

# Adult Home Hemodialysis Standing Orders

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## 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. 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. 750cc fluid plus amount equal to urine output

## 4. Dialyzers:

- a. Current single use selected by NKC for home use on B. Braun equipment.
- b. Cartridges with dialyzer for the NxStage machine will be provided by NxStage.

## 5. Needles:

15 g dialysis needles unless the physician specifies otherwise.

## 6. Laboratory Tests – Routine:

Test	ICD-9	Frequency
NKC special profile **	585.6	Monthly
Post-dialysis BUN **	585.6	Monthly
Hemoglobin (Hgb)	585.6	Monthly (Also see Home Dialysis Programs Standing Orders for ESA)
Ferritin, TSAT, Fe, TIBC	275.09	Jan-Apr-Jul-Oct (Also see Home Dialysis Programs Standing Orders for Iron)

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HBs Ag	585.6	Monthly if patient is HBsAg negative and Anti-HBs negative unless patient is receiving the Hepatitis vaccination series. If receiving the vaccination series draw HBsAg one month after series complete. Annually (Jan) if patient is Anti-HBs positive or if HBsAg positive
HBs Ab	585.6	Every six months (Jan, July) if patient is HBsAg negative and Anti-HBs negative Annually (Jan) if Anti-HBs positive These intervals do not include patients who are in process of immunization with hepatitis vaccine.
Hepatitis C Antibody	585.6	On admit to NKC if not previously obtained Every 6 months (Jan., July)
Anti-HBc (core antibody)	585.6	On admission if not previously obtained
PTH Intact *	588.81	Jan-Apr-July-Oct or when patient schedules with clinic visit (Also see Home Programs Standing Orders for Activated VitaminD)
CBC with Platelets	585.6	Monthly
Aluminum *	268.2	On admission Quarterly for patients with aluminums >30 or on aluminum binders (Jan-Apr-July-Oct.) Schedule with monthly clinic visit
URR / Kt/V **	585.6	Calculated monthly

\* indicates laboratory tests which cannot be mailed from home and must be obtained by one of the following methods:

- a. Patient comes to the Home Training Unit to have test drawn following S.O. schedule.
- b. Patient makes arrangements to drop off blood specimen at the Home Training Unit or NKC satellite at end of treatment following S.O. schedule.
- c. If patients live outside the greater Seattle area the test may be drawn at the physician's office and results faxed to the Home Training Unit.

\*\* Draw on midweek run for conventional therapy and on third run of week for daily therapy.

## 7. Laboratory Tests – PRN:

- a. Blood cultures: (ICD9 = 038.9)

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- i. For patient with a central line and with fever  $>100^{\circ}$  F ( $38.2^{\circ}$ C) draw 2 sets of blood cultures from the access/bloodlines at least 5 minutes apart.
- ii. For patient without central line but with fever  $>100^{\circ}$  F ( $38.2^{\circ}$  C), call MD for orders.
- iii. Blood Cultures must be drawn in center.
- iv. Notify MD.
- b. Water and dialysate cultures, LAL, and colony counts: from the machine and treatment station used should be obtained when clinical suspicion warrants, when patient is running back-up.
- c. Access site cultures: (ICD9 = 996.62)
  - i. Must be done in center.
  - ii. Notify MD.
- d. Potassium: (Hyperkalemia-ICD9 = 276.7 or Hypokalemia-ICD9 = 276.8) Check serum potassium STAT if patient presents with clotted access.
- e. New patient training labs as directed. To include lactic acid at the end of the 2<sup>nd</sup> and 4<sup>th</sup> weeks.

#### 8. **Laboratory Tests requests for patients who travel:**

Patients who wish to travel to other facilities while on vacation may have their labs drawn prior to travel, at the discretion and request of the unit to be visited, as long as correct ICD9 codes are provided.

#### 9. **Medications:**

##### a. **Heparin – Anticoagulant:**

- i. Use Pork Heparin 1:1000 u/mL.
- ii. Prime and/or hourly Heparin doses per nephrologist order.
- iii. If helper/patient reports clotted or streaked dialyzer, Short Daily increase prime by 500u. If this occurs a second time, schedule patient for a back-up treatment in the Home Training Unit for heparin dose adjustment.
  1. If heparin pump is being used adjust heparin off time based upon duration of bleeding after the removal of needles postdialysis from exit sites. Bleeding should stop within 10 minutes after fistula needle is removed (for non-daily therapies), if it is longer heparin dose may need adjustment.
  2. Contact MD for change in heparin dose.
  3. With excessive bleeding despite Heparin decrease, evaluate access for stenosis prior to further dose adjustment.
- iv. If helper and/or patient notify the Home Training Unit that the patient is scheduled for same day surgery, dental

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appointment, or that epistaxis or other active bleeding is present, reduce the total heparin dose (prime and hourly) by ½ or per MD order for that day's treatment.

- v. Heparin Standard Dialysis  
Prime and/or hourly Heparin doses per nephrologist order.
- vi. Heparin NxStage Short Daily Dialysis
  - 1. If patient is transferring from in-center, bolus dose = initial prime + 50% of the total hourly dose.
  - 2. If dose exceeds 7500u bolus, HH Medical Director to review.
- vii. Heparin Extended Dialysis
  - 1. Start with prime of 2000u and 500u/hr.
  - 2. Adjust per clearance of dialyzer and lines, & bleeding time post dialysis.
  - 3. Adjust prime first, then hourly.

#### **b. Heparin – Central Line Catheter Anticoagulant:**

- i. Post Dialysis Lumen Instillation
- ii. Fill each lumen with heparin 1:1000 u/mL post dialysis.
- iii. Draw up 0.2 mL more than catheter fill volume instill using positive pressure technique.
- iv. If no catheter fill volume is specified, use 1.5 ml/lumen.
- v. Use of 5,000u/mL Heparin requires special orders.

#### **c. Normal Saline – Muscle Cramps or Hypotension:**

- i. Sterile normal saline in increments of 100 to 200 mL may be given rapidly IV while on dialysis up to 500 mL (total) before calling on-call home training nurse.
- ii. Nurse may advise helper to give an additional 500 mL of normal saline in increments of 100 to 200 mL for a total of 1000 mL.

### **10. PRN Medications For Back-Up or Training Runs In-Center:**

#### **a. Lidocaine (Xylocaine) – Anesthesia**

- i. Lidocaine 1 % (without epinephrine), intradermally for skin anesthesia prior to access puncture.

#### **b. Benadryl; Epinephrine; Solumedrol related to Transfusion Reaction (ICD9 999.89), Dialyzer Reaction (ICD9 996.73) or Drug Reaction (ICD9 995.29):**

- i. **Diphenhramine (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.
- ii. **Epinephrine** 0.3 mg **IM** via EPI pen auto-injector.
- iii. **Solumedrol** 125 mg IV push over 5-10 minutes.
- iv. Notify Pharmacy of any drug reactions.
- v. Notify Blood Center of any blood transfusion reactions.

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- vi. Notify MD of any dialyzer, drug, or transfusion reaction.
  - c. **Tylenol – Pain (ICD9 780.96) & Fever (ICD9 780.60):**
    - Acetaminophen (Tylenol) 325mg., 1 to 2 tablets every 4 hours prn during dialysis (after checking patient's temperature) for mild pain or headache, joint and muscle ache, discomfort related to access, and for fever > 100.0°F.
  - d. **Nitroglycerin – Anginal Chest Pain (ICD9 786.50):**
    - i. Nitroglycerin 0.4 mg (gr 1/150) SL. May repeat every 5 minutes x 2.
    - ii. Notify MD.
    - iii. Do not give if systolic BP is < 100mmHg.
  - e. **Oxygen – Dyspnea, Chest Pain, Hypotension, Arrhythmia (ICD9 799.02 Hypoxemia)**
    - i. Oxygen may be administered per nasal cannula at 2 L/min. or mask at 5 L/min.
    - ii. Do Not exceed 2 L/min. in patient with COPD.
  - f. **Glucose Paste – Insulin Reactions (ICD9 251.1):**
    - i. Obtain chemstrips.
    - ii. For symptomatic hypoglycemia (chemstrip below 80), administer approximately ½ to 1 tube (12-24gm) glucose paste PO.
  - g. **Dextrose 50% - Insulin Reactions (ICD9 251.1):**
    - i. For severe symptoms of hypoglycemia or chemstrip < 50, administer Dextrose 50%, 50 ml (25gm), IV x 1 dose.
    - ii. Notify MD.
  - h. **Normal Saline – Muscle Cramps or Hypotension**
    - i. Normal Saline (0.9%) IV may be given in 200cc boluses up to 1000cc's.
  - i. **Antihypertensives – Hypertension:**
    - i. Notify MD if systolic BP greater than 200, or if diastolic BP greater than 120.
    - ii. Do not initiate dialysis.
  - j. **Seizures:**
    - Call physician to initiate seizure protocol and obtain orders.
- 11. Miscellaneous Medications:**
- a. **Influenza Vaccine (ICD9 V04.81):**
    - Influenza vaccine should be administered to all patients except those with egg allergy, those for whom the patient's physician has stated it is contraindicated, and those who refuse.
  - b. **Pneumococcal Vaccine (ICD9 V03.82):**
    - i. Pneumococcal vaccine should be administered to all patients who have not received vaccination previously, except for

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those who the patient's physician has stated it is contraindicated, have known allergy, and those who refuse.

- ii. Date for subsequent five-year booster should be noted in cyberREN.
  1. For patients who have already received initial vaccination and date is known, boost 5 years from date.
  2. For patients who have received initial vaccination but date is uncertain, treat as initial vaccination.

**c. Hepatitis B Vaccine (ICD9 V05.3):**

Per protocol

## **12. Miscellaneous- For Back-Up or Training Runs In-Center:**

**a. Unstable Medical Conditions:**

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

**b. Emergency Dialysis Orders:**

- i. In the event the patient is unable to dialyze at home due to earthquake, fire, flood, power-outage, pandemic etc. provision of dialysis services 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.
- ii. 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<sup>++</sup>] and [K<sup>+</sup>] per patient prescription: if emergency obligates decreased frequency or shortened time, [K<sup>+</sup>] = 1 K<sup>+</sup>; if patient on Digoxin, 2K.

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- 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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