

**Ambulatory Care – Nephrology Kidney Function/Hemodialysis Clinic**

**St. Paul’s Hospital Rotation Manual**

# DESCRIPTION

The ambulatory care nephrology rotation is a core rotation of the VHC-PHC Hospital Pharmacy Residency program specializing in adult nephrology. The Kidney Function Clinic (KFC) services 1500+ chronic kidney disease non-dialysis patients, Integrated Care Clinic clinic services 200 pre-dialysis pts with diabetes while the Hemodialysis Unit services 270+ patients. All units are staffed by nephrologists, nurse practitioners, nurses, pharmacists, dieticians, social workers and/or renal technicians. The Resident will have the opportunity to integrate with the multidisciplinary team operating on the units and provide pharmaceutical care to the patients there.

# GOAL

The Resident will develop the organizational and clinical skills required to provide pharmaceutical care to renal patients across the spectrum of chronic kidney disease, ranging from pre-dialysis to hemodialysis.

# OBJECTIVES

Upon completion of the 4-week rotation, the resident will:

1. Demonstrate the ability to obtain a complete medication history making use of all available and appropriate resources including the patient, medical record, PharmaNet, BC Provincial Renal Agency Patient Record/Registration Outcome Measures Information System (PROMIS), community pharmacy, family members, family physician, etc.

2. Demonstrate the ability to evaluate the appropriateness of a patient’s drug therapy through literature review, patient interviews, physical examination, retrieval of necessary information from the health record, interpretation of laboratory studies and diagnostic investigations, and discussion with other health care professionals.

1. Demonstrate proficiency in practising under the Pharmaceutical Care model, including the ability to:
   * identify and state potential drug-related problems
   * describe desired therapeutic outcomes
   * compile a list of realistic therapeutic alternatives
   * choose and justify patient-specific therapy recommendations
   * develop and carry out a monitoring plan for efficacy and toxicity
2. Demonstrate the ability to efficiently, accurately, and completely document patient-related

concerns, progress, and recommendations in the health record.

1. Demonstrate the ability to provide clinically useful drug information to health care professionals.
2. Demonstrate proficiency in presenting critical literature evaluations and other therapeutic teaching to pharmacists.
3. Satisfactorily identify and report an adverse drug reaction to Health Canada.
4. Demonstrate competence in discussing the pathophysiology, clinical features, and therapeutics of chronic kidney disease and potential complications.
5. Demonstrate competence in adjusting drug dosing in renal patients across the spectrum of kidney disease.

# Specific Weekly Learning Objectives

## Weeks 1 and 2 (predialysis):

*Chronic kidney disease- common causes and potential complications*

* Anemia
* Metabolic bone disease
* Delay disease progression
* Hypertension
* Acid/Base disturbances
* Hyperkalemia
* CKD related symptoms (Restless leg syndrome, leg cramps, pruritus, pain, insomnia etc)
* Gout
* Cardiovascular disease
* Dyslipidemia
* Renal replacement therapy

## Week 3 and 4 (Hemodialysis):

* Describe the principles of hemodialysis
* Describe the types of vascular access for acute and chronic hemodialysis
* Define Goal weight
* Describe factors affecting drug removal by hemodialysis
* List potential complications of hemodialysis and treatment options
* Identify differences in anemia and mineral bone disease management in CKD vs ESRD

# RESIDENT’S OWN OBJECTIVES

Residents will identify several of their own objectives for the rotation. These should be documented in their ePortfolio and assessed at evaluation points during the rotation.

1.

2.

3.

# REQUIRED ACTIVITIES

The Resident will:

1. Provide pharmaceutical care to the renal patients in the Kidney Function Clinic and the hemodialysis unit as per the objectives above. This involves daily patient evaluation for efficacy and toxicity of existing therapy as well as detecting and solving potential drug-related problems.

Patient load will be determined based on the Resident’s previous experience and proficiency and will be modified at the discretion of the preceptor.

1. Assist in the initiation and continuation of appropriate drug therapy.
2. Provide medication counselling and perform medication histories on all patients under his/her care when appropriate.
3. Provide discharge counselling to all patients who require it and liase with community pharmacist and/or physician whenever indicated (via letter, PharmaNet, verbal).
4. Document all clinical activities in the patient’s health record. Notes should be discussed with the preceptor BEFORE placing them in the chart. All notes should be photocopied (on fax machine) for later review by the preceptor.
5. Attend pharmacy or nephrology education sessions (e.g., Journal Club, Lunch and Learn, other scheduled presentations).
6. The student may attend medical grand rounds in Lecture Theatre on Thursdays at 1200hr. Schedule of topics is available from your preceptor.
7. At weekly Noon Hour Presentation (Thursday, 12:00 in Pharmacy Conference Room),

informally present a clinical case, critique of the pharmacotherapeutic literature, or clinical “pearl of wisdom” to the group.

1. Prepare topics for discussion with preceptor. These may include topics pre-selected by the preceptor as well as specific topics on which the student would particularly like to expand their knowledge base. See end of this document for a list of potential topics.
2. Meet daily with preceptor to discuss the patients being followed, issues of interest, therapeutic controversies, ongoing evaluation, and special topics (outlined in #9).
3. Identify an adverse drug reaction and report it to Health Canada using the proper form. The ADR should also be posted on the patient’s PharmaNet profile if appropriate.
4. Other activities as assigned by preceptor. GENERAL STRUCTURE OF ROTATION

# Monday Tuesday Wednesday Thursday Friday

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Orientation  **Initial**  **pre-dialysis patient work up**  KCC Clinic –PM | KCC clinic – AM  (GN clinic) Pt report  KCC Clinic – PM | KCC Clinic – AM  **Discuss renal function assessment overview of CKD and complications**  Pt report | **Discuss**  **Anemia management & review anemia cases** | KCC Clinic – AM  **Discuss MBD Review MBD cases**  Pt report |
| **Discuss GN**  Pt report  KCC Clinic – PM | KCC Clinic – AM  (GN clinic) Pt report  KCC Clinic – PM | KCC Clinic – AM  Pt report  **Discuss proteinuria** | **Discuss electrolyte disturbances** | KCC Clinic – AM  **Discuss Drug dosage adjustment**  Midpoint evaluation |
| Orientation 8:45  **Discuss Principles of HD**  Initial HD patient workup | Morning report  (6 CD  conference) 8:15-8:45  Patient rounds | Morning report  (6 CD  conference) 8:15-8:45  **Discuss complications (ie. Infections) of HD**  Patient report | Morning report  (6 CD  conference) 8:15-8:45  Patient rounds | Morning report  (6 CD  conference) 8:15-8:45  **Anemia/MBD difference in HD**  Patient Report |
| Morning report  (6 CD  conference) 8:15-8:45  **Discuss drug removal on HD**  Patient report | Morning report  (6 CD  conference) 8:15-8:45  Patient rounds | Morning report  (6 CD  conference) 8:15-8:45  **Other topics of choice**  Patient report | Morning report  (6 CD  conference) 8:15-8:45  Patient rounds Presentation  (RxCR)  Patient report | Morning report  (6 CD  conference) 8:15-8:45  Patient handover  Final Evaluation |

**Week 1**

**Week 2**

**Week 3**

**Week 4**

**COMMUNICATION EXPECTATIONS**

1. The Resident will discuss all written chart notes with the preceptor prior to placing them in the chart, with the exception of medication histories and allergy clarifications, unless otherwise arranged with the preceptor.
2. The Resident will notify the preceptor in advance of required off-site activities and absences.

# PRECEPTOR RESPONSIBILITIES

1. Introduce the Resident to the ward, pharmacists, and team.
2. Provide orientation to pharmacy department and ward.
3. Take report of all patients.
4. Be available for consultation with Resident whenever possible.
5. Discuss clinical topics with student twice weekly.
6. Provide feedback on notes written in health record.
7. Schedule dates for presentations.
8. Keep the Resident informed regarding their availability for consultation and meetings.

# EVALUATION PROCESSES

1. The resident will receive a formative evaluation at the mid-point of the rotation, which is based on the evaluation form completed at the end of the rotation. This evaluation will also take into account the rotation-specific objectives and resident’s own objectives outlined above.
2. The resident will receive a summative evaluation at the end of the rotation. This evaluation will also take into account the rotation-specific objectives and resident’s own objectives outlined above.
3. The resident will receive continuous formative feedback and instruction during the rotation, which should be considered part of the evaluation process.
4. The resident will evaluate both the preceptor and the rotation.
5. Evaluations are completed online in the WebEval system. The resident and preceptor will PRINT their respective evaluations for face-to-face discussion.

# READING

*Predialysis*

Chronic Renal Failure and End Stage Renal Disease (Dipiro) Evaluation of **laboratory measurements** for clinical assessment of kidney disease. Am J Kidney Dis 2002;39 (suppl1):s76-110. Bahal O’Mara N.

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Anemia in patients with chronic kidney disease. Pharmacotherapy Self-Assessment Program, 6 ed

(PSAP-VI), p.15-34. Considerations for optimal **iron** use for anemia due to chronic kidney disease. Hudson JQ, Comstock TJ. Clin Therapeutics 2001;23:1637-71. Controversies in **iron** management. Nissenson AR,

Charytan C. Kidney Int 2003;64 (suppl 87):S64-71. Differentiating factors between

**erythropoiesis-stimulating agents**. Deicher R, Horl WH. Drugs 2004;64:499-509. Tomasello SR. Bone

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metabolism and disease in chronic kidney disease. Pharmacotherapy Self-Assessment Program, 6 ed

(PSAP-VI), p.55-67. The Seventh report of the Joint National Committee on Prevention, Detection, and Treatment of **High Blood Pressure JNC-VII** guidelines *(section on kidney disease)* Clinical practice guidelines for the management of **diabetic nephropathy** in Canada. Steele A, Whiteside C. Can J Diabetes Care 2002;23:53-61. Disorders of **potassium and acid-base** balance. Wiseman AC, LinasS. Am J Kidney Dis 2005;45:941-9. **Restless legs syndrome** in pts on dialysis. Kavanagh D, Siddiqui S, Geddes CC. Am J Kidney Dis 2004;43:763-71. An update on **pruritus** associated with CKD. Patel TS, Freedman BI, Yosipovitch G. Am J Kidney Dis 2007;50:11-20.

*Hemodialysis*

Manley H. **Renal Replacement** therapies. Pharmacotherapy Self-Assessment Program, 4th ed (PSAP-VI), p 217-231.

Awdishu L. **Drug Issues** in renal replacement therapies. Pharmacotherapy Self-Assessment Program, 6th

ed (PSAP-VI), p. 91-101.

**Vascular Access** for hemodialysis. Conlon PJ. Chapter 77.

Hemodialysis **Complications**. Core curriculum in nephrology. Himmelfarb J. Am J Kidney Dis 2005;45:1122-31.

Guidelines for use of **alteplase** for occluded central venous catheter for hemodialysis.

<http://www.bcrenalagency.ca/NR/rdonlyres/AC0BB28B-00A9-41A6-BD76-55F441559B03/24737/UseofAltepla> seJuly242006.pdf

Dialysis **catheter-related bacteremia**: treatment and prophylaxis. Allon M. Am J Kidney Dis

2004;44:779-91.

The intersection of risk and benefit: is **warfarin anticoagulation** suitable for atrial fibrillation in patients on

hemodialysis? Sood M. Chest 2009;136:1128-1133

**USEFUL NEPHROLOGY WEBSITES**

**BC Provincial Renal Agency**: [http://www.bcrenalagency.ca](http://www.bcrenalagency.ca/)

* Patient information – medication info sheets; list of BCPRA approved community pharmacies; list of renal pharmacists
* Health Professionals – standards & guidelines (e.g. anemia protocol, alteplase, catheter-related bacteremia-coming soon); formulary; application forms for sevelamer & cinacalcet; PROMIS; info sheets on health related problems associated with CKD

**National Kidney Foundation**: <http://www.kidney.org/professionals/>

* KDOQI Guidelines: diabetes, CKD stratification, peritoneal dialysis, anemia, nutrition, dialysis adequacy, vascular access, bone metabolism and disease, dyslipidemias, hypertension, and cardiovascular

disease in dialysis <http://www.kidney.org/professionals/KDOQI/guidelines.cfm>

* KDOQI Guidelines synopsis 2006: anemia, nutrition, dialysis adequacy and vascular access, bone metabolism and disease, dyslipidemias, hypertension, and cardiovascular disease in dialysis patien[ts.http:/](http://www.kidney.org/professionals/kls/pdf/Pharmacist_CPG.pdf)/[www.kidney.org/professionals/kls/pdf/Pharmacist\_CPG.pdf](http://www.kidney.org/professionals/kls/pdf/Pharmacist_CPG.pdf)
* GFR calculator

**The Renal Pharmacists Network:** <http://renalpharmacists.net/>(free membership) – Toronto based

* Newsletters; discussion forums; presentations
* Dialysis of drugs handbook –free of charge

**CKD Insights**: <http://www.ckdinsights.com/>

**Hypertension, Dialysis, Clinical Nephrology**: [http://www.hdcn.com](http://www.hdcn.com/)

* + Nephrology literature alerts; presentations – some free of charge

**Canadian Society of Nephrology**: [http://csnscn.ca](http://csnscn.ca/)

* + Clinical Practice Guidelines (e.g. CKD, anemia, hemodialysis adequacy); position statements (e.g.

PRCA)