription orders are communicated electronically, verbally through face-to-face, by telephone or other auditory device to a licensed or registered health care professional (registered nurses [RN], pharmacists, etc.) authorized to accept verbal orders from a physician or other qualified health care provider (i.e. midwife, nurse practitioner [NP], or physician assistants [PA]). Electronic ordering is the preferred method.

Procedure

A. Prior to the patient's initial dialysis treatment, orders are obtained from the patient's Nephrologist. Initial orders are to remain in the patients chart.

B. When possible orders will be submitted in an electronic format. All orders are to be legible and reviewed for accuracy/completeness.

C. Dialysis prescription orders are to include: dialyzer, blood flow rate, dialysate flow rate, and length of time. In addition, medication to be given during dialysis, patient's estimated dry weight, and laboratory testing, etc. specific to the needs of the patient may be provided by the Nephrologist.

D. Verbal orders are to be limited and restricted to:

1. Individuals authorized to prescribe or write orders.

2. Clinical situations where it is impractical for orders to be entered into the medical record by the ordering provider (e.g. scrubbed in, off site and without access).
3. Emergent situations.
    a. Urgent situations where verbal orders facilitate faster, safer delivery of care while not violating the premise of the Centers for Medicare & Medicaid Services (CMS) regulations, e.g. practitioner overseeing care of multiple patients simultaneously on a unit.

E. Verbal orders must be signed as soon as possible.
1. The next time the prescriber provides care to the patient.
2. The prescriber signs or initials the verbal order within time frames consistent with federal and state law or regulation and Munson Medical Center (MMC).
3. Verbal orders are given only to personnel who are authorized to receive and input the verbal order into the medical record.
4. Interchangeable signatures are acceptable for verbal orders.

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System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	11/4/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	11/3/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	11/3/2025
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Applicability

Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Documenting Code Status/Code Blue in Dialysis

Purpose

To provide a policy for documenting, performing Code Blue for patients dialyzing in the Acute Dialysis Departments, and Outpatient Dialysis Centers.

Policy

A. Verify code status in patient's chart, signed Michigan Department of Community Health Do Not Resuscitate (DNR) Order. If not signed and in the chart, patient is a full code. Exception would be if a Michigan Physician Orders for Scope of Treatment (MI-POST) was signed, identifying DNR Only status has been signed by a provider prior to the nephrologist being on site. See attachment for completing the Michigan Department of Community Health DNR order.

B. Patient found unresponsive. Check respirations and carotid pulse. If present, continue assessment and treatment.

C. If respirations and pulse is absent:

1. Designate a staff member to dial 9-911. For Elizabeth Hosick Dialysis Center dial 55555, or page overhead dial 461# "Code Blue in Dialysis". Munson Medical Center (MMC) Inpatient Dialysis Department and Munson Healthcare Cadillac Hoospital (CAD) Munson Inpatient Dialysis Department call 55555 identify CODE Blue, including location.
2. Don proper personal protective equipment (PPE). Position backboard behind patient in the chair and recline back until the patient is flat. Begin basic life support (BLS) according to the American Heart Association (AHA) guidelines - one or two man as staffing allows.

3. Designate available staff member to obtain crash cart and oxygen. Suction machine should be assembled as soon as able. Apply oxygen to patient. Designated staff member will notify nephrologist, or nephrologist on call as soon as possible.
4. Immediately start normal saline bolus/rinse back blood. Leave patient connected to the blood lines.
5. Begin recording on Code Blue Flow Sheet as soon as possible.
6. Remove clothing from chest and dry skin.
7. Turn on the automatic external defibrillator (AED) and follow the prompts. Verify that pads are connected to semi-automatic cable. Apply defibrillator pads as shown on packaging.
8. Continue cardiopulmonary resuscitation (CPR), beginning with compressions and follow prompts from the AED.
9. If the patient has a pulse, place patient in the recovery position and continue support as needed.
10. When emergency medical services (EMS) arrives, they will assume emergency care of the patient. For Elizabeth Hosick Dialysis Center Paul Oliver Memorial Hospital (POMH) Emergency Department (ED) will respond to CODE.
11. MMC Inpatient Dialysis Department and CAD Munson Inpatient Dialysis Department CODE Team will respond. Individual will be transferred to appropriate location in the acute care area.
12. Outpatient Dialysis Centers
    a. Gather medical records (medication list, run sheet, and patient history). Copy of medical records and copy of code record will be sent with EMS.
    b. Call report to the ED.
    c. Restock emergency supplies. Remove dialysis machine from service, keep solutions and dialysis tubing intact, notify Dialysis Bio Med. Charge nurse/ Patient Care Coordinator (PCC) will coordinate appropriate follow up.
    d. In the event the patient expires within the outpatient dialysis center follow the Death: Pronouncement, Record & Disposition policy.
13. If patient is on treatment, just completed treatment at any site. Remove dialysis machine from service, keep solutions and dialysis tubing intact, notify Dialysis Bio Med. Charge nurse/PCC will coordinate appropriate follow up.

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Attachments

Documenting Do Not Rescusitate Status in the Outpatient Dialysis Facility-Addendum.pdf

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	11/4/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	11/3/2025
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Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Owner	Ryan Waldron: Asst Mgr Nursing Services
Area/ Department	Vascular Access Specialty Team
Applicability	MMC
Tags	Procedure

Hemodialysis Catheter Care and Maintenance: Non-Tunneled

Purpose

To provide a process for caring for and maintaining Non-tunneled (Short-term) Hemodialysis Catheters.

Definition

1. **Non-tunneled Central Vascular Access Device (CVAD):** for hemodialysis, will have two lumens dedicated for dialysis treatments and a middle lumen indicated for intravenous (IV) therapy.?
    a. Brown arterial hemodialysis lumen
    b. Blue venous hemodialysis lumen
    c. Clear middle lumen is dedicated for IV therapies and may be used by nursing staff for blood sampling, high-pressure contrast injection, central venous pressure monitoring and fluid or medication delivery between dialysis treatments.

Procedure

A. The non-tunneled device is placed by a clinician privileged in the procedure and requires informed consent and may be discontinued upon physician's order by a clinician competent in the procedure. Competent is defined as documented completion of competency testing. See policy for Discontinuing a Central Venous Catheter.

B. Catheters placed for hemodialysis most often use a jugular approach. Radiographic confirmation of the central catheter tip location will be obtained and documented at the time of device insertion and for suspected catheter migration or complications.

C. Monitor the patient for post-insertion complications which may include bleeding or hematoma at insertion site, shortness of breath, restlessness, discomfort in the chest region and/or arms, or changes in vital signs.

D. All connections must be luer-locked and lumen is to be clamped when open to air or not in use.

E. Lumens utilized for hemodialysis treatments **will not** routinely be accessed by staff other than Dialysis and Vascular Access Specialty nurses.

F. Follow Central Line Maintenance Bundle:

1. Daily assessment of need should be performed in collaboration with the health care team and device removed when no longer needed or clinically appropriate. Hemodyalisis catheters should be removed within 14 days. Indications for removal may include but are not limited to signs or symptoms of infection, malposition or dysfunction.?
2. Hand hygiene
3. Transparent semi-permeable membrane (TSM) dressings will be changed every 7 days and immediately when integrity of the dressing is compromised, moisture or drainage is present or when further assessment is needed. Change gauze dressings every 48 hours.
4. Change injection caps with dressing changes and/or with hemodialysis treatments.
5. Disinfect injection caps using a 5 second scrub with a swab containing a combination of chlorhexidine/alcohol followed by a 5 second dry time prior to accessing the device.
6. Daily chlorhexidine bath with prepackaged bath cloths.

G. A non-functioning middle IV lumen dedicated for infusion therapy is not to be used.The physician will be contacted for further treatment as indicated. See policy Clearing Occluded Central Venous Catheters.

H. Dressing changes will be done per protocol by the Dialysis nurse during dialysis and as needed by a clinician competent in the procedure.

Dressing Change

A. Refer to online procedure manual.

Documentation

A. On appropriate place in patient's medical record:

1. Date, time, and signature of person performing procedure
2. Amount and type of solution/flush
3. Condition of insertion site and surrounding skin area
4. Any problems encountered and corrective action taken
5. Securement device

References

1. Infusion Nurses Society (INS). 2021. Infusion Nursing Standards of Practice. *Journal of Infusion Nursing.* Vol. 44, No. 1S: S89-90.
2. Lippincott's Nursing Procedures and Skills. MMC On line nursing procedures:
    a. https://procedures.lww.com/lnp/view.do?pId=656593
    b. https://procedures.lww.com/lnp/view.do?pId=656593&s=c&id=6514875

Document ID: 080.015

Attachments

Image 01

Image 02

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	11/6/2023
Coord Patient Care	Ryan Waldron: Coord Patient Care	11/6/2023
Document Owner	Amber Bowers: Mgr Nursing Services	10/31/2023

Applicability

Munson Medical Center

Standards

No standards are associated with this document

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Heparinization During Hemodialysis

Purpose

To ensure proper Heparin administration during hemodialysis.

Procedure

A. Heparin will be administered based on the nephrology orders. At the first hemodialysis treatment, a loading dose and hourly infusion dose of heparin will be prescribed to provide optimal anticoagulation.

B. The pump will be turned off one hour before the end of the treatment and no heparin will be administered during the last hour of hemodialysis when using an arteriovenous (AV) fistula or graft access. Heparin will not be discontinued early when using a dialysis catheter.

Tight or No Heparin Dosing

A. When specifically ordered by the physician

B. Patient has active bleeding

C. Patient has pericarditis

D. After surgery or any invasive diagnostic procedure

E. Patient is to have surgery or invasive procedure post dialysis

Reporting Problems

A. The nephrologist will be notified when post-dialysis bleeding time is excessive.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	6/17/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	6/17/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	4/15/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	4/15/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, KMHC, MHC Corporate, POMH
Tags	Procedure

Hepatitis B Surveillance, Vaccination, and Isolation of Patients on Hemodialysis

Purpose

To provide a process for surveying, vaccinating and isolating a Hepatitis B patients on hemodialysis (HD).

Definitions

1. **Hepatitis B Virus (HBV) Susceptible Patients:** Susceptible patients are those who are Hepatitis B Antibody (Anti-HBs) negative. These patients have not yet received the Hepatitis B Vaccine, are in the process of being vaccinated or have not adequately responded to vaccination. While the patient's Anti-HBs is less than 10mlIU/ml, he/she is considered susceptible to hepatitis B and should be tested for Hepatitis B Surface Antigen (HBsAg) monthly. This includes patients who received the Hepatitis B Vaccine, converted to an immune status, subsequent Anti-HBs level is less than 10ml/IU/ml requiring a Hepatitis B Vaccine booster.
2. **Hepatitis B Virus (HBV) Immune Patient:** Immune patients are those who are positive for anti-HBs (greater than10mlIU/ml).
3. **Hepatitis B Virus (HBV) Infected Patient:** Patient is HBsAg positive, synonymously with HBV+.

Procedure

Hepatitis B Vaccination and Surveillance Protocol of

InCenter Dialysis Patients

A. All new patients/transferred patients admitted to the in center dialysis will be tested within 30 days prior to admission to the dialysis unit for HBsAg, total Antibody to Hepatitis B Core Antigen (Anti-HBc), and Anti-HBs. Hepatitis B serological status must be known prior to admission for the 1st treatment.

B. All seronegative and non-immune patients will be provided upon admission the Hepatitis B vaccine information statement and signed consent or declination for the vaccine.

C. HBsAg will be drawn on a monthly basis on all patients regardless of immunity status.

D. Patients that consent to the vaccine will begin the primary vaccination series and be tested for response 30-60 days after the last dose.

E. Patients that respond to primary vaccine defined as Anti-HBs positive (greater than 10mIU/ml) will have annual Anti-HBs only to evaluate the need for a booster vaccine.

F. Patients that do not respond to primary vaccine will receive a secondary vaccine series and be tested for response 30-60 days after the last dose.

G. Patients with Anti-HBs less than 10mIU/ml after the second series will be considered non-immune/susceptible and continue with monthly HBsAg. Additional labs may be required based on patient assessment, nephrology orders. No further vaccine is required.

H. Patients with Anti-HBs greater than 10mIU/ml after the second series will be considered immune and continue with annual Anti-HBs levels on an annual basis to evaluate immunity status to Hepatitis B, need for Hepatitis B Vaccine booster.

I. The lab will report all positive HBsAg results immediately to the dialysis unit. The nephrologist and medical director will be notified. If the patient involved is a dialysis patient, isolation procedures will be implemented.

J. Elevated liver enzymes should be reported to the physician for further assessment.

K. Results of all Hepatitis B surveillance lab work will be maintained in each patient's dialysis chart.

L. Any sero conversions (patients who become Hepatitis B Positive while admitted to the facility) must have documentation of actions taken. These events should be rare and are to be referred to the medical director and Quality Assurance and Performance Improvement (QAPI) committee for follow up. These events are to be investigated to carefully analyze any potential the transmission occurred within the dialysis unit.

Hepatitis B Vaccine Dosing and Administration Schedule of Primary and Secondary Series (Greater Than 20 Years of Age)

A. Recombivax- Adult dialysis patients' vaccination series consists of 3 doses of Hepatitis B vaccine (40mcg) given in the deltoid at zero (0), one (1), and six (6) months. Test for immunity 30-60 days after last dose.

B. Energix-Adult dialysis patients' vaccination series consists of 4 doses of Hepatitis B vaccine

(40mcg) given in the deltoid at zero (0), one (1), (2), and six (6) months. Test for immunity 30-60 days after last dose.

C. A single booster dose of Hepatitis B vaccine (40mcg) will be given annually to immune patients who have Anti-HBs levels of less than 10mIU/ml. These patients are to be considered susceptible until lab results indicated an Anti-HBs level of greater than 10IU/ml.

D. Patients who receive the Hepatitis B vaccine booster are not retested until the subsequent year. These patients are considered susceptible/non-immune for the entire year, until annual testing is performed that determines Anti-HBs levels.

Hepatitis B Surveillance Protocol for MHC Inpatient Dialysis Departments

A. Hepatitis B status/results must be known prior to terminating 1st dialysis treatment in the inpatient dialysis department.

    1. If not known, dialysis machine is terminally cleaned with citric acid and heat prior to next patient.

    2. Hepatitis B Surface Antigen Positive results requires the dialysis machine to be isolated, terminally cleaned once patient is no longer receiving treatment (discharged, etc.).

All Dialysis Patients

Isolation Practices for HBV+ Patients

A. The nephrologist and patient care coordinator/charge nurse will be notified of patients requiring isolation for Hepatitis B. This notification is provided by the assessment of the lab values or a call received from the laboratory department at Munson Medical Center (MMC).

B. Staff caring for a Hepatitis B positive patient may not care for any susceptible patients at the same time.

C. Staff caring for a HBV positive patient should be HBV immune.

D. HBV+ patients will be dialyzed in a private room or segregated area. The segregated area/ equipment is not to be used for any other patient who is not HBV+. This includes all days/ hours of operation.

E. Equipment and a dedicated dialysis machine will be used for HBV positive patients. Equipment and machines will be clearly labeled isolation.

F. Sharing of non-disposable items such as tourniquets, blood pressure cuffs, clamps, thermometer, etc., is not permitted. All supplies required will be used for the identified isolation patient only, this includes housekeeping supplies such as brooms, mops etc. Supplies will be placed in the secure isolation cart/area.

G. Dedicated conductivity, pH monitoring equipment, and dedicated machine will be labeled isolation and remain in the isolation area.

H. Separate gowns will be used in the isolation area and removed before leaving the isolation area/room. The supply cart labeled isolation will be inside the area/room with personal protective equipment (PPE) and dedicated supplies during treatment.

I. Upon termination of isolation for the identified patient (when the patient is no longer on the census), biomed will be responsible for terminal disinfection of the dialysis machine and equipment.

J. Labs drawn for the HBV+ patient will be spun at chairside and remain at the isolation station until picked up by the courier or delivered to the lab unspun in a sealed lab bag.

Environmental Cleaning of Isolation Area/Room

A. Refer to the Cleaning and Disinfecting of Non-Disposable Equipment Used During the Hemodialysis Treatment policy for disinfection of the dialysis treatment area.

B. PPE will be used while cleaning the area/room.

C. All non-disposable items will remain in the station for disinfection and then be placed in the patient's isolation bin and remain with the dedicated machine.

D. In addition, the floor, walls, and counter top in the isolation area will be wiped down with an intermediate-level disinfection "hospital disinfectant" or a 1:100 dilution of bleach.

E. Remove the bag with dirty linen and tie securely with a knot and place with the dirty linen storage after each use.

F. Dialyzer and dialysis tubing will be placed in the designated medical waste containers after each use.

G. Disinfect external surfaces of sharps container, laundry bin, and isolation cart (any equipment) with "hospital disinfectant" with associated contact time. In extreme cases washcloths soaked with 1:100 bleach solution for a 5 minute contact time is required for proper disinfection.

H. After disinfection of the area, the dialysis machine and isolation cart will be covered with a clean sheet, clearly labeled isolation and remain in the segregated area.

I. For the inpatient dialysis at the MMC/Munson Healthcare Cadillac Hospital (CAD) unit the supply cart may be located outside of the room, dependent on hospital policy.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	9/4/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	9/4/2025

Coord Patient Care	Lisa Carlson: Coord Patient Care	8/11/2025
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Applicability

Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Next Review	8/5/2026	Tags	Procedure

Initiating Dialysis with a Fistula

Purpose

To provide a process for initiating dialysis with a Fistula.

Procedure

A. Access Cannulation for Hemodialysis:

1. Perform hand hygiene. Put on protective equipment: gloves, face shield, and gown.
2. Assess fistula for patency.
3. Clean skin with Chlorhexidine prep pad and/or alcohol prep pad; allow to dry.
4. Apply tourniquet.
5. Insert needles.
6. Secure the needles to prevent dislodgement.
7. Assess the needle placement with a 10mL syringe to ensure patency.
8. Attach fistula needle to bloodline connector. Verify connection is secure by performing a twisting motion. Double check the security of the luer lock connection.
9. Proceed with initiation of hemodialysis treatment, per orders.
10. Monitor lines for secure connections and patency of access.
11. Document findings in electronic medical record.
12. Closely monitor the patients throughout the dialysis treatment. Document at a minimum of every 30 minutes patient's blood pressure, pulse. Additional

documentation at 30 minute intervals includes arterial and venous pressure readings, transmembrane pressure, ultrafiltration rate, total fluid removal rate, blood flow rate, dialysis flow rate. In addition to, visualization of dialysis access and confirming dialysis lines are secure.

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Applicability

Cadillac Hospital, Charlevoix Hospital, Grayling Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Manistee Hospital, Munson Medical Center, Otsego Memorial Hospital, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Initiation and Discontinuation of Dialysis Using the Tego Cap Connectors

Purpose

To provide a policy for initiation and discontinuation of dialysis using the Tego Cap Connectors.

Policy

To be able to initiating/discontinue dialysis with a catheter, including removing Swab Cap, changing Tego Cap connectors. The staff person must have passed competencies be a Registered Nurse (RN) or a Certified Dialysis Technician with a minimum of 1 year of experience. If Chlorhexidine is unavailable, 70% alcohol prep pad is an acceptable alternative.

Initiation of Dialysis using the Tego Cap Connectors

A. Perform hand hygiene.

B. Gather supplies:

1. 1 blue pad
2. 2-3cc syringes
3. 2-10cc syringes pre-filled with normal saline
4. 6 Chlorhexidine prep wipes/pads
5. Proper personal protective equipment (2 masks, gown, face shield, non-sterile gloves)

C. Place mask on patient and self. Perform hand hygiene. Don proper personal protective equipment.

D. Ensure catheter caps are secured to catheter and clamps are closed. Place blue pad under catheter.

E. Remove Swab Cap from Tego cap.

F. Disinfect Tego cap on the catheter arterial port with Chlorhexidine wipe for 5 seconds and allow to dry.

G. Attach 3cc syringe to the Tego cap. Open clamp and withdraw 3cc-fluid from the access. Clamp line.

H. Repeat steps E, F and G for the venous lumen.

I. Remove the fluid filled syringe from the arterial lumen, attach the saline-filled syringe to the Tego cap. Open clamp, flush with 10cc of normal saline to ensure patency of the catheter. Close clamp.

J. Repeat step I for the venous lumen.

K. Remove the syringe from the arterial lumen attach the arterial bloodline. Open clamp.

L. Repeat steps K for the venous lumen.

M. Proceed with initiation of dialysis per orders.

N. Closely monitor the patients throughout the dialysis treatment. Document at a minimum of every 30 minutes patient's blood pressure, pulse. Additional documentation at 30 minute intervals includes arterial and venous pressure readings, transmembrane pressure, ultrafiltration rate, total fluid removal rate, blood flow rate, dialysis flow rate. In addition to, visualization of dialysis access and confirming dialysis lines are secure.

Discontinuation of Dialysis Using the Tego Cap Connectors

A. Perform hand hygiene.

B. Gather supplies:

1. 1 blue pad2-3cc syringes
2. 2 Sterile Swab Caps
3. 2-10cc syringes pre-filled with normal saline
4. 2-10cc syringes pre-filled with normal saline
5. 4 Chlorhexidine prep wipes/pads
6. Proper personal protective equipment (2 masks, gown, face shield, non-sterile gloves)
7. Prescribed anticoagulant
8. 2 alcohol prep wipes/pads

C. Apply mask to patient and self. Perform hand hygiene and don proper personal protective

equipment.

D. Clamp the arterial lumen. Swab the Tego cap on the arterial catheter lumen with the Chlorhexidine wipe for 5 seconds. Attach a 10cc syringe filled with normal saline. Open clamp on the arterial lumen. Flush arterial catheter lumen with saline. Clamp arterial lumen.

E. Remove the 10cc syringe, attached a 3cc syringe with the prescribed volume of anticoagulant, volume of the catheter lumen is indicated on the limb of the catheter. Unclamp arterial lumen and instill prescribed anticoagulant. Clamp arterial lumen.

F. Repeat steps D & E for the venous lumen of the catheter.

G. Finish by swabbing each Tego cap connector with an alcohol prep pad to remove any residue.

H. Remove syringe from the arterial lumen, attach the sterile Swab cap.

I. Repeat Step H for the venous lumen.

J. Document the discontinuation of the dialysis treatment in the medical record.

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Policy & Procedure Chair	Wendy Walter: Registered Nurse	12/10/2024
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Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Inpatient Dialysis Department Rinsing Portable Reverse Osmosis Equipment

Purpose

To establish a procedure for performing the Ameriwater MROS Autoflush (MROS) and Ameriwater Centurion Heat Disinfection (MROC).

Procedure

A. Ameriwater Centurion MROC with Heat Disinfect requires the user to perform several steps to complete the heat disinfection, rinsing process. MROC reverse osmosis (RO) units must be disinfected every 72 hours, prior to patient care.

1. Run water for 10 minutes in room before connecting. In the A tower use adaptor, other areas turn on the sink.
2. Attach the incoming water hose to the water source via quick connect and sink or to the water source in the wall.
3. Place the drain line (outgoing hose) in the sink.
4. Turn on the cold water (only) at the sink and turn MROC machine to On. Use the switch on the back of the machine to turn on the main power). When the power is on, push the start button on the main screen.
5. Open the sample port on the MROC product line, (FEED LINE TO THE DIALYSIS MACHINE). Let the RO run for 2 minutes.
6. When flush time is complete, ensure all parameters are within normal limits, no

alarms on the MROC.

a. If parameters are not within normal limits flush the RO for an additional 5 minutes. If parameters are not within normal limits do not use the MROC, sticker do not use per Munson Medical Center (MMC) policy, notify Bio Med.

7. Document machine data on the MROC log.
8. Connect the product line to the hemodialysis machine. Turn on the hemodialysis machine.
9. **Post** dialysis treatment.
    a. Turn off the dialysis machine and disconnect the product line from the dialysis machine.
    b. Push stop on the MROC machine main screen. MROC will drain for approx. 10 sec.
    c. Turn power off using on/off switch located on the back of the machine.
    d. Turn off the water and recoil all lines, attach to side of the MROC.
        i. Clean surface of MROC with approved hospital disinfectant.
    e. When returning the MROC back to room 4036.
        i. Plug the MROC into the water box, plug in the drain line, and the power.
        ii. Locate main power switch on the back of the MROC, turn on MROC.
        iii. From main screen, select menu, clean.
        iv. Turn the key on the back of the machine, select heat disinfect. Follow prompts on the main screen.

B. Ameriwater MROS Autoflush requires the user to perform several steps to complete the heat disinfection, rinsing process. MROS portable RO units must be disinfected every 72 hours, prior to patient care.

1. Ameriwater MROS machines are set up for Autoflush when they are plugged into power and have the water connected to source water.
    a. MROS will flush automatically every 2 hours, for 45 minutes. The 45 minute flush duration is part of the 2 hour flush interval.
2. There is no touch key code sequence or special procedure needed to install or remove an MROS RO machine into/from Autoflush when it's not in use. It just needs to be plugged in as noted below:
    a. Unplug the power and water connections of the MROS from the docking station and coil them onto the hose reel strap.
    b. Transport and reconnect the MROS in the treatment area, ensuring the source water has been flushed adequately before attaching the source water hose from the MROS (when a machine has been in Autoflush, there

is no need to flush the RO prior to use).

c. After treatment is completed, flush the MROS in place for 10 minutes.

d. Unplug the power and water connections of the MROS and coil them onto the hose reel strap.

e. Return the MROS to a docking station. Connect the power to the red outlet. Connect the water and waste line connections to couplings in the wall box. Put the flush valve in the **operate** position. ***Do not*** *push the start button!* The machine will start an internal timer that will automatically flush the machine every two hours thereafter.

f. **NOTE:** The product hose must be opened to free flow to the drain; leave an air gap between the delivery point of the product hose and the floor. Connect the product and waste water hoses to couplings within the drain/sump area to avoid flooding.

C. If you find an Ameriwater MROS or MROC machine stored unplugged, return the machine to its docking station. Contact Bio Med.

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Policy & Procedure Chair	Wendy Walter: Registered Nurse	1/21/2026
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Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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MUNSON HEALTHCARE

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Tags	Policy

Inpatient Hemodialysis Catheter Care and Maintenance

Purpose

The objective of this procedure is to provide regular, standardized catheter site inspection and to apply a sterile occlusive dressing.

Definitions

1. **Double Lumen Dialysis Catheter:** consists of 2 large bore lumens to facilitate the withdrawal and delivery of large volumes of blood for hemodialysis. Catheter maintenance requires strict infection control measures.
2. **Dwell:** is a volume of fluid, which remains in the catheter and is aspirated prior to use of the catheter.

Procedure

A. Physicians and designated physician's assistants may insert a dialysis catheter. Insertion requires informed consent. Refer to policy for informed consent.

B. Following insertion, each lumen will be flushed with 10 cc preservative-free 0.9% NaCl followed by a Sodium Citrate 40mg/mL vial dwell equal to the catheter fill volume as identified by the catheter manufacturer.

C. Dwell and disinfecting caps are replaced after each dialysis treatment or weekly with dressing change if patient is no longer being dialyzed on a regular basis. This includes TEGO caps that are replaced weekly.

D. A chest x-ray will be taken following central line insertion if catheter is **not** placed under

fluoroscopy. The patient will be monitored for shortness of breath, restlessness, changes in vital signs, changes in lung sounds, unusual discomfort in the chest or back.

E. All connections on a dialysis catheter must be luer-locked and clamps must be in the closed position when the catheter is not in use.

F. Only Hemodialysis or Vascular Access Specialty (VAS) personnel will access the dialysis catheter.

G. The catheter will not be used routinely for intravenous (IV) infusion or blood draws, except by dialysis personnel. An exception may be made in an emergent situation and with a physician's order. In the event a Trialysis catheter is in place, trained critical care nursing staff can access the IV catheter port for IV fluids, medications and blood draws.

H. Catheter maintenance schedule may vary for Home, Extended, or Ambulatory Care services to meet individualized patient needs.

    1. The Emergency Room (ER) nurse or unit nurse will enter the Chlorhexidine Gluconate (CHG) bath order and add the catheter as an access under Lines, Tubes and Devices.
    2. The dialysis nurse caring for a hospitalized patient receiving maintenance dialysis will change the catheter dressing per protocol.
    3. The site will be assessed through a transparent dressing with each dialysis treatment. If signs or symptoms of infection are present, remove dressing and inspect site thoroughly. Follow Catheter Dressing Procedure.
    4. Catheter dressings will be covering the catheter site at all times when patients are hospitalized.
    5. Catheter dressings will be changed every seven days by the dialysis nurse. When dressings are found to be damp, loose, or visibly soiled, dialysis nurses will perform these duties. When unavailable or after hours, a trained critical care nurse or VAS will perform the dressing change.
    6. The following guideline will be used when the dialysis catheter is in close proximity to a central line.
        a. When the dialysis catheter is in close proximity to a central line and when removing one dressing will compromise the other one, dialysis will be responsible for both dressing changes. If dialysis is being performed on day 7 for either dressing change or if the dialysis nurse notices the catheter dressing is not intact, the dialysis nurse is responsible for both dressing changes.
        b. When dialysis is not being performed and one of the catheter dressings needs to be changed (on day 7 or when the dressing is not intact or compromised), trained nurse (competency on file) will perform both dressing changes.
        c. Dialysis nurse/assigned critical care nurse will document dressing changes were performed, including assessment findings.

I. Patients dialyzing in the outpatient centers will be instructed to call the dialysis unit if dressing becomes damp, loosened, or visibly soiled for a dressing change.

J. Cuffed/tunneled catheter sites may be left open to air in an outpatient setting after eight weeks if line is secure, sutures have been removed, and exit site is within normal limits.

K. Blood sampling may be done by dialysis staff or VAS if specifically ordered.

L. **Removal of a permanent catheter (tunneled or cuffed) is a medical act.** A temporary dialysis catheter can be removed, with a physician's order, by a registered nurse competent in the procedure. Refer to the *Discontinuing a Central Venous Catheter* policy.

Catheter Dressing Change

A. These measures should reduce or prevent the complication of catheter related sepsis.

1. Explain the procedure to patient and gain verbal consent.
2. Clean off working surface with disinfectant.
3. Mask. Perform hand hygiene, use aseptic technique and observe Standard Precautions throughout procedure.
4. Use central line dressing kit, or specific items needed to complete the procedure.
    a. Tegaderm 3.5x4.5, or acceptable size with CHG impregnated gel pad. Secondary choice, if not tolerating CHG product, Biopatch 1" Disk 4 MM
    b. 1 Chloraprep, applicator 2% chg w/IPA
    c. Sterile gloves
    d. Surgical mask, for nurse and patient
5. Instruct patient to wear a mask.
6. Remove dressing.
7. Evaluate insertion site for complications.
8. Put on sterile gloves and cleanse exit site with a 2% Chloraprep sponge applicator, allow to air dry.
9. Apply an antimicrobial patch to catheter exit site with the white side facing patient skin.
10. Apply a sterile transparent semipermeable dressing to catheter site. Label with date and initials.
11. Document dressing change and findings
    a. At Munson Medical Center (MMC) in Powerchart
    b. At outpatient clinic on Clarity treatment record
12. If replacing dwell:
    a. Withdraw 5 mL of solution from dialysis catheter and clamp lumen.
    b. Discard syringe.
    c. Using 10 mL preservative fee NaCl 0.9%, prime, apply sterile yellow end cap (Tego) and flush lumen.
    d. Instill Sodium Citrate dwell to equal fill volume of catheter lumen.

e. Clamp lumen and remove syringe.

f. Repeat above procedure for second lumen.

13. To help maintain optimal care and provide educational opportunities, a Voice report should be submitted if dialysis catheters are not managed per policy.

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Policy & Procedure Chair	Wendy Walter: Registered Nurse	9/4/2025
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Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

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Next Review	3/17/2028	Tags	Policy

Inpatient Peritoneal Dialysis

Purpose

To provide a policy for supporting inpatient peritoneal dialysis (PD) needs.

Policy

Peritoneal Dialysis (PD) Support

A. Inpatient Dialysis Registered Nurse (RN) is available in house from 730 am to 8 pm Monday-Saturday and Sunday 9 am to 730 pm. Ext. 55424. If no answer by phone have the on-call inpatient dialysis nurse paged through the hospital operator.?

B. A 24-hour technical support is available through Baxter Healthcare at (800) 553-6898 for cycler alarm troubleshooting and support. Please page the dialysis RN on call if unable to resolve the issue.

C. Patients admitted to Munson Medical Center (MMC) on PD should have priority admission to B4 or best location to meet overall clinical care needs. B4 coordinators (ext. 52790) may be able to offer advice or troubleshooting after hours while contacting on-call inpatient dialysis RN, if needed.

Inpatient Dialysis Responsibility

A. Inpatient dialysis RN will assume duties of product change-over connection (if needed), securing cycler and supplies, initiating and ending therapy for patients on automated peritoneal dialysis (APD).?

B. Inpatient dialysis RN will complete documentation of treatment focus notes and Input and output (I&O).

C. Dialysis department is responsible for maintaining PD supplies and products.

D. Continuous ambulatory peritoneal dialysis (CAPD) exchanges will be completed by inpatient dialysis RNs.

RN Responsibility

A. Upon admission, ensure the attending provider has consulted the nephrologist and that the on-call nephrologist has been notified. The nephrologist shall assess the patient prior to initiating treatment.

B. Unit RN will be responsible for assessing site a minimum of every 8 hours and documenting findings in Powerchart.

C. Unit RN will be responsible for basic troubleshooting of cycler alarms.

D. B4 Patient Care Coordinator (PCC)/Charge RN, or another appropriately trained RN may disconnect treatment if necessary.

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CNO	Tamara Putney: VP and CNO Patient Care Services	3/18/2025
Mgr Nursing Services	Amber Bowers: Mgr Nursing Services	3/10/2025
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Applicability

Munson Medical Center

Standards

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MUNSON HEALTHCARE

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Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Intravenous Drug Administration During/Post Hemodialysis Treatment

Purpose

To provide a policy for administering intravenous (IV) medications to patients receiving hemodialysis (HD).

Policy

Requirements

A. All IV medication administration will result according to recommended times (see chart below).

B. All IV medications will be mixed according to the recommended guidelines (see chart below).

C. All IV medications will be administered through the smart infusion pump venous drip chamber.

D. All IV medications will be administered utilizing a smart infusion pump except Albumin, manually regulated with free flow.

E. For antibiotics infused post-treatment, place the HD machine in bypass before the treatment ends. This should only be done within 2-3 minutes before treatment ends.

Medication Administration Guidelines in Munson Healthcare (MHC) HD Departments

Drug*	Doses	Most Common Dosing Schedule	Infusion Duration Concerning HD
Albumin	25 g	N/A	15-minute to 2-hour intravenous piggyback (IVPB) during HD
Cefazolin	2 g 3 g	2 g, 2 g, 3 g, or 2 g thrice weekly	6-minute IV push post HD
Ceftazidime	2 g	2 g thrice weekly	30-minute IVPB post HD
Cefepime	2 g	2 g thrice weekly	30-minute IVPB post HD
Ceftriaxone	2 g	2 g thrice weekly	6-minute IV push post HD
Daptomycin	Weight-based dose up to 1000 mg	Thrice weekly. Dose before the long weekend may be 25-50% higher (e.g. 8mg/kg, 8mg/kg, 10mg/kg)	2-minute IV push post HD
Ertapenem	500 mg 1000 mg	500 or 1000 mg thrice weekly	30 minute IVPB post HD
Gentamicin**	Weight-based dose	80-240 mg thrice weekly	30 minute IVPB post HD
Sodium Phosphate	500 mg 750 mg 1000 mg 1250 mg 1500 mg	500 – 1500 mg thrice weekly (1000 mg dose most common)	**Doses of 1000 mg or less**: • Administer IVPB over 1 hour in the last hour of HD **Doses greater than 1000 mg**: • Administer IVPB over 1.5 hours in the last 1.5 hours of HD
Vancomycin**	10 mmol	N/A	2-hour IVPB post-HD. Do not start until after HD treatment is complete.

*Reconstitution of medications should follow the package insert. When reconstituting vials, use a vented needle to reduce the vial pressure. IVPB antibiotics (except vancomycin) can be diluted in 100 mL NaCl 0.9%. Vancomycin doses require 250 mL NaCl 0.9%.
**Dosing adjustments performed by MMC ID pharmacist for vancomycin & gentamicin based on weekly pre-HD drug levels.

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System P&T Committee	Cathi Cornelius: Clin Pharmacy Utilization Spec	9/3/2024
Coord Patient Care	Tania Jahn: Coord Patient Care	9/3/2024
Policy & Procedure Chair	Wendy Walter: Registered Nurse	8/30/2024
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Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

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Tags	Policy

MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

Local Anesthetics Prior to Cannulation Policy

Purpose

To provide a process for administering local anesthetics via standing order to adults prior to peripheral cannulation.

Policy

A. Registered nurses (RNs) who have demonstrated competency in peripheral vascular cannulation shall have the option, without calling the physician, to utilize topical refrigerant anesthetic, topical lidocaine cream, or lidocaine local injection at the intravenous (IV) site prior to peripheral cannulation.

Procedure

A. Enter order per the attending provider, using the order type "Co-sign Required". Provider will co-sign order via normal process

Agent Selection

A. Table 1 shows the estimated onset of action for each agent.

Agent	Estimated Onset
Topical refrigerant (i.e. Pain Ease)	Greater than 1 minute

Agent	Estimated Onset
Topical lidocaine cream	30-45 minutes
Lidocaine local injection	1-3 minutes

B. Figure 1 provides guidance on when to use each agent.

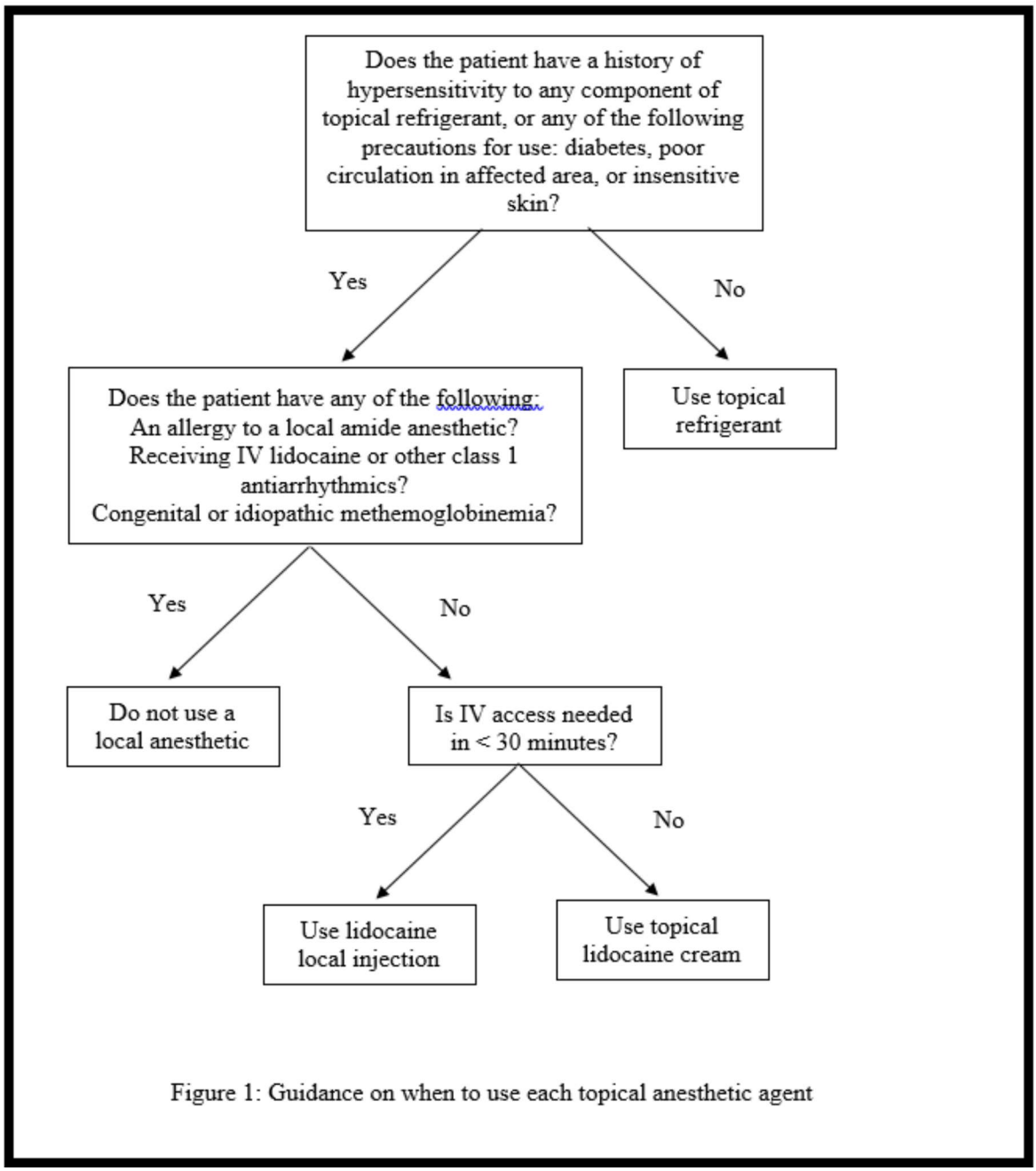

Figure 1: Guidance on when to use each topical anesthetic agent

Instructions for Use

Topical Refrigerant Spray (i.e. Pain Ease)

A. Indication: Use when cannulation is expected to be performed within 1 minute or less

B. Use

1. Disinfect intended cannulation site.
2. Hold can upright and spray intended cannulation site continuously for 4-10 seconds from a distance of 3-7 inches until skin just turns white.
3. Immediately perform venipuncture. Note: If aerosol can quits spraying, turn the white actuator button approximately ½ turn, point the nozzle at the intended site and press the actuator button firmly.

C. Contraindications

1. Topical refrigerant sprays are contraindicated in patients with a history of hypersensitivity to any component of the spray.

D. Precautions

1. Do not spray in the eyes.
2. Do not use on diabetic patients or persons with poor circulation or insensitive skin unless ordered by provider.
3. Over-application may alter skin pigmentation.
4. Apply only to intact skin.

Topical Anesthetic Cream - Lidocaine 4% (LMX4)

A. Indication: Use when cannulation is expected to take place 30-45 minutes after application and the area is able to be occluded for that length of time.

B. Use:

1. Disinfect the site. Apply 2.5 grams (half of the 5 gram tube) of lidocaine 4% (LMX4) cream over a 2" x 2" area of skin surface, to be left in place for *at least* 30 minutes, under an occlusive dressing.
2. Avoid application of excessive amounts of lidocaine 4% (LMX4).
3. A secondary protective covering to prevent inadvertent disruption of the application site may be useful.
4. When lidocaine 4% (LMX4) is used concomitantly with other products containing local anesthetic agents, the amount absorbed from all formulations must be considered. The amount absorbed in the case of lidocaine 4% (LMX4) is determined by the area over which it is applied and the duration of application under occlusion.
5. Although the incidence of systemic adverse reactions with lidocaine 4% is very low, caution should be exercised. The incidence of systemic adverse reactions can be expected to be directly proportional to the area of application and time of exposure.
6. Remove cream before starting IV
7. Maximum applications in 24 hours = 2.?

C. Contraindications/Warnings

1. Contraindicated in patients with known history of sensitivity to local anesthetics or to any other components of the product.
2. Methemoglobinemia: Lidocaine should not be used in those rare patients with congenital

or idiopathic methemoglobinemia and in infants under the age of twelve months who are receiving treatment with methemoglobin-inducing agents. Very young patients or patients with glucose-6-phosphate deficiencies are more susceptible to methemoglobinemia.

3. Do not use if patient is already receiving IV lidocaine or Class I antiarrhythmics (e.g. mexiletine).

D. Precautions

1. When lidocaine 4% (LMX4) cream is used, the patient should be aware that the production of dermal analgesia may be accompanied by the block of all sensations in the treated skin. For this reason, the patient should avoid inadvertent trauma to the treated area by scratching, rubbing, or exposure to extreme hot or cold temperatures until complete sensation has returned.
2. Do not apply near eyes/ears or open wounds.
3. Apply only to intact skin.

Lidocaine 1% Local Injection

A. Indication: Use when anesthetic is recommended and a 30-minute wait time for cannulation is not clinically acceptable.

B. Use:

1. Disinfect the site. Using a 1 mL (tuberculin) syringe, a 0.1 to 0.5 mL intraepidermal or intradermal skin wheal is raised at the planned skin puncture site for the IV cannula. This should leave a raised, blanched wheal. The IV cannula is inserted through this wheal into the vein. This can be repeated (x2) if multiple cannulation attempts are necessary.

C. Contraindications

1. A true allergy to amide local anesthetics is a contraindication. Since this is an elective procedure, any patient expressing a local anesthetic sensitivity should have this omitted.
2. Do not use in patients receiving IV lidocaine or Class I antiarrhythmics (e.g. mexiletine).
3. Methemoglobinemia: Lidocaine should not be used in those rare patients with congenital or idiopathic methemoglobinemia and in infants under the age of twelve months who are receiving treatment with methemoglobin-inducing agents. Very young patients or patients with glucose-6-phosphate deficiencies are more susceptible to methemoglobinemia.

D. Possible Adverse Reactions

1. There is typically about a three second "sting" following the local anesthetic injection. This may be as uncomfortable to the patient as a single, clean, quick venipuncture. It is also common for the patient to still feel a small sharp sensation as the vein itself is entered.

E. Precautions

1. When lidocaine injection is used, the patient should be aware that the production of dermal analgesia may be accompanied by the block of all sensations in the treated skin. For this reason, the patient should avoid inadvertent trauma to the treated area by scratching, rubbing, or exposure to extreme hot or cold temperatures until complete

sensation has returned.

2. Do not apply near eyes/ears or open wounds.
3. Apply only to intact skin.

Documentation

A. When a RN decides that a patient meets the criteria for use they shall write a complete order for the agent used per the attending provider, using the order type "Co-sign Required". Order will be signed by the attending provider.

B. Document location of application, patient tolerance to procedure, and any patient instruction provided.

C. Document medication dose, route on the medication administration record (MAR).

Author:
Cathi Cornelius, PharmD
Reviewed by: Eileen Callaghan (vascular access)

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	3/18/2024
System P&T (On Behalf of Each Site)	Cathi Cornelius: Clin Pharmacy Utilization Spec	3/15/2024
Document Owner	HEATHER TOLFREE: Mgr Pharmacy - CPS	1/30/2024

Applicability

Cadillac Hospital, Charlevoix Hospital, Grayling Hospital, Kalkaska Memorial Health Center, Manistee Hospital, Munson Medical Center, Otsego Memorial Hospital, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Management of Blood Pressure During Dialysis Therapy

Purpose

To provide a process for managing blood pressure (BP) during dialysis therapy.

Procedure

A. BP will be monitored at initiation, at 30 minute intervals or more frequently if needed and at the discontinuation of the dialysis treatment. This includes pre and post sitting and standing BPs. If standing pressures are not applicable, document reasoning. Patient will be closely monitored by the nurse / dialysis technician.

B. Assess and document the access site is visible and lines secure every 30 minutes with BP check.

C. Hypotension is defined as a decrease in the systolic blood pressure (SBP) by greater than 20mmHg or a decrease in the MAP by 10 mmHg associated with symptoms.

D. Signs and symptoms include:

1. Low BP
2. Weakness
3. Dizzy or lightheaded
4. Nausea
5. Vomiting
6. Abdominal pain
7. Yawning

8. Sighing
9. Muscle cramps
10. Tachycardia
11. Restless
12. Anxious
13. Pale
14. Diaphoretic or cold clammy skin

E. Severe signs and symptoms
    1. Loss of consciousness
    2. Chest pain
    3. Ischemic events

Symptomatic Interdialytic Hypotension

A. Nursing Actions:
    1. Lay in supine / trendelenburg position
    2. Place in minimum ultrafiltration
    3. Administer Normal Saline (NS) intravenous (IV) fluid bolus of 200ml
    4. Oxygen at 2L/minute nasal cannula (NC), as needed (PRN)
    5. Monitor BP every 5 minutes until symptoms / BP improves
    6. If resolved, consider sitting patient up, resuming ultrafiltration (UF) and adjusting UF goal.
    7. If unresolved and symptoms persist, repeat NS IV bolus of 200 ml dependent on patient condition and nursing assessment. Continue with supine position and minimum UF.
    8. Monitor BP every 5 minutes.
    9. If hypotension or symptoms persist consider returning blood and stopping treatment. Potential transfer to emergency department (ED) based on patient condition and nursing assessment. Contact the nephrologist or nurse practitioner (NP) on call.
        a. Management/Prevention: Accurate dry weight (DW) assessment, consider dialysis prescription adjustments i.e. (lower temp to 36.5, UF profiling, sodium modeling) labs, medication review, infection, fluid and dietary education. Obtain orders if needed.

Asymptomatic Interdialytic Hypotension

A. Nursing Actions:
    1. Lay in supine position

2. Place in Minimum UF
3. Monitor BP every 5-10 minutes PRN
4. Consider causes of inaccurate BP (check and reposition cuff, retake BP for accuracy)
5. Consider giving NS IV bolus of 100 cc based on patient condition and nursing assessment
6. If resolved, consider sitting patient up, resuming UF and adjusting UF goal
7. If unresolved, consider repeating NS IV bolus of 100cc based on patient condition and assessment
8. Contact the nephrologist or NP on call if needed.

High BP Greater Than 180/100 (Pre, Intra, Post Dialysis Treatment)

A. Volume expansion is the major cause of high BP in dialysis patients. Reducing volume is the primary strategy to improve BP. Hypertension is not typically diagnosed using pre and post dialysis BP readings. Patient recorded home BP readings are very helpful in screening for hypertension. Patient condition and nursing judgment should be included in patient assessment and determining necessary follow up with high BP during dialysis.

B. Nursing Actions:
    1. Assess for signs and symptoms of high BP
    2. Complete nursing assessment to determine fluid volume status and UF goal. Consider increasing UF goal and challenging weight by 1-2 liters, not to exceed 2 liters per hour or 6 liters per treatment. Call provider for direction if needed.
    3. Hold sodium modeling if ordered
    4. Hold Heparin if BP is greater than 200/110, may administer when BP is less than 180/100
    5. Monitor BP for response to initiation of dialysis and a reduction in BP with UF
    6. Administer PRN BP medications ordered during dialysis if BP does not improve with UF after initiation of dialysis
    7. If hypertension persists contact the NP or nephrologist

C. Follow Up:
    1. Review BP medications and prescribed schedule with patient to identify potential causes
    2. Counsel patient on limiting salt intake, consult registered dietitian (RD) for dietary education
    3. Consider requesting patient record BP at home twice daily for 4 days for review
    4. Assess accuracy of DW

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	10/12/2023
Policy & Procedure Chair	Wendy Walter: Coord Patient Care	10/4/2023
Dialysis Educator	Aaron Buckner: Coord Patient Care	10/3/2023
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	9/25/2023

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Owner	Ryan Waldron: Asst Mgr Nursing Services
Area/ Department	Vascular Access Specialty Team
Applicability	MMC, Cadillac, Charlevoix, KMHC, POMH
Tags	Policy

Peripherally Inserted Central Catheter: Insertion, Dressing Change, Removal, Exchange

Purpose

To provide a process for inserting, dressing changes, removing and exchanging a Peripherally Inserted Central Catheter (PICC).

Definition

1. **Peripherally Inserted Central Catheter (PICC):** Preferred tip location is in the distal third of the superior vena cava near its junction with the right atrium.
    a. PICCs may be manufactured as single or multi-lumen device, power-injectable and/ or anti-infective.

Procedure

Insertion and Removal

A. A PICC is a central venous access device (CVAD) and requires licensed independent practitioner (LIP) order entry.

B. A PICC may be inserted at the bedside by a Credentialed Registered Nurse (RN) using Modified Seldinger Technique.
    1. Criteria for initial credentialing:
        a. Attendance at a Continuing Education Unit (CEU) approved PICC

education.

b. Four successful insertions assisted by a PICC credentialed intravenous (IV) therapist.

2. Criteria for maintaining credentialing:

a. Twelve successful placements per year.

C. Guidelines for Neonatal and Pediatric PICC insertion are as follows:

1. 1 day -1 year: neonatal intensive care unit (NICU) placement
2. 1-8 years: Interventional Radiology placement
3. 8-18 years: VAST placement **dependent upon ability of patient to tolerate bedside procedure, as decided collaboratively by patient, PICC team, provider, patient's nurse and parent(s) or guardian(s).**

D. The central line insertion bundle utilizing maximum barrier precautions and "time out" procedures will be used.

E. Venous ultrasound will be used to assess and visualize vessel and to aid in insertion of catheter. A visual image will become a permanent part of the medical record.

1. Site selection should avoid areas of pain on palpation or veins that are compromised (infiltrated, phlebotic, sclerosed or corded).
2. Veins in an upper extremity should be avoided on the side of breast surgery with axillary node dissection, after radiation therapy to that side, or with lymphedema.
3. Avoid affected extremity from a stroke.
4. Avoid placing PICC on same side as pacemaker or Advanced Critical Device (ACD), if possible.

*A collaborative discussion with the LIP and the patient should take place related to the risks and benefits of using a vein in an affected extremity.

F. There are specific catheter selection and placement recommendations for patients with chronic kidney disease (CKD). Review each patient's estimated glomerular filtration rate (GFR) and identify CKD stage, presence of dialysis catheter or arteriovenous (AV) fistula. Confer with nephrology and/or ordering provider, if indicated, for appropriate device placement.

G. Consider need for anti-infective device, when indicated, and after checking allergies. Indications may include immunocompromised patients and those with previous line infections or those receiving parenteral nutrition.

H. Tip confirmation must be obtained by either:

1. Use of chest X-Ray
2. Vascular Positioning System (VPS) blue bull's eye or 3CG Technology

a. *If no blue bulls eye or 3CG Technology confirmation, tip location must be confirmed with chest x-ray. VPS and 3CG should not be relied upon when there is no identifiable p-wave, in atrial fibrillation, and with pacemaker insertion

3. **Note**: Literature reports indicate that the ideal tip location is at the cavo-atrial junction. Tips lying high in the superior vena cava and above have been associated with higher rates of thrombosis. Confirmation of the central catheter tip location will be obtained and documented immediately after device insertion and for suspected catheter migration or complications. Tip location other than vena cava should be determined in collaboration with the healthcare team.

I. Institute precautions:
    1. Apply "Limb Alert" band to cannulated arm
    2. Blood pressure cuffs or tourniquets should not be placed on the cannulated arm.
    3. Patients should be instructed to avoid any pressure on the axillary area of the cannulated arm.
    4. Avoid scissors and sharps near catheter
    5. Avoid injections in cannulated arm

J. In extreme cases and only when not in the presence of suspected Bloodstream Infection (BSI), PICCs may be exchanged when other venous access unavailable, with a LIP order, by a PICC credentialed RN competent in the procedure. Confirmation of tip location must be obtained following an exchange procedure.

Care and Monitoring

A. Follow Central Line Maintenance Bundle:
    1. Daily assessment of need should be performed in collaboration with the health care team and device removed when no longer needed or clinically appropriate. Indications for removal may include but are not limited to signs or symptoms of infection, malposition or dysfunction.
    2. Hand hygiene
    3. Transparent semi-permeable membrane (TSM) dressings will be changed every 7 days and immediately when integrity of the dressing is compromised, moisture or drainage is present or when further assessment is needed. Change gauze dressings every 48 hours.
    4. Change injection caps with weekly dressing changes and when compromised such as visible blood noted in cap.
    5. Disinfect injection caps using a 5 second scrub with a swab containing a combination of chlorhexidine/alcohol followed by a 5 second dry time prior to accessing the device.
    6. Daily, chin to toe, chlorhexidine bath using prepackaged chlorhexidne bath cloths. Substitute with soap and water or prepackaged prepared bath cloths for patients allergic to chlorhexidine.

B. Securement device will be used.
    1. Manufactured securement device is recommended.
    2. May use sterile skin closures and or sutures if indicated. (Sutures require advanced

practice competency)

C. An infusion pump is required for delivery of IV solutions via a PICC. Refer to Electronic Infusion Device Policy (May be modified for home or alternative settings). See Administration of Pharmaceuticals for medications that should be filtered.

D. Blood samples may be obtained via a PICC. Refer to Blood Sampling from a Venous Access Device policy.

E. All connections must be luer locked. Lumens are to be clamped when open to air or not in use.

F. See Flushing Locked Devices policy for flushing guidelines.

G. Chlorhexidine solution is preferred for skin antisepsis and a chlorhexidine disk or chlorhexidine-impregnated dressing will be placed at insertion site unless contraindicated by allergies.

    1. Providone- iodine or 70% alcohol may be used for patients allergic to chlorhexidine.
    2. **Use of chlorhexidine gluconate is contraindicated for patients under 2 months of age. Do not use chlorhexidine disk. Disinfect skin with povidone-iodine. Allow to dry and remove with sterile saline wipes prior to TSM application.**

H. External catheter length will be measured and documented with every dressing change. External catheter will be defined as length of exposed catheter from insertion site to proximal end of winged portion of catheter. The provider will be notified if malposition is suspected.

I. To prevent catheter damage, use 10 mL barrel syringes for administration of medications or flush solutions and to check patency. Administration of small quantities of medication should be given in a syringe appropriately sized for the dose required following confirmation of catheter lumen patency.

J. The provider will be notified of a non-functioning lumen for further treatment as indicated. See policy Clearing Occluded Central Venous Catheters.

Patient Education

A. Instruct patients in signs and symptoms of catheter complications and emergency care.

B. Further instructions or formal teaching programs will be initiated as patient condition warrants.

Documentation

A. On appropriate place in patient's medical record for **insertion** procedures:

    1. Date, time and signature of person performing procedure.
    2. Type/brand and gauge of catheter.
    3. Site and vein of cannulation.
    4. Number of attempts and method used.
    5. Local anesthetic, if used.
    6. Length of catheter from Zero to tip.

7. Inserted length of catheter. Station is from insertion site to Zero.
8. Upper arm circumference measured at 5 cm above cannulation site.
9. Patient tolerance.
10. Any problems encountered and corrective action taken.
11. Teaching and patient response.
12. Confirmation of tip location.

B. For **dressing change** procedures:
    1. External length of catheter from hub to insertion site.
    2. Date, time and signature of person performing procedure.

C. **By exception only:**
    1. Condition of skin and cannulation site.
    2. Any complication encountered and corrective action taken.
    3. Upper arm circumference **if clinically indicated**.

D. For **removal** procedure:
    1. Date, time and signature of person performing procedure.
    2. Appearance of catheter ("intact").

E. **By exception only**:
    1. Condition of skin and cannulation site.
    2. Any problems encountered and corrective action taken.
    3. If culture obtained.

F. For **catheter exchange** procedure:
    1. Date, time and signature of person performing procedure.
    2. Length of catheter removed.
    3. Appearance of tip.
    4. Condition of skin and cannulation site.
    5. Type/brand, gauge and length of catheter exchanged.
    6. Local anesthetic, if used.
    7. External length of catheter.
    8. Patient tolerance.
    9. Problems encountered and corrective action taken.
    10. Confirmation of tip location.

Dressing Change

A. See on-line Procedures Manual

Insertion

A. Applies to credentialed RN (Munson Medical Center (MMC) only).

B. See on-line Procedures Manual.

C. Follow manufacturer's directions for specific catheter insertion and utilization of VPS device.

Removal

A. Applies to credentialed RN (MMC only).

B. See on-line Procedures Manual.

Catheter Exchange

A. Applies to credentialed RN (MMC only)

References

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    e. https://procedures.lww.com/lnp/view.do?pId=656839
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Attachments

Image 01

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	10/12/2023
Coord Patient Care	Ryan Waldron: Coord Patient Care	10/4/2023
Document Owner	Amber Bowers: Mgr Nursing Services	10/3/2023

Applicability

Cadillac Hospital, Charlevoix Hospital, Kalkaska Memorial Health Center, Munson Medical Center, Paul Oliver Memorial Hospital

Standards

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MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Post Dialysis Disinfection and Cleaning of the B. Braun Dialog Plus

Purpose

To prevent patient injury from biologically or chemically contaminated machinery during hemodialysis treatments.

Procedure

Disinfection

A. All dialysis machines will be disinfected by citric thermal program at the end of each day of use or every 48 hours prior to patient care.

B. Duration of chemical disinfection: 35-55 minutes.

C. All dialysis patient stations will be cleaned with a hospital approved disinfectant after every treatment, including the wall box.

Process

A. When the patient is disconnected from the machine, ensure all concentrate wands and dialyzer connectors are reconnected to their home positions and ensure the machine is in the disinfect mode.

B. Confirm machine conductivity is "(0)" on the bar graph prior to disinfect.

C. Ensure the Citric Acid supply line from the jug is connected to the disinfectant intake port and

there is an adequate supply of Citric Acid 50%.

D. Select the citric thermal program mode from the disinfect program menu. Press the test tube with the yellow moon icon (this starts the disinfect process). Confirm conductivity registers at (0) before turning machine off.

E. If you are disinfecting prior to dialysis, when the citric thermal program is completed and the conductivity registers zero on the bar graph, confirm the machine to be free of disinfectant by pressing the lit confirm button. Begin machine set-up.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	4/2/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	3/31/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	3/11/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	3/11/2025

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Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

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MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH

Recirculation-Temporary Interruption of the Hemodialysis Treatment

Purpose

To determine the procedure to temporarily interrupt a hemodialysis treatment to allow the patient to attend the bathroom or use a commode at the bedside, when a bedpan is not available, tolerated, or appropriate. This procedure is also used to temporarily interrupt dialysis to troubleshoot access problems or air in the extracorporeal circuit.

Procedure

Alert

A. Hypotensive or vasovagal episodes frequently occur in the bathroom. To prevent potential hypotensive episodes due to hypovolemia while attend the bathroom/commode, the blood in the circuit must be return to the patient before initiating this procedure per machine-specific and program/unit guidelines (both arterial and venous side of a patient's bloodline). Blood pressure both sitting and standing taken to ensure stability. When patient returns back to station treatment is initiated per policy.

B. Maximum time that blood-tinged normal saline or substitution fluid can be circulated in the extracorporeal circuit is 30 minutes. After 30 minutes bloodlines must be discarded and replaced to continue treatment.

Equipment

A. Arteriovenous fistula/graft (AVF/AVG):

1. Personal Protective Equipment (PPE) – Face shield or goggles and mask, and gown, patient mask for a patient with a central venous catheter.
2. 2 pairs clean gloves (non-sterile)
3. 2-10mL normal saline prefilled syringes
4. Clean drape
5. 4x4 sterile gauze
6. Approved microbial cleansing pad for both AVF/AVG and Central Venous Catheter (CVC)
7. Paper tape
8. Sterile recirculation adaptor/connector
9. Biohazard waste bag
10. Patient masks for CVC

Disconnect Patient

**Saline must be clamped while in recirculation.*

A. Perform hand hygiene and apply appropriate PPE for vascular access.
    1. Record baseline data before initiating the procedures to ensure the patient is stable.
B. Check vital signs (blood pressure (BP) and heart rate (HR)) and record machine parameters
    1. To decrease risk of hypotensive episodes due to hypovolemia.
C. For bathroom/commode use, return the patient's blood per machine-specific and program/unit guidelines. Not required for access troubleshooting. Access points both catheter and fistula needles need to be flushed with 10cc of 0.9% normal saline, clamped closed and secured with tape (fistula needles).
D. Touch Red Man icon to initiate blood return.
E. Clamp arterial line and patient's arterial access.
F. Disconnect arterial line from patient.
G. Connect arterial line to the y-port of the saline line.
H. Flush the patient's arterial access with 10 cc prefilled 0.9% normal saline syringe.
I. Un clamp saline line clamps (upper and lower clamps) and arterial line.
J. Press confirm key to start reinfusion. Pump will stop after 260-280mL of saline has been infused.
K. Clamp arterial line and saline line clamps.
L. Disconnect arterial line from the y-port of the saline line.
M. Connect the arterial line to a recirculation device.
N. Clamp the venous line and the patient's venous access.
O. Disconnect venous line from the patient.

P. Connect venous line to other end of the recirculation device.

Q. Flush the patient's venous access with 10 cc prefilled 0.9% normal saline syringe.

R. Unclamp the arterial and venous lines.

S. Set the pump speed to 150mL/min and start the pump.

T. Document the reason for the temporary interruption of dialysis treatment and the approximate amount of time the patient was in "recirculation" in the unit specific health record.

U. Document vital signs, machine parameters, patients' response, access status and interventions in the unit-specific health record.

Reconnect Patient

A. Perform hand hygiene, Don PPE (Face shield, mask, gown and gloves)

B. Stop the dialysis pump

C. Clamp both the arterial and venous access line.

D. Verify patency of the patients access. Reconnect per policy.

E. Hit the Green Man to restart the dialysis treatment.

F. Document in unit-specific health record the patient's BP, HR, patient's response, and access status.

Reference

1. BC Renal (2018). "Circle Protocol for Temporary Interruption of Dialysis". Retrieved from www.bcrenal.ca on 11/15/2021.

Attachments

✎ Recirculation-Temporary Interruption of the Hemodialysis Treatment .docx

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	5/10/2023
System Director of Infection Prevention	Joanna Benchley: Sys Dir Infection Prevention	5/10/2023

Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	5/10/2023

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

Status **Active** PolicyStat ID **15332139**

Origination	2/27/2008
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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Tunnelled Dialysis Central Line Catheter Caps and Dressing Change

Purpose

To provide a process for changing dialysis tunneled catheter dressings and caps.

Definitions

1. **Aseptic:** preventing infection.
2. **Sterile:** free from living organisms and especially microorganisms.

Policy

A. Dialysis tunneled catheter dressing changes should occur every seven days, if a Clorhexidine gluconate (CHG) Tegaderm or Bio Patch with occlusive dressing is being used, or more often as needed using strict aseptic technique. If a Bio Patch or CHG is contraindicated catheter dressing is to be completed every treatment, per Nephrologist order. If after eight weeks the catheter site is intact without signs of infection, the dressing may be switched to a non-occlusive dressing. If unable to visualize catheter If dressings will be discontinued, refer to the Tunneled Hemodialysis Catheter Care at Home policy.

B. Change catheter caps weekly and as needed using aseptic technique.

Supplies

A. Dressing Change:

1. Sterile gloves
2. Clean gloves
3. Chlorhexidine gluconate skin preparation
4. Chlorhexidine gluconate Tegaderm dressing and/or Bio Patch with occlusive dressing
5. Two (2) masks
6. Bordered Occlusive Catheter Dressing

B. Cap Change
    1. Two (2) masks
    2. Blue pad
    3. Two (2) Tego catheter caps
    4. One (1) pack sterile gloves
    5. Chlorhexidine Prep Wipes/Pads

Procedure

Dialysis Tunneled Catheter Dressing Change

A. Perform hand hygiene.
B. Don clean gloves.
C. Apply mask to patient and self.
D. Remove old dressing from catheter exit site and discard.
E. Examine exit site for signs of infection, redness, or drainage.
F. Remove clean gloves.
G. Perform hand hygiene.
H. Apply sterile gloves.
I. Using the chlorhexidine gluconate skin prep, cleanse the catheter exit site using gentle back and forth strokes for approximately 30 seconds and allow to dry for approximately 30 seconds.
J. Apply chlorhexidine gluconate impregnated disk, print side up and slit opening facing down, then rotate to a slight 5 degree angle to assure securement.
K. Apply catheter dressing, sealing all edges; write date and initials on dressing.
L. Remove mask from patient and self, remove sterile gloves, and perform hand hygiene.
M. Document catheter dressing change per policy.

Central Line Catheter Cap Change

A. Perform proper hand hygiene.

B. Place mask of patient and self.

C. Place blue pad under catheter.

D. Open sterile gloves, place caps within sterile field.

E. Open Chlorhexidine prep pads within the edge of sterile field, being careful not to contaminate gloves.

F. Perform hand hygiene and apply sterile gloves.

G. Assure catheter clamps are closed.

H. Hold catheter hubs aseptically; do not allow hubs to touch non-sterile surfaces.

I. Remove old cap and discard.

J. Scrub hub (threads, sides, and end) with sterile hand, scrub with friction for 5 seconds and remove any residue from hub with Chlorhexidine prep pad. Allow to dry for 5 seconds.

K. Apply new catheter cap using strict aseptic technique.

L. Apply a Swab Cap to the end of the Tego cap using strict aseptic technique if **not** initiating dialysis treatment at this time.

M. Repeat steps 6-10 with second lumen.

N. Leave catheter hubs "open" (uncapped) for the shortest time possible, always handle the catheter hubs aseptically.

O. Remove gloves and perform hand hygiene.

P. Document Tego cap change, application of the Swab Cap per policy.

References

1. Hemodialysis Central Venous Catheter Scrub-the-Hub Protocol. (n.d.). Retrieved from:? http://www.cdc.gov/dialysis/PDFs/collaborative/Hemodialysis-Central-Venous-Catheter-STH-Protocol.pdf
2. Merriam Webster Medline Dictionary (2014).? Retrieved from:? http://www.merriam-webster.com/medlineplus/aseptic.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	3/1/2024
Policy & Procedure Chair	Wendy Walter: Coord Patient Care	3/1/2024

Dialysis Educator	Aaron Buckner: Coord Patient Care	2/29/2024
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	2/29/2024

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Last Revised	1/9/2025
Next Review	1/9/2028
Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Water Quality Testing for Renal Dialysis Equipment

Purpose

To provide a process for testing water quality for renal dialysis equipment.

Procedure

A. Water used in renal dialysis must meet the standards recommended by the Association of Advanced Medical Instrumentation (AAMI).

B. The Biomedical Engineering Department is responsible for ensuring that all chemical and microbiological testing is performed on water used for renal dialysis. The water quality testing will be performed based on the regulations, manufacturers' recommendations and trending results.

   1. Activities include: microbiological testing, chloramine testing, water hardness testing, checking for residual sterilant and completion of the daily water log.

C. These duties can be delegated to trained staff that has passed competencies that corresponds to the required testing.

   1. Initial and ongoing competency assessments will be performed in accordance with Munson Healthcare's (MHC) Competency Assessment and Verification policy

D. The results of all microbiological testing will be presented to the Quality Assurance Committee (QAPI) and kept in the QAPI manual.

Daily Reverse Osmosis (RO) Logs (Stationery and

Portable)

A. When RO Units are being used to provide dialysis treatments, daily logs must be complete in its entirety prior to initiating treatment.

B. In the event the dialysis unit closes early or preventative maintenance is being performed not requiring additional testing, all areas on the Daily RO logs must be acknowledged for that day. Staff person must indicate why additional testing was not required.

C. Daily RO Logs less than 30 days will be stored in the Water Room; greater than 30 days will be stored in the Bio Medical Office on site.

Verification of Water Hardness Post Water Softener

A. Water hardness post water softener will be monitored per the Centers for Medicare & Medicaid Services (CMS) requirements V190. Water hardness will be monitored at the beginning and end of the day.

B. Hardness testing of water is done at the beginning prior to the first set of patients and at the end of each day during and/or after the last shift of patients.

C. Sample is obtained immediately post- softener.

D. Collect a sample softened water in a clean container.

E. Immerse the indicator pad into the sample for 1 second and remove.

F. Wait 10 seconds and compare the color of the indicator pad to the color chart on the label of the bottle.

G. Document findings in the Daily Water Log.

H. Notify the Patient Care Coordinator or designee who will notify the Biomedical Department for follow up.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	1/9/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	1/2/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	12/19/2024

Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	12/17/2024

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Last Revised	12/30/2025
Next Review	12/30/2026

Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Administration of Blood Components in the Dialysis Population

Purpose

To provide a process for administering blood components on hemodialysis.

Procedure

A. Blood transfusions performed on a outpatient basis will be deferred to the Munson Medical Center (MMC) Lab for type and cross, to Munson Healthcare (MHC) Infusion Clinic for transfusion.

B. Blood transfusions performed in MMC Inpatient Dialysis department and by the Munson Healthcare Cadillac Hospital (CAD) Hemodialysis Department will be performed by registered nurses (RN) who have demonstrated competency, per the Blood Transfusion Therapy & Transfusion Reaction policy.

Document ID: 108.007

Attachments

PRBC Transfusion during Dialysis Competency.docx

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	12/30/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	12/29/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	12/3/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	12/1/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

Status Active PolicyStat ID 19152722

MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Effective	12/4/2025
Last Revised	12/4/2025
Next Review	12/4/2026

Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Procedure

Altering Electrolyte Concentrations of Dialysate for Hemodialysis

Purpose

To provide a process for altering electrolyte concentrations of Dialysate for Hemodialysis.

Procedure

A. The standard dialysates are 2 mEqK/2.5 mEqCa and 3/2.5 I. If the patient's electrolytes remain within dialysis reference range, the dialysate will be changed to a standard dialysate. This procedure can only be performed by a registered nurse (RN).

Adding Potassium Chloride

A. Verify physician's order for potassium chloride in dialysate.

B. Determine amount of milliequivalent increase required. Each packet of potassium chloride additive 6.3 gm will raise the potassium concentration of 3.78 L of dialyate (1 gallon) 0.5 mEq/ L.

C. Prior to adding packet, the RN will verify both the original bath concentration of the jug and the new concentration.

D. Add entire content of packet(s) to a gallon jug of concentrate, shake to dissolve and label appropriately.

Adding Calcium Chloride

A. Verify physician's order for calcium chloride in dialysate.

B. Determine amount of milliequivalent increase required. Each packet of calcium chloride additive 6.3 gm will raise the calcium concentration of 3.78 L of dialysate (1 gallon) 0.5 mEq/L.

C. Prior to adding packet, the RN will verify both the original bath concentration of the jug and the new concentration.

D. Add entire content of packet(s) to 1 gallon jug of concentrate, shake to dissolve and label appropriately.

Nursing Action

A. Double check by two staff persons will include checking for correct bath prior to initiation of hemodialysis.

B. If incorrect bath discovered during double check, change to correct bath immediately.

C. If incorrect bath discovered during treatment:

1. Check order for any bath change since last treatment.
2. If no change, change bath immediately.
3. Complete adverse occurrence report.
4. Observe patient for any changes in condition and document.
5. Notify nephrologist and document.

Document ID: 108.008

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	12/4/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	12/1/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	12/1/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	12/1/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

Procedure: Apheresis, initiating treatment

Checklist: Apheresis, initiating treatment through a temporary or tunneled central venous access catheter

Evaluator's Name: _____ **Examinee's Name:** _____

Evaluator's ID: _____ **Examinee's ID:** _____

Evaluator's Dept: _____ **Examinee's Dept:** _____

Date: _____ **Meets criteria/Does not meet criteria:** _____

Select Evaluation Method:

☐ Clinical Observation ☐ Documentation Review

☐ Demonstration ☐ Verbalization

Apheresis, initiating treatment through a temporary or tunneled central venous access catheter

Objective: To initiate apheresis treatment through a temporary or tunneled central venous access catheter according to the standard of care.

Checklist Step	Comments
Y- Meets; N- Does not meet; I- Not Applicable	
__ Avoid distractions and interruptions when preparing and administering the anticoagulant, replacement fluid, flush solution, and other medications.	
__ Verify the practitioner's orders for the apheresis modality, vascular access type and site, type of apheresis procedure, number and frequency of treatments, exchange volume, anticoagulant therapy, replacement fluid, type of flush solution, calcium gluconate infusion (if needed), frequency of vital signs measurements and notification parameters, and any premedications (if needed).	
__ If required by your facility, confirm that informed consent has been obtained and that the signed consent form is in the patient's medical record.	
__ Gather and prepare the necessary equipment and supplies.	
__ Perform hand hygiene.	
__ Confirm the patient's identity using at least two patient identifiers.	
__ Provide privacy.	

__ Explain the procedure to the patient and family (if appropriate) according to their individual communication and learning needs.

__ Raise the bed to waist level before providing care.

__ Perform hand hygiene.

__ If required by your facility, attach the patient to a cardiac monitor and pulse oximeter. Make sure that alarm limits are set appropriately for the patient's current condition and that alarms are turned on, functioning properly, and audible to staff.

__ If not already completed, complete an apheresis pretreatment assessment.

__ Administer supplemental oxygen as needed and ordered.

__ Obtain the premixed prescribed anticoagulant and replacement fluid (if applicable). Administer pharmacy-prepared or commercially available products whenever possible. Make sure that the label states clearly the patient's name and identification number; the solution's name, dosage, concentration, administration route, frequency of administration, and infusion rate; the date and time the solution was prepared; and the solution's expiration date.

__ Compare the solution label to the order in the patient's medical record.

__ Check the expiration date on the solution. If the solution is expired, return it to the pharmacy and obtain new solution.

__ Visually inspect the solution for particles, discoloration, or other loss of integrity. Don't administer the solution if integrity is compromised.

__ Discuss any unresolved concerns about the solution with the patient's practitioner.

__ Perform hand hygiene.

__ Administer premedication, if ordered, following safe medication administration practices.

__ Perform hand hygiene.

__ Put on gloves and, as needed, other personal protective equipment.

__ Assess the exit site for signs of infection, skin irritation, catheter dysfunction, or other complications.

__ Inspect the exit site for signs of catheter migration.

__ Check the integrity of the catheter hubs, caps, and dressing.

__ Notify the practitioner or vascular access team of any findings that require intervention.

__ Determine whether the patient had any problems with the prior apheresis treatment, if applicable.

__ Compare your assessment findings to previous treatment records, if applicable.

__ Remove and discard your gloves and, if worn, other personal protective equipment.

__ Perform hand hygiene.

__ Assist the patient to a comfortable position.

__ Assist the patient in putting on a mask, if directed by your facility. Alternatively, instruct the patient to turn the head away from the access site and to avoid talking during the procedure.

__ Perform hand hygiene.

__ Place a fluid-impermeable pad or sterile towel or pad under the central venous access catheter so that the limbs of the catheter are on top of the pad or drape.

__ Put on a mask.

__ Perform hand hygiene.

__ Put on gloves.

__ Identify the arterial (red) and venous (blue) ports.

__ Clamp the catheter.

__ Remove the caps and then disinfect the catheter hubs with chlorhexidine (or povidone-iodine or

alcohol, if indicated), using a new antiseptic pad for each hub. Scrub the sides and end of each hub thoroughly with friction, making sure to remove any residue. Don't allow the catheter hubs to touch nonsterile surfaces.

__ While maintaining the sterility of the syringe tip, attach the 10-mL syringe, unclamp the central venous access catheter, and aspirate 2 to 5 mL of blood and locking solution from the lumen. Discard the syringe in a puncture-resistant sharps container.

__ Perform a vigorous mechanical scrub of the arterial port of the catheter hub for at least 5 seconds using an antiseptic pad. Allow it to dry completely.

__ While maintaining the sterility of the syringe tip, attach a 10-mL prefilled syringe or a syringe specifically designed to generate lower injection pressure containing preservative-free normal saline solution to the arterial port, flush the port, and then close the clamp. Repeat the procedure with the venous port.

__ Follow these steps if the practitioner prescribes blood or blood products:

__ Obtain the blood or blood product from transfusion services. When receiving the blood or blood product from the transfusion services representative, verify the patient's two independent identifiers, ABO group, and Rh type; the donor's identification number, ABO group, and (if required) Rh type; the interpretation of crossmatch tests (if required); any special transfusion requirements (if applicable); the expiration date and time (if applicable); and the date and time that the blood was issued. Wear gloves or transport the blood product units in a container that prevents direct contact with the blood unit bag.

__ Remove and discard your gloves, if worn for transport.

__ Perform hand hygiene.

__ Put on gloves and, as needed, other personal protective equipment.

__ Use a two-person verification process in the presence of the patient to match the blood or blood product with the practitioner's order and the patient with the blood product.

__ Check the expiration date on the blood bag, and observe for leaks, abnormal color, clots, excessive air or bubbles, and unusual odor. Return expired or abnormal blood to transfusion services.

__ After checking all the identifying information, sign the transfusion form to indicate that the identification was correct and that you're the person starting the transfusion.

__ If your facility uses bar-code technology, use it as directed by your facility.

__ Remove and discard your gloves.

__ Perform hand hygiene.

__ Put on new gloves.

__ Remove the syringe from the arterial port. While maintaining sterile no-touch technique, attach the arterial port to the arterial line connected to the dialyzer or apheresis machine. Trace the tubing from the patient to the point of origin. Repeat with the venous port.

__ Open the clamps on the arterial and venous tubing.

__ Keep the insertion site and all connections visible during the procedure.

__ Confirm that the anticoagulant, replacement fluid, and normal saline solution tubings are connected properly before initiating the procedure.

__ Begin the procedure following the manufacturer's instructions for the apheresis system used.

__ After establishing the extracorporeal circuit, obtain the patient's vital signs within the first few minutes of treatment.

__ Monitor the patient's vital signs every 15 to 30 minutes during the procedure or as needed according to the patient's condition or the practitioner's order.

__ Monitor pump flow rates, the anticoagulant flow rate, other anticoagulant parameters, cumulative volumes, and system pressure readings every 15 to 30 minutes or as directed by your facility.

__ Return the bed to the lowest position.

__ Remove and discard your gloves and other personal protective equipment.

__ Perform hand hygiene.

__ Document the procedure.

Procedure: Apheresis, initiating treatment

Checklist: Apheresis, initiating treatment through an arteriovenous fistula or graft

Evaluator's Name: _____ **Examinee's Name:** _____

Evaluator's ID: _____ **Examinee's ID:** _____

Evaluator's Dept: _____ **Examinee's Dept:** _____

Date: _____ **Meets criteria/Does not meet criteria:** _____

Select Evaluation Method:

☐ Clinical Observation ☐ Documentation Review

☐ Demonstration ☐ Verbalization

Apheresis, initiating treatment through an arteriovenous fistula or graft

Objective: To initiate apheresis treatment through an arteriovenous (AV) fistula or graft according to the standard of care.

Checklist Step	Comments
Y- Meets; N- Does not meet; I- Not Applicable	
__ Avoid distractions and interruptions when preparing and administering the anticoagulant, replacement fluid, flush solution, and other medications.	
__ Verify the practitioner's orders for the apheresis modality, vascular access type and site, type of apheresis procedure, number and frequency of treatments, exchange volume, anticoagulant therapy, replacement fluid, type of flush solution, calcium gluconate infusion (if needed), frequency of vital signs measurements and notification parameters, and any premedications (if needed).	
__ If required by your facility, confirm that informed consent has been obtained and that the signed consent form is in the patient's medical record.	
__ Gather and prepare the necessary equipment and supplies.	
__ Perform hand hygiene.	
__ Confirm the patient's identity using at least two patient identifiers.	
__ Provide privacy.	

__ Explain the procedure to the patient and family (if appropriate) according to their individual communication and learning needs.

__ Raise the bed to waist level before providing care.

__ Perform hand hygiene.

__ If required by your facility, attach the patient to a cardiac monitor and pulse oximeter. Make sure that alarm limits are set appropriately for the patient's current condition and that alarms are turned on, functioning properly, and audible to staff.

__ If not already completed, complete an apheresis pretreatment assessment.

__ Administer supplemental oxygen as needed and ordered.

__ Obtain the premixed prescribed anticoagulant and replacement fluid (if applicable). Administer pharmacy-prepared or commercially available products whenever possible. Make sure that the label states clearly the patient's name and identification number; the solution's name, dosage, concentration, administration route, frequency of administration, and infusion rate; the date and time the solution was prepared; and the solution's expiration date.

__ Compare the solution label to the order in the patient's medical record.

__ Check the expiration date on the solution. If the solution is expired, return it to the pharmacy and obtain new solution.

__ Visually inspect the solution for particles, discoloration, or other loss of integrity. Don't administer the solution if integrity is compromised.

__ Discuss any unresolved concerns about the solution with the patient's practitioner.

__ Perform hand hygiene.

__ Administer premedication, if ordered, following safe medication administration practices.

__ Perform hand hygiene.

__ Put on gloves and, as needed, other personal protective equipment.

__ Compare the patient's access extremity with the other extremity.

__ Assess the access extremity for swelling, collateral veins, a change in color or temperature, decreased sensation, movement limitations, and prolonged capillary refill time in the nail beds.

__ Assess the AV fistula or AV graft for redness, warmth, drainage from previous needle sites, hematoma, ecchymosis, rash, aneurysm, pseudoaneurysm, breaks in the patient's skin, or stenosis.

__ Auscultate the AV fistula or AV graft for a bruit.

__ Palpate over the AV fistula or AV graft for a thrill.

__ Determine whether the patient had any problems with the prior apheresis treatment, if applicable.

__ Compare your assessment findings to previous treatment records (if applicable).

__ Remove and discard your gloves and, if worn, other personal protective equipment.

__ Perform hand hygiene.

__ Assist the patient to a comfortable position.

__ Before cannulation, apply a topical anesthetic to the AV puncture site as ordered following safe medication administration practices. Schedule application according to the contact time needed for the particular anesthetic agent.

__ Perform hand hygiene.

__ Put on a mask and gloves.

__ Wash the AV puncture site with antibacterial soap or scrub and water.

__ Remove and discard your gloves.

__ Perform hand hygiene.

__ Put on gloves and other personal protective equipment.

__ Place the patient's AV access limb on a fluid-impermeable pad.

__ Clean the patient's skin over the AV access site with the antiseptic used in your facility following the manufacturer's instructions. Apply chlorhexidine-based solution using a back-and-forth friction scrub for 30 seconds, and then allow it to dry. Alternatively, apply alcohol or povidone-iodine solution for the required time and allow it to dry.

__ Remove and discard your gloves.

__ Perform hand hygiene.

__ Put on new gloves.

__ Choose an appropriately sized needle to cannulate the AV fistula or AV graft.

__ Apply a tourniquet to the upper portion of the patient's arm containing the AV fistula or AV graft.

__ Grasp the butterfly needle by the wings, prime the needle with normal saline solution until all the air is purged, and then clamp the needle.

__ Place the thumb and forefinger of your hand that isn't holding the needle lightly on the other side of the blood vessel.

__ Pull the patient's skin taut in the opposite direction from that of the needle insertion. Stabilize the blood vessel, but avoid placing excess pressure on it.

__ Remove the needle's protective cap, and immediately cannulate the AV fistula or AV graft, with the arterial needle bevel up.

__ Observe for a blood return, open the clamp, and then remove the tourniquet.

__ Aspirate 1 to 5 mL of blood with the 10-mL syringe, flush the needle with normal saline solution, and then clamp it. Observe for signs and symptoms of infiltration.

__ Secure the needle with tape. Tape the needle at the same angle of insertion.

__ Cannulate the AV fistula with the venous needle, pointing the venous needle in the direction of venous return. Place the needle at least 2" (5 cm) from the arterial needle. Follow the steps used for the arterial needle.

__ Follow these steps if the practitioner prescribes blood or blood products:

__ Obtain the blood or blood product from transfusion services. When receiving the blood or blood product from the transfusion services representative, verify the patient's two independent identifiers, ABO group, and Rh type; the donor's identification number, ABO group, and (if required) Rh type; the interpretation of crossmatch tests (if required); any special transfusion requirements (if applicable); the expiration date and time (if applicable); and the date and time that the blood was issued. Wear gloves or transport the blood product units in a container that prevents direct contact with the blood unit bag.

__ Remove and discard your gloves, if worn for transport.

__ Perform hand hygiene.

__ Put on gloves and, as needed, other personal protective equipment.

__ Use a two-person verification process in the presence of the patient to match the blood or blood product with the practitioner's order and the patient with the blood product.

__ Check the expiration date on the blood bag and observe for leaks, abnormal color, clots, excessive air or bubbles, or unusual odor. Return expired or abnormal blood to transfusion services.

__ After checking all the identifying information, sign the transfusion form to indicate that the identification was correct and that you're the person starting the transfusion.

__ If your facility uses bar-code technology, use it as directed by your facility.

__ Remove and discard your gloves.

__ Perform hand hygiene.

__ Put on new gloves.

__ Remove the syringe from the end of the arterial needle tubing, uncap the arterial tubing, and connect the two lines. Trace the tubing from the patient to the point of origin. Tape the connection securely. Repeat with the venous needle.

__ Open the clamps on the arterial and venous tubing.

__ Keep the insertion site and all connections visible during the procedure.

__ Confirm that the anticoagulant, replacement fluid, and normal saline solution tubings are connected properly before initiating the procedure.

__ Begin the procedure following the manufacturer's instructions for the apheresis or dialysis system used.

__ After establishing the extracorporeal circuit, obtain the patient's vital signs within the first few minutes of treatment.

__ Monitor the patient's vital signs every 15 to 30 minutes during the procedure or as needed according to the patient's condition or the practitioner's order.

__ Monitor pump flow rates, the anticoagulant flow rate, other anticoagulant parameters, cumulative volumes, and system pressure readings every 15 to 30 minutes or as directed by your facility.

__ Return the bed to the lowest position.

__ Remove and discard your gloves and other personal protective equipment.

__ Perform hand hygiene.

__ Document the procedure.

Procedure: Automated Peritoneal Dialysis System (MUNSON)
Checklist: Automated Peritoneal Dialysis System - Beginning Treatment (MUNSON)
Evaluator's Name: _____ **Examinee's Name:** _____
Evaluator's ID: _____ **Examinee's ID:** _____
Evaluator's Dept: _____ **Examinee's Dept:** _____
Date: _____ **Meets criteria/Does not meet criteria:** _____
Select Evaluation Method:
☐ Clinical Observation ☐ Documentation Review
☐ Demonstration ☐ Verbalization

Automated Peritoneal Dialysis System - Beginning Treatment (MUNSON)

Objective: To care for the patient undergoing automated peritoneal dialysis (APD) therapy.
State what population-served considerations you made (or would make) in providing care for the patient.
☐Identify patient using two identifiers.
☐Review the patient's medical record
☐Verify the order for the prescribed therapy:

- Duration of therapy
- Strength of solution
- Number of exchanges
- Volume per exchange

☐Gather the HomeChoice procedure guide (flip book).
☐Wipe work surfaces clean.
☐Perform hand hygiene
☐Gather supplies:

- Dialysate solution bags
- 15L drain bag (if volume >13L, use 2 drain bags with a manifold)
- Disposable Set (cassette)
- Mask for each person in room

☐Remove all extra people from room. If semi-private room, close curtains between patients.
☐Close doors. Place sign on door: Do Not Enter - Procedure in Progress.
☐Place bath blankets over registers to prevent drafts during connections
☐Remove bags from wrappers
☐Check bags:

- Strength of solution
- Expiration dates
- Amount
- Leaks
- Clarity and integrity of solution
- Check that frangibles are unbroken
- Check that pull ring is in place

☐Place a single solution bag on heater pan.
☐Place second bag alongside machine or hang on IV pole.
☐Turn on cycler.
☐Manually enter prescription into HomeChoice Automated PD System using Baxter HomeChoice manual, Change Program section:

- Therapy: CCPD/IPD
- Total volume
- Therapy time
- Fill Volume
- Last fill (if ordered) and IDrain alarm
- Weight units: Kg or Lbs
- Patient weight

When the system is ready, the screen will display PRESS GO TO START.
☐Open the disposable set (cassette) and clamp all 5 clamps.
☐Press GO. The screen displays LOAD THE SET.
☐Open the door, load the cassette, and close the door. push up the lever located on the front panel of the system.
☐Place the long slot of the blue organizer over the hook at the top of the door
☐Connect 15L drain bag to drain line and place on blue pad on floor.
☐Press GO. SELF TESTING appears on display screen.

- When self testing is complete, you will see OPEN THE CLAMPS, alternating with CONNECT BAGS.

☐Put on face mask.
Note: ALL people present MUST wear mask.
☐Perform hand hygiene.
☐Connect bags, utilizing strict aseptic technique

1. Line with red clamp to the heater bag.
2. Line with white clamp to the second bag.
3. Line with blue clamp to third bag (if using)

☐Break frangibles for all solution bags.
☐Open clamps only on lines connected to soultion bags.

☐Open the clamp on the patient line
☐Press GO to begin priming.
☐Remove gloves and perform hand hygiene.
☐When priming complete, the screen displays CONNECT YOURSELF, alternating with CHECK PATIENT LINE.
☐Check that the fluid is at or near the connector on the patient line before connecting.

- If needed, follow the Reprime instructions in Prepare for Therapy in the Patient At-Home Guide.

☐Get transfer set ready and apply a blue pad underneath.
☐With everyone present still wearing their mask, wash hands or use alcohol-based hand gell.
☐Apply gloves.
☐Remove the MiniCap from transfer set.
☐Remove the pull ring from the patient line.
☐Using strict aseptic technique, immediately connect sterile transfer set to sterile patient line.
☐Open the twist valve on the transfer set.
☐Press GO. Screen will display VERIFY DRAIN.
☐Press GO again. Treatment begins with Initial Drain.
☐Remove gloves and mask, and perform hand hygiene.
Documentation for Beginning Treatment
☐Complete Focus Note in PowerChart

- **Topic**: Other: APD Cycler

1. APD system programmed with physician's orders.

a. Therapy time
b. Total volume
c. Volume of exchanges
d. Number of exchanges
2. Cycler set up and connected to patient per procedure using 1.5%, 2.5%, or 4.25% solution.
3. Patient response.
Example:
APD system programmed for 8 hours with a total volume of 10L. System will deliver 5 exchanges of 2,000ml. APD system set up and primed using 2.5% solution. Patient connected using strict aseptic technique. Treatment initiated and patient tolerating well.

Troubleshooting During Therapy

1. For alarms, refer to Patient At-Home Guide troubleshooting section.
2. Baxter Technical Assistance - available 24 hours at 1-800-553-6898.
3. Inpatient dialysis staff - available until 2200 @ 55424 or 28123.
    - After 2200, page on-call Home Dialysis RN.

Need identified by: High Risk/Low Volume, New Equipment/Procedure/Software, Staff Identified

Method of Validation: Direct Observation/Return Demonstration

Action plan/comment: Develop for all findings rated "Not Met"

Procedure: Automated Peritoneal Dialysis System (MUNSON)

Checklist: Automated Peritoneal Dialysis System - Ending Treatment (MUNSON)

Evaluator's Name: _____ **Examinee's Name:** _____

Evaluator's ID: _____ **Examinee's ID:** _____

Evaluator's Dept: _____ **Examinee's Dept:** _____

Date: _____ **Meets criteria/Does not meet criteria:** _____

Select Evaluation Method:

☐ Clinical Observation ☐ Documentation Review

☐ Demonstration ☐ Verbalization

Automated Peritoneal Dialysis System - Ending Treatment (MUNSON)

Objective: To care for the patient undergoing automated peritoneal dialysis (APD) therapy.
State what population-served considerations you made (or would make) in providing care for the patient.
Procedure shall be performed by a trained RN or Peritoneal Dialysis RN
☐Identify patient using two identifiers.
☐Remove extra people from the room. If in a semi-private room, close curtains between patients.
☐Close door.
☐Place sign on door: Do Not Enter - Procedure in Progress.
☐Place bath blankets over registers to prevent drafts during connections.
☐The automated PD system will display END OF THERAPY.
☐In order to assure abdominal emptying, MANUAL DRAIN procedure can be performed, as long as a last fill was NOT ordered.

- Press down arrow until display reads MANUAL DRAIN
- Press ENTER - Display reads "Draining: ____ml"

☐Close transfer set.
☐Gather HomeChoice procedure guide (flip book).
☐Wipe work surfaces clean.
☐Perform hand hygiene.
☐Press the arrow down to view the end of therapy summary information for documentation in Powerchart:

1. Initial drain
2. Total UF

3. Average dwell time
4. Lost dwell time

☐After reviewing summary, press GO. The screen will display CLOSE ALL CLAMPS.
☐Close all clamps.
☐Place a blue pad under transfer set.
☐Put on face mask. ALL people present MUST wear a mask.
☐Perform hand hygiene.
☐Open a new minicap.
NOTE: Check expiration date.
☐Using strict aseptic technique, disconnect the transfer set from the patient line.
☐Immediately place the minicap on the transfer set.
☐Press GO.
☐The screen will display DISCONNECT YOURSELF.
☐Open the door.
☐Remove the disposable set.
☐Press GO. TURN ME OFF appears on the display screen.
☐Turn the system off.
☐Discard drainage/effluent and used supplies in appropriate receptacles.
*If removing cycler from patient's room, clean external surfaces with disinfectant.
☐Remove gloves and perform hand hygiene.
Documentation for Ending Treatment
☐Complete a Focus Note in PowerChart. Topic: Other: APD Cycler.
Note to include:

1. APD therapy completed. Patient disconnected from system. Aseptic technique maintained. How the patient tolerated therapy.
2. Initial drain (Idrain)
3. Total UF
4. Average dwell time
5. Lost dwell time
6. Pt's weight after therapy
7. Color and clarity of drainage/effluent

Example:
APD therapy completed @ 0815. Patient disconnected from system using strict aseptic technique. He denied any drain pain and slept the majority of the therapy. Initial drain 3ml. Total UF 1203ml. Average dwell time 1hr 20min. Lost dwell 18min. Weight 148#. Effluent pale yellow and clear.

Need identified by: High Risk/Low Volume, New Equipment/Procedure/Software, Staff Identified
Method of Validation: Direct Observation/Return Demonstration
Action plan/comment: develop for all findings rated "not met"

Status Active PolicyStat ID 17112035

MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

Origination	1/17/2022
Last Approved	1/9/2025
Effective	1/9/2025
Last Revised	1/9/2025
Next Review	1/9/2028
Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC

Blood Sampling from a Hemodialysis Catheter using a Tego Catheter

Purpose

Obtain a blood sample from a hemodialysis catheter using a Tego Cap Connector

Procedure

A. Blood Sampling from a Hemodialysis Catheter using a Tego Cap Connector

Supplies

A. 5 Chlorhexidine prep pads (if Chlorhexidine is unavailable, 70% alcohol prep pad is an acceptable alternative),
B. Clean gloves, gown, face shield
C. Masks for patient
D. 1 empty 3cc syringe,
E. 1-3cc syringe filled with prescribed catheter lock solution,
F. 1-10cc empty syringe, vacutainer, and lab tubes,
G. 1-10cc prefilled syringes.
H. Non-sterile drape

Process

A. Perform hand hygiene and don personal protective equipment (PPE) (Face shield, mask for both you and patient).

B. Place non sterile drape underneath catheter lumens. Maintaining an aseptic environment.

C. Remove the swab cap.

D. Scrub the Tego Cap Connector with a Chlorhexidine prep pads for 5 seconds, allow to dry for 5 seconds.

E. Attach the 3cc syringe, unclamp the catheter port.

F. Withdraw 3cc of the dwell.

G. Close the catheter clamp, remove the syringe and discard in sharps container.

H. Scrub the end of the Tego Cap Connector with a new chlorhexidine prep pad and attach an empty 10cc syringe.

I. Open the catheter clamp, attach the 10cc syringe and withdraw 10cc of blood, close the catheter clamp, remove syringe and discard in sharps container.

J. Scrub the Tego Cap Connector of the arterial catheter port for 5 seconds with a new Chlorhexidine prep pad, allow to dry for 5 seconds.

K. Attach vacutainer to the Tego Cap Connector.

L. Insert the lab tubes per correct order of lab draw, open line and attain the blood sample(s).

M. Once all labs are drawn, close the catheter clamp, remove and discard the vacutainer in sharps container.

N. Scrub the Tego Cap Connector with a new Chlorhexidine prep pad. Attach the prefilled 10cc 0.9NS syringe. Open the catheter clamp and flush. If initiating dialysis, follow "Initiation of Dialysis using Tego Cap Connector" policy.

O. If not initiating dialysis:scrub the Tego Cap Connector attach a 3cc syringe instilled with prescribed catheter lock solution equivalent to the lumen volume of each catheter limb and close catheter clamp.

P. Finish by scrubbing each Tego Cap Connector with an alcohol prep pad to remove any residual Chlorahexidine.

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	1/9/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	1/2/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	12/19/2024

Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	12/17/2024

Applicability

Munson Medical Center

Standards

No standards are associated with this document

Status **Active** PolicyStat ID **15564650**

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Next Review	12/23/2027
Owner	Ryan Waldron: Asst Mgr Nursing Services
Area/ Department	Vascular Access Specialty Team
Applicability	MMC, Charlevoix, KMHC, POMH
Tags	Policy

Blood Sampling from a Venous Access Device

Purpose

To provide a process for collecting blood samplings from a venous access device (VAD).

Procedure

A. Blood sampling via VADs may be performed upon order for laboratory tests by a licensed independent practitioner (LIP) by a clinician competent in the procedure.

B. Benefits include avoidance of anxiety, discomfort and dissatisfaction associated with venipuncture in patients requiring frequent blood tests and/or those with limited vascular access.

C. Risks include increased hub manipulation and the potential for intraluminal contamination, alterations in VAD patency and erroneous lab values associated with adsorption of medications infused through the device. Therefore a provider's order will be required when there is any variance from the following:

1. **Total Parenteral Nutrition (TPN)** will not be interrupted for blood sampling due to potential for contamination. An alternate lumen may be used if available. For single lumen devices, consider obtaining blood sample with daily solution and administration set change.
2. **Blood cultures** from a central venous access device (CVAD) are more likely to produce false-positive results and will be drawn from a central line only when clinically indicated for diagnosis of catheter-related bloodstream infection. A peripheral blood culture will be drawn at the same time. If with a provider's order, drawing blood cultures is required, remove and draw directly from catheter hub after disinfecting. DO NOT DRAW DISCARD. Remove specimen bottle caps and disinfect

septums just prior to obtaining specimen.

3. An alternate lumen should always be used when **Chemotherapy** infusing.
4. A **2-lumen Hemodialysis catheter** requires a provider order to use for blood sampling by clinician other than dialysis nurse. When drawing blood samples from a 2 lumen hemodialysis catheter, the device dwell must be removed prior to the procedure and replaced after the procedure. Note the fill volume of catheter lumens and increase discard amount accordingly. (See the Inpatient Hemodialysis Catheter Care and Maintenance policy).

D. **Coagulation studies** require a discard 6 times the fill volume of the CVAD or approximately 5-10ml after initial 10mL flush with preservative-free 0.9% sodium chloride administered to assess patency.

E. Blood sampling from a peripheral venous access device may be done at the time of cannulation. (Lengthy tourniquet time and difficult catheter insertion can produce inaccurate lab values).

F. **When questionable results are obtained, the nurse should collaborate with the LIP in retesting via direct venipuncture**.

G. Blood sampling from a peripheral venous access device may be indicated for pediatric patients, adults with difficult venous access, presence of bleeding disorders, and the need for serial tests. Infusing solutions should be stopped for at least 2 minutes prior to obtaining the blood sample: waste 1-2 mL blood prior to obtaining sample. Flush with NaCl to maintain patency after specimen obtained and prior to resuming infusion.

H. To avoid nosocomial anemia and reduce risk of infection draw only the volume of blood needed for accurate testing and group multiple blood draws together whenever possible. Limit the discard amount to 3mL-5mL or 1½-2 times the fill volume of CVAD.
See attachment: Maximum Blood Volume to be drawn from Infants and Pediatrics Log.

I. Disinfect the central venous catheter hubs after removal of the SwabCap. Disinfect injection caps using a 5 second scrub with a swab containing a combination of chlorhexidine/alcohol followed by a 5 second dry time prior to accessing the device. Scrub time is 15 seconds if using an alcohol swab. Apply a new SwabCap to the needlefree connector after each access; never reuse the SwabCap.

J. Use **two patient identifiers** when taking blood samples.

1. **Patient name and unit number** on all laboratory labels for all blood tubes must be checked and match patient's identification (ID) band An outpatient may verbally identify him/herself by name and birth date.

K. All patients for type and cross match must have ID band. Check collection vials and tubes for expiration date and defects and collect specimens according to order of draw.

L. Immediately upon collection, all samples must be labeled.

M. Blood bank tubes must be labeled and include:

1. Full patient name
2. Patient medical record number
3. Date of draw

4. Time of draw
5. Initials of clinician performing draw

N. See Online Procedure Manual
    1. Blood Culture Procedure: Blood Culture Sample Collection
    2. Central venous access catheter blood sampling
    3. Implanted Port Blood Sampling
    4. Central venous tunneled catheter blood sampling
    5. Intravenous (IV) – Peripheral Start with Blood Draw

Documentation

A. On appropriate place in patient's chart:
    1. Date, time and signature of person performing procedure.
    2. Type of device.
    3. Heparin flush, if indicated.

B. By exception only:
    1. Any problems encountered and corrective measures taken.

References

1. Boyce, M. Nadeau, J., Dumigan, D., Miller, D., Dubowsky, C., Reilly, L., Hannon, C. (2013). Obtaining blood cultures by venipuncture versus from central lines: Impact on blood culture contamination rates and potential effect on central line-associated bloodstream infection reporting. *Infection Control and Hospital Epidemiology, 34* (10), 1042-1047.
2. Infusion Nurses Society. Policies and Procedures for Infusion Therapy: Acute Care. 6th ed. Infusion Nurses Society; 2021: 242-250

Document ID: 080.032

Attachments

Maximum Blood Volume to be drawn from Infants and Pediatrics Log

Approval Signatures

Step Description	Approver	Date

System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	12/23/2024
VP and CNO Patient Care Services	Tamara Putney: VP and CNO Patient Care Services	12/22/2024
Coord Patient Care	Ryan Waldron: Coord Patient Care	12/19/2024
Document Owner	Amber Bowers: Mgr Nursing Services	12/18/2024

Applicability

Charlevoix Hospital, Kalkaska Memorial Health Center, Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Cannulation of New Fistula

Purpose

To successfully cannulate new arteriovenous (AV) fistulas and to prevent infiltration.

Policy

Newly created primary AV fistulas shall be allowed to develop for at least 6-12 weeks prior to cannulation. Initial attempts to perform dialysis via new fistulas shall proceed with caution. Without exception, fistulas shall not be progressed faster than these guidelines ***without medical doctor's (MD) order***. All patient care personnel are responsible for implementing this policy.

Procedure

A. Obtain order from vascular surgeon or nephrologist to begin cannulation of fistula at a minimum or 8 weeks after creation. **All new fistulas should be examined by a dialysis registered nurse (RN) prior to cannulating the fistula for the first time.**

B. Only staff identified as demonstrating best cannulation practice techniques should be assigned to cannulate NEWLY developing fistulas.

C. Use a tourniquet with well-developed fistulas.

D. Explain procedure to patient.

E. Education patient on:

1. Checking the access daily for a thrill and for signs and symptoms of infection.
2. Performing fistula exercises to promote maturation process.

3. Understanding that hematoma could occur most likely during the first two weeks of using the access.
4. For infiltrations, provide written materials about icing, elevation, and heat application.

Week One

A. If no other access present, use two 17-gauge needles. **ALWAYS** stay at least 1" from the anastomosis.

B. If catheter present, use 17-gauge needle as the arterial, and use catheter for venous return.

C. Using a 25° angle, cannulate the fistula.

D. Stabilize the butterfly with tape. Secure the access with a chevron.

E. Instruct patient not to move access extremity in order to prevent infiltration.

F. Remove needles at the same angle as the angle of insertion. Never apply pressure before the needle is completely out. Apply pressure for 10 minutes.

G. Use 17 gauge needles at a blood flow rate (BFR) of 200-250 ml/min.

H. ****BFRs are recommendations and can be modified based on center-specific guidelines.**

I. ONLY INCREASE BFR RATES IF NO EVIDENCE OF INFILTRATION OR OTHER PROBLEMS NOTED.

J. Report any cannulation or BFR problems to the charge nurse.

Week Two

A. If the first week is successful, cannulate with 16 gauge needles, rotating cannulation sites.

B. Blood flow rate recommended: 300 ml/min.

Week Three

A. Either repeat procedure for Week 2, or may attempt to progress to prescribed BFR and Needle gauge. When increasing BFR, recommend matching needle gauge to BFR as shown in chart below.

Infiltration Instructions

A. If the fistula infiltrates, remove needle, apply pressure to achieve hemostasis. Assess the access for pulse sensation and bruit, document assessment findings. Notify Nephrology for additional orders. If dialysis treatment is to continue, cannulate fistula above the infiltration using ultrasound guided cannulation, if available. Cannulation is to be used as the venous access site. Subsequent treatments require ultrasound guided cannulation for a minimum of 2 weeks or 6 treatments. For dialysis center(s) without ultrasound cannulation repeat cannulation should be performed by a senior member of the dialysis team.

B. Patient education includes placing an icepack on the affected area for 15 minutes, 6 to 8 times a day. After the first 24 hours, apply warm (not hot) compresses. Place a warm wash cloth on the area for 15 minutes. Do this 6 to 8 times a day for the next 24 hours to promote healing.

Patient should be instructed to check for thrill (pulsaiton in the fistula) on a regular basis. If thrill is decreased, absent or swelling increases contact the dialysis center for further instruction, or report to the nearest emergency room for care.

Catheter Removal Instructions

A. After four weeks of successful cannulation and fistula use, the dialysis catheter can be removed in Interventional Radiology or by Nephrologist.

Recommendation

A. **It is important to match needle gauge to blood flow rate.**

BLOOD FLOW RATE	RECOMMENDED NEEDLE GAUGE
Less than 250 ml/min	17 gauge
300 - 350 ml/min	16 gauge
Greater than 350 - 500 ml/min	15 gauge

B. **Note: These are minimum recommended gauges for the stated BFR settings. Larger needles, when feasible, will reduce (make less negative) pre-pump arterial pressure and increase delivered blood flow.**

Document ID: 108.066

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	11/4/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	11/3/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	11/3/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	11/3/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

Status **Active** PolicyStat ID **17847231**

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Effective	4/16/2025	Area/ Department	Dialysis
Last Revised	4/16/2025	Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Next Review	4/15/2028		

Cannulation of the Hemodialysis Arteriovenous Fistula using Ultrasound

Purpose

Ultrasound-guided cannulation aims to improve first-time successful cannulation and minimize cannulation-associated complications such as infiltration and hematoma formation, minimizing delays in access use and reducing catheter dependency.

Procedure

A. Ultrasound guided cannulation of an arteriovenous fistula in the dialysis population should be performed at a minimum:
   1. During the first 6 hemodialysis treatments when cannulating the vascular access including initiation and revision.
   2. 1 Treatment following infiltration of the vascular access, if applicable.
   3. Anytime deemed appropriate by trained dialysis staff to assist in cannulating the vascular access including but not limited to poor maturity, history of difficult cannulation etc.

B. Supplies:
   1. Ultrasound device
   2. Ultrasound gel
   3. Tourniquet
   4. Alcohol pre pad

5. Fistula needles (per patient's prescription)
6. (2) 10cc syringes
7. Blue pad

C. Process:

1. Perform hand hygiene.
2. Don personal protective equipment (PPE) (gown, mask, face shield)
3. Explain the procedure to the patient.
4. Assess the arteriovenous fistula (AVF)/arteriovenous graft (AVG) for correct placement, maturity/signs of complications.
5. Determine the site of entry for cannulation and probe position (longitudinal or transverse).
6. Clean the area of the skin with an alcohol pad.
7. Apply a tourniquet.
8. Administer local anesthesia if necessary.
9. Place the probe directly above the vessel entry site so that the center of the target vessel is visualized in the center of the ultrasound screen and determine the entry site of the skin.
10. Insert needle at a 25° to 45° degree angle (depending on the access) at the center of the probe.
11. Continue to keep the probe aligned with the needle while moving the probe backward to visualize the shaft and the needle at the same time.
12. Using a transverse approach, applied probe must be perfectly aligned with the needle to visualize it within the vessel.
13. If the needle cannot be seen (indicating that it is lateral to ultrasound plane when using longitudinal view), do not advance the needle. Backup and redirect the needle.
14. Advance the needle and the identify the new location of the needle tip. Maintain the needle within the ultrasound plan, redirecting the needle if the trajectory of the needle tip misses the center of the access.
15. Blood return within the needle will be noted. Lower the angle of the needle an continue to advance the needle as required.
16. Tape the needle securely following Munson Dialysis Center (MDC) protocol.
17. Document in Clarity outcomes from ultrasound guided fistula needle insertion.
18. Follow manufacture instruction for disinfecting the device between use.

Attachments

Competency Cannulation of an AVF with Ultrasound.doc

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	4/16/2025
System Director of Infection Prevention	Joanna Benchley: Sys Dir Infection Prevention	4/15/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	4/15/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, KMHC, MHC Corporate, POMH
Tags	Procedure

Cleaning and Disinfecting Patient Care Area, Including Non-Disposable Equipment Used During the Hemodialysis Treatment

Purpose

To provide a process for cleaning and disinfecting the patient care area, including non-disposable equipment used during hemodialysis treatment.

Procedure

A. Procedure supports Centers for Medicare/Medicaid Services (CMS) End Stage Renal Disease Conditions of Coverage.

B. Personal protection equipment (PPE) is to be worn when disinfecting non-disposable equipment. This includes non-sterile gloves, an impervious gown, a face shield, and a face mask.

C. Routine surface disinfection will not begin until the patient has been discharged from the patient station.

D. Clean non-disposable items and surfaces with a hospital-approved disinfectant (tuberculocidal). Follow the manufacturer's recommendations for sufficient solutions to achieve the recommended contact time.

E. Disinfection concepts

1. Low level disinfection, commonly used to clean, disinfect patient care area, including high touch surfaces, and non disposable equipment

a. 1:100 5.25% Bleach Solution
    i. 1 minute contact time
b. Approved hospital tuberculocidal disinfectant
    i. Contact time varies, follow manufacture instructions

2. Intermediate level disinfection
    a. Used when the surface is visibly contaminated, also used when cleaning up a blood spill greater than 10 mL
        i. 1:10 5.25% Hospital Grade Bleach Solution or hospital approved tuberculocidal disinfectant
            a. Contact time for 1:10 5.25% hospital grade bleach solution is 10 minutes
            b. Time varies for approved tubercular disinfectant, follow manufacture instructions.

3. Surfaces with visible blood requires a (2) step process. Process is defined based on the amount of blood present.
   Standard precautions is applied.
    a. Area is wiped clean, then cleaned with a separate disinfectant cloth.
    b. Basic concept is a minimum of (2) separate cloths are used when visible blood is present.

4. Cleaning up visibly contaminated area or a blood spill greater than 10 mL of blood.
    a. Requires "intermediate level disinfectant" a 1:10 bleach solution, prepared with 5.25% Clorox Hospital Grade Bleach or an approved tuberculocidal disinfectant.
        i. Contact time for 1:10 5.25% Clorox Hospital Grade Bleach solution for a greater than 10 mL blood spill is 10 minutes.
        ii. REDZ packet can also be used replacing the 1:10 5.25% hospital grade bleach solution as noted in the procedure.
        iii. Procedure
            a. Secure environment. Minimize traffic in area.
            b. Perform hand hygiene. Don PPE.
            c. Open red biohazard bag, place on floor adjacent to blood spill.
            d. Place blue absorbent pad(s) or paper towels (depending on size of area) on spill to contain and absorb the blood spill.
            e. Saturate area with 1:10 5.25% hospital grade bleach solution, reduce the risk of infection during the
            f. cleaning process.

Remove absorbent pad(s), paper towels and place in a waterproof trash bag.

g. Use additional paper towels to wipe/clean the area, remove visible blood. Place in waterproof trash bag.

h. After cleaning the area, change gloves, pour 1:10 sodium hypochlorite solution over contaminated area to begin disinfection process. Allow solution to remain on contaminated surface for a minimum of 10 minutes. Remove gloves hand sanitize.

i. Don gloves, clean area with paper towels. Discard paper towels in waterproof trash bag. Securely close trash bag.

j. Remove gloves, perform hand hygiene, don another pair of gloves.

k. Place securely closed waterproof trash bag in another waterproof trash bag, securely close trash bag.

l. Place securely closed trash bag in a red biohazard bin.

m. Allow intermediate disinfectant solution to on the surface for the approved contact time.

n. Properly dry before allowing foot traffic to resume.

o. REDZ packet can also be used replacing the 1:10 5.25% hospital grade bleach solution.

    i. Cover blood spill with contents.

    ii. Locate dustpan, disconnect scrapping section. Scrape powder into the dustpan, discard in red biohazard bag.

    iii. Follow remaining steps.

5. Cleaning/Disinfecting the Patient station

    a. Visible blood on non disposable surfaces

        i. Surfaces that contain blood requires the staff member to remove blood with a separate cloth, repeat this process with a separate cloth to ensure effective disinfection of the non disposable item or surface is appropriately disinfected.

    b. Procedure

        i. Patient station is disinfected using a minimum of (4) disinfecting wipes. A staff member can change the order in which the items are cleaned using the disinfecting wipe, but the last item cleaned on each of the assigned disinfectant wipes should be the highest risk for contamination, such as the access clamp, prime bucket, wall/drain box, and trash can.

1. Perform hand hygiene. Don appropriate PPE.
2. Remove soiled linen, and place in a soiled linen bag. Ensure all disposable supplies are removed from the patient station before disinfecting. Remove the extracorporeal circuit, and place it in a biohazard container. Ensure the prime bucket is empty.
3. #1 Disinfectant wipe: Clean non-disposable patient supplies including blood pressure cuff, hemostats, access clamps, etc. (ensure blood pressure cuff is dry). Place in the patient's bag.
4. #2 Disinfectant wipe: Clean the dialysis machine and the prime bucket last. Discard the wipe.
5. #3 Disinfectant wipe: Clean television (including the entire arm apparatus and exterior surface) and all ancillary equipment. Clean the back counter top and wall. Clean the wall/drain box last. Discard the wipe.
6. #4 Disinfectant wipe: Clean the pillow and place it on a clean surface. Open the dialysis chair to its fullest reclining position and clean it and side tables. Remove the trash bag. Clean the exterior and interior surfaces of the trash can last, and discard the wipe.
7. Remove gloves and sanitize hands.
8. Replace the trash bag during the next patient treatment setup.

c. All equipment/nondisposable supplies should be disinfected with the approved disinfectant solution if in a dialysis station, regardless of whether it is used for the treatment.

d. Staff will gather supplies if additional cleaning supplies or approved disinfectant is required to thoroughly clean the patient station per the manufacturer's instructions.

6. All ancillary non-disposable equipment such as Dialysate pH conductivity meter, stethoscopes, and glucometers are disinfected after patient use.
7. Dialysis machines are disinfected according to manufacturer instructions.
8. End of day duties:
    a. All work surfaces are to be cleaned with tuberculocidal disinfectant.
    b. Additional duties as assigned.

Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	10/28/2025
System Director of Infection Prevention	Joanna Benchley: Sys Dir Infection Prevention	10/28/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	10/28/2025

Applicability

Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

Status Active PolicyStat ID 17658474

MUNSON MEDICAL CENTER
MUNSON HEALTHCARE

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, Cadillac, KMHC, MHC Corporate, POMH
Tags	Policy

Conductivity and pH Testing of Dialysate including Disinfection of the Phoenix Meter

Purpose

To ensure the delivery of the prescribed dialysate and to, furthermore, promote safe conductivity and pH within the limits put forth by B-Braun Dialog+.

Procedure

Personnel

A. Registered Nurse (RN)
B. Certified Clinical Hemodialysis Technician (CCHT)
C. Patient Care Technician (PCT)

Using the pHoenix Meter

A. Obtain and label fresh reverse osmosis (RO) water.
B. Mix 1:100 bleach solution using RO water. Label with date, mixture, and your initials.
C. Rinse two to three times with RO water.
D. Pull up bleach solution so the barrel is full. Allow to sit for ten minutes, no longer.
E. Expel the bleach solution and rinse with RO water for three to four times to ensure complete removal of the bleach solution.

F. Use a residual chlorine strip to verify bleach has been rinsed from the syringe. This is indicated by a negative reading. If the reading is positive rinse with RO water for three to four times to ensure complete removal of the bleach. Use a residual chlorine strip to verify bleach has been rinsed from the syringe. Step E would be repeated if the strips test positive for residual bleach.

G. Draw up 10cc of 14.0 mS/cm conductivity/7.0 pH Buffer standard solution, holding the syringe with the end elevated so the air in the syringe may stay in the syringe. Discard the first sample. When drawing up the second sample use an even force and press the HOLD button to capture the conductivity reading of the standard solution. Record the sample readings. The results should read conductivity +/- 0.1 (13.9-14.01 mS/cm) and pH +/- 0.1 (6.9-7.1).

H. If the results obtained do not fall within +/- 0.1 of the standard solution, the meter must be recalibrated. Contact Bio Med.

I. Prior to initiation of dialysis after "green man" is obtained, draw a dialysate sample from the venous sample port on the dialysate tubing, holding the end of the meter higher to eliminate bubbles. Discard the first sample. When drawing up the second sample use an even force and press the HOLD button to capture the pH and conductivity of the dialysate. "Do not push sample Dialysate fluid back into the machine."

J. The conductivity reading should not differ more than +/- 0.3 from the expected reading located on the information screen of the dialysis machine.

K. Recommended therapeutic pH range for the B-Braun Dialog+ is 7.2 - 7.5. If the pH or conductivity is out of range, **DO NOT USE THE MACHINE**. Contact the Biomed Tech and remove the machine from service.

L. Record the readings in the patient record.

M. After use, clean the exterior of the meter with hospital approved disinfectant, avoid Oxyvir.

N. At the end of the day, rinse the meter with RO water and clean the exterior of the meter with hospital disinfectant, avoid Oxyvir. Expel all of the RO water. Pull the syringe halfway, drawing air into the meter, and store the meter on the holding rack with the nozzle down.

O. At the end of the day draw 5 cc Neo-Care once into the syringe. Expel the Neo-Care into the drain, then draw air into the syringe and expel three times. Draw the syringe halfway back, remove the sample nozzle and install a cap. Store the meter overnight in the holding rack with the nozzle down.

P. **NOTE:**

1. Discard any solution if it is past the expiration date, if color changes, or if turbidity or microbial growth development is visible.
2. Clean the exterior of the TRI-STATION with bleach solution. Also, wipe the exterior of the RO water bottle and the bleach bottle.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	4/22/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	4/15/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	3/11/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	3/11/2025

Applicability

Cadillac Hospital, Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

Procedure: Peritoneal dialysis

Checklist: Continuous Ambulatory Peritoneal Dialysis (CAPD) - Ultrabag Aseptic Exchange (MUNSON)

Evaluator's Name: _____ **Examinee's Name:** _____

Evaluator's ID: _____ **Examinee's ID:** _____

Evaluator's Dept: _____ **Examinee's Dept:** _____

Date: _____ **Meets criteria/Does not meet criteria:** _____

Select Evaluation Method:

☐ Clinical Observation ☐ Documentation Review
☐ Demonstration ☐ Verbalization

Critical Notes

Does not apply at KMHC & POMH

Continuous Ambulatory Peritoneal Dialysis (CAPD) - Ultrabag Aseptic Exchange (MUNSON)

January 11, 2018
Objective: To perform CAPD on a patient according to the standard of care.
Procedure shall be performed by a trained RN or Peritoneal Dialysis RN.
☐ Review the patient's medical record.
☐ Verify the order for the prescribed dialysate solution, dwell times, and exchange frequency.
☐ Wipe work surfaces clean.
☐ Perform hand hygiene.
☐ Gather supplies:

- Mask for each person
- Warmed bag of dialysate solution
- IV pole
- Hanging scale
- 2 Blue clamps
- 2 New minicaps

☐ Remove all extra people from room. If in semi-private room, close curtains between patients.
☐ Close door. **Place sign on door: Do Not Enter - Procedure in Progress**
☐ Place bath blankets over registers to prevent drafts during connections.
☐ Remove bag from wrapper.

☐ Hang bag on pole.
☐ Check bag:

- Strength of solution
- Expiration date
- Amount
- Leaks
- Clarity and integrity of solution

☐ Check minicap for expiration date.
☐ Check that frangibles are unbroken.
☐ Check tubing.
☐ Check that pull ring is on.
☐ Clamp fill line with blue clamp.
☐ Break green and blue frangibles.
☐ Take tubing from patient's clothing, make sure twist valve is closed.
☐ Put on face mask. **Note: All people present MUST wear a mask.**
☐ Wash hands or use alcohol-based hand gel.
☐ Apply gloves.
☐ With non-dominant hand, grasp the blue twist valve on patient catheter.
☐ Slip pull ring over the middle finder of same hand.
☐ With dominant hand, remove minicap.
☐ Pull the tubing to remove the pull ring.
☐ Screw the sterile ends together.
☐ Open twist valve and drain the patient - allow a minimum of 20 minutes.
☐ Close the twist valve when the belly is drained.
☐ Remove the blue clamp from the fill line and put it on the drain line to prime the tubing.
☐ Check that air was removed from the fill line.
☐ Open twist valve to allow fluid to run into belly.
☐ Close twist valve when fluid is finished running into belly.
☐ Clamp fill line with second blue clamp.
☐ With everyone still wearing masks, wash hands or use alcohol-based hand gel.
☐ Apply clean gloves.
☐ Open minicap package carefully.
☐ Hold blue portion of the transfer set upright and carefully unscrew the tubing.

☐ Put minicap on the end of the transfer set, using strict aseptic technique.
☐ Check that the drained fluid is clear.
☐ Weigh the drain bag on the hanging scale.
☐ Discard drainage/effluent and used supplies in appropriate receptacles.
☐ Remove and discard gloves; everyone may remove mask.
☐ Perform hand hygiene.
Documentation
☐ Complete a Focus Note in PowerChart:

- Strength of solution
- Volume of solution infused
- Volume of drained fluid
- Character of drained fluid
- Patient response

Need identified by: high risk/low volume, new equipment/procedure/software, staff identified
Method of validation: direct observation/return demonstration
Action plan/comment: develop for all findings rated "not met"

Procedure: Continuous Ambulatory Peritoneal Dialysis (CAPD), Adaptor application for Fresenius Stay Safe PD System (MUNSON)

Checklist: Continuous Ambulatory Peritoneal Dialysis (CAPD), Adaptor application for Fresenius Stay Safe PD System (MUNSON)

Evaluator's Name: _____ **Examinee's Name:** _____

Evaluator's ID: _____ **Examinee's ID:** _____

Evaluator's Dept: _____ **Examinee's Dept:** _____

Date: _____ **Meets criteria/Does not meet criteria:** _____

Select Evaluation Method:

☐ Clinical Observation ☐ Documentation Review

☐ Demonstration ☐ Verbalization

Continuous Ambulatory Peritoneal Dialysis (CAPD), Adaptor application for Fresenius Stay Safe PD System (MUNSON)

Continuous Ambulatory Peritoneal Dialysis (CAPD), Adaptor application for Fresenius Stay Safe PD system
Objective: Procedure to attach an adaptor and Baxter transfer set on a Fresenius Stay Safe peritoneal dialysis catheter utilizing strict aseptic technique.
Procedure shall be performed by B4 RN or Peritoneal Dialysis RN.
Assemble the following equipment:
☐Stay Safe luer-lock adapter, 4 inch
☐Baxter transfer set
☐Clean gloves
☐Masks for everyone in the room
☐Baxter Minicap
☐Blue pad
☐Identify patient using two identifiers.
☐Place "Procedure in Progress" sign on door.
☐Close door to patient's room and cover air vents.
☐Instruct patient about the procedure.
☐Wash hands and put on clean gloves.
☐Place blue pad under catheter.
☐Make sure clamp on Stay Safe set is closed.

☐Remove gloves and perform hand hygiene.
☐Mask self, patient, and anyone who must remain in the room.
☐Perform hand hygiene.
☐Apply clean non-sterile gloves.
☐Open package of Baxter transfer set. Close the locking collar.
☐Open new Baxter minicap. Remove cap from Baxter transfer set. Attach new sterile minicap. Place transfer set back on packaging.
☐Open package of Stay Safe luer-lock adapter. Remove the small white cap from adaptor and pull light blue ring off the end of the Baxter transfer set. Connect Baxter transfer set to luer-lock adaptor using sterile "No Touch" technique.
☐Using sterile "No Touch" technique, remove the Stay Safe cap and remove white cap from squared end of luer-lock adapter. Attach the new prepared adapter and Baxter transfer set to the patient's Stay Safe peritoneal dialysis catheter.
☐Remove gloves and perform hand hygiene.
☐Document the procedure in PowerChart as a Focus Note.
☐Leave the adapter and transfer set in place for the duration of the patient’s hospital stay.
☐Important discharge information: Patient should go home with Stay Safe products. Baxter transfer set with adapter is to be removed before discharge. Remove Baxter transfer set and adapter. Place a new Stay Safe cap to the Stay Safe catheter, using strict aseptic techniques.
Need identified by: High Risk/Low Volume (HR/LV), Patient Outcomes (PO)
Method of Validation: Return Demonstration (RD), Direct Observation with patient by peer/manager (DO).
Action plan developed for all findings rated “not met.”

Status Active PolicyStat ID 18339139

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Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs
Area/ Department	Dialysis
Applicability	MMC, KMHC, MHC Corporate, POMH
Tags	Policy

Continuous Renal Replacement Therapy General Policy

Purpose

To standardize the nursing care of the patient receiving Continuous Renal Replacement Therapy (CRRT).

Policy

Responsibility

Hemodialysis nurses, A2, Intensive Care Unit (ICU), Nephrologist, Department Managers, and Nursing Educators.

Types of CRRT Used at Munson Medical Center (MMC)

A. Slow Continuous Ultrafiltration (SCUF) – fluid removal only, no fluid replacement.

B. Continuous Venovenous Hemodialysis (CVVHD) – fluid and solute removal with dialysate added.

Guidelines

A. CRRT will be performed only on A2 and in ICU.

B. Only registered nurses (RN) that have attended a course in the use of CRRT and passed a skill check-off competency may perform these procedures.

C. Orders by the Nephrologist (only) are required to initiate CRRT.

D. Orders will be evaluated by the Nephrologist at least every 24 hours and changed as

necessary. ICU Intensivist's and Cardiothoracic Service may change net fluid removal as needed.

E. A signed informed consent is required for therapy.

F. CRRT therapy is performed by accessing a temporary or permanent central line catheter.

G. Infusions that are to be mixed by Pharmacy are citrate Acid-Citrate-Dextrose (ACD), calcium chloride, and any pre-treatment infusions per the Nephrologist orders and must be available before the start of treatment.

H. Citrate will infuse via the arterial access line pre filter.

I. Calcium chloride will be infused via a central line to the patient.

    1. Before citrate and calcium are started, a double check between the dialysis RN and the bedside RN is to be made to ensure the proper placement of the infusion.

J. Patients on CRRT will be weighed daily.

K. If it is necessary to ambulate the patient while on CRRT, the patient must be disconnected from the CRRT machine.

    1. Patients on CRRT may stand at bedside only if the central venous access is via the jugular or subclavian access. Patients with femoral catheter may not raise the head of bed (HOB) greater than 30 degrees and are to be kept at complete bed rest.

L. Sterile technique will be used when manipulating the vascular access catheter.

M. The CRRT circuit will be changed if evidence of clotting or other malfunction is present.

N. **Dialysis RN responsibilities for initiating a CRRT treatment:**

    1. Review the physician's orders and communicates with bedside RN.
    2. Ensure that machine has passed self-test before initiating therapy.
    3. Prime the hemofilter and circuit.
    4. Confirm baseline labs and peripheral ionized calcium has been drawn within 30 minutes of initiating therapy.
    5. Initiate and collaborate with the bedside RN the treatment is running efficiently.
    6. Assure that citrate and calcium chloride are started as soon as blood pump is started.
    7. Label all lines appropriately.
    8. Educate patient, family, and health care providers as necessary.
    9. Discuss with bedside RN the first hour's intake and output calculations.
    10. Orders supplies for the initial set-up.
    11. Collaborates with the bedside RN for further supply needs.

O. **Daily responsibilities of the dialysis RN:**

    1. Be available 24/7 for consultation, troubleshooting, and changing circuit if needed.
    2. Check system twice daily. Check must include documentation of all data for

treatment.

3. Daily assessment of the system and the patient's response to therapy.
    a. Charge for treatment daily in "Batch Charge Entry"
    b. Laboratory results
    c. Hemodynamic status
    d. Flush system to assess patency of filter as needed
    e. Troubleshooting
4. Restock supplies as needed.
5. Changing the circuit as needed.
6. Collaborate and educate A2/ICU RN as needed.
7. Notify Nephrologist of any problems.

P. **Critical Care Nurse's responsibilities for initiating a CRRT treatment:**

1. Review physician orders, confirm orders sent to pharmacy, and notify the dialysis nurse of CRRT order placed.
2. Verify that consent for treatment is signed.
3. Obtain baseline laboratory specimens, patient weight, and hemodynamic parameters.
4. Obtain and set up additional infusion equipment, as needed.
5. Assist with vascular access placement.
6. Continuous assessment of the patient's hemodynamic status.
7. Provide education and support regarding CRRT to patient, families, and peers.
8. Collaborates with the dialysis RN for ongoing supply ordering.

Q. **Daily responsibilities of Critical Care Nurse:**

1. Obtain laboratory specimens in order per algorithm and report abnormal values to the Nephrologist.
2. Monitor titrate citrate and calcium chloride per algorithm or Nephrologist's orders.
3. Troubleshoot basic system problems.
4. Report technical problems to dialysis nurse on call.
5. Report clinical problems to Nephrologist or other appropriate providers.
6. May discontinue the CRRT system if needed. Notify dialysis RN if treatment is to be restarted.
7. If treatment is discontinued, flush catheter per policy. Notify pharmacy.
8. Obtain daily weight.
9. Confirm that all parameters are being followed as ordered.
10. Monitor system pressures for signs of impending clotting.

11. Change vascular access site dressing as needed per infection control protocols.
12. Achieve the prescribed patient's hourly net fluid balance.
    a. Perform hourly intake/output calculations.
13. Document intake, output, system pressures, blood flow, calcium chloride, and citrate flow rates.

R. **Circuit Recirculation:**
1. Recirculation will be performed only by qualified critical nurses or dialysis nurses.
2. After blood is returned to the patient, a CRRT setup can be re-circulated for four hours only.

S. External surfaces CRRT machines will be cleaned with the approved antimicrobial solution before leaving the patient's room.

T. All used filters and lines will be disposed of in the biohazard waste container.

U. For all alarm conditions, after following directions on screen, call the NxStage alarm line. If issues cannot be resolved after calling NxStage, rinse back the patient's blood and recirculate the system until the dialysis nurse arrives.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	7/16/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	7/16/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	7/15/2025
Document Owner	Georgia Wilson: Sys Dir Dialysis & Nephrology Svcs	7/11/2025

Applicability

Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document

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Last Revised	12/2/2025	Applicability	MMC, KMHC, MHC Corporate, POMH
Next Review	12/2/2026	Tags	Policy

Continuous Renal Replacement Therapy Patient Blood Return

Purpose

To provide safe return of patient's blood in the event of necessary take-off due to procedure or impending clotting of the system.

Policy

The Continuous Renal Replacement Therapy (CRRT) competent nurse may independently flush the CRRT system and return blood to the patient.

Procedure

A. Prepare for disconnection
   1. Notify dialysis nurse if the CRRT treatment is discontinued.
   2. Turn off the citrate and calcium chloride drips.
   3. Gather supplies.
      a. Blue pad
      b. One pair non-sterile gloves
      c. Ten (10) chlorahexidine prep pads
      d. Two (2) 10cc pre-filled saline syringes
      e. One face shield for nurse

f. Two (2) face mask, one for the patient and nurse

g. Catheter dwell as ordered by physician (heparin 1000 unit/mL or sodium citrate) – order from pharmacy

B. Disconnection or flushing the system

1. Follow the NxStage System One prompts for rinseback.
2. Disconnect and flush catheter per the Inpatient Hemodialysis Catheter Care and Maintenance policy.

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Approval Signatures

Step Description	Approver	Date
System Policy Oversight Committee	Terri Fries: Document Mgmt Spec	12/2/2025
Policy & Procedure Chair	Wendy Walter: Registered Nurse	12/1/2025
Coord Patient Care	Lisa Carlson: Coord Patient Care	11/19/2025
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Applicability

Kalkaska Memorial Health Center, MHC Corporate (Home Health, Dialysis, NMSA, etc.), Munson Medical Center, Paul Oliver Memorial Hospital

Standards

No standards are associated with this document