

PERITONEAL DIALYSIS CATHETER (PDC) INFECTION – EXIT SITE AND TUNNEL INFECTION MANAGEMENT AND TREATMENT

Cross References (including NSW Health/ SESLHD policy directives)	NSW Health PD2013 043 Medication Handling in NSW Public Health Facilities NSW Health PD2017 013 Infection Prevention Control Policy NSW Health PD2016 058 User-applied Labelling of Injectable Medicines, Fluids and Lines SGH-TSH CLIN027 Aseptic Technique - Competency and Education Requirements SGH CLIN Peritoneal Dialysis (PD) Peritonitis Management and Treatment SGH CLIN Peritoneal Dialysis (PD) – Nasal Swab And Mupirocin SGH CLIN Peritoneal Dialysis (PD) – Decolonisation treatment for Staphylococcus aureus SGH CLIN 402 Peritoneal Dialysis Catheter (PDC) – Daily Care, Dressing and Management SGH CLIN 414 Peritoneal Dialysis Catheter (PDC) – Post insertion Catheter Care, Dressing and Management <i>SGH Renal Department:</i> SGH CLIN Peritoneal Dialysis – Intraperitoneal Cefepime (1g) SGH CLIN Peritoneal Dialysis – Intraperitoneal Ceftazidime (1g) SGH CLIN Peritoneal Dialysis – Intraperitoneal Ceftazidime Administration (250 mg) SGH CLIN Peritoneal Dialysis – Intraperitoneal Fluconazole SGH CLIN Peritoneal Dialysis – Intraperitoneal Gentamicin Administration (40 mg) SGH CLIN Peritoneal Dialysis – Intraperitoneal Vancomycin Administration SGH CLIN Peritoneal Dialysis – Decolonisation treatment for Staphylococcus aureus PD SGH WPI 146 Peritoneal Dialysis –Fluid Specimen Collection via Automated Peritoneal Dialysis (APD) PD SGH WPI 145 Peritoneal Dialysis –Fluid Specimen Collection via CAPD Freeline Solo Exchange
1. What it is	A Clinical Business Rule (CIBR) for the early diagnosis of PDC exit site and tunnel infection and timely management with antimicrobial therapy according to best practice guidelines
2. Risk Rating	Medium
3. Employees it Applies to	Registered Nurses (RN) Medical Officers (MO)

4. Process

PDC infection is one of the major complications of PD. Early diagnosis, rapid intervention and treatment with antimicrobial therapy are necessary measures to prevent peritonitis and further complications. There are 2 types of PDC infection:

1. Exit site infection
2. Tunnel infection - An occult infection between the internal cuffs, usually occurs in the presence of an exit site infection and rarely occurs on its own.

4.1 DIAGNOSING PDC INFECTION

4.1.1 Exit site infection (ESI) signs and symptoms

- Purulent discharge from the exit site
- Swelling and erythema surrounding exit site may be present
- Area may be painful to touch

4.1.2 Tunnel infection signs and symptoms

- Erythema, oedema and/or tenderness over the subcutaneous pathway of the PD catheter
- Purulent or bloody drainage that discharges spontaneously or after applying pressure on the cuff
- Confirm peri-catheter abscess or collection with ultrasound. Other indications for PDC tunnel ultrasound examination are:
 - Staphylococcus aureus ESI even without symptoms of tunnel infection
 - Relapsing peritonitis episodes
 - Follow-up of combined exit-site and tunnel infection 1 week after completion of antibiotic treatment

4.2 MANAGEMENT OF TUNNEL AND ESI PRESENTATION

Note: PDC connection, exit site swab and/or dressing can be performed by (or under the supervision of) accredited staff only

- 4.2.1 Upon patient presentation, remove dressing covering the PDC exit site and review for signs and symptoms of tunnel and ESI
- 4.2.2 Clean PDC exit site with normal saline soaked gauze
- 4.2.3 Swab PDC exit site and send for microscopy, culture and sensitivity (MCS); and collect PD fluid specimen for MCS, cell count and cell differential as per [PD SGH WPI 146 PD – Fluid Specimen Collection via APD](#) or [PD SGH WPI 145 PD – Fluid Specimen Collection via CAPD Freeline Solo Exchange](#) preferably before any antibiotic treatment is given
 - For exit site with exudate: Swab exudate at exit site with a dry bacteriological (usually rayon) swab
 - For dry exit site: Pre-moisten a standard bacteriological swab with either sterile saline or the transport medium accompanying the swab

Note: If patient was on antibiotic/s prior to exit site swab and PD fluid collection, note down all the antibiotics patient received on the pathology request form

- 4.2.4 Notify renal team to review patient. Patients manifesting clinical signs of tunnel infection must have ultrasound examination to confirm peri-catheter abscess or collection
- 4.2.5 Patients manifesting clinical signs and symptoms of ESI or tunnel infection must commence empirical antibiotic treatment immediately
- 4.2.6 Replace PDC exit site dressing as per [SGH CLIN 402 PDC – Daily Care, Dressing and Management](#) or [SGH CLIN 414 PDC – Post insertion Catheter Care, Dressing and Management](#), whichever is applicable
- 4.2.7 Notify PD CNC (page 1091) and/or PD unit (ext 33770)
- 4.2.8 PD nurse to conduct a root cause analysis for any PD related infective episode, including a review of patient/carer's dressing technique and hand hygiene practices. PD nurse to provide PD catheter care retraining as required

4.3 RECOMMENDED EMPIRIC ANTIBIOTIC THERAPY AND MANAGEMENT BEFORE ORGANISMS KNOWN

- 4.3.1 Positive culture in the absence of clinical signs and symptom of ESI and tunnel infection suggests colonisation and not infection. Do not treat with antibiotics
- 4.3.2 In the presence of at least 1 or more clinical signs and symptoms of PDC exit site or tunnel infection as per section 4.1.1, increase frequency of exit site dressing change to twice a day as per [SGH CLIN 402 Peritoneal Dialysis Catheter \(PDC\) – Daily Care, Dressing and Management](#) and initiate antimicrobial treatment immediately after obtaining PDC exit site swab and PD fluid specimen:
 - a) Patients with **no** history of MRSA or *Pseudomonas* infection: oral cephalexin 500 mg every 8 hours until organism identification and susceptibility results are confirmed
OR
 - b) Patients with history of MRSA infection not susceptible to clindamycin: IP vancomycin 30mg/kg (maximum 2g), as per [SGH CLIN Peritoneal Dialysis – Intraperitoneal vancomycin Administration](#)
 - Check trough vancomycin level on day 5
 - Patient should receive another dose if trough serum levels is <15mg/mL
 - Timing of repeated dosing should be based on trough serum level and is likely to be every 5-7 days
 - OR
 - c) Patients with history of MRSA infection susceptible to clindamycin: oral clindamycin 450 mg every 8 hours
OR
 - d) Patients with history of *Pseudomonas* infection: oral ciprofloxacin 500 mg daily
OR
 - e) Patients with history of combined MRSA and *Pseudomonas* infection: oral ciprofloxacin 500 mg daily and IP vancomycin 30mg/kg (maximum 2g) as per [SGH CLIN Peritoneal Dialysis – Intraperitoneal vancomycin Administration](#)
 - Check trough vancomycin level on day 5
 - Patient should receive another dose if trough serum levels is <15mg/mL
 - Timing of repeated dosing should be based on trough serum level and is likely to be every 5-7 days;

- 4.3.3 Continue antimicrobial treatment whilst organisms identification and susceptibility are not available
- 4.3.4 Commence prophylactic antifungal treatment: oral nystatin 500 000 units every 6 hours. Continue prophylactic antifungal treatment whilst patient is on antibiotics. For patients on vancomycin, continue prophylactic antifungal treatment for another 7 days after last dose of vancomycin.

4.4 RECOMMENDED ANTIMICROBIAL THERAPY AND MANAGEMENT AFTER ORGANISMS KNOWN

- 4.4.1 Staphylococcus aureus, Coagulase-negative Staphylococcus, Staphylococcus epidermidis and other Gram positive organisms (including multiple Gram positive organisms)
 - a) Continue with oral cephalexin 500 mg TDS for 2 weeks (or 3 weeks for tunnel infection)

OR

Change to another oral, IP or IV antibiotic based on susceptibility

 - b) For severe, slow responding or non-responding Staphylococcus aureus tunnel and/or ESI: add oral rifampicin 450-600mg/day (in single or split dose) for 7 days as adjunctive treatment

Note: Rifampicin should never be given as a monotherapy. Rifampicin is usually given with fusidic acid or other beta lactams
 - c) For Staphylococcus aureus tunnel and/or ESI, collect body swabs (i.e. nasal, groin, axilla and umbilicus) to determine if the patient is a carrier of this organism.
 - For nasal carrier, patient must commence on nasal mupirocin treatment immediately as per [SGH CLIN PD – Nasal Swab And Mupirocin](#) and [SGH CLIN PD – Decolonisation treatment for Staphylococcus aureus](#)
 - d) Refer to Tables 1 and 2 for subsequent management and dosage of other antibiotics
 - e) If clinical signs and symptoms of tunnel and/or ESI are resolving, continue appropriate antibiotic therapy for a total duration of 14 days for ESI or 21 days for tunnel infection.
- 4.4.2 Methicillin resistant Staphylococcus aureus (MRSA) or methicillin resistant Staphylococcus epidermidis (MRSE) (including non-resolving Gram positive organism)
 - a) Adjust or change antibiotic treatment based on susceptibility;
 - b) ESI organism susceptible to clindamycin: Continue with or start oral clindamycin 450 mg every 8 hours

OR

 - c) ESI organism susceptible to sulphamethoxazole / trimethoprim: Commence oral sulphamethoxazole / trimethoprim 800/160mg every 12 hours for 3 days then daily

OR

 - d) Combined tunnel and ESI: Continue with or start IP vancomycin 30mg/kg (up to a maximum of 2g) as per [SGH CLIN Peritoneal Dialysis – Intraperitoneal vancomycin Administration](#) for 21 days
 - Check trough vancomycin level on day 5
 - Patient should receive another dose if trough serum levels is <15mg/mL

- Timing of repeated dosing should be based on trough serum level and is likely to be every 5-7 days.

OR

- e) MRSA tunnel and/or ESI in conjunction with or progressing to peritonitis: Continue with antibiotic treatment based on susceptibility and add oral rifampicin 450-600mg/day (in single or split dose) for 7 days as adjunctive treatment

Note: Rifampicin should never be given as a monotherapy. Rifampicin is usually given with fusidic acid or other beta lactams

- f) Collect body swabs (i.e. nasal, groin, axilla and umbilicus) to determine if patient is a MRSA carrier. For nasal carrier, patient must commence on nasal mupirocin treatment immediately as per [SGH CLIN PD – Nasal Swab And Mupirocin](#) and [SGH CLIN PD – Decolonisation treatment for Staphylococcus aureus](#)

- g) Refer to Tables 1 and 2 for subsequent management and dosage of other antibiotics

- h) If clinical signs and symptoms of tunnel and / or ESI are resolving, continue antibiotic therapy for a total duration of 21 days on appropriate antibiotics

4.4.3 Gram negative organisms (including Citrobacter, Enterobacter, E.coli, Klebsiella, Proteus, Providentia, Serratia etc.)

- a) Adjust or change antibiotic treatment based on susceptibility

OR

Start and/or continue with oral ciprofloxacin 500 mg daily.

- b) For recurrent, severe, slow responding or non-responding gram negative tunnel and/or ESI: stop oral ciprofloxacin and change to daily IP cefepime 1g as per [SGH CLIN PD – Intraperitoneal Cefepime \(1g\)](#)

AND/OR

Add or change to daily IP gentamicin 40 mg if needed as per [SGH CLIN Peritoneal Dialysis – Intraperitoneal Gentamicin Administration \(40 mg\)](#)

- Check trough gentamicin level on day 3 and daily if patient is on gentamicin for > 3 days
- Withhold gentamicin if level is >2 mg/L
- Timing of repeated dosing should be based on trough serum level and is likely to be daily

- c) Refer to Tables 1 and 2 for subsequent management and dosage of other antibiotics

- d) If clinical signs and symptoms of tunnel and/or ESI are resolving, continue appropriate antibiotic therapy for a total duration of 14 days for ESI or 21 days for tunnel infection

4.4.4 Pseudomonas tunnel and/or ESI without Peritonitis

- a) Continue with or start oral ciprofloxacin 500 mg daily

OR

- b) For recurrent, severe, slow responding or non-responding Pseudomonas tunnel and/or ESI: Stop oral ciprofloxacin and commence IP ceftazidime 1g loading dose, then 250mg/2L in each bag every 6 hours as per [SGH CLIN PD - Intraperitoneal ceftazidime administration 1g](#) and [250mg](#)

OR

Stop oral ciprofloxacin and commence daily IP cefepime 1g as per [SGH CLIN PD – Intraperitoneal cefepime 1g](#)

AND/OR

Add or change to daily IP gentamicin 40 mg if needed as per [SGH CLIN Peritoneal Dialysis – Intraperitoneal Gentamicin Administration \(40 mg\)](#)

- Check trough gentamicin level on day 3 and daily if patient is on gentamicin for > 3 days
 - Withhold gentamicin if level is >2 mg/L
 - Timing of repeated dosing should be based on trough serum level and is likely to be daily
 - c) Refer to Table 1 and 2 for subsequent management and dosage of other antibiotics
 - d) If clinical signs and symptoms of tunnel and/or ESI are resolving, continue antibiotic therapy for a total duration of 21 days on appropriate antibiotics
- 4.4.5 Pseudomonas tunnel and/or ESI *with or following* peritonitis
- a) Arrange for immediate PD catheter removal.
 - b) Continue IP Cefepime 1g daily as per [SGH CLIN PD – Intraperitoneal cefepime 1g](#) whilst PD catheter is insitu
 - c) Refer to Table 1 and [SGH CLIN Peritoneal Dialysis \(PD\) – Peritonitis Management and Treatment](#) for subsequent management
 - d) Continue with oral or systemic antibiotics based on susceptibility for 14 days from time of PD catheter removal
- 4.4.6 Fungal tunnel and/or ESI
- a) Stop empiric IP antibiotics
 - b) Without peritonitis: Adjust or change antifungal treatment based on susceptibility. Duration of treatment and decision to remove PD catheter should be based on the extent or severity of infection
 - c) Tunnel and/or ESI in conjunction with or progressing to peritonitis: Arrange for urgent PD catheter removal, commence IP Fluconazole as per [SGH CLIN PD – Intraperitoneal Fluconazole](#) whilst PD catheter is insitu and treat with appropriate oral or IV antifungal treatment for 14 days from time of PD catheter removal as per [SGH CLIN PD – Peritonitis Management and Treatment](#)
- 4.4.7 No growth (culture negative)
- a) Confirm if patient is on any antibiotic treatment at time of swab collection for MCS. If continues to have clinical signs and symptoms of tunnel and/or ESI, repeat tunnel ultrasound, PDC exit site swab and PD fluid MCS, cell count and cell differential.
 - b) Continue empiric antibiotic treatment until clinical signs and symptoms are resolved
- 4.4.8 Mycobacterial (M) tunnel and/or ESI
- a) Type and duration of treatment for mycobacteria tunnel and/or ESI is to be based on sensitivities and in consultation with the Infectious Diseases team

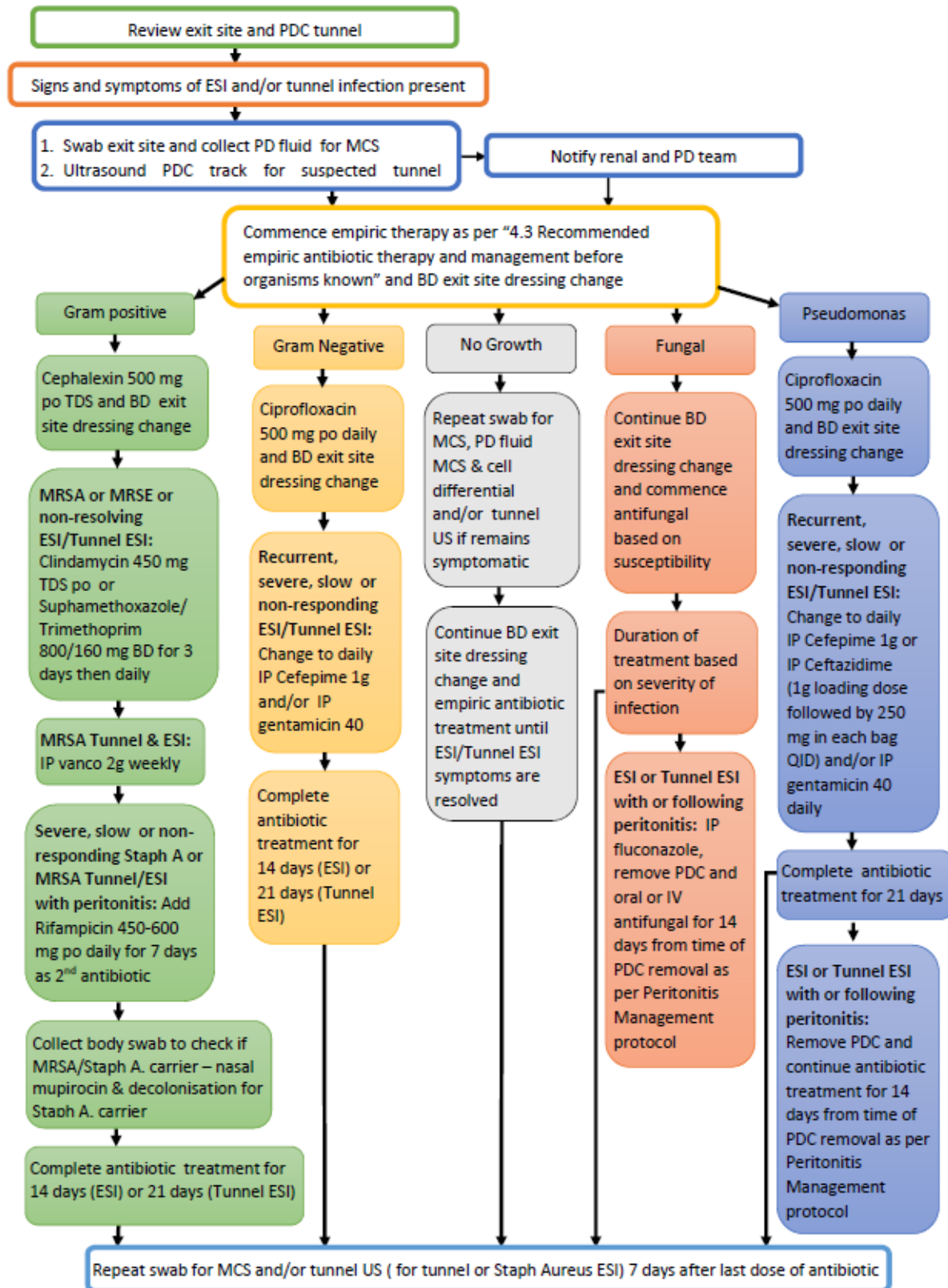
Table 1:

1. Increase frequency of PDC exit site dressing change to twice a day [SGH CLIN 402 Peritoneal Dialysis Catheter \(PDC\) – Daily Care, Dressing and Management](#) for confirmed or suspected exit site and/or tunnel infection.
2. Treat according to culture and susceptibility results from PDC exit site swab
3. If swab grows an organism but no erythema or exudate present at exit site, do not treat with antibiotics as most likely colonisation rather than infection
4. Aggressive and minimum of 3 weeks antibiotic treatment is recommended for tunnel infection, MRSA and Pseudomonas ESIs
5. Continue antifungal prophylaxis with nystatin (500 000 units orally QID) for the duration of antibiotic treatment. For patients on vancomycin, continue oral antifungal prophylaxis for another 7 days after last dose of vancomycin.
6. Immediate PD catheter removal is recommended for:
 - Refractory tunnel and ESI – patients with unresolved signs and symptoms of tunnel and ESI after 3 weeks on appropriate antibiotic treatment
 - Tunnel or ESI in conjunction with peritonitis of same organism
 - Tunnel or ESI progressing to peritonitis
7. Reinsertion of PD catheter may be considered 2 weeks after treatment completion and resolution of infective symptoms for simultaneous tunnel or ESI **with peritonitis**
8. Simultaneous removal and reinsertion of PD catheter to an alternate exit site with antibiotic cover may be considered for refractory tunnel and ESI **without peritonitis**
9. Repeat PDC exit site swab and PD fluid MCS, cell count and cell differential 7 days after completion of appropriate antibiotic therapy
10. For tunnel infection with or without ESI: repeat tunnel ultrasound 7 days after completion of appropriate antibiotic therapy
11. For staphylococcus aureus ESI with or without tunnel infection: request for a tunnel ultrasound 7 days after completion of appropriate antibiotic therapy
12. Administration of quinolones (i.e. Ciprofloxacin) should be separated from sevelamer , calcium, oral iron, zinc preparations, sucralfate, magnesium-aluminium antacids, or milk by 2 hours to prevent chelation interactions reducing quinolone absorption (administer quinolone first)
13. Root cause analysis for every tunnel and ESI episode should be conducted by the PD nurses which may include reassessment and retraining of patient/carer's PD catheter care and dressing technique including hand hygiene

Table 2:**Oral Antibiotics Used in Catheter-Related Infections**

Amoxicillin	250-500mg BD
Amoxicillin / clavulanate	875mg/125mg BD
Cephalexin	500mg BD to TDS
Ciprofloxacin	250mg BD <i>or</i> 500mg Daily
Clarithromycin	500mg loading, then 250mg BD
Clindamycin	300-450mg TDS
Erythromycin	250mg QID
Flucloxacillin	500mg QID
Fluconazole	Oral 200mg loading then 50-100mg daily
Linezolid	300-450mg BD
Metronidazole	400mg TDS
Moxifloxacin	400mg daily
Rifampicin	450mg daily for body weight <50kg 600mg daily for body weight ≥ 50kg
Trimethoprim / sulfamethoxazole	80mg / 400mg daily to 160mg / 800mg BD
(Adapted from ISPD 2017 Guidelines)	

4.5 TUNNEL AND ESI MANAGEMENT AND TREATMENT FLOWCHART



5. Keywords	Exit site Infection, Tunnel Infection, Peritonitis, Peritoneal dialysis
6. Functional Group	Renal, Peritoneal Dialysis
7. External References	Ballinger, A. P., Suetonia; Wiggins, Kathryn; Craig, Jonathan; Johnson, David; Cross, Nicholas; Strippoli, Giovanni (2014). Treatment for peritoneal dialysis-associated peritonitis. <i>Cochrane Database of Systematic Reviews</i>, 4. doi: 10.1002/14651858.CD005284.pub3 Bender F., Bernardini, J., Piraino, B. Prevention of Infectious Complications in Peritoneal Dialysis: Best Demonstrated Practices. <i>Kidney International</i> 70: S44-S54, 2006 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 Cho, Y., & Johnson, D. W. (2014). Peritoneal Dialysis–Related Peritonitis: Towards Improving Evidence, Practices, and Outcomes. <i>American Journal of Kidney Diseases</i>, 64(2), 278-289. doi: http://dx.doi.org/10.1053/j.ajkd.2014.02.025 Dombros, N., Dratwa, M., Feriani, M., Gokal, R., Heimbürger, O., Krediet, R., . . . Verger, C. (2005). European best practice guidelines for peritoneal dialysis. 4 Continuous ambulatory peritoneal dialysis delivery systems. <i>Nephrology Dialysis Transplantation</i>, 20 Suppl 9, ix13-ix15. doi: 10.1093/ndt/gfi1118 Li, P. K.-T., 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>, 36(5), 481-508. doi: 10.3747/pdi.2016.00078 Li, P. K., Szeto, C., Piraino, B., Bernardini, J., Figueiredo, A., Gupta, A., Johnson, D., Kuijper, E., Lye, W., Salzer, W., Shaefer, F., and Struijk, D. G. (2010). Peritoneal Dialysis – Related Infections Recommendations 2010 Update. <i>Peritoneal Dialysis International</i>, 30(4), 393-423. doi: 10.3747/pdi.2010.00049 Lo, M. W., Mak, S. K., Wong, Y. Y., Lo, K. C., Chan, S. F., Tong, G. M., . . . Wong, A. K. (2013). Atypical mycobacterial exit-site infection and peritonitis in peritoneal dialysis patients on prophylactic exit-site gentamicin cream. <i>Perit Dial Int</i>, 33(3), 267-272. doi: 10.3747/pdi.2011.00184 Mahoney, M. V. G. (2015). Clarification of Trimethoprim/Sulfamethoxazole Dose in CAPD. <i>Peritoneal Dialysis International</i>, 35(1), 116-118. doi: 10.3747/pdi.2013.00173 Piraino B., Baile, G., Bernardini, J. and et al. ISPD Guidelines/Recommendations Peritoneal Dialysis Related Infections Recommendations: 2005 Update. <i>Peritoneal Dialysis International</i> 25: 107-131, 2005 Piraino, B., Bernardini, J., Brown, E., Figueiredo, A., Johnson, D. W., Lye, W.-C., . . . Szeto, C.-C. (2011). ISPD Position Statement on Reducing the Risks of Peritoneal Dialysis–Related Infections. <i>Peritoneal Dialysis International</i>, 31(6), 614-630. doi: 10.3747/pdi.2011.00057 Rho, M., Bia, F., & Brewster, U. C. (2007). Nontuberculous mycobacterial peritonitis in peritoneal dialysis patients. <i>Semin Dial</i>, 20(3), 271-276. doi: 10.1111/j.1525-139X.2007.00289.x 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-

SGH CLIN433 Clinical Business Rule

	154. doi: 10.3747/pdi.2016.00120 Walker, A. (2014). Management of peritoneal dialysis-associated peritonitis in adults and children. <i>The KHA-CARI Guidelines – Caring for Australasians with Renal Impairment</i> [cited 2015 March]; Available from: http://www.cari.org.au/Dialysis/dialysis%20peritonitis/dialysis_peritonitis.html Wong PN, Lo KY, Tong GMW et al. (2007). Prevention of fungal peritonitis with nyastatin prophylaxis in patients receiving CAPD. <i>Perit Dial Int</i>; 27:531–6
8. Consumer Advisory Group (CAG) approval of patient information brochure (or related material)	Not applicable
9. Implementation and Evaluation Plan Including education, training, clinical notes audit, knowledge evaluation audit etc	- Included in the education tools developed to assist nurses in increasing their knowledge to the care of patients on peritoneal dialysis i.e. Renal care flip chart, advance and basic PD learning package and PD orientation package - Monthly inservice education by PD CNC/nurses to all renal nurses - PD tutorial to Junior Medical Officers by the PD CNC at the beginning of renal rotation
10. Knowledge Evaluation	Q1: What are the initial signs and symptoms of ESI? A: ESI may present with purulent discharge, with or without erythema, swelling or tenderness of the skin surrounding the PD catheter Q2: What are the signs and symptoms of Tunnel infection A: Erythema, oedema and/or tenderness, purulent or bloody discharge and presence of collection along the PDC tunnel Q3: What is the management of patients with suspected Tunnel and/or ESI? A: Review PDC exit site ± swab for MCS, collect PD fluid specimen for MCS, cell count & differential, tunnel ultrasound to confirm peri-catheter abscess or collection, commence empiric IP antibiotic and prophylactic anti-fungal treatment Q4: When would empiric antibiotic therapy commence? A: Preferably after the PDC exit site swab and PD fluid specimen are collected for MCS & cell differential on symptomatic patients.
11. Who is Responsible	Director of St George and Sutherland Renal Service. Nursing Unit Manager, Dialysis Unit

Approval for Peritoneal Dialysis Catheter (PDC) Infection – Exit Site and Tunnel Infection Management and Treatment	
*Specialty/Department Committee	Committee title: Peritoneal Dialysis Committee Chairperson name/position: Dr Franziska Pettit, Staff Specialist Date: 09.11.17
*Nursing/Midwifery Co-Director	Name/position Hayley Smithwick, A/Nurse Manager Medicine Date: 15.11.17
*Medical Co-Director	Name /position: Dr George Mangos, Department Head Renal Services Date: 10.11.17
*Drug and Therapeutics Committee (SGH)	Chairperson's Name: A/Prof Winston Liauw Date: 23.04.18
Contributors to CIBR development e.g. CNC, Medical Officers (names and position title/specialty)	Mark Brown, Medical Director Division of Medicine Sunil Badve, Staff Specialist Pamela Konecny, ID Specialist, Co-chair SGSHHS AMS Committee Suman Adhikari, Senior Pharmacist, Antimicrobial Stewardship & Critical Care

Revision and Approval History

Date	Revision number	Author (Position)	Revision due
March 2018	0	Anna Claire Cuesta (PD CNC)	March 2021

General Manager's Ratification

Name: Leisa Rathborne Date: 22.05.18