



MANITOBA RENAL PROGRAM

SUBJECT <ul style="list-style-type: none"> ▪ Guidelines for Heparinization during Hemodialysis 	SECTION 80.20 Guidelines - Hemodialysis
	CODE 80.20.01
AUTHORIZATION <ul style="list-style-type: none"> ▪ Professional Advisory Committee, Manitoba Renal Program ▪ Professional Advisory Council, St. Boniface Hospital 	EFFECTIVE DATE September 2008
	REVISION DATE October 2009 February 2013 April 2015 January 2018

PURPOSE:

1. These guidelines are applicable to Registered Nurses and Licensed Practical Nurses who administer heparin and monitor the adequacy of heparinization during hemodialysis treatments. Anticoagulation with heparin is the usual method of preventing clotting extra corporeal systems. The heparin dose is initially prescribed on the *Chronic Hemodialysis Physician's Order Sheet* (Form # W-00109A) by the physician or on physician's order sheet.

STATEMENT OF GUIDELINES:

NOTE: Heparin is considered a High Alert Medication and thus an Independent Double Check is required by a second health care Practitioner.

Follow Facility Parenteral Drug Manual regarding administration of Intravenous (I.V.). Heparin.

1. Routine heparin prescriptions are for patients who are at a normal risk for bleeding:

- Patient's specific variables that influence requirements would include presence of congestive heart failure, malnutrition, neoplasm, blood transfusion and comorbid coagulopathies (e.g. warfarin therapy).
- Use of other medications in combination with heparin may increase a patient's risk of bleeding. These medications include warfarin, antiplatelet drugs (e.g. aspirin, clopidogrel), nonsteroidal anti-inflammatory drugs (e.g. ibuprofen, naproxen), or low molecular weight heparins (e.g. dalteparin, enoxaparin). In addition, a patient's heparin requirements may increase with the use of erythropoietin stimulating agents (e.g. darbepoetin, epoetin alfa) due to the resultant increase in hemoglobin and haematocrit with these medications.
- Adverse effects of heparin may include hyperkalemia, osteoporosis, hyperlipidemia, heparin-induced thrombocytopenia, and risk of bleeds.

2. Heparin can be prescribed in various amounts depending on the patient's needs and physician orders.

- Most patients will have a physician's' order for systemic heparin which includes an initial bolus/prime with continuous dose per hour .The heparin bolus or prime can be given prior to initiation of Hemodialysis via patient's vascular access or at the start of the treatment via the heparin pump on the Fresenius 5008.

3. **Heparin Free Dialysis: Refer to Procedure 30.13.03 Providing Hemodialysis Without Heparinization cross reference over to standing orders**

4. **Standard infusion time:**

- Central Venous Catheter – for duration of treatment.
- Arterio-venous fistula or graft – Heparin must be discontinued a minimum of 30 minutes prior to end of treatment.

5. **Assessing anticoagulation therapy prior to administration of heparin:**

- The patient should be assessed regarding the events or changes in condition that have occurred since last hemodialysis treatment. If there are any signs of bleeding or potential risk of bleeding refer to 30.10.13 *Providing Hemodialysis without Heparinization*.
- Visual inspection of the dialyzer during and post dialysis treatment is important in assessing the effects of anticoagulation.
- Signs of clotting in the system include:
 - Extremely dark blood, shadows of black streaks in the dialyzer and clot formation in the drip chamber and the headers of the dialyzer.
 - Decrease in Kt/V and clearance test.
 - Changes in arterial and venous pressures may be seen.
 - Changes in TMP.
- Visual inspection post treatment for clotting in the dialyzer, a few clotted fibres or some clotting in the headers are not unusual but large amounts of clotting would indicate a need for increased heparin requirements. Amount of fibres to be documented on the *Hemodialysis Flow Sheet* (standard 60.20.02)
- For International Normalized Ratio blood samples refer to Procedure 30.20.17 *Obtaining Blood Sample for International Normalized Ratio from Central Venous Catheter*.
- Prolonged bleeding after fistula needle removal may also be attributed to stenosis. Refer to policy 30.20.06 *AVF/AVG Vascular Access Assessment*.

6. **Any changes to heparin dosages must be ordered by a physician.**

- Follow facility guidelines regarding administration of I.V. Heparin.

DOCUMENTATION:

- Hemodialysis Treatment Record
- Integrated Progress Notes (IPN)
- Medication Administration Record (MAR)

REFERENCES:

Health Sciences Centre Pharmacology Reference Manual for Nursing: Adult Parenteral Drug Monograph - Heparin
<http://hschome.hsc.mb.ca/policies/wordpolicies/Heparin%2001%20Dec%202014.pdf>

Latham, C. (2006). Hemodialysis technology. In Molzahn, A. & Butera, E. (Eds.), *Contemporary nephrology nursing: principles and practices, second edition* (pp. 548-551).