



PERITONEAL DIALYSIS (PD) – INTRAPERITONEAL HEPARIN ADMINISTRATION

1. Purpose	A clinical business rule to ensure the administration of intraperitoneal Heparin 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.

5.1 RECOMMENDED INTRAPERITONEAL DOSE AND USAGE

- Heparin is recommended to be added to the dialysate to:
 - Maintain the patency of a new PD catheter (< 3 weeks from time of insertion).
 - Resolve a blocked PD catheter.
 - Dissolve fibrin formation on PD effluent.
- Note: Monitor patient for bleed or bloody PD effluent as an adverse effect from the use of Heparin.
- Intraperitoneal Heparin dose is: 500 units in every 1 Litre PD fluid.
- Intraperitoneal Heparin must be prescribed on eMEDs/medication chart, it is not nurse initiated.



5.2 DEVICES

5.2.1 Equipment

- Trolley
- Alcohol swabs
- Blue clamp

5.2.2 Key Parts

- Heparin 5000units in 5 mL ampoule
- Drawing-up needle (18G)
- 21 G needle
- 5 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 Heparin 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 Heparin using aseptic technique ensuring all the key parts/sites are protected:
 - a. Alcohol swab the Heparin ampoule/s and break top to open.
 - b. Attach drawing up needle to 5 mL syringe.
 - c. Aspirate all content from Heparin ampoule into the 5 mL syringe.
 - d. Replace drawing-up needle with 21G needle.
14. Administer Heparin into the dialysis fluid using aseptic technique ensuring all the key parts/sites are protected:
 - a. Alcohol swab the rubber bung on dialysis fluid.



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- b. Push needle into the centre of the dialysis fluid bung and inject appropriate Heparin dosage into PD fluid (i.e. Heparin 1000 units / 1mL / 2 Litre PD fluid or Heparin 3000 units / 3 mL / 6 Litre PD fluid).
- 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. Administer Heparin intraperitoneally through APD or CAPD as per [Renal SGH WPI 217 Continuous Ambulatory Peritoneal Dialysis \(CAPD\) Freeline Solo Exchange Procedure](#) or [SGH Renal WPI 216 Automated Peritoneal Dialysis \(APD\) Connection And Disconnection Procedure – Claria Dialysis Machine](#).
17. Wear PPE as per [NSW Health PD2023_025 Infection Prevention and Control in Healthcare Settings](#).
18. Discard used bags, lines, needles & syringes as per [NSW Health PD2020_049 Clinical and Related Waste Management for Health Services](#).
19. Remove gloves and PPE.
20. Perform hand hygiene.
21. Clean trolley after use and perform hand hygiene.
22. Sign and co – sign eMeds/medication chart as per [NSW Health PD2020_045 High-Risk Medicines Management](#).
23. Document the procedure on the PD chart and patient notes.
24. 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 National Standard for Medication Safety Standard 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 CLIN538 Peritoneal dialysis Catheter (PDC): Poor Flow/No Flow Management SGH Renal WPI 216 Automated Peritoneal Dialysis (APD) Connection And Disconnection Procedure – Claria Dialysis Machine Renal SGH WPI 217 Continuous Ambulatory Peritoneal Dialysis (CAPD) Freeline Solo Exchange Procedure
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	SGH Renal PD WPI 144 Peritoneal Dialysis (PD) - Management of patients requiring intermittent peritoneal dialysis
7. Keywords	Peritoneal Dialysis, Heparin, PD catheter, Blocked PD catheter, Fibrin, Peritonitis
8. BR Location	Under “P” in Peritoneal Dialysis section – SGH-TSH Business Rule Webpage
9. External References	<ol style="list-style-type: none"> 1. Ansari, N. (2011). Peritoneal Dialysis in Renal Replacement Therapy for Patients with Acute Kidney Injury. <i>International Journal of Nephrology</i> [cited 2015 March]; Article ID 739794, 10 pages; Available from http://dx.doi.org/10.4061/2011/739794 2. Bonomini M, Masola V, Procino G, Zammit V, Divino-Filho JC, Arduini A, Gambaro G. (2021). How to Improve the Biocompatibility of Peritoneal Dialysis Solutions (without Jeopardizing the Patient's Health). <i>International Journal of Molecular Sciences</i>; 22(15):7955. https://doi.org/10.3390/ijms22157955 3. Campbell, D. J., Johnson, D. W., Mudge, D. W., Gallagher, M. P., & Craig, J. C. (2014). Prevention of peritoneal dialysis-related infections. <i>Nephrology Dialysis Transplantation</i>. doi: 10.1093/ndt/gfu313 4. Cheng, XBJ and Bargman, J. (2024). 1,3. Complications of Peritoneal Dialysis Part II: Nonmechanical Complications. <i>Clinical Journal of the American Society of Nephrology</i> ():10.2215/CJN.0000000000000418, January 8, 2024. DOI: 10.2215/CJN.0000000000000418 5. Cho, Y., Boudville, N., Palmer, S. C., Chow, J. S. F., Hawley, C. M., Jose, M. D., . . . Johnson, D. W. (2018). Practice of Peritoneal Dialysis Catheter Flushing in Australia and New Zealand: Multi-Center Cross-Sectional Survey. 38(2), 98-103. doi:10.3747/pdi.2017.00108 6. Crabtree JH, Shrestha BM, Chow K-M, and et al. (2019). Creating and Maintaining Optimal Peritoneal Dialysis Access in the Adult Patient: 2019 Update. <i>Peritoneal Dialysis International</i>; 39(5):414-436. 7. Cullis B, Al-Hwiesh A, Kilonzo K, et al. (2021) ISPD guidelines for peritoneal dialysis in acute kidney injury: 2020 update (adults). <i>Peritoneal Dialysis International</i>;41(1):15-31. doi:10.1177/0896860820970834 8. Li PK-T, Chow KM, Cho Y, et al. (2022). ISPD peritonitis guideline recommendations: 2022 update on prevention and treatment. <i>Peritoneal Dialysis International</i>; 42(2):110-153. doi:10.1177/08968608221080586 9. Sifil, A., Mermut, C., Yenicerioglu, Y., Cavdar C., Gumustekin, M., Celik, A., Yuksel, F., and Camsari, T. (2003). Intraperitoneal and subcutaneous pharmacokinetics of low molecular weight heparin in continuous ambulatory peritoneal dialysis patients. <i>Advances in Peritoneal Dialysis</i>, 19; 28-30. PubMed PMID: 14763030



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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 Heparin 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 Heparin required? <i>A1: To dissolve fibrin in PD effluent, unblock PD catheter and maintain a new PD catheter's patency.</i> Q2: What is the adverse effect of Heparin? <i>A2: Peritoneal bleed.</i> Q3: Is IP Heparin nurse-initiated? <i>A3: No. IP heparin must be prescribed on eMeds/medication chart by a medical officer.</i>
14. Who is Responsible	Director of St George and Sutherland Renal Service. Nursing Unit Manager, Dialysis Unit
Approval for: Intraperitoneal Heparin 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: 16.03.2024
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) Anna Claire Cuesta Franziska Pettit, Staff Specialist



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		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	<input type="checkbox"/> No Changes <input checked="" type="checkbox"/> Minor Review <input type="checkbox"/> Major Review	Anna Claire Cuesta (PD CNC)	Mar 2026
General Manager's Ratification				
Angela Karooz Date: 08/04/2024				