

## Recommended Practice Resource



*This document has been adopted for use at the Shared Health level by all Shared Health staff and at all Shared Health governed sites, including contracted facilities.*

This document is evidence-informed and reflects current best practices identified through a review of relevant literature during its development. It has been reviewed and endorsed by Kidney Health Manitoba, and the Provincial Clinical Policy Committee to support consistency and quality in clinical practice across the province. This document is intended to be used in alignment with the [Provincial Clinical Guideline - Measuring Peritoneal Dialysis Adequacy: Kt/V Collection](#).

**Title:** Measuring Peritoneal Dialysis Adequacy: CLARIA

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### 1.0. Scope

- 1.1. This recommended practice resource applies to all staff working in a peritoneal dialysis unit in Manitoba that provide care to patients with chronic kidney disease.
- 1.2. This recommended practice resource applies to the assessment of peritoneal dialysis prescription adequacy for patients utilizing the Vantive Homechoice Claria Night Cyler. It establishes standardized procedures and evidence-based practices to ensure accurate and consistent evaluation of dialysis effectiveness, supporting optimal patient outcomes and timely adjustments to therapy as needed.

### 2.0. Definitions

#### 2.1. Defined Terms

- 2.1.1 **Automated Peritoneal Dialysis** is a form of home dialysis treatment for people with kidney failure. It uses the lining of the abdomen (the peritoneum) to filter waste and excess fluids from the blood, and it's typically performed overnight using a machine called a cyler.

- 2.1.2 **Continuous Ambulatory Peritoneal Dialysis** is a manual form of peritoneal dialysis that includes the filling and emptying of your abdomen with dialysate which is called an exchange. An exchange may be done 3 to 5 times during the day, and once during the night to remove wastes, chemicals, and extra fluid from your body.
- 2.1.3 **Kt/V** is a key measure used in dialysis to quantify how effectively waste products (mainly urea) are being removed from a patient's blood. ( $K$ =Clearance  $\times$   $t$ =time /  $V$ =Volume)
- 2.1.4 **Peritoneal Dialysis** is a type of dialysis used to treat people with kidney failure. Unlike hemodialysis, which filters blood outside the body using a machine, peritoneal dialysis uses the lining of your abdomen (the peritoneum) as a natural filter to remove waste, toxins, and excess fluids from the blood.
- 2.1.5 **Sharesource:** The Vantive Sharesource is a wireless service program to deliver patient treatment information to the peritoneal dialysis unit and to the Vantive Company. The Vantive Homechoice Claria automated peritoneal dialysis system may be used with the Vantive Sharesource program. The patient must consent for the transmission of the personal health information (treatment information) to the PD unit and to Vantive to use this software. The patient must sign an electronic consent with the initial treatment on the specific machine and every time the machine is swapped.
- 2.1.6 **Twin Bag:** trademark name for dialysate solution used to perform continuous ambulatory peritoneal dialysis.

## 2.2. Abbreviations

- 2.2.1 **APD:** Automated Peritoneal Dialysis
- 2.2.2 **Kt/V:** Adequacy Test ( $K$ =Clearance  $\times$   $t$ =time /  $V$ =Volume)
- 2.2.3 **L:** Litre
- 2.2.4 **mL:** Milliliters
- 2.2.5 **PD:** Peritoneal Dialysis

## 3.0. Training

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- 3.1. During orientation to the peritoneal dialysis unit a demonstration and practice opportunity will be provided.

#### 4.0. Equipment/ Supplies

- 4.1. 24-hour urine collection container
  - 4.1.1 Other collection containers are not accepted by the lab
- 4.2. Clean red clamps × 2
- 4.3. Patient Addressograph Labels
- 4.4. Peritoneal Dialysis Kt/V Requisition (Shared Health Form - [R250-10-84](#))
- 4.5. 24 Hour Urine Collection Requisition (Urine Chemistry Testing Requisition Shared Health Form – [R250-10-95](#)) – As per site protocol
- 4.6. Serum Testing Requisition (Hospital Biochemistry/Hematology Requisition Shared Health Form – [R250-10-93](#)) (if required)
- 4.7. **Clean scissors**
- 4.8. Equipment for cyclor treatment:
  - 4.8.1 As per [Baxter Home Choice Pro Cyclor Set-Up: Initiation of Cycling and End of Treatment utilizing a luer lock cyclor set \(software version 10.4\)](#). A y-connector and drain bags will be used for the collection. This would include:
    - 4.8.1(a) Vantive Homechoice Claria Night Cyclor
    - 4.8.1(b) Disposable luer set 4 prong cassette
    - 4.8.1(c) Prescribed dialysate solution
    - 4.8.1(d) MiniCap × 2
    - 4.8.1(e) Cyclor drainage bag set
    - 4.8.1(f) Drain manifold (y-connector)
    - 4.8.1(g) 12 foot drain line extension (optional)
    - 4.8.1(h) 12 foot patient extension line (optional)
    - 4.8.1(i) Tape (optional)

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- 4.8.1(j) Heparin 1,000 units/mL (Optional)
- 4.8.1(k) Clean red clamp
  - Used to open solution bag outer wraps and to clamp drain line at end of therapy
- 4.9. Clean, single use paper bag - Optional
  - 4.9.1 For supplies given to patient for home collection.

## 5.0. Procedure

### 5.1. Key Points:

- 5.1.1 Adequacy of the peritoneal dialysis prescription involves both peritoneal and residual renal clearance of waste products from the blood, thus all urine and peritoneal dialysis effluent is collected in a 24-hour period. A blood sample is taken with the 24-hour urine and peritoneal dialysis effluent collection. This is called a Kt/V collection.
  - 5.1.1(a) Patients are advised that Kt/V samples and lab work need to be completed at the same laboratory within 24 hours of collection.
- 5.1.2 A Kt/V collection is performed 4 – 6 weeks after initiation of peritoneal dialysis, 6 months thereafter or as directed by the PD unit.
  - 5.1.2(a) If the patient is on antibiotics for infection (peritonitis) hold any scheduled Kt/V collection until one month post completion of antibiotics.
  - 5.1.2(b) If the patient is experiencing issues, rebook the Kt/V collection after resolution.
  - 5.1.2(c) When modeling is done resulting in prescription changes, then remodeling is done one month after implementation of those prescription changes.
- 5.1.3 The Kt/V collection results are entered into a modeling software program by the peritoneal dialysis nurse and the patient's peritoneal dialysis prescription is modified to attain maximal clearance. The patient's lifestyle and preferences are factored into the peritoneal dialysis prescription.

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- 5.1.3(a) The modeling is not done with every Kt/V collection. The modeling is done if the adequacy is not met and/or the patient is symptomatic.
- 5.1.3(b) All Kt/V results are entered into Sharesource, but not all Kt/V collections are entered into the modeling software.
- 5.1.4 Peritoneal dialysis patients are taught Kt/V collection with their initial PD training. Instructions and supplies for home collection are provided at the end of the training period and as required by the peritoneal dialysis unit.
- 5.2. Start 24-hour urine collection:
- 5.2.1 Discard the first morning urine.
- 5.2.2 Collect all urine including the first morning urine of the next day.
- 5.2.3 Perform hand hygiene and don gloves before handling used urine containers. Doff gloves and perform hand hygiene after handling urine containers.
- 5.3. Perform hand hygiene and follow Routine Practices for Infection Prevention and Control. Maintain aseptic technique for all connections/disconnections.
- 5.4. Cyclor set up as per [Baxter Home Choice Pro Cyclor Set-Up: Initiation of Cycling and End of Treatment utilizing a luer lock cyclor set \(software version 10.4\)](#). (use 2 × 15 L drain bags and automated peritoneal dialysis (APD) manifold (y-connector)).
- 5.4.1 Heparin can be instilled as required.
- 5.4.2 If instilling heparin, perform hand hygiene prior to instillation.
- 5.4.3 Last fill must be programmed to “SAME”.
- 5.4.3(a) Steps to change the program in the Claria machine:
- Turn machine “ON”
  - Wait until cyclor has connected to Network
  - Press “STOP”
  - Press “DOWN ARROW” until “CHANGE PROGRAM” appears

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- Press “ENTER”
  - Press “DOWN ARROW” until “DEXTROSE DIFFERENT” appears
  - Press “ENTER” and press the “UP” OR “DOWN ARROW” to change to “DEXTROSE: SAME”
  - Press “ENTER” again
  - Press “STOP” to go back to the beginning
- 5.4.3(b) If programmed to “DIFFERENT” the cyclor will empty any fluid remaining in the heater bag prior to the last fill. This will make the Kt/V results inaccurate.
- 5.4.3(c) DO NOT USE ICODEXTRAN (7.5%) FOR THE Kt/V COLLECTION. Replace icodextran bag with a bag of Dianeal (strength of Dianeal based on patient assessment).
- 5.5. At the end of the treatment, perform hand hygiene.
- 5.6. Disconnect the patient as per [Baxter Home Choice Pro Cyclor Set-Up: Initiation of Cycling and End of Treatment utilizing a luer lock cyclor set \(software version 10.4\)](#).
- 5.7. Prepare the cyclor drain bags for testing:
- 5.7.1 Place a clean red clamp on the drain line and large sample port of each bag.
- 5.7.2 Cut the excess dialysate bag tubing off including the Y connector and manifold/cassette. Tie and clamp all ports.
- 5.7.2(a) Prevents leakage of dialysis solution during dismantling of cyclor.
- 5.7.2(b) If the patient’s peritoneal dialysis prescription includes any day bags, the drain bags from these exchanges should be included in the 24-hour collection.
- NOTE: If required by your site, note the volume of continuous ambulatory peritoneal dialysis (CAPD) day bag on the Peritoneal Dialysis Kt/V Requisition Shared Health Form - [R250-10-84](#). Per the Laboratory at Seven Oaks this is not required for that site.

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- 5.8. Perform hand hygiene and follow Routine Practices for Infection Prevention and Control.
- 5.9. Fill in Peritoneal Dialysis Kt/V Requisition - Shared Health Form - [R250-10-84](#).
- 5.10. Affix a Patient Addressograph Label and identify each bag #1, #2, etc.
- 5.11. Complete 24-hour urine requisition (Urine Chemistry Testing Requisition Shared Health Form – [R250-10-95](#)) and send specimen. Ensure container is labeled with a patient addressograph label.
  - 5.11.1 At St Boniface Hospital – Any and all urine is sent for testing.
  - 5.11.2 At Seven Oaks Hospital, if 24-hour urine collection is <100 mL, do not send and indicate ‘Anuria Patient’ on Peritoneal Dialysis - Kt/V Requisition (Shared Health Form - [R250-10-84](#)). If two consecutive 24-hour urine collections are <100 mL, then no need to collect urine for subsequent Kt/V’s.
  - 5.11.3 Patient’s height and dry weight must be documented for the test to be performed.
- 5.12. Ensure serum tests (glucose, albumin, creatinine, and urea) have been performed within the past 24 hours at the same laboratory where the Kt/V will be processed.
  - 5.12.1 If serum testing has not been completed, please complete Hospital Biochemistry/Hematology Requisition Shared Health Form – [R250-10-93](#), check off glucose, albumin, creatinine and urea. Direct patient to go to the laboratory for blood sample collection.
- 5.13. Send specimens to biochemistry laboratory and follow routine infection control practices.
- 5.14. Remind patient to do continuous ambulatory peritoneal dialysis (CAPD) bag of icodextrin (Twin Bag) and set cycler back to dextrose different, if applicable.
  - 5.14.1 If this step is missed, patient may experience initial drain alarms due to the absorption of dextrose based solutions.
  - 5.14.2 Steps to return program to “DEXTROSE DIFFERENT”
    - Turn machine “ON”

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- Wait until cyclor has connected to Network
  - Press “STOP”
  - Press “DOWN ARROW” once until “CHANGE PROGRAM” appears
  - Press “ENTER”
  - Press “DOWN ARROW” until “DEXTROSE: SAME” appears
  - Press “ENTER” and press the “UP” OR “DOWN ARROW” to change to “DEXTROSE: DIFFERENT”
  - Press “ENTER” again
  - Press “STOP” to go back to the beginning
- 5.15. Perform hand hygiene and follow Routine Practices for Infection Prevention and Control.
- 5.16. Provide patient with clean red clamps, drain bags (if applicable) and urine container for the next collection.
- 5.17. **Documentation**
- 5.17.1 Patient Health Record
- 5.17.1(a) An Integrated Progress Note (IPN) should be written indicating:
- The patient brought in a Kt/V
  - Document the number of day bag(s)
  - Whether or not a urine sample was collected
  - Description of effluent (clear, fibrin present, etc.)
  - Signed consent for Sharesource, if applicable
- 5.17.1(b) Date of Kt/V collection and result (note 24-hour urine volume on kardex).
- 5.17.1(c) Any changes to peritoneal dialysis prescription.
- Ensure Peritoneal Dialysis Patient Kardex is updated with any changes.

## 6.0. Resources

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- 6.1. [Provincial Clinical Guideline - Measuring Peritoneal Dialysis Adequacy: Kt/V Collection.](#)
- 6.2. Peritoneal Dialysis - Kt/V Requisition Shared Health Form - [R250-10-84](#).
- 6.3. Urine Chemistry Testing Requisition Shared Health Form – [R250-10-95](#).
- 6.4. [Baxter Home Choice Pro Cyclor Set-Up: Initiation of Cycling and End of Treatment utilizing a luer lock cyclor set \(software version 10.4\).](#)
- 6.5. Hospital Biochemistry/Hematology Requisition Shared Health Form – [R250-10-93](#) (if required).
- 6.6. Patient Instructions for Collection of 24-Hour Urine Specimens. [Patient Brochure 24 Hour Urine Collection PB110-50-01ENG V5.1](#)
- 6.7. Shared Health Blood and Urine Testing. Lab Information Manual. [Lab Information Manual](#) (2014 SBH).
- 6.8. Shared Health [Routine Practices Protocol for Infection Prevention and Control](#) (May 1, 2024).
- 6.9. [Shared Health Use of Personal Health Information Without Consent Policy 310.140.103](#) (January 1, 2022).

## 7.0. References

- 7.1. Patterson, P. A., Neumann, J. L. & Chavies, T. L. (2022). Peritoneal Dialysis. Bodin, S.M. (Editor). Contemporary Nephrology Nursing (4<sup>th</sup> Edition). Anthony J. Jannetti, Pitman: New Jersey. pp. 285 – 331.
- 7.2. Todd, L., Ales, L.M. & Lambertson, K. (2020) Peritoneal Dialysis. Counts, C.S. (Editor). Core Curriculum for Nephrology Nursing (7<sup>th</sup> Edition). Anthony J. Jannetti, Pitman: New Jersey. pp 1127 – 1221.
- 7.3. Vantive Homechoice Claria APD System Clinician Guide (2020). Chapter 12 Programming a Prescription. 12.4 Change Program Menu. pp 12-21 to 12-65. Baxter Healthcare Corporation. Deerfield, Illinois. 07-19-00-1577C1.

## 8.0. Contact(s)

- 8.1. **Document Sponsor:** Lead – Provincial Clinical Integration, Health Service Integration & Quality – Shared Health
- 8.2. **Document Owner(s):** Peritoneal Dialysis Policy & Procedure Working Group, Kidney Health Manitoba – Shared Health

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### Document Review History

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