

PERITONEAL DIALYSIS (PD) PATIENTS: PREPARATION FOR INVASIVE PROCEDURES OR SURGERY

1. Purpose	A clinical business rule (CBR) to describe the preparation required for patients on PD before an invasive procedure or surgery to reduce PD – related and post procedure complication and infection.
2. Risk Rating	Medium
3. National Standards	1 – Clinical Governance 4 – Medication Safety 5 – Comprehensive Care
4. Employees it Applies to	Nurses and medical officers (MO) at St George Hospital

5. PROCESS

5.1 BACKGROUND

Peritonitis is a major complication of PD. Anecdotal and retrospective reports suggest patients on PD are at risk of having peritonitis as a complication after invasive procedures. Peritonitis can result from an invasive procedure through translocation or migration of bacteria by:

- Ascending (from gynaecologic source)
- Haematogenous (transient from dental procedure or intravascular device)
- Transmural (from the bowel wall)

5.2 IMPORTANT CONSIDERATIONS

PD patients and/or their carers are fully trained and supported by the PD nurses to manage their own dialysis treatment at home.

- During PD training – all PD patients and/or their carers will be provided with instructions on how to prepare for invasive procedures or surgery:
 1. To inform PD nurses and their nephrologist of planned invasive procedure or surgery
 2. To inform the surgeon or proceduralist of the need for prophylactic antibiotics and antifungal to prevent PD related infection
 3. To forward a copy of this clinical business rule to their surgeon or proceduralist
- All PD patients have 'Invasive Procedure/Surgery Alert' in eMR stating:

“Peritoneal Dialysis patient - **will need prophylactic antibiotics and nystatin before invasive procedure or surgery as per SGH Clinical Business Rule CLIN 396 in St George Hospital policy website under 'Peritoneal Dialysis' (please contact patient's nephrologist/renal team or PD nurses ph 9113 3770 or page 1091 for more information)”
- Once the PD nurse is aware of the planned invasive procedure or surgery, PD nurse will:
 1. Inform the nephrologist & renal team
 2. Liaise with the surgeon or proceduralist regarding PD patient's need for pre-procedure preparation and prophylactic antimicrobial
 3. Liaise with the admitting ward or hospital regarding PD patient's need for pre-procedure preparation and prophylactic antimicrobial

Note: It is preferred by the SGH Renal Department that SGH dialysis patients' invasive procedures or surgeries are to take place in SGH for continuity of dialysis care & management

- Refer to Antibiotic Prophylaxis Regimen in [SGH-TSH CLIN 569 Surgical Antibiotic Prophylaxis Guideline](#) for procedures listed
- Refer to section 5.3 Antimicrobial Prophylaxis Recommendation for PDC manipulation or reposition, Kidney Transplantation and other invasive procedures not listed in [SGH-TSH CLIN 569 Surgical Antibiotic Prophylaxis Guideline](#)
- To prevent fungal peritonitis – all PD patients must have antifungal prophylaxis (oral nystatin 500,000 units tablet stat or QID) when given antibiotics and whilst on antibiotics. For PD patients receiving vancomycin, continue prophylactic antifungal treatment (oral nystatin 500,000 units tablet qid) for another 7 days after the dose of vancomycin

Objective	Surgery/Procedure	Pre-Procedure Preparation
To reduce complications and risk of enteric infection	GIT and Gynaecologic procedures <ul style="list-style-type: none"> ▫ Colonoscopy(+/- polypectomy) ▫ Endometrial biopsy ▫ ERCP ▫ Gastroscopy ▫ Gastrostomy ▫ Barium enema ▫ Hysteroscopy ▫ Liver biopsy ▫ Cholecystectomy ▫ Proctoscopy 	<ul style="list-style-type: none"> - Diet and Bowel preparation as instructed - Admitting team to notify renal team and PD nurses to review patient and to ensure dialysis fluid is drained prior to procedure - If bowel preparation is required, renal team to determine if patient is clinically stable to skip APD or convert APD patients to CAPD the night before due to frequent loose motions - Administer prophylactic antibiotics as per SGH-TSH CLIN 569 Surgical Antibiotic Prophylaxis Guideline - Administer anti-fungal prophylaxis as per 5.3.2 Oral nystatin - Recommence dialysis as usual after the procedure
To reduce risk of infection	Oral – maxillofacial procedures including invasive dental work	<ul style="list-style-type: none"> - Administer prophylactic antibiotics as per SGH-TSH CLIN 569 Surgical Antibiotic Prophylaxis Guideline - Administer anti-fungal prophylaxis as per 5.3.2 Oral nystatin - Continue dialysis as usual
To maintain PDC patency, reduce complications and reduce risk of enteric infection	Hernia repair	<ul style="list-style-type: none"> - Admitting surgical team will notify the renal team and PD nurses to review patient and to ensure dialysis fluid is drained out prior to procedure - Heparin lock PDC as per SGH CLIN364 PDC – Heparin Lock - Administer prophylactic antibiotics as per SGH-TSH CLIN 569 Surgical Antibiotic Prophylaxis Guideline - Administer anti-fungal prophylaxis as per 5.3.2 Oral nystatin - Patient is to rest from PD, approximately 6-8 weeks post hernia repair. Rest period is to be determined by the surgeon - Whilst patient is resting from PD, nephrologist is to decide if PDC requires weekly or fortnightly 1Litre flush, small/simple flush or no flushing at all

Objective	Surgery/Procedure	Pre-Procedure Preparation
		- Recommence dialysis as per surgeon's recommendation
To reduce complications and risk of enteric infection	PDC manipulation or reposition	<ul style="list-style-type: none"> - Empty the abdomen of dialysis fluid (if possible) prior to procedure. - Administer prophylactic antibiotics as per 5.3 Antimicrobial prophylaxis recommendation - After the procedure – 1 Litre PDC flush as per SGH WPI 053 Peritoneal Dialysis – 1L Flush on a PD Catheter to check patency - If PDC is not flushing/working – heparin lock PDC as per SGH CLIN364 PDC – Heparin Lock and refer to vascular surgeon for possible PDC replacement or reinsertion - If PDC is patent – recommence dialysis

5.3 ANTIMICROBIAL PROPHYLAXIS RECOMMENDATION

5.3.1 PDC manipulation/reposition and Kidney Transplantation

- IV Ampicillin 1g + IV gentamicin 4mg/kg
- For patients with hypersensitivity to penicillins:
 - For non – severe hypersensitivity: IV cefazolin 2g
 - For severe hypersensitivity: IV clindamycin 600mg plus IV gentamicin 4mg/kg
 - Consider referral to REACT team for antibiotic allergy assessment as per [SGH CLIN556 Antibiotic Allergy – Antibiotic Oral Challenge and De-Labeling of Antibiotic Allergies](#)

5.3.2 Antifungal prophylaxis

Oral Nystatin - 500,000 units tablet stat PO when patient is given antibiotics as prophylaxis for fungal peritonitis.

- Continue nystatin QID PO whilst patient is on antibiotics.
- For patients receiving vancomycin, continue nystatin QID PO for another 7 days after the last dose of vancomycin.

6. Cross References	NSW Health PD2013_043 Medication Handling in NSW Public Health Facilities NSW Health PD2017_013 Infection Prevention and Control Policy SGH-TSH CLIN 569 Surgical Antibiotic Prophylaxis Guideline SGH CLIN364 PDC – Heparin Lock SGH WPI 053 Peritoneal Dialysis – 1L Flush on a PD Catheter SGH WPI 137 Peritoneal Dialysis Catheter (PDC) – Simple/Small Flush on Peritoneal Dialysis SGH WPI 143 Peritoneal Dialysis (PD) – Manual Drain With A Drain Bag (Ultra Set) SGH CLIN556 Antibiotic Allergy – Antibiotic Oral Challenge and De-Labeling of Antibiotic Allergies
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7. Keywords	Peritoneal dialysis, Antimicrobial, Prophylaxis, Antibiotics
8. Document Location	Renal, Peritoneal Dialysis
9. External References	<p>Li, P., Szeto, C., Piraino, B., Bernardini, J., Figueiredo, A., Gupta, A., et al. (2011) Peritoneal dialysis–related infections recommendations: 2010 update. <i>Peritoneal Dialysis International</i>, 30:393–423. [Erratum in: <i>Peritoneal Dialysis International</i>, 31:512]</p> <p>Li, P. K., Szeto, C.-C., Piraino, B., de Arteaga, J., Fan, S., Figueiredo, A. E., . . . Johnson, D. W. (2016). ISPD Peritonitis Recommendations: 2016 Update On Prevention And Treatment. <i>Peritoneal Dialysis International</i>. doi: 10.3747/pdi.2016.00078</p> <p>MIMS. (2020). MIMS Online. https://www.ciap.health.nsw.gov.au/index.html https://www.mimsonline.com.au.acs.hcn.com.au/Search/Search.aspx</p> <p>Piraino, B., Bailie, G., Bernardini, J., Boeschoten, E., Gupta, A., Holmes, C., Kuijper E., Li, P., Lye, W., Mujais S, et al. (2005) Peritoneal dialysis-related infections recommendations: 2005 update. <i>Peritoneal Dialysis International</i>, 25: 107-131.</p> <p>Piraino, B., Bernardini, J., Brown, E., Figueiredo, A., Johnson, D. W., Lye, W.-C., et al. (2011). ISPD Position Statement on Reducing the Risks of Peritoneal Dialysis-Related Infections. <i>Peritoneal Dialysis International</i>, 31:614-630.</p> <p>Poortvliet W, Selten H, Raasveld MH, Klemm-Kropp M. (2010) CAPD Peritonitis after colonoscopy: follow the guidelines. <i>The Netherlands Journal of Medicine</i> 68:377-378.</p> <p>Sahlawi, M. A., Wilson, G., Stallard, B., Manera, K. E., Tong, A., Pisoni, R. L., . . . Perl, J. (2020). Peritoneal dialysis-associated peritonitis outcomes reported in trials and observational studies: A systematic review. <i>Peritoneal Dialysis International</i>, 40(2), 132-140. doi:10.1177/0896860819893810</p> <p>Strippoli, G., Tong, A., Johnson, D., Schena, F., & Craig, J. (2004) Antimicrobial agents to prevent peritonitis in peritoneal dialysis: a systematic review of randomized controlled trials. [Research Support, Non-U.S. Gov't Review]. <i>American Journal of Kidney Diseases</i>, 44(4):591-603.</p> <p>Szeto, C.-C., Li, P. K.-T., Johnson, D. W., Bernardini, J., Dong, J., Figueiredo, A. E., . . . Brown, E. A. (2017). ISPD Catheter-Related Infection Recommendations: 2017 Update. <i>Peritoneal Dialysis International</i> 37(2), 141-154. doi:10.3747/pdi.2016.00120</p> <p>Walker, A., Bannister, K., George, C., Mudge, D., Yehia, M., Lonergan, M., & Chow, J. (2014). KHA-CARI Guideline: peritonitis treatment and prophylaxis. <i>Nephrology (Carlton)</i>, 19(2), 69-71. doi:10.1111/nep.12152</p> <p>Yip, T., Tse, K., Lam, M., Cheng, S., Lui, S., Tang, S., et al. (2007). Risks and Outcomes of Peritonitis after Flexible Colonoscopy in CAPD Patients. <i>Peritoneal Dialysis International</i>, 27:560-564.</p>
10. Consumer Advisory Group (CAG) approval	Not applicable
11. Implementation and Evaluation Plan	<p>Implementation: The document will be published on the SGH-TSH business rule webpage and distributed via the monthly SGH-TSH CGD report. Inservices</p> <p>Evaluation: Incident Monitoring</p>
12. Knowledge Evaluation	<p>Q1: Why are prophylactic antibiotics recommended for PD patients before an invasive procedure or surgery?</p> <p>A1: To reduce the risk of PD-related and/or post procedure</p>

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	<p><i>complication and infection</i></p> <p>Q2: What is the recommended prophylaxis? <i>A2: Refer to SGH-TSH CLIN569 for procedures or surgeries listed there plus stat or QID oral nilstat. For Kidney transplantation or PDC manipulation/reposition – refer to section 4.2 Antimicrobial Prophylaxis Recommendation.</i></p> <p>Q3: How can peritonitis result from an invasive procedure or surgery? <i>A3: Through ascending, haematogenous and transmural migration or translocation of bacteria.</i></p>
13. Who is Responsible	Director of St George and Sutherland Renal Service. Nursing Unit Manager, Dialysis Unit

Approval for: PERITONEAL DIALYSIS (PD) PATIENTS: PREPARATION FOR INVASIVE PROCEDURES OR SURGERY	
Specialty/Department Committee	Committee: Peritoneal Dialysis Committee Chairperson: Franziska Pettit, Staff Specialist Date: 15.05.20
Nurse Manager (SGH)	Christine Day, Nurse Manager Medicine Date: 12.07.2021
Medical Head of Department (SGH)	George Mangos, Department Head Renal Services Date: 01.07.2021
Safe Use of Medicines Committee (SGH)	Chairperson's: A/Prof Winston Liauw Date: 02.08.2021
Antimicrobial Stewardship (AMS) Committee	Chairperson's: Pam Konecny Date: 20.10.2021
Executive Sponsor	George Mangos, Department Head Renal Services Date: 01.07.2021
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Revision and Approval History				
Revision Date	Revision number	Reason	Coordinator/Author (Position)	Revision Due
Mar 2017	0		Anna Claire Cuesta (PD CNC)	Mar 2020
Jul 2021	1	Review - Major	Anna Claire Cuesta (PD CNC)	Jul 2024

General Manager's Ratification	
Name: Paul Darcy (SGH)	Date: 15.07.2021