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 Peritoneal Dialysis Measuring Peritoneal Dialysis Adequacy: Kt/V Collection Provincial Clinical Guideline.

Title: Peritoneal Dialysis Measuring Peritoneal Dialysis Adequacy: AMIA Recommended Practice Resource

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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 Amia Night Cycler. It outlines standardized processes and evidence-based practices to ensure accurate, consistent evaluation of dialysis effectiveness, supporting optimal patient outcomes and timely adjustments to therapy as required.

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 cycler.

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**: A key measure used in dialysis to quantify how effectively waste products (mainly urea) are being removed from a patient's blood. (K=Clearance × 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 Amia automated peritoneal dialysis system may be used with the Vantive Sharesource program. The patient must consent for the transmission of 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 × t=time / V=Volume)

2.2.3 **L:** Litre

2.2.4 **mL**: Milliliters

2.2.5 **PD**: Peritoneal Dialysis

2.2.6 **SH:** Shared Health

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). If required by the site.

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 cycler treatment

4.8.1 As per Baxter Amia Cycler Set-Up, Initiation of Cycling, and End of Treatment utilizing a luer lock cycler set (software version 10.4). A y-connector and drain bags will be used for the collection. The equipment required would include:

4.8.1(a) Amia night cycler

4.8.1(b) Modem (Sharesource – if using)

4.8.1(c) Amia Automated PD Set with Cassette

4.8.1(d) Prescribed dialysate solution

4.8.1(e) MiniCap × 2

4.8.1(f) Cycler drain bags (2 × 15 L)

4.8.1(g) Drain manifold (y-connector)

4.8.1(h) 12 foot drain extension line with spike (optional)

4.8.1(i) Tape (optional)

4.8.1(j) Heparin 1,000 units/mL (optional)

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4.8.1(k) Clean red clamp

- Used to open solution bag outer wraps and to clamp drain line at end of therapy

4.8.1(l) Effluent sample bag

4.8.2 Ensure all equipment and supplies are clean or sterile in packages.

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 (at the laboratory) 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. Cycler set up as per Baxter Amia Cycler Set-Up, Initiation of Cycling, and End of Treatment utilizing a luer lock cycler set (software version 10.4). (use 2 × 15 L drain bags and APD manifold (y-connector)).

5.4.1 Heparin can be instilled as required.

5.4.2 If instilling heparin, perform hand hygiene prior to installation.

5.5. At the end of the treatment, perform hand hygiene.

5.6. Disconnect the patient as per Baxter Amia Cycler Set-Up, Initiation of Cycling, and End of Treatment utilizing a luer lock cycler set (software version 10.4).

5.6.1 Once disconnected and MiniCap is on the transfer set, machine prompts user to press “NEXT”.

5.6.1(a) The cycler begins emptying the unused dialysate into the collection bags.

5.6.1(b) IMMEDIATELY press “PAUSE” and then press “SKIP”.

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- This is required to stop emptying the unused dialysate. If this step is missed, the collection will not be accurate and will have to be repeated at another treatment.

5.7. Prepare the cycler 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 cycler.

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.

5.7.3 Perform hand hygiene and follow Routine Practices for Infection Prevention and Control.

5.7.4 Fill in the Peritoneal Dialysis Kt/V Requisition. (Shared Health Form- R250-10-84 – see Appendix C).

5.7.5 Affix a patient addressograph label and identify each bag #1, #2, etc.

5.8. Complete 24-hour urine requisition (Urine Chemistry Testing Requisition Shared Health Form – R250-10-95), if required by the site, and send specimen. Ensure container is labeled with a patient addressograph label.

5.8.1 At St Boniface Hospital – Any and all urine is sent for testing.

5.8.2 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.

5.8.3 Patient's height and dry weight must be documented for the test to be performed.

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5.9. 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.

5.9.1 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.

5.10. Send specimens to biochemistry laboratory. Follow routine infection control practices.

5.11. Remind patient to do continuous ambulatory peritoneal dialysis (CAPD) bag of icodextrin (Twin Bag), if applicable.

5.12. Perform hand hygiene and follow Routine Practices for Infection Prevention and Control.

5.13. Provide patient with clean red clamps, drain bags (if applicable) and urine container for the next collection.

5.14. Documentation

5.14.1 Patient Health Record

5.14.1(a) An Integrated Progress Note (IPN) should be written indicating:

- That 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

5.14.1(b) Date of Kt/V collection and result (note 24-hour urine volume on kardex).

5.14.1(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. Peritoneal Dialysis Measuring Peritoneal Dialysis Adequacy: Kt/V Collection Provincial Clinical Guideline

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 Amia Cycler Set-Up, Initiation of Cycling, and End of Treatment utilizing a luer lock cycler 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 (4th 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 (7th Edition). Anthony J. Jannetti, Pitman: New Jersey. pp 1127 – 1221.

7.3. Vantive Amia Automated PD System Clinician Handbook. (2016). Baxter Healthcare Corporation. Deerfield, Illinois. 07-19-27-500C1.

8.0. Contact(s)

8.1. **Document Sponsor:** Lead – Provincial Clinical Integration, Health Service Integration & Quality – Shared Health

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- 18-AUG-2025 – Infection, Prevention & Control - [Endorsed]
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