PERITONEAL DIALYSIS (PD) – INTRAPERITONEAL POTASSIUM CHLORIDE ADMINISTRATION

1. Purpose	A clinical business rule to ensure the administration of intraperitoneal Potassium Chloride is performed according to best practice guidelines reducing the risk of infection and ensuring patient safety.
2. Risk Rating	High
3. National Standards	1 – Clinical Governance 3 – Preventing and Controlling Healthcare Associated Infection 4 – Medication Safety 6 – Communicating for Safety
4. Employees it Applies to	Registered Nurses (RN) trained in peritoneal dialysis. Medical Officers (MO) trained in peritoneal dialysis.

5. PROCESS

Refer to SGH CLIN443 Peritoneal Dialysis (PD) – Intraperitoneal Additives and Antibiotics

Definitions

Intraperitoneal (IP) – within or administered through the peritoneum.

Peritoneal dialysis (PD) – a renal replacement therapy utilising the peritoneal membrane for the removal of solutes (through diffusion and convection) and removal of water (through osmosis and ultrafiltration) after the infusion and during the dwell of a sterile PD fluid/solution into the peritoneal cavity through a catheter.

Continuous Ambulatory Peritoneal Dialysis – a peritoneal dialysis involving the manual infusion and drainage of PD fluid/solution into and out of the peritoneal cavity through a catheter at regular intervals throughout the day (4 – 5 times per day every day).

Automated PD – a peritoneal dialysis involving the use of a dialysis machine (cycler) programmed to automatically infuse and drain PD fluid/solution at shorter and more frequent intervals for 6 – 12 hours every day or every night.

Intermittent Peritoneal Dialysis (IPD) – an APD modality involving thrice – weekly therapy with longer therapy time (>12 hours) in a hospital setting.

5.1 RECOMMENDED INTRAPERITONEAL DOSE AND USAGE

- It is recommended to replace Potassium Chloride intraperitoneally due to the rapid loss of Potassium Chloride during ≥ 24-hour IPD therapy.
- Intraperitoneal Potassium Chloride is given for ≥ 24-hour IPD therapy only.
- Intraperitoneal Potassium Chloride is not proven effective in APD or CAPD therapy.
- Intraperitoneal Potassium Chloride must be prescribed on eMeds/medication chart, it is not nurse initiated.

- Serum Potassium level must be checked before commencing ≥ 24 hour IPD therapy.
- Intraperitoneal Potassium Chloride dose:

Serum Potassium (mmol/L)	K added / L	K added / 5 L
Greater than or equal to 5mmol	nil	nil
Less than 5mmol and greater than 3mmol	3mmol / L	18mmol / 6 L
Less than or equal to 3mmol	4mmol / L	24mmol / 6 L

5.2 DEVICES

5.2.1 Equipment

- Trolley
- Alcohol swabs
- Blue clamp

5.2.2 Key Parts

- Potassium Chloride 10 mmol in 10 mL ampoule
- Drawing-up needle (18G)
- 21 G needle
- 10 mL syringe
- PD fluid

5.2.3 Key Site

- Rubber bung on PD fluid
- Abdominal PD catheter

5.3 PROCEDURE

1. Warm the selected PD fluid on the PD machine.
   a. Select appropriate PD fluid strength by conducting a fluid assessment on patient 30 minutes prior to PD procedure.
   b. Note: PD fluid takes 30 minutes to warm.
2. Ensure the “5 Rights” of Principles for Safe Medication Administration is observed with second person check as per NSW Health PD2020_045 High-Risk Medicines Management
3. Perform hand hygiene.
4. Identify and gather equipment and key parts for procedure.
5. Check expiry dates on Potassium Chloride ampoule and PD fluid.
6. Clean trolley/work surface with detergent.
7. Perform hand hygiene.
8. Don gloves.
9. Prepare general aseptic field equipment and key parts near the patient’s bedside.
10. Use the sharp edge of the blue clamp to open outer pouch of the dialysis bag. DO NOT USE SCISSORS OR KNIVES.
11. Place the opened bag on top of the clean trolley and ensure the lines are facing up.
12. Recheck the dialysis bag strength, volume, expiry, colour and for leakage.

13. Prepare Potassium Chloride using aseptic technique ensuring all the key parts/sites are protected.
    a. Alcohol swab the Potassium Chloride ampoule/s and break top to open.
    b. Attach drawing up needle to 10 mL syringe.
    c. Aspirate all content from Potassium Chloride ampoule into the 10 mL syringe.
    d. Replace drawing-up needle with 21G needle.
14. Administer Potassium Chloride into the dialysis fluid using aseptic technique ensuring all the key parts/sites are protected:
    a. Alcohol swab the rubber bung on dialysis fluid.
    b. Push needle into the centre of the dialysis fluid bung and inject appropriate Potassium Chloride dosage into PD fluid (i.e. Potassium 3mmol / 3mL / 1 Litre PD fluid or Potassium 18mmol / 18 mL / 6 Litre PD fluid).
    c. c. Note: For accidental piercing of the bag or the side of the bung, use a new dialysis fluid.
15. Repeat procedure 13 and 14 to subsequent PD fluid bags.
16. Set-up PD machine as per Renal SGH WPI 216 Automated Peritoneal Dialysis (APD) Connection And Disconnection Procedure – Claria Dialysis Machine
17. Administer Potassium Chloride intraperitoneally through > 24 hour IPD program only as per Renal PD SGH WPI 144 Peritoneal Dialysis (PD) - Management of patients requiring intermittent peritoneal dialysis
18. Wear PPE as per NSW Health PD2023_025 Infection Prevention and Control in Healthcare Settings
19. Discard used needles & syringes as per NSW Health PD2020_049 Clinical and Related Waste Management for Health Services
20. Remove gloves and PPE.
21. Perform hand hygiene.
22. Clean trolley after use and perform hand hygiene.
23. Sign and co – sign eMeds/medication chart as per NSW Health PD2020_045 High-Risk Medicines Management
24. Document the procedure on the PD chart and patient notes.
25. Handover to the next shift.

6. Cross References	NSW Health PD2022_032 Medication Handling NSW Health PD2020_045 High-Risk Medicines Management NSW Health PD2023_025 Infection Prevention and Control in Healthcare Settings NSW Health PD2020_049 Clinical and Related Waste Management for Health Services Australian Commission on Safety and Quality in Health Care *National Standard for User Applied labelling of Injectable Medicines, Fluids and Lines* Australian Commission on Safety and Quality in Health Care *High Risk Medication Alert – Intravenous Potassium Chloride* NHMRC *Australian Guidelines for the prevention and control of Infection in Healthcare* SGH-TSH CLIN027 Aseptic Technique - Assessment and Education Requirements SGH CLIN 345 Peritoneal Dialysis - Inpatient Management

	SGH CLIN442 Peritoneal Dialysis - Peritonitis Management and Treatment SGH CLIN443 Peritoneal Dialysis (PD) – Intraperitoneal Additives and Antibiotics SGH Renal WPI 216 Automated Peritoneal Dialysis (APD) Connection And Disconnection Procedure – Claria Dialysis Machine SGH Renal PD WPI 144 Peritoneal Dialysis (PD) - Management of patients requiring intermittent peritoneal dialysis
7. Keywords	Peritoneal Dialysis, Potassium, Potassium Chloride, Hypokalaemia
8. BR Location	Under "P" in Peritoneal Dialysis section – SGH-TSH Business Rule Webpage
9. External References	1. Amirmokri, P., Morgan, P., & Bastani, B. (2007). Intra-peritoneal administration of potassium and magnesium: a practical method to supplement these electrolytes in peritoneal dialysis patients. *Renal Failure*, 29(5):603-5. PMID: 17654324 2. Cullis B, Al-Hwiesh A, Kilonzo K, et al. (2021) ISPD guidelines for peritoneal dialysis in acute kidney injury: 2020 update (adults). *Peritoneal Dialysis International*;41(1):15-31. doi:10.1177/0896860820970834 3. Glavinovic, T., Hurst, H., Hutchison, A., Johansson, L., Ruddock, N., & Perl, J. (2020). Prescribing high-quality peritoneal dialysis: Moving beyond urea clearance. *Peritoneal Dialysis International*, 40(3), 293–301. https://doi.org/10.1177/0896860819893571 4. Li PK-T, Chow KM, Cho Y, et al. (2022). ISPD peritonitis guideline recommendations: 2022 update on prevention and treatment. *Peritoneal Dialysis International*; 42(2):110-153. doi:10.1177/08968608221080586 5. Wang, A. Y. M., Brimble, K. S., Brunier, G., Holt, S. G., Jha, V., Johnson, D. W., . . . Pecoits-Filho, R. (2015). ISPD Cardiovascular and Metabolic Guidelines in Adult Peritoneal Dialysis Patients Part I – Assessment and Management of Various Cardiovascular Risk Factors. *Peritoneal Dialysis International,* 35(4), 379-387. 6. Wang, A. Y. M., Brimble, K. S., Brunier, G., Holt, S. G., Jha, V., Johnson, D. W., . . . Pecoits-Filho, R. (2015). ISPD Cardiovascular and Metabolic Guidelines in Adult Peritoneal Dialysis Patients Part I – Assessment and Management of Various Cardiovascular Risk Factors. Peritoneal Dialysis International, 35(4), 379-387. doi:10.3747/pdi.2014.00279 7. Xu, Q., Xu, F., Fan, L., Xiong, L., Li, H., & et al. (2014) Serum Potassium Levels and Its Variability in Incident Peritoneal Dialysis Patients: Associations with Mortality. *PLoS ONE* 9(1): e86750. doi:10.1371/journal.pone.0086750 8. Zanger, R. (2010). Hyponatremia and hypokalemia in patients on peritoneal dialysis, *Seminars in Dialysis*, 23(6):575-580
10. Consumer Advisory Group (CAG) Approval	Not Applicable

11. Aboriginal Health Impact Statement	The Aboriginal Health Impact Statement does not require completion because there is no direct or indirect impact on Aboriginal people. Administration of Intraperitoneal Potassium is similar for patients of aboriginal and non – aboriginal background.
12. Implementation and Evaluation Plan	**Implementation:** The document will be published on the SGH-TSH business rule webpage and distributed via the monthly SGH-TSH CGD report. Accreditation and training programs; Inservice and Education sessions; Local Champions. **Evaluation:** IMS + Monitoring, Review of document after 3 years
13. Knowledge Evaluation	**Q1: When is intraperitoneal Potassium Chloride required?** *A1: Intraperitoneal Potassium Chloride is required for patients on > 24 hour IPD therapy when serum Potassium level is less than 5 mmol.* **Q2: What is the recommended intraperitoneal Potassium Chloride dosage?** *A2: 3 mmol Potassium Chloride per litre of dialysis fluid for patients on > 24 hour IPD therapy with serum Potassium level 3.1 - 5 mmol/L. Or 4mmol Potassium Chloride per litre of dialysis fluid for patients on > 24 hour IPD therapy with serum potassium level <3 mmol/L.* **Q3: What type of peritoneal dialysis can intraperitoneal Potassium Chloride be administered?** *A3: For > 24 hour IPD therapy only. Do not give intraperitoneal Potassium Chloride in APD or CAPD therapy.*
14. Who is Responsible	Director of St George and Sutherland Renal Service. Nursing Unit Manager, Dialysis Unit

Approval for: Intraperitoneal Potassium Chloride Administration	
Specialty/Department Committee	Committee: Peritoneal Dialysis Committee Chairperson: Franziska Pettit, Staff Specialist Date: 08/02/2024
Nurse Manager / Divisional Director (SGH)	Miranda Birch, Acting Divisional Director, Medicine and Cancer Date: 08/02/2024
Medical Head of Department (SGH)	George Mangos, Department Head Renal Services Date: 08/02/2024
Safe Use of Medicines Committee (SGH)	Chairperson: A/Prof Winston Liauw Date: 15/03/2024
Executive Sponsor / s	Miranda Birch, Acting Divisional Director, Medicine and Cancer Date: 08/02/2024
Contributors to BR E.g., CNC, Medical Officers (name and position)	**Contribution** (previous version) Franziska Pettit, Staff Specialist **Contribution** (current revision) Franziska Pettit, Staff Specialist Anna Claire Cuesta (PD CNC)
	Consultation: Franziska Pettit, Staff Specialist

Revision and Approval History				
Revision Date	Revision number	Reason	Coordinator/Author	Revision Due
Feb 2017	0	New	Anna Claire Cuesta PD CNC	Feb 2020
May 2020	1	Review	Anna Claire Cuesta PD CNC	May 2023
Mar 2024	2	☐ No Changes ☒ Minor Review ☐ Major Review	Anna Claire Cuesta (PD CNC)	Mar 2026

General Manager's Ratification
Angela Karooz Date: 08.04.2024