

## 2021 Home Hemodialysis Standing Orders

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### 1. Nutrition Standards of Care:

- A. Follow P&P *Nutrition Standards of Care*

### 2. Laboratory Tests:

A. Drawn On Admission:

1. Renal Function Panel (BMP, PO<sub>4</sub> and Albumin) (ICD10 N18.6 & Diabetics E08.21 or Non-Diabetics R73.09)
2. Total Protein, Alkaline Phosphatase, ALT (ICD10 N18.6)
3. CBC with differential and platelets (ICD10 N18.6)
4. HBsAg, HBsAb, HBcAb, HCVAb (ICD10 N18.6)
5. Serum Aluminum (ICD10 N18.6)
6. Iron Studies (ICD10 N18.6)
7. Vitamin D-25 (ICD10 N18.6)
8. Intact PTH (ICD10 N18.6)

B. New Patient Training Labs:

1. End of week 1, 3 and PRN: Renal Function Panel, Hgb, Kt/V or *Std Kt/V* (ICD10 N18.6, Z49.31 & Diabetics E08.21 or Non-Diabetics R73.09)

C. Monthly Draws:

1. Renal Function Panel (ICD10 N18.6 & Diabetics E08.21 or Non-Diabetics R73.09)
2. Total Protein, Alkaline Phosphatase, ALT (ICD10 N18.6)
3. CBC with differential and platelets (ICD10 N18.6)
4. HBsAg (ICD10 N18.6)
5. Standard Kt/V if dialyzing > 3 times a week (ICD10 Z49.31)
6. Intact PTH (ICD10 N25.81) if patient is on Sensipar

D. Two (2) Weeks After Monthly Labs:

1. Hgb if receiving ESA therapy (ICD10 N18.6)

E. Quarterly Labs:

1. Iron Studies (Jan, Apr, Jul, Oct) (ICD9 585.6)
2. Intact PTH (Feb, May, Aug, Nov) (ICD9 585.6)
3. Aluminum for patients with most recent aluminum levels > 30 or on aluminum containing phosphate binders (Feb, May, Aug, Nov) (ICD9 268.2)

F. Annual Labs:

1. HBsAb, HCVAb (Jan) (ICD10 N18.6)
2. Vitamin D-25 (Jan) (ICD10 N18.6)
3. Aluminum (Jan) (ICD10 M83.9)
4. Magnesium (Jan) (ICD10 N18.6)

G. PRN Lab Draws:

1. Blood Cultures (ICD10 A41.9) & Wound Cultures of access site (ICD10 T82.7XXA (initial), D (subsequent) or S (sequela))
  - a. Patient with a central venous catheter and a fever of >100.4°F or >38.0°C, draw two (2) sets of blood cultures from the access/bloodlines at least five (5) minutes apart. Notify MD.
  - b. Patient with a fistula or graft and a fever of >100.4°F or >38.0°C, call MD for orders.

- c. Culture and Sensitivity on any drainage noted from a dialysis access site
  - i. Specify Site
  - ii. Contact MD prior to initiation of dialysis if access infection suspected.
- d. **ALL CULTURES MUST BE DRAWN IN CENTER**
- 2. HBsAb titer recheck 30 days after completion of Hepatitis B vaccination series (ICD10 N18.6)
- 3. Phosphorus (ICD10 N18.6) per dietitian/RN discretion if not meeting goal
- 4. Recheck labs and notify MD per P&P *Critical Lab Notification to Nephrologist*
- 5. Water and dialysate cultures, LAL, and colony counts from machine and water treatment: (ICD10 N18.6)
  - a. PRN Nurse clinical suspicion

**3. Water Testing:**

Testing Schedule					
Initial Home Survey (Testing Done by Technical Services)	Initial Home Treatment (Sampling Done by RN)	Quarterly Testing (Sampling Done by Patient)	Annual Testing (Sampling Done by Patient)	New or Change in Water Source (Sampling Done by Patient)	Patients On Well Water Quarterly testing (Sampling Done by Patient)
AAMI (Raw Water)	AAMI (Product Water) LAL/CC (Dialysate)	LAL/CC (Dialysate)	AAMI (Raw <u>and</u> Product Water) LAL/CC (Dialysate)	AAMI (Raw <u>and</u> Product Water) LAL/CC (Dialysate)	AAMI (Raw <u>and</u> Product Water) LAL/CC (Dialysate)

**4. Dialysis Adequacy:**

- A. Notify MD if:
  - 1.  $Kt/V < 1.2$
  - 2. Standard  $Kt/V < 2.0$
- B. If  $Kt/V < 1.2$  or Std  $Kt/V < 2.0$ , recheck prior to end of current month (ICD10 Z49.31)
- C. Ultrafiltration rate may not exceed 13 ml/kg/hr without MD order

**5. Medications:**

**Oxygen and IV medications will NOT be given by patient or caregiver. Oxygen, SubQ and IV medications can only be given while in the Home Department or during an in-center treatment by a nurse.**

- A. Epinephrine Auto Injector per P&P *Anaphylaxis*
- B. Benadryl 25 mg IV:
  - 1. **FOR ALLERGIC REACTIONS ONLY**
  - 2. **Patients should not drive after dialysis after receiving these medications as their abilities may be hampered**
- C. Ondansetron 4 mg PO PRN nausea or vomiting, may repeat once
- D. Acetaminophen 325 mg 1-2 PO every four (4) hours as needed for pain
- E. Nitroglycerin 0.4 mg SL PRN chest pain:

1. May repeat every five (5) minutes for up to 3 doses
2. *Page MD* after the first dose is given
3. **DO NOT GIVE IF BP SYSTOLIC IS < 100**
- F. Glucose Tabs for Insulin Reaction (ICD10 E16.1): See P&P *Hypoglycemia Management*
- G. Dextrose 50% for Insulin Reaction (ICD10 E16.1): See P&P *Hypoglycemia Management*
- H. Heparin 1000 units/1 ml heparin lock for central venous catheters
- I. Alteplase (tPA, cathflo activase):
  1. Follow *Central Venous Catheter Protocols* for indications and use
  2. Alteplase can only be administered in-center
- J. Lidocaine 1% intradermal injection (up to 0.2ml) or EMLA cream for local anesthesia at each cannulation site PRN
- K. Oxygen 2 L/min nasal cannula PRN dyspnea, chest pain or hypotension per P&P *Administration of Oxygen*
- L. Gentamicin 0.1% cream topical to central venous catheter exit site every hemodialysis treatment (ICD10 N18.6)
- M. Oseltamivir (Tamiflu) 30 mg PO post dialysis (ICD10 J06.9)
  1. This is **ONLY** to be given during flu season (October-April)
  2. *Page MD* if a patient presents during flu season with a fever (>100.4°F or >38°C) **AND** a cough or sore throat
  3. Obtain order to give Oseltamivir 30 mg PO post dialysis for one (1) treatment
  4. Puget Sound Kidney Centers will only provide the initial dose of Oseltamivir
  5. Remind MD to call in an order for subsequent doses to patient's local pharmacy *and request recommendations for testing for SARS-CoV-2 and Influenza A and B.*
  6. Standard dosing is 30 mg PO post dialysis for a total of 5 days

## 6. Vaccinations:

- A. Hepatitis B Vaccination (ICD10 Z23) per P&P *Hepatitis B Prevention Program*
- B. Seasonal Flu Vaccination (ICD10 Z23) per P&P *Administration of the Seasonal Influenza Vaccine*
  1. Should be administered to all patients 18 years or older during the flu season (October-April)
  2. Exceptions:
    - a. Check package insert for contraindications
    - b. MD stated contraindicated
    - c. Patient refuses
- C. Pneumococcal Vaccination (ICD10 Z23) per P&P *Administration of the Pneumococcal Vaccines PCV13 and PPSV23*

## 7. Bone Disease Management Protocol:

- A. For dosing of oral calcium medications and phosphate binders follow P&P *Calcium and Phosphorus Management*

## 8. Anemia Management:

- A. For dosing of ESA (ICD10 D63.1) and IV Iron (ICD10 D50.9) see *Home Anemia Management* P&P

## 9. Heparinization:

- A. NxStage Short Daily Dialysis:

1. If Patient is transferring from in-center, bolus dose = initial prime + 50% of the total hourly dose.
  2. No hourly heparin in Short Daily Dialysis
  3. Dose not to exceed 7500 units without Medical Director review
- B. Extended Dialysis:
1. Start with prime of 2000 units and 500 units/hr.
  2. Adjust per clearance of dialyzer and lines and bleeding time post dialysis
  3. Adjust prime first, then hourly
  4. Notify MD of Changes
- C. Duration of bleeding after the removal of needles post dialysis should be within 10 minutes. If it is longer, heparin dose may need adjustment.
- D. With excess bleeding despite Heparin decrease, evaluate access for stenosis prior to further dose adjustment.

## 10. Dialysis Access:

- A. Maintain adequate blood flow rate (BFR):
1. Minimum BFR of 200ml/min up to maximum ordered BFR, but limited by arterial pressures NEVER to exceed -240 mmHg and venous pressures NEVER to exceed +240 mmHg. Adjust BFR as needed to stay within pressure limits.
  2. Notify MD if unable to maintain blood flow rate  $\geq 200$  ml/min
- B. Recirculation Studies (ICD10 N18.6 or as indicated by MD) to be drawn per P&P *Drawing Recirculation Studies for a Hemodialysis Access* if:
1. Arterial pressure is  $\geq -10$  mmHg x1 at a 200 ml/min BFR
  2. Venous pressure is  $\geq 140$  mmHg x3 consecutive treatments at a 200 ml/min BFR
  3. Notify MD if:
    - a. AV Fistula – Recirculation  $> 10\%$
    - b. AV Graft – Recirculation  $> 15\%$

## 11. Nursing:

- A. During NxStage training, patient will dialyze 5 days a week unless otherwise ordered
- B. Ok for patient to miss one run for 1<sup>st</sup> home supply delivery
- C. Hypovolemia/Hypotension:
1. Administer 0.9% Normal Saline IV in 100 ml increments up to 500 ml PRN
  2. Page MD if more than 500 ml is needed
- D. Unstable Medical Condition:
1. Dialysis may be postponed or terminated at the discretion of the nurse if the patient is deemed to be medically unstable
  2. Page MD immediately
- E. Hypertension (Systolic Blood Pressure  $> 200$  or Diastolic Blood Pressure  $> 120$ ):
1. Do not initiate dialysis
  2. Page MD for instructions
- F. Tachycardia (Pulse  $> 120$ ):
1. Do not initiate dialysis
  2. Page MD for instructions
- G. Use Low Dose Heparin per P&P *Anticoagulation Protocol* and page MD if:
1. Evidence of recent fall
  2. Same day surgery

3. Dental visit
4. Epistaxis
5. Suspected pericarditis

**4. Emergency Dialysis Orders:**

- A. In a declared emergency (earthquake, fire, flood, power-outage, etc.) where routine dialysis treatment cannot be performed the following adjustments to the dialysis prescription may be made:
1. Dialyzer: F160NRe (if not available, F180NRe may be substituted)
  2. Dialysate: Per patient’s prescription. If this is not available, the default dialysate will be K2.0/Ca2.5
  3. Time: Maximum feasible up to prescribed time depending on the nature of the emergency.
  4. MD will be notified if adjustments are made to the patient’s dialysate or time
  5. Heparinization
    - Use back up orders if available
    - Hold if patient reports no heparin on run
    - Otherwise: Use table below for bolus dose
    - Normal Saline Flushes PRN for clotting

<b>Time</b>	<b>:00 Minutes</b>	<b>:15 Minutes</b>	<b>:30 Minutes</b>	<b>:45 Minutes</b>
<b>2 Hours</b>	2400 units heparin	2600 units heparin	2800 units heparin	3000 units heparin
<b>3 Hours</b>	3200 units heparin	3400 units heparin	3600 units heparin	3800 units heparin
<b>4 Hours</b>	4000 units heparin	4200 units heparin	4400 units heparin	4600 units heparin

Nephrologist Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**See Electronic Signature in the EMR system**