

Chronic Maintenance In-Center Hemodialysis Standing Orders

1. Dry Weight

All new patients will have an initial assessment.

2. Access

Apply cold pack per policy for infiltrations related to access punctures.

3. Machine Parameters

Adjust machine temperature between 36° and 38° Centigrade prn for patient comfort if BP > 100 mmHg systolic.

4. Routine Diet

- a. 2-3 gm sodium.
- b. 2-3 gm potassium.
- c. 0.8 – 1.2 gm phosphorus.
- d. 1.0 – 1.5 gm/kg protein.
- e. 750 cc fluid plus amount equal to urine output.

5. Laboratory Tests

a. Routine Draws:

- i. Chemistries: monthly (ICD9 = 585.6).
- ii. CBC with platelets monthly (ICD9 = 585.6).
- iii. HBsAg: (ICD9 = 585.6)
 1. monthly if patient is HBsAg neg and Anti-HBs neg unless patient is receiving the Hepatitis vaccination series. If receiving the vaccination series draw HBsAg one month after series complete.
 2. annually (Jan) if patient is Anti-HBs pos or if HBsAg pos
- iv. Anti-HBs: (ICD9 = 585.6)
 1. annually (Jan.) if patient is HBsAg neg and Anti-HBs neg
 2. annually (Jan) if patient is Anti-HBs pos
 3. these intervals do not include patients who are in process of immunization with hepatitis vaccine.
- v. Anti-HBc: on admission if not previously obtained. (ICD9 = 585.6)

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- vi. Hepatitis C Antibody: (ICD9 = 585.6)
 1. on admit to NKC if not previously obtained.
 2. annually (Jan.)
- vii. Ferritin, TSAT, Fe, TIBC: quarterly (ICD9 = 275.09)
Jan–Apr–July–Oct.
- viii. PTH semiannually (Jan, July) for patients not on intravenous vitamin D replacement therapy.
 1. hyperparathyroidism (ICD9 = 588.81)
 2. hypoparathyroidism (ICD9 = 252.1)
 3. For patients on vitamin D replacement therapy, see paricalcitol orders.
- ix. Aluminum: (ICD9 = 268.2)
 1. on admission
 2. quarterly for patients with aluminums >30 or on aluminum binders (Jan–Apr–July–Oct.)
- x. Kt/V/eKt/V, (URR): monthly (ICD9 = 585.6)
- xi. Cholesterol q month for patients receiving IDPN (ICD9 = 263.9).
- xii. Hemoglobin A1c values will be obtained quarterly on patients who have a diagnosis of diabetes mellitus in cyberREN (ICD9 = 250.00).

b. PRN Draw:

i. Dialysis Adequacy:

1. **If dialysis run is unusual:** If dialysis run on the day of monthly blood draw is unusual (see description below), do not obtain post dialysis sample. Reschedule and draw URR and Kt/V (pre and post dialysis BUN) next mid-week dialysis.
 - a. Short dialysis session: If dialysis had to be terminated early or there were many interruptions resulting in blood volume processed being ≥ 10 liters less than ordered.
 - b. Extra dialysis - immediately before blood draw HD
 - c. SUF: If sequential UF and dialysis was ordered that is not routine for the patient
 - d. Longer dialysis session: If patient needed longer than usual dialysis session
2. **URR** For patients dialyzing 3 times per week
 - a. **If URR < 65%**
 - i. Dialysis time 3 hours or longer, high-flux dialyzer, Qb 300 or higher
 - ii. Repeat URR next mid-week dialysis

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- iii. If URR still <65%, work up cause (separate sheet) and check with nephrologist
 - b. **If URR >85%:**
 - i. Repeat URR next midweek dialysis
 - ii. If URR still >85%, check with nephrologist
 3. **spKt/V <1.2**
 - a. Dialysis time 3 hours or longer, high-flux dialyzer, Qb 300 or higher
 - b. Repeat spKt/V next mid-week dialysis
 - c. If spKt/V still <1.2, work up cause (separate sheet) and check with nephrologist
 4. **spKt/V >2.1**
 - a. Repeat spKt/V next midweek dialysis
 - b. If spKt/V still >2.1, check with nephrologist
 - ii. **Blood cultures:** (ICD9 = 038.9)
 1. for patient with a central line and with fever >100° F (38.2° C) draw 2 sets of blood cultures from the access/bloodlines at least 5 minutes apart. Notify MD.
 2. for patient without central line but with fever >100° F (38.2° C), call MD for orders.
 - iii. **Water and dialysate cultures, LAL and colony counts:** from the machine and treatment station used should be obtained when clinical suspicion warrants.
 - iv. **Access site cultures:** (ICD9 = 996.62). Notify MD.
 - v. **Potassium:** (Hyperkalemia-ICD9 = 276.7 or Hypokalemia -ICD9 = 276.8)
Check serum potassium STAT if patient presents with clotted access.
- c. **Lab requests for patients who travel**
Patients who wish to travel to other facilities while on vacation will have their labs drawn prior to travel, at the discretion and request of the unit to be visited, as long as:
1. Correct ICD9 codes are provided;
 2. The patient signature is obtained on the ABN section of the lab form prior to the labs being drawn.

6. Medications

a. **ROUTINE:**

i. **Heparin – Anticoagulant**

1. Initial heparin dose for dialysis

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- a. Use heparin 1,000 units/mL vial.
- b. If clotting or excess bleeding occurs, notify MD for heparin dose adjustment per protocol.
2. Cut heparin dose by 50% or greater if evidence of falls, bruises, same day surgery, dental visit, epistaxis, or other active bleeding, and suspected pericarditis. Notify MD.
- ii. **Heparin – Catheter Anticoagulant (ICD9 286.9)**
Post Dialysis Lumen Instillation
 - a. Fill each lumen with 1,000 units/mL heparin post dialysis. Draw up 0.2 mL more than fill volume of catheter and instill using positive pressure technique. If no fill volume specified, use 1.5 ml/lumen.
 - b. After filling catheter, clamp while applying positive pressure.
 - c. Use of 5,000 units/mL heparin requires special orders. Dialysis technicians may not instill 5,000 unit/mL heparin.

b. PRN:

- i. **Lidocaine (Xylocaine) – Anesthesia for access**
May use any of approved topical anesthetics for access cannulation.
- ii. **Benadryl; Epinephrine; Solumedrol related to Transfusion Reaction (ICD9 999.89), Dialyzer Reation (ICD9 996.73) or Drug Reaction (ICD9 995.29);**
 1. Diphenhydramine (Benadryl) 25 mg may be given IV and repeated x 1 if necessary (if patient is not hypotensive) for chills, fever, rash, itching and backache as relates to transfusion, dialyzer, or drug reaction.
 2. Epinephrine 0.3mg **IM** via EPI pen auto-injector.
 3. Solumedrol, 125 mg IV push over 5 - 10 minutes.
 4. Notify Pharmacy of any drug reactions.
 5. Notify Blood Center of any blood transfusion reactions.
 6. Notify MD of any dialyzer, drug, or transfusion reaction.
- iii. **Tylenol – Pain (ICD9- 780.96) & Fever (ICD9- 780.60)**
Acetaminophen (Tylenol) 325 mg., 1 to 2 tablets every 4 hours prn during dialysis (after checking patient's

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- temperature) for mild pain or headache, joint and muscle ache, discomfort related to access, and for fever $>100.0^{\circ}\text{F}$.
- iv. **Nitroglycerin – Anginal Chest Pain (ICD9- 786.50)**
Nitroglycerin 0.4 mg (gr 1/150) SL. May repeat every 5 minutes x 2. Notify MD. Do not give if systolic BP is <100 mmHg.
 - v. **Oxygen – Dyspnea, Chest Pain, Hypotension, Arrhythmia, etc. (ICD9- 799.02 Hypoxemia)**
Oxygen may be administered per nasal cannula at 2 L/min. or mask at 5 L/min. Do not exceed 2L/min in patient with COPD.
 - vi. **Glucose Paste – Insulin Reactions (ICD9- 251.1)**
 - 1. Obtain chemstrip.
 - 2. For symptomatic hypoglycemia (chemstrip below 80), administer approximately $\frac{1}{2}$ to 1 tube (12 – 24gm) glucose paste PO.
 - vii. **Dextrose 50% - Insulin Reactions (ICD9- 251.1)**
For severe symptoms of hypoglycemia or chemstrip <50 , give Dextrose 50%, 50 ml (25 gm), IV x 1 dose. Notify MD.
 - viii. **Normal Saline – Muscle Cramps or Hypotension**
Normal Saline (0.9%) IV may be given in 200cc boluses up to 1000cc's.
 - ix. **Antihypertensives – Hypertension**
Notify MD if systolic BP greater than 200, or if diastolic BP greater than 120. Do not initiate dialysis.
 - x. **Seizures**
Initiate seizure protocol and call MD to obtain further orders.
- c. **OTHER:**
- i. **Hepatitis B Vaccine (ICD9- V05.3)**
Per protocol.
 - ii. **Influenza vaccine (ICD9- V04.81):**
Influenza vaccine should be administered to all patients during the flu season (October - April) except those with egg allergy, those for whom the patient's physician has stated it is contraindicated, and those who refuse.
 - iii. **Pneumococcal vaccine (ICD9- V03.82):**
Pneumococcal vaccine should be administered to all patients who have not received vaccination previously, except for those for whom the patient's physician has stated it is contraindicated, have known allergy, and

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those who refuse. Date for subsequent five-year booster should be noted in cyberRen.

- a. For patients who have already received initial vaccination and date is known, boost 5 years from date.
- b. For patients who have received initial vaccination but its date is uncertain, treat as initial vaccination.

iv. **Levocarnitine:**

1. Levocarnitine initiation or continued use after 6 months requires CMO approval prior to acceptance of the orders.
2. CMO will notify facility upon approval for both initial and continued use of levocarnitine (the latter after 6 months of therapy).
 - a. MD will determine levocarnitine dose.
 - b. CMO will send the facility copies of signed and approved "Justification of Initial Levocarnitine Administration," or "Month 6 Levocarnitine Evaluation and Re-Order" to begin or continue therapy.
 - c. The signed copies must be placed in the patient's chart.
3. The **initial** Levocarnitine order is valid for 6 months only and then must be re-approved by CMO
 - a. Stop levocarnitine at 6 months of treatment until CMO approval of re-order is received.
 - b. Levocarnitine re-order as approved by CMO is valid for one year and then must be renewed annually by the Nephrologist. (No further CMO approval required.)

7. Miscellaneous

a. **Diabetic Patient Education:**

If patient is diabetic initiate the Diabetes Self Care Management Education protocol.

b. **Unstable Medical Conditions**

If nursing assessment deems patient unsafe for dialysis, hemodialysis may be postponed or terminated at the discretion of the RN. Notify the nephrologist. Document in medical record.

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c. Emergency Dialysis Orders

Provision of dialysis services in an emergency depends on the degree of social isolation of both patients and staff, availability of patient transportation for access to care, and the reserve of caregivers to provide care.

During emergencies (earthquake, fire, flood, power-outage, pandemic, etc.), the following procedure will be implemented:

1. In a declared emergency in which the NKC Emergency Operations Center (EOC) is convened, standing orders specific to the emergency at hand will be communicated to facilities, staff and medical staff.
 - a. They are subject to change depending on changes in conditions.
 - b. They may vary from facility to facility.
 - c. Nursing services may exercise discretion and clinical judgment in their application.
2. Baseline provision of care should include:
 - a. Dialyzer: single use dialyzer F180
 - b. Dialysate: [Ca++] and [K+] per patient prescription: if emergency obligates decreased frequency or shortened time, [K+] = 1 K+; if patient on Digoxin, 2K.
 - c. Heparinization 1.0 cc (1000 units) prime; 1.0 cc (1000 units) hourly, adjusted according to hours run) may be used.
 - d. Time: provision of maximum dialysis time feasible given the nature of the emergency, in conjunction with instructions from the EOC.
 - e. Kayexalate (ICD9- 276.7): provide patient with Kayexalate as needed from disaster supplies (30 gm).

Physician Name (Please Print)

RN Name (Please Print)

Physician signature
(see referral sheet)

RN signature

Date

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