

NURSING GUIDELINES ON PERITONEAL DIALYSIS	
Version Number	1
Date of Issue	8 th July 2015
Reference Number	PD-07-2015-1of1-GDFMcHRTTSCUH-V1
Review Interval	3 yearly
Approved By: Name: Fionnuala O'Neill Title: Nurse Practice Development Co-Coordinator	Signature: <i>Fionnuala O'Neill</i> Date: June 2015
Authorised By: Name: Rachel Kenna Title: Director of Nursing	Signature <i>Rachel Kenna</i> Date June 2015
Author/s: Grainne Doran (Renal C.N.S) Fiona McHugh (Renal C.N.F.) and the renal team in OLCCH and TSCUH	
Location of Copies	On Hospital Intranet and locally in department

Document Review History		
Review Date	Reviewed By	Signature
2018		

Document Change History	
Change to Document	Reason for Change

Part 1 of 2

	Pg
1. Guidelines For Surgical Insertion of a Tenckhoff Catheter	2, 3, 4
Peritoneal Dialysis Catheter Choice.	5
2. Guidelines on taking samples of Peritoneal Dialysis Fluid	6
2.1 Taking a PD sample	7
2.2 Taking a PD sample post any contamination	8
2.3 Taking a PD sample from a dry peritoneum post contamination at set change	8
2.4 Taking a PD sample if Turbid/infected fluid	8
2.4 Taking a PD sample from a dry peritoneum with turbid fluid	8
2.6 Taking a PD sample using Manual dialysis	9
2.7 Taking a PD sample on a home choice machine	10
2.8 Taking a PD sample from a Tenckhoff	11
3.Change of transfer set	11
3.1 Routine change of transfer set	11
3.2 Change of transfer set post contamination	11
3.3 Change of transfer set cap falls off blue tip touched	12
3.4 Change of transfer set .line disconnection	13
4 .Dressing an existing Tenckhoff exit site	14, 15
4.1 Cleansing of an Established Tenckhoff catheter exit site.	16, 17
4.2 Cleansing of a New Tenckhoff Catheter exit site.	
5. Adding medication to Dialysis fluid	18
5.1 Adding Antibiotics to Peritoneal Dialysis fluid.	19
5.2 Adding Potassium to Peritoneal Dialysis Fluid	20
5.3 Adding Lignocain1% to Peritoneal Dialysis Fluid	21
5.4 Flushing Tenckhoff with Urokinase	
6. Flushing Tenckhoff Catheter with Heparin and Saline.	22
Appendix 1 discharge checklist	24
Appendix 2 Pre-operative checklist	26-29
References	25
Contact numbers- TSCUH St. Michaels C ward -01 8784258 Renal Clinic 8784257 Contact numbers- OLCHC Nephro-urology 4096974 Bleep 8766	

1.0 GUIDELINE FOR SURGICAL INSERTION OF Tenckhoff catheter for PERITONEAL DIALYSIS CATHETER SPECIFIC TO NEPHRO-UROLOGY WARD.

Introduction:

A Tenckhoff catheter is a catheter/access device, placed in the abdomen in between the parietal and visceral layer of the peritoneal membrane. The Surgical Insertion of a Permanent Tenckhoff Catheter allows access to the peritoneum for peritoneal dialysis.

Indications for Peritoneal Dialysis Catheter insertion:

- **End Stage Renal Failure.** (Glomerular filtration rate less than 15mls -10mls/min/1.73m²)
(Some patients become markedly symptomatic with a higher GFR, e.g. Anorexia, poor growth, Poor energy levels for daily activities.
- **Acute Renal Failure/Injury (of various aetiologies e.g.HUS).**

Complications Associated with Insertion of Catheter:

- Leakage (tunnel and exit site) N.B!-All leakage requires Gram positive and Gram negative cover!
- Infection: Peritonitis or exit site. N.B!-All catheter insertions requires Gram positive and Gram negative antibiotic cover!
- Pain :Abdominal/Shoulder/Back Pain
- Obstruction: of catheter pores due to omentum/fibrin /blood clots
- Catheter migration
- Haemorrhage.
- Perforation of Bowel.
- Perforation of Bladder

Specific Considerations:

- **Ensure the 'Abdominal Surgery/PD Catheter Pre Operative Check List' is completed for all children going for a New PD Catheter or for any abdominal surgery with an existing PD Catheter –see appendix 3**
- **Perform MRSA and MSSA Screen:** For elective Tenckhoff catheter insertions a MRSA/MSSA screen should be completed 2-3 weeks pre Tenckhoff catheter insertion and results should be reviewed pre –operatively. A repeat MRSA/MSSA screen should be performed on the morning of surgery before hibiscrub bath/hair wash and prophylactic antibiotic cover is administered.
 - Write 'do not pool' and 'for full screen including MSSA and MRSA on the microbiology form.
 - All PD patients need a Nasal/groin/axilla/throat/ stomas or Gastrostomy site swabbed for routine culture, MSSA and MRSA-Wet Swabs with saline first.
 - Parents are swabbed for Nasal Carriage only.
 - **If child is positive for MSSA/MRSA:**
 - Full screen of parents , nose& throat -wet swab with saline before taking swabs
 - Commence decontamination programme-
 - Treatment as per OLCHC and TSCUH guidelines
- **Gastrostomy tube:** if required should be discussed and planned with nephrology team and CNS **pre operatively** at OPD, ideally inserted **pre Tenckhoff insertion** or at time of Tenckhoff catheter insertion. A dedicated surgeon familiar with the procedure will perform the operation and discuss if an **open procedure or PEG** is performed. All PEG insertions will be covered with antibiotics pre -operatively and Recommended Antifungal cover, as per consultant.(ISPD Guideline 7 -2012)
- **Particular attention:** must be paid to any possible infection with **Candida species**. If Candida present treatment is required: (Mycostatin/ Fluconazole),particularly if a PEG is inserted at the same time as placement of Tenckhoff catheter - .(Guideline 7- ISPD 2012)

Catheter choice:

- see size/weight guide page, Appendix 1
- At Our Lady's Hospital we use Swan Neck, double cuffed coiled or Flex neck catheters.
- There should be a downward –directed exit-site, the outer cuff should be approximately 2cm from the exit-site.
- The Exit site should be round and small enough to allow for a snug fit of the catheter.
- Allevyn Gentle Border dressing to new exit site-mefix to secure catheter.
- N.B. The catheter should be secured close to the exit site to minimize movement and traction injury.

- Ensure the child is **NOT CONSTIPATED** and if necessary Lactulose and Senokot should be commenced before planned admission.-This will prevent migration of the Tenckhoff catheter.
- **Antibiotic cover:** administered pre- operatively. As per consultant
- **I.V. Vancomycin 12 mg/kg I.V** stat dose **1-2hours** pre-op) followed with
- **Ciprofloxacin 5mg/kg BD i.v / po. for 48 hours.**
- **Teicoplanin is given as an alternative if allergic to Vancomycin**, Usual patient dose- administered for the first 3 doses (Guideline 2.2 ISPD.2012. administration of an antibiotic just before catheter placement has been shown to lower the incidence of early infectious complications such as wound infection and peritonitis)
- **Antifungal cover:** Children with abnormal urological systems or Chronic/End stage renal impairment should always have antifungal cover e.g. Mycostatin when on a treatment dose of **broad spectrum antibiotics**, (commenced in conjunction with the antibiotic course. Except for flucloxacillin –narrow Spectrum)
- **Oral Fluconazole** is an alternative in patients with more invasive Candida not limited to the oral mucosa.
- Invasive fungal infections need prolonged treatment i.e. 3-6 weeks.
- **Do not administer antibiotic cover for patients with Haemolytic Uraemic syndrome on insertion of Tenckhoff catheter unless Otherwise directed.**
- **Post Op:**
- **No Exit Site Suture:**
- The ultimate goal of exit site care is to keep the site clean, dry, and scab-free, crust free, painless and non-inflamed.
- Catheter should be securely anchored-prevents trauma to exit site and optimizes early healing.
- Catheter is usually inserted on the right side downward facing and the subcutaneous cuff should be 2 cm from the exit site
- Usually partial omentectomies are performed to prevent catheter blocking during drainage cycle on dialysis. Check post operative surgical note.
- Non Occlusive Dressing.Allevyn gentle border to new exit site.
- Anchored with mefix-**Not to be removed during first week.**
- Leave untouched for 1 week.
- Weekly Dressing changes for 6 weeks-Aseptic technique –Cleaned with 0.9% saline.
- It is not necessary to flush a resting catheter weekly.
- Dialysis Prescription (flushing) must be prescribed Pre operatively-; initially 10mls/kg per cycle of Heparinised Physioneal 40(small fill volumes only- to prevent leakage at exit site).
- Usually 4-6 cycles or until fluid clears/rosé.
- **Ideally: Tenckhoff catheter should not be used for 3-6 weeks.**
- However if catheter needs to be used small fill volumes are recommended (to prevent leakage) and a very gradual increase in fill volumes over the course of a few days/ weeks.
- There should be no day time dwell until catheter tunnel healed.
- Observe for the development of hernias –inguinal /Umbilical
- No Showers or Baths for 6 weeks.
- Catheter must never be submerged under water.
- **Flushing the Catheter: (when dialysis is not required)**
- Once the catheter is capped off and the patient is recovered from surgery, he/she may go home and return to the unit for weekly dressings until catheter is embedded-(6 weeks).
- **Education: BY WARD STAFF** re:catheter care and exit site care must be commenced and appropriate advice sheets given (see appendix 2)

Preparation of Family

- Parents/Carers must have a nasal swab before undertaking connection/disconnection/dressing.
- Many children (esp. <5 yrs) have a Gastrostomy tube inserted before or at the time of insertion of peritoneal dialysis catheter, appropriate education re care of same should be given for this by ward staff, liaising with Gastrostomy Nurse Specialists if required.
- Preparation and education to be given by ward staff including condition, diagnosis, and catheter information using booklets, doll and folder is undertaken before catheter insertion.
- An Education/home training checklist is placed in the patient ward folder.
- **First home visit:** is required to assess the suitability of dialysis and storage space at home.
- **Second home visit:** is carried out (if alterations are performed) pre discharge to ensure that alterations are completed and appropriate to carry out home peritoneal dialysis.(Decided by CNS)
- **Third Home Visit** First night home on dialysis.

- **Fourth Home Visit** at six weeks (recommended)
- The renal nurse specialist plans the duration and timing of training programme and it is usual to train **2** family members.(without complexities and funding delays, estimated training time is 2 weeks)

Investigations to be completed on admission for catheter insertion.

- **Growth and Nutritional Data:**
Height in cm's (using stadiometer),
Weight
Surface Area
Head Circumference (under 2 years)
- **Radiology:**
Left Hand and Wrist X-Ray if not done in last 6- 12 Months.
Base line ECG and Echocardiogram.

<u>Blood Tests:</u>	
<ul style="list-style-type: none"> ➤ Urea Electrolytes, ➤ Liver Function Tests, ➤ Full Blood Count, ➤ Reticulocytes ➤ Group & Hold ➤ Vitamin D: -On treatment perform 3 – 4 monthly. On no treatment twice per year. ➤ Ionised Calcium performed regularly; (PD Patients- 4-6 weekly) ➤ Total iron binding capacity: Discuss with Nephrologist % hypochromics - Tsats (transferring saturation) 	<ul style="list-style-type: none"> ➤ Bone profile, ➤ Venous Blood Gas ➤ Parathyroid Hormone performed(PTH): - 6 - 8 weekly (age 6 weeks up to 3 years). - Children >than 3 years: 3-4 monthly as results dictate ➤ Ferritin Level: - On treatment perform 3 monthly. -On no treatment perform twice per year. ➤ Folate and B12: Discuss with Nephrologist

1.1 PERITONEAL DIALYSIS CATHETER CHOICE:

The Choice of Single or Double Cuff is at the discretion of the surgeon. Quinton is Preferred for older children above 8 kgs, Double Cuff.

FLEX NECK CATHETERS

<u>Size</u>	<u>Catheter</u>	<u>Code</u>	<u>weight</u>
<u>Neonate</u>	Medigroup Infant'Flex-neck'Coiled Catheter 1 Cuff	(CF-4235)	<u>Under 3Kg</u>
<u>Neonate</u>	The Medigroup Infant 'Flex-neck' Coiled Catheter 2 Cuff FIRST CHOICE	(CF-4230)	<u>Under 3 Kg</u>

All of the above are supplied by L.I.N.C Medical Systems LTD PH.0044 1572 7175 15.

QUINTON TENCKHOFF CATHETERS

<u>Size</u>	<u>Catheter</u>	<u>Code</u>	<u>Weight guide</u>
31cm	Neonatal PD catheter double cuff straight	8814-4227	Under 4kg
38.9cm	Infant PD catheter swan neck curl catheter double cuff	8888-413100	8kg or less
42cm	Paediatric PD catheter swan neck curl catheter double cuff	8888-414813	Greater than 8 kg
59cm	Paediatric swan neck curl catheter double cuff	8888 413102	30-40kg
62.2cm	Adult PD catheter swan neck curl catheter double cuff	8888-413807	Greater than 45kg

All of the above are supplied by Health Care 21, Jackie Knox phone number: (087)6976800
Swan neck catheters decrease stress on exit site and the curl catheter helps keep the catheter positioned low in the peritoneum where drainage is optimum.

TSCUH to use catheters as determined by team.

2.0 PERITONEAL DIALYSIS FLUID SAMPLING: GUIDELINES ON TAKING A SAMPLE OF PERITONEAL DIALYSIS FLUID:

Introduction:

- All PD patients presenting with **pyrexia or signs of peritonitis**, must have a sample of peritoneal dialysis fluid taken to out rule peritonitis.

Diagnosis

- ≥ 100 WBC X 10^6 /Litre
- $>50\%$ Polymorphs
- Organisms on Gram Stain(gram+/-, or Yeasts)
- Positive Culture
- See Peritonitis Protocol.
- **Post Contamination episode:** Must have a sample sent for culture and sensitivity (minimum 20mls preferably- however send what ever is drained.).
- A sample of peritoneal dialysis fluid is taken for white cell count, culture and sensitivity to diagnose peritonitis.
- On all other peritoneal Dialysis samples 50 – 100mls volume is desired for microscopy, culture and sensitivity.
- A strict aseptic technique must be adhered to at all times.
- Variations of peritoneal dialysis sampling will include:
 - Peritoneal Dialysis sample from a dry peritoneum.
 - Peritoneal Dialysate sample post any contamination episode.
 - Peritoneal Dialysate sample post any contamination episode with dry peritoneum.
 - Peritoneal Dialysate sample yielding Turbid/ infected fluid.
 - Peritoneal Dialysate sample yielding Turbid /Infected fluid from a dry Peritoneum

Complication Risk associated with obtaining a peritoneal fluid sample.

- Risk of introducing infection
- Risk of contamination of the obtained sample.

2.1 Guidelines on taking a sample of peritoneal dialysis fluid:

- All PD patients presenting with pyrexia or signs of peritonitis (See Peritonitis Protocol), must have a sample of peritoneal dialysis fluid taken to out rule peritonitis.
- A sample of peritoneal dialysis fluid is taken for white cell count, culture and sensitivity to diagnose peritonitis.
- A strict aseptic technique must be adhered to at all times
- Initially, using sterile technique apply sample bag to obtain a specimen, if any fluid specimen obtained send to lab for mc&s and gram stain.
- If PD Result between 50-100WBC X 10^6 /L and patient symptoms and signs are suggestive of peritonitis initiate treatment.
- If Result Between 50-100WBCX 10^6 /L and patient is asymptomatic hold dialysis, fill patient with 20 mls/kg or 50% of normal fill volume, dwell and repeat specimen in 2 hours, **This does not apply for a contamination episode or obvious peritonitis see appropriate guideline.**
- **If no fluid obtained for a sample: In All Cases other than a contamination episode or obvious peritoneal infection, then**
- Instil 20mls/kg or 50% of normal fill volume of Physioneal 1.36%/ 2.27% dwell for 0-5 mins and immediately drain and send sample for mc&s and gram stain. If sample appears clear **then:**
- Instil 20mls/kg or 50% of normal fill of Physioneal 1.36% / 2.27% fluid in to the peritoneum and allow dwell for a minimum of 2 hours.
- A sample may be obtained filling and draining using the home **choice machine or performing a manual** exchange or filling via **syringe** (for small volumes) of Pd fluid using aseptic technique.

2.2. GUIDELINES ON TAKING A SAMPLE OF PERITONEAL DIALYSIS FLUID POST ANY CONTAMINATION EPISODE:

- Change transfer set with specimen bag attached as per guidelines.
- Then Obtain a PD Fluid sample , aim for 50-100mls- however send whatever is drained
- Send sample to lab ASAP for M, C & S.
(Priority in this case is to obtain a sample for culture, dwell time is not essential in this case)
- **Add antibiotics as prescribed:**
 - Vancomycin:** 25mgs/L of Peritoneal Dialysis Solution
 - Ciprofloxacin** 25mgs/L of Peritoneal Dialysis Solution
 - Heparin (Monoparin)** 500 iu/L of Peritoneal Dialysis Solution
- Commence dialysis immediately as per prescribed regime.
- Do not wait for Lab results prior to starting antibiotics.
- Antibiotics will be continued for at least 48 hrs until culture results obtained.

2.3 GUIDELINES ON TAKING A SAMPLE OF PERITONEAL DIALYSIS FLUID FROM A DRY PERITONEUM POST ANY CONTAMINATION EPISODE AT TIME OF TRANSFER SET CHANGE:

- If no fluid obtained instil 20ml/kg/ or 50% of normal fill volume by using a manual set/Homechoice/50ml syringe (see appropriate guideline)
- on completion of fill, immediately drain to obtain a sample.(Zero Dwell Time)
- **Add antibiotics as prescribed:**
 - Vancomycin:** 25mgs/L of Peritoneal Dialysis Solution
 - Ciprofloxacin:** 25mgs/L of Peritoneal Dialysis Solution
 - Heparin (Monoparin)** 500 iu/L of Peritoneal Dialysis.
- Commence dialysis as per prescribed regime. Antibiotics will be continued for at least 48 hrs until culture results obtained

2.4 GUIDELINES ON TAKING A SAMPLE OF PERITONEAL DIALYSIS FLUID YIELDING TURBID / INFECTED FLUID:

- Using sterile technique apply sample bag to obtain a specimen, if any fluid specimen obtained send to lab for mc&s and gram stain. (Aim for 50ml – 100mls)
- Send sample to lab ASAP for M, C & S.
(Priority in this case is to obtain a sample for culture, dwell time is not essential in this case)
- Treatment should be initiated immediately if initial fluid sample looks turbid or infected and patient's symptoms/signs suggest Peritonitis.
- N.B. See Peritonitis Protocol for antibiotic choice and duration of treatment.
- **Add antibiotics as prescribed:**
 - Vancomycin:** 25mgs/L of Peritoneal Dialysis Solution
 - Ciprofloxacin:** 25mgs/L of Peritoneal Dialysis Solution
 - Heparin (Monoparin)** 500 iu/L of Peritoneal Dialysis Solution
- Commence dialysis immediately as per regime.
- Do not wait for Lab results prior to starting antibiotics.
- Antibiotics will be continued for at least 48 hrs until culture results obtained.

2.5 GUIDELINES ON TAKING A SAMPLE OF PERITONEAL DIALYSIS FLUID FROM A DRY PERITONEUM YIELDING TURBID/ INFECTED FLUID)

- If no fluid obtained instil 20ml/kg/ or 50% of normal fill volume by using a manual set/Homechoice/50ml syringe (see appropriate guideline),on completion of fill, immediately drain to obtain a sample.(Zero Dwell Time)
- Send sample to lab ASAP for M, C & S.
- Priority in this case is to obtain a sample for culture, dwell time is not essential in this case)
- Treatment should be initiated immediately if fluid sample looks turbid/infected and patient's symptoms/signs suggest Peritonitis.
N.B. See Peritonitis Protocol for antibiotic choice and duration of treatment.
- **Add antibiotics as prescribed:**
 - **Vancomycin:** 25mgs/L of Peritoneal Dialysis Solution
 - **Ciprofloxacin:** 25mgs/L of Peritoneal Dialysis Solution
 - **Heparin (Monoparin)** 500 iu/L of Peritoneal Dialysis Solution
 - Commence dialysis immediately. as per prescribed regime.
 - Do not wait for Lab results prior to starting antibiotics.
- Antibiotics will be continued for at least 48 hrs until culture results obtained.

! N.B. IF THERE IS A KNOWN ALLERGY TO VANCOMYCIN OR CIPROFLOXACIN PLEASE DISCUSS ALTERNATIVE ANTIBIOTICS WITH CONSULTANT NEPHROLOGISTS.

2.6 GUIDELINES ON TAKING A SAMPLE OF PERITONEAL DIALYSIS FLUID USING MANUAL DIALYSIS SET:

Close windows and doors Decontaminate Hands and collect the following Equipment:

Manual Dialysis Baxter set (acute set for children CAPD) Ref JMC3437. Dialysis fluid bag(s) 2.5 litres as prescribed. (Check the Dialysis prescription is correct.)	1 cleaned , decontaminated and prepared Trolley 2 sterile drapes 3 connection shields- 5 prong Baxter manifold if using a mix of PD fluid Fluid Heater Plate (Heat Dialysis Fluid on heater (optional).)
--	--

ACTION

- Decontaminate hands for 1 minute** and apply Alcohol rub/gel. **As per local policy**
 - Open the 2.5litre Physioneal bags break seals between two fluid chambers and hang on a drip stand.
 - Open out sterile drape on the trolley.
 - Empty all sterile equipment onto the trolley.
 - Decontaminate hands** and apply sterile gloves.
 - Close all clamps on the manual set.
 - Attach connection shield at junction of upper Buretrol and manifold.
 - Attach drainage bag and connection shield to the lower 'drain' Buretrol.
 - Attach dialysis fluid bag(s) once completely mixed
 - Break the green seal on the dialysis fluid bag at the Buretrol connection
 - Fill the Buretrol to 80mls of dialysis fluid and squeeze the bubble chamber to fill.
 - Slowly release the clamp to prime the line.
 - Ensure the line is primed. Clamp. Do not remove the cap at end of line.
 - Prime drain side. Clamp.
 - Fill Buretrol to required fill volume and clamp.
 - Cover & Transfer to patient's room, explain procedure to child and parent.
 - Check identity band.
 - Hang heated dialysis fluid on the stand.
 - Clean the Transfer set with Disinfection wipe and wrap.
 - Decontaminate hands apply sterile gloves.**
 - Apply connection shield to patient line.
 - Connect the patient line to transfer set ensuring the line is primed.
 - Check that correct fill volume is in the Buretrol
 - Fill patient (see below)
 - Fill:**
 - Open blue twist clamp on Transfer set, roller clamp, patient line clamp and allow the fluid to infuse into the patient (3-5 minutes)
 - Clamp blue twist clamp on transfer set, patient line and roller clamp under Buretrol when required volume has infused.
 - Observe the Buretrol closely to prevent air from entering the chamber.
 - Secure drain bag and Buretrol at lower level to patient
 - Dwell:**
 - Set the clock (if used) for the prescribed dwell time if dwell required.
 - Drain:**
 - Ensure clamp below the Drain Buretrol is clamped.
 - Open:** clamp above the Drain Buretrol, patient line clamp and blue twist clamp on transfer set.
 - Observe the effluent draining.
 - Observe the effluent for colour, turbidity, clarity, and fibrin.
 - Reposition the patient if required to obtain maximum drainage.
 - When drain complete, ensure all clamps are closed.
 - Record Volume.
 - Disinfect/Clean hub on Drain Buretrol with a disinfection wipe and allow to dry for a minimum of 30 seconds-
 - Decontaminate hands and apply sterile gloves.
 - Insert needle with attached 20 ml syringe into hub on the drain Buretrol.
 - Aspirate fluid and repeat with second syringe and needle and instil into specimen jars.
 - Dispose of all needles into sharps bin and other equipment appropriately.
 - Send to laboratory for white cell count MC&S
 - Decontaminate hands.
- Document administered fluid /medication in the prescription chart.

2.7 Guidelines on taking a sample of peritoneal dialysis fluid while on the home choice machine.
Close windows and doors

Decontaminate Hands and collect the following Equipment:

<ul style="list-style-type: none"> • 2 effluent sample bags • 1 cleaned , decontaminated and prepared Trolley • Sterile drape 	<ul style="list-style-type: none"> • Disinfection wipes • Sterile Gloves x2
--	---

2.7 Guidelines taking a sample of peritoneal dialysis fluid while on the home choice machine.

1. **Decontaminate hands** *As per local policy*
2. Place equipment on to sterile drape.
3. Using a Disinfection wipe clean short drain line cap & wrap
4. **Decontaminate hands** apply gloves
5. Clamp sample bag.
6. Attach the PD specimen bag to the short line that forms a 'Y' on the drain line.
7. When the machine is in a drain press ▼ (blue arrow down) so that you can read how many mls have drained
8. For a low fill mode set allow **20mls** drain and for a standard set allow **100mls** drain into main drain bag before taking sample .
9. When 20mls or 100mls has drained press stop ● (red hexagon).
10. Clamp the main drain bag line.
11. Open clamp on the sample bag and on the short line that forms a "Y" on the drain line and press go ● (green circle).
12. Allow for a further 100mls to drain and clamp sample bag line and drain line on 'Y' connector.
13. Re-open the main drain line and press go ● (green circle).
14. Place Disinfection wipe at connection of sample bag and set.
15. **Decontaminate hands.**
16. Open new gloves.
17. **Decontaminate hands**
18. Apply gloves and clamp NEW sample bag.
19. Disconnect sample bag and attach the new sample bag to close the system.
20. Cover the end of the sample bag with an Disinfection wipe or attach Blue ring, if kept on sterile field
21. **Record dwell time of sample taken and document time of sample (i.e. in an initial drain or 1st /2 nd cycle etc.) on the form.**
22. Dispose of all equipment appropriately
23. Decontaminate hands.
24. Label & Send to laboratory for white cell count GramStain MC&S
25. Document

2.8 Guidelines on taking a sample of peritoneal dialysis fluid from a Tenckhoff catheter.

Close windows and doors and Decontaminate Hands and collect the following Equipment:

<ul style="list-style-type: none">• Effluent sample bag• Disinfection wipes• 1 cleaned , decontaminated and prepared Trolley• Sterile Gloves	<ul style="list-style-type: none">• Sterile Drape• Shield• Minicap
---	--

Guidelines on taking a sample of peritoneal dialysis fluid from a Tenckhoff catheter.

ACTION
<ol style="list-style-type: none">1. Decontaminate hands2. Place equipment on to the sterile drape3. Clean transfer set with Disinfection wipe and wrap with new disinfection wipe4. Decontaminate hands and apply sterile gloves.5. Clamp sample bag and apply shield.6. Attach PD specimen bag to Tenckhoff Catheter.7. Open blue twist clamp, & clamp on sample bag.8. Fill required amount for weight.9. Clamp all clamps.10. Disconnect and apply minicap.11. Cover the end of the sample bag with an Disinfection wipe or attach Blue ring, if kept on sterile field12. Record dwell time and document time sample taken.13. Send sample to Microbiology for gram stain, WCC.14. Document.

3.0 Change of transfer set for the following reasons

3.1 Routine Change of Transfer Set: (6 monthly)

3.2 Change of Transfer set post contamination episode : Blue Tip Touched or Mini Cap falls off: Line Disconnection between Tenckhoff Catheter and Transfer Set;

3.3 Post contamination episode for Tenckhoff split, cut, hole or leak

3.4 Post Contamination episode: Line disconnect between Tenckhoff Catheter and Transfer Set

Introduction:

The transfer set is a small piece of tubing attached to the main Tenckhoff catheter accessing the peritoneum. This transfer set has a blue twist clamp and a mini cap attached. All activity associated with peritoneal dialysis takes place at the transfer set, thus, safe guarding the main Tenckhoff from contamination/infection.

Note Always Observe closely for signs of a possible peritonitis following a transfer set change.

Close windows and doors Decontaminate Hands and collect the following Equipment:

<ul style="list-style-type: none">• 1 cleaned , decontaminated and prepared Trolley• Sterile drapes• Large Sterile kidney dish• Sterile gauze squares• New transfer set• Mini cap	<ul style="list-style-type: none">• 5ml syringe and ampoule of 0.9% sodium chloride• 1 green needle• 1 clamp (Blue plastic catheter gate clamp)• Videne 10% antiseptic solution (iodinated povidone)• Sterile gloves• Disinfection wipes
--	---

3.1 Routine Change of Transfer set

ACTION
<ol style="list-style-type: none"> 1. Explain the procedure to the patient / parent. 2. Decontaminate hands 3. Clean the old transfer set at the connection to the Tenckhoff catheter with Disinfection wipe and places the blue clamp on the Tenckhoff catheter near the abdomen i.e. Near exit site. 4. Decontaminate hands. 5. Open the sterile equipment onto the sterile drape on trolley. 6. Pour the Videne (iodine) solution into the kidney dish (at least 2/3rds full to ensure) 7. Decontaminate hands & apply sterile gloves. 8. Draw up the 0.9% sodium chloride and flush the new transfer set and twist the clamp closed and apply new white mini cap. 9. Parent/ Child hold up transfer set with disinfection wipe while the nurse places the sterile drape under the transfer set to be changed. 10. Holding the catheter with one piece of gauze, clean the connection site (where the Tenckhoff catheter meets the transfer set) with another piece of gauze soaked in Videne (iodine) solution. 11. Submerge the beta cap connection for 3 minutes in the Videne (iodine) filled kidney dish & remove. 12. Disconnect the old set and replace with the new transfer set. N.B. Ensure connection is tight and secure. 14. Dispose of equipment in the appropriate manner. 15. Decontaminate hands 16. Record details of set change in patient's notes.

3.2 Change of Transfer Set Post Contamination episode: (Split, cut, hole, or Leak on main Tenckhoff catheter)

Close windows and doors and Decontaminate Hands and collect the following Equipment:

<ul style="list-style-type: none"> • 1 cleaned , decontaminated and prepared Trolley • Sterile drapes • Large Sterile kidney dish • Sterile gauze squares • New transfer set • Mini cap • 5ml syringe and ampoule of 0.9% sodium chloride • 1 green needle • 1 clamp (Blue plastic catheter gate clamp) 	<ul style="list-style-type: none"> • Videne 10% antiseptic solution (iodinated povidone) • Sterile gloves • Disinfection wipes • Connection shield • Effluent sample bag • Sterile scissors • Betacap adaptor
--	--

ACTION
<ul style="list-style-type: none"> ▪ Clamp line immediately above the split clean specific area with disinfection wipe ▪ Decontaminate hands ▪ Open the sterile equipment onto the sterile drape on trolley. ▪ Pour the Videne (iodine) solution into the kidney dish (at least 2/3rds full to ensure) ▪ Decontaminate hands & apply Sterile gloves ▪ Attach beta cap adaptor to the new transfer set ▪ Draw up the 0.9% sodium chloride and flush the new transfer set and twist the clamp closed. ▪ Apply the connection shield to the PD Specimen bag. ▪ Attach to the new transfer set and leave ready. ▪ Hold up catheter with a disinfection wipe. ▪ Remove gauze and place a sterile drape under transfer set to be changed. ▪ Holding the catheter with one piece of gauze, clean the split area & connection site (where the Tenckhoff catheter meets the transfer set) with another piece of gauze soaked in Videne (iodine) solution. ▪ Completely submerge the split area & beta cap connection for 3 minutes in the Videne (iodine) filled kidney dish. ▪ Remove the catheter from the kidney dish, cut immediately above the hole / split & below the abdominal clamp with a sterile scissors. ▪ Post cutting attach the new transfer set with new beta cap adaptor & specimen bag & shield to the Tenckhoff catheter. ▪ N.B. Ensure connection is tight and secure. ▪ Open the blue gate clamp, and all other clamps, obtain a PD specimen (See appropriate guideline for obtaining a specimen or if no fluid obtained) ▪ Close all clamps disconnect the sample bag apply new minicap. ▪ .Cover the end of the sample bag with an Disinfection wipe or attach Blue ring, if kept on sterile field ▪ <u>Record dwell time(if any) and document time sample taken.</u>

- Send sample to Microbiology for gram stain, WCC.
- Dispose of equipment in the appropriate manner.
- Decontaminate hands
- Record details of set change in patient's notes.
- Administer antibiotics as prescribed.

3.3 Change of Transfer set post Contamination Episode: Blue Tip Touched/Mini Cap falls off:
Close windows and doors And Decontaminate Hands and collect the following Equipment:

- 1 cleaned , decontaminated and prepared Trolley
- Sterile drapes
- Large Sterile kidney dish
- Sterile gauze squares
- New transfer set
- Mini cap

- 5ml syringe and ampoule of 0.9% sodium chloride
- 1 green needle
- 1 clamp (Blue plastic catheter gate clamp)
- Videne 10% antiseptic solution (iodinated povidone)
- Sterile gloves
- Disinfection wipes
- **Connection shield and Effluent sample bag**

ACTION

- 1.Ensure Blue Twist Clamp is closed ,immediately apply blue Gate clamp on tenckhoff catheter near the abdomen
- 2.Apply new mini cap
- 3**Decontaminate hands**
- 4 Open the sterile equipment onto the sterile drape on trolley
- 5 Pour the Videne (iodine) solution into the kidney dish (at least 2/3rds full to ensure)
- 6 **Decontaminate hands** & apply Sterile gloves
- 7 Draw up the 0.9% sodium chloride and flush the new transfer set and twist the clamp closed.
- 8 Apply the connection shield to the PD Specimen bag.
- 9 Attach to the new transfer set and leave ready.
10. Holding the catheter with a disinfection wipe, place the sterile drape under transfer set to be changed.
11. Holding the catheter with one piece of gauze clean the connection site/adaptor with another piece of gauze soaked in Videne (iodine) solution.
12. Completely submerge the split area & beta cap connection for **3 minutes** in the Videne (iodine) filled kidney dish.
- 13.Remove the catheter from the kidney dish,
14. Disconnect old transfer set and attach the new transfer set, specimen bag and shield to the Tenckhoff catheter.
15. **N.B. Ensure connection is tight and secure.**
16. Open the blue gate clamp, and all other clamps, obtain a PD specimen (See appropriate guideline for obtaining a specimen or if no fluid obtained)
17. Close all clamps disconnect the sample bag apply new minicap.
- 18..Cover the end of the sample bag with an Disinfection wipe or attach Blue ring, if kept on sterile field
19. **Record dwell time (if any) and document time sample taken.**
20. Send sample to Microbiology for gram stain, WCC.
21. Dispose of equipment in the appropriate manner.
- 22.15.Decontaminate hands
23. Record details of set change in patient's notes.
- 24.Administer antibiotics as per prescription/ protocol

3.4 Change of Transfer Set Post Contamination episode: Line disconnect between Tenckhoff Catheter and Transfer Set

Close windows and doors Decontaminate Hands and collect the following Equipment:

<ul style="list-style-type: none"> • 1 cleaned , decontaminated and prepared Trolley • Sterile drapes • Large Sterile kidney dish • Sterile gauze squares • New transfer set • Mini cap • 5ml syringe and ampoule of 0.9% sodium chloride • 1 green needle 	<ul style="list-style-type: none"> • Videne 10% antiseptic solution (iodinated povidone) • Sterile gloves • Disinfection wipes • Connection shield • Effluent sample bag • Sterile scissors • Betacap adaptor • 1 clamp (Blue plastic catheter gate clamp)
--	--

ACTION
<ol style="list-style-type: none"> 1. Clamp line immediately above the disconnection on Tenckhoff with a blue gate clamp. 2. Clean beta cap adaptor with disinfection wipe (Tenckhoff is not routinely cleaned with Disinfection wipe) and cover adaptor with sterile Gauze and explain the procedure. 3. Decontaminate hands 4. Open the equipment onto the sterile drape on trolley. 5. Pour the Videne (iodine) solution into the kidney dish (at least 2/3rds full to ensure) 6. Decontaminate hands & apply Sterile gloves 7. Attach beta cap adaptor to the new transfer set 8. Draw up the 0.9% sodium chloride and flush the new transfer set and twist the clamp closed. 9. Apply the connection shield to the PD Specimen bag. 10. Attach to the new transfer set and leave ready. 11. Holding the catheter with a disinfection wipe, place the sterile drape under Tenckhoff. 12. Remove old sterile Gauze 13. Holding the catheter with one piece of sterile gauze, clean the connection site/adaptor with another piece of gauze soaked in Videne (iodine) solution. 14. Completely submerge the tenckhoff catheter & beta cap connection for 3 minutes in the Videne (iodine) filled kidney dish. 15. Remove the catheter from the kidney dish, cut <i>immediately</i> above the old beta cap connection with a sterile scissors. 16. Post cutting attach the new transfer set with new beta cap adaptor & specimen bag & shield on to the Tenckhoff catheter. 17. N.B. Ensure connection is tight and secure. 18. Open the blue gate clamp, and all other clamps, obtain a PD specimen (See appropriate guideline for obtaining a specimen or if no fluid obtained) 19. Close all clamps disconnect the sample bag apply new minicap. 20. .Cover the end of the sample bag with a Disinfection wipe or attach Blue ring, if kept on sterile field 21. <u>Record dwell time(if any) and document time sample taken.</u> 22. Send sample to Microbiology for gram stain, WCC. 23. Dispose of equipment in the appropriate manner. 24. 15.Decontaminate hands 25. . Record details of set change in patient's notes. 26. Administer antibiotics as per prescription/ protocol

4.0 Guidelines on cleansing of a Tenckhoff Catheter exit site:

Introduction:

- Exit-site infection (ESI) (around the exit site), tunnel infection (infection from the exit site tracking along the outside of the tube where it is tunnelled into the peritoneum) and associated peritonitis are major causes of morbidity and catheter loss in chronic peritoneal dialysis patients.
- Meticulous exit-site care is vital in preventing ESI. Avoiding trauma to the exit-site and alternate day cleaning of the exit-site is essential for the longevity of the peritoneal dialysis catheter.
- Exit site/tunnel infections account for up to 20% of transfer to Haemodialysis.

Indications for the cleansing of an established Tenckhoff Catheter exit site

- Maintain Tenckhoff catheter survival at >80% in one year
- Prevention and reduction of the incidence of infection-tunnel infection/peritonitis
- Exit-site infection (ESI) (around the exit site), tunnel infection (infection from the exit site tracking along the outside of the tube where it is tunnelled into the peritoneum) and associated peritonitis are major causes of morbidity and catheter loss in chronic peritoneal dialysis patients.
- Exit/tunnel infection account for up to 20% of transfers to haemodialysis.
- Meticulous exit-site care is vital in preventing ESI.

Indications for the cleansing of a new Tenckhoff Catheter exit site

- A new exit site needs minimal handling and immobilisation to allow catheter to heal/embed and prevent excessive movement/trauma to site.(6 Weeks for healing)
- Cleaned weekly for first 6 weeks (by which time the exit site will be colonized with bacteria and more frequent dressing changes are needed) using strict aseptic technique unless wet/soiled and or excessive blood loss.
- If the tape and dressing needs to be removed in the first week this must be discussed with the surgical team first.

Definition:

- A Tenckhoff catheter enters the peritoneum at a site on the abdomen. This site is known as an exit site.
- **Cleaning should be performed weekly for the first 6 weeks for a new catheter.**

Definition:

- **For an established exit site** Cleaning should be performed on alternate days or if dressing becomes wet, soiled or dislodged
- If the exit site has grown a positive culture or looks infected, cleaning should be performed daily, until the course of antibiotics are completed

Cleansing of an Established Tenckhoff catheter exit site:

Close windows and doors Decontaminate Hands and collect the following Equipment:

Equipment:

<ul style="list-style-type: none">• Disinfection wipes• Prepared Dressing trolley• 2 packs of sterile gauze• 0.9% NACL (ampoules or sachet)	<ul style="list-style-type: none">• 1 Mepore Established site• Mefix• Swab• Disposable tray
---	--

ACTION

1. **Decontaminate hands**
2. Place equipment on to decontaminated trolley.
3. Explain procedure to child/parent/guardian
4. **Decontaminate hands for 1 minute**, apply Alcohol rub/gel. **As per local policy**
5. Open the Mepore Dressing, 2 packs of gauze, leave within the packets.
6. Open sterile saline and pour on to the centre of one of the packs of gauze.
7. Remove old dressing and tape.
8. Observe and take note of site (i.e. redness, swelling, discharge, crust or over granulated) as per exit site scoring sheet.
9. **Decontaminate hands for three minutes**, dry, apply Alcohol rub/gel
10. Pick up a piece of wet gauze and bring together the four corners.
11. Hold the tube gently with designated 'holding' hand.
12. Clean the catheter site, one direction only, in a circular motion and discard gauze.
13. **Ensure that the gauze swab comes as close to the exit site as possible**
14. Repeat above step as often as required (approx 3 times), with new pieces of soaked gauze, until site thoroughly cleaned
15. **Crusts should not be removed or soaked.**
16. Use final piece of saline gauze to clean the tubing. Start from the exit site and work down the tubing away from the body just below where the Mepore covers the catheter.
17. Dry the site with the second pack of gauze, ensuring the site is completely dry.
18. Finally, dry the Tenckhoff catheter to just below where Mepore covers catheter.
19. Take a swab of the exit site if necessary.
20. The catheter must be allowed to fall **naturally** from the exit site and apply Mepore dressing over exit site.
21. Examine the remaining catheter for any abnormalities and clean with saline gauze and dry.
22. **Immobilise the transfer set** by placing one/two strip(s) of Mefix / Elastoplast tape to anchor the tube down.
23. In certain circumstances Tubinet/mepore may be applied to prevent 'dragging' or 'tugging'.
24. Dispose of equipment appropriately
25. Decontaminate hands thoroughly.
26. Document procedure. Complete exit site scoring chart and report any abnormalities to CNS/CNM.
27. **It is the responsibility of the nurse looking after the patient to ensure that the Tenckhoff catheter is secure at all times.**

4.1 Guidelines on cleansing a New Peritoneal Dialysis Catheter Exit Site:

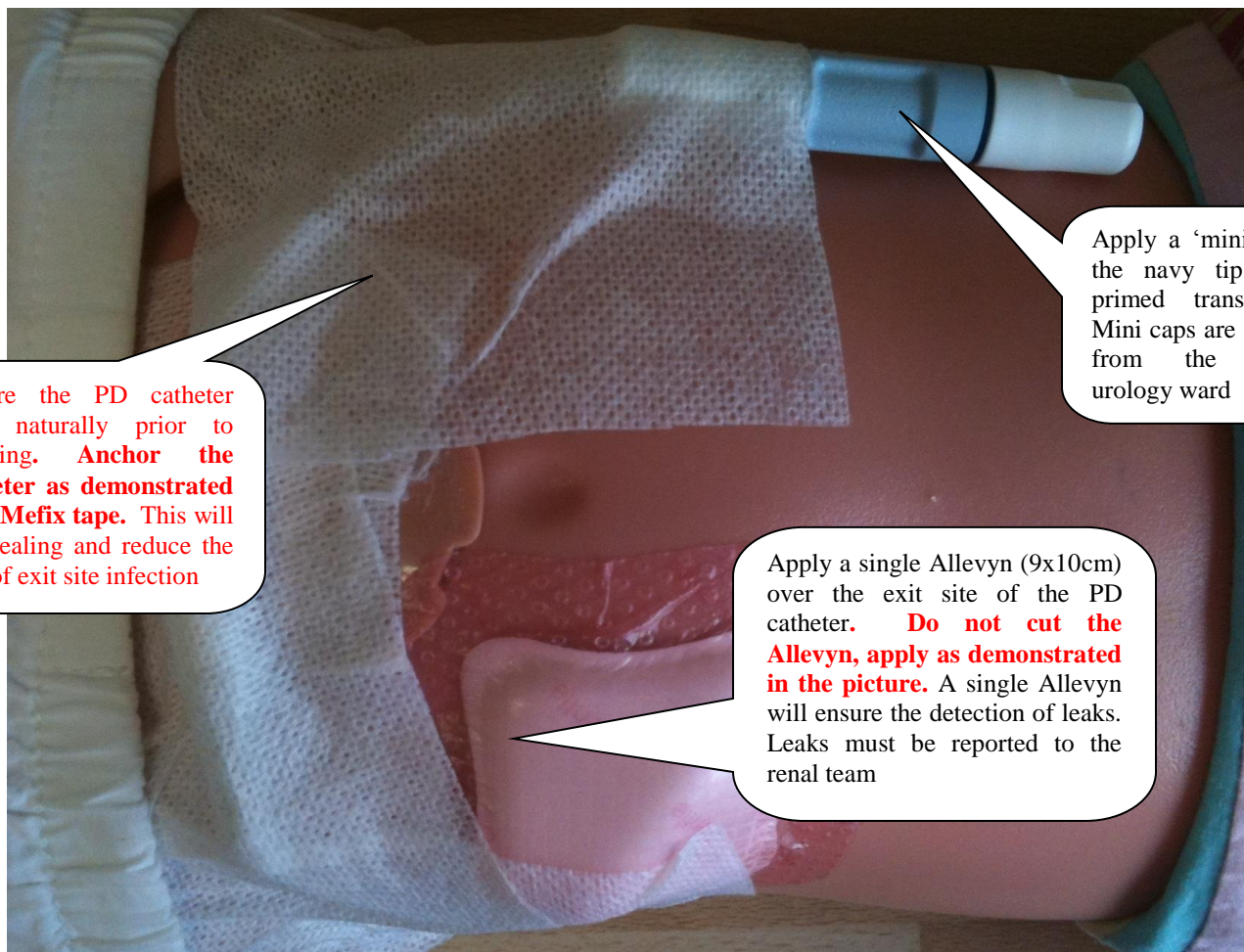
Close windows and doors & Decontaminate Hands and collect the following Equipment

- Sterile drape
- Sterile gloves
- Dressing Pack
- 2 packs of sterile gauze
- 0.9% NACL (ampoules or sachet)
- 1 Allevyn adhesive Dressing
- Mefix

ACTION

Decontaminate hands for 1 minute apply alcohol hand gel. As per local policy

1. Open the equipment onto the sterile drape on trolley.
2. Explain procedure to child/parent.
3. Remove old dressing and tape and dispose
4. Observe and take note of site (i.e. redness, swelling, discharge, crust or over granulated) **as per exit site scoring sheet.**
5. **Decontaminate hands** and apply sterile gloves.
6. Hold the tube gently with designated 'holding' hand.
7. Pick up 4 corners of soaked saline gauze.
8. Clean around site in a circular motion and discard gauze. Ensure that the gauze swab comes as close to the exit site as possible .Crusts should not be removed or soaked.
9. Repeat above step as often as required.
10. Use final piece of soaked saline gauze to clean the tubing from exit site down tubing away from the body.
11. Dry site in circular motion and discard gauze.
12. Repeat above step as often as required, ensuring the site is completely dry.
13. Dry the Tenckhoff catheter to just below where Allevyn covers catheter.
14. Take a swab of exit site if necessary.
15. Allow tubing to fall naturally from the exit site.
16. Take Photo of exit site.
17. Cover site with a Allevyn adhesive Dressing.
18. Examine the remaining catheter for any abnormalities and clean with saline and dry.
19. Immobilise the catheter by placing Mefix on tubing anchoring it down on the abdomen. This prevents tube movement at site.
20. In certain circumstances Tubinet may be applied to prevent 'dragging' or 'tugging'
21. Dispose of equipment appropriately.
22. **Decontaminate hands.**
23. Document procedure Complete exit site scoring chart and report any abnormalities to CNS/CNM.
24. **It is the responsibility of the nurse looking after the patient to ensure that the Tenckhoff catheter is secure at all times**



Ensure the PD catheter falls naturally prior to securing. **Anchor the catheter as demonstrated with Mefix tape.** This will aid healing and reduce the risk of exit site infection

Apply a 'mini cap' to the navy tip of the primed transfer set. Mini caps are available from the Nephro urology ward

Apply a single Allevyn (9x10cm) over the exit site of the PD catheter. **Do not cut the Allevyn, apply as demonstrated in the picture.** A single Allevyn will ensure the detection of leaks. Leaks must be reported to the renal team

5.0 GUIDELINES ON ADDING ANTIBIOTICS TO PERITONEAL DIALYSIS FLUID

Introduction:

To administer antibiotic therapy via peritoneal dialysis fluid safely, as per hospital policy and An Bord Altranais safe administration of drugs.

Indications for Intravenous antibiotic therapy via peritoneal dialysis fluid

- Post contamination episode.
- Treatment of peritonitis.
- Treatment of a tunnel infection.

Complications associated with administering antibiotics through the peritoneal catheter.

- Drug error
- Contamination
- Eosinophilic peritonitis

Close windows and doors & Decontaminate Hands and collect the following Equipment

Equipment:

- Dialysis fluid (Physioneal +/- Extraneal)
- Heparin (Monaparin preservative free)-1,000iu per ml (**see Heparin Protocol**)
- Vancomycin-500mg vial
- Ciproxin-400mg in 200ml, 200mg in 100mls or 100mg in 50ml
- For Heparin, use a 2.5 ml syringe per bag of dialysis fluid (**see Heparin Protocol**)
- One filter needle for each glass ampoules.
- One syringe per antibiotic per bag of dialysis fluid.
- **For Vancomycin:**
 - 1 x 2.5 ml syringe per bag
 - Water for injection x 1
 - 1 x 10ml syringe and a green needle to draw up water for injection
- **For Ciprofloxacin:**
 - 1 x 50ml syringe and a green needle per bag to draw up the Ciprofloxacin
- One Disinfection wipes per bag of dialysis fluids
- One green needle per antibiotic / additives
- Blue needle per bag of dialysis fluid
- Sterile drape
- Sterile gloves
- Disinfection wipes
- 1 cleaned , decontaminated and prepared Trolley

5.1 GUIDELINES OF POTASSIUM TO PERITONEAL DIALYSIS FLUID.

Indications for Potassium therapy via peritoneal dialysis fluid

- Prolonged continuous dialysis, or vomiting and diarrhoea when on peritoneal dialysis may cause hypokalaemia.
- The Serum Potassium level is a prime determinant of the resting cardiac membrane potential. Maintaining normal serum levels reduce arrhythmias.
- Severe hypokalaemia causes muscle weakness, paralytic ileus, confusion, seizures and arrhythmia's.

Complications associated with administering potassium through the peritoneal catheter.

- Drug error/Reaction
- Contamination/Peritonitis

Equipment:

- Dialysis fluid (Physioneal +/- Extraneal) Check prescription
- Potassium 20mmol in 10ml ampoule-usual prescribed dose – 4.0mmol per litre of PD fluid-**see below**
- 5ml/10ml syringe per bag of dialysis
- 1 x green needle for ampoule
- 1 x blue needle per bag of dialysis fluid
- One Disinfection wipes per bag of dialysis fluids
- One sterile drape
- One pair of sterile gloves
- Disinfection wipes
- 1 cleaned , decontaminated and prepared Trolley

Renal patient guidelines

- Serum potassium <3.0mmol/l-add 4.0mmol per litre of PD fluid.
- Serum potassium <2.5mmol/l- add 5.0mmol per litre of PD fluid.

Cardiac patient guidelines

- Serum potassium <5.0mmol per litre-add 3.0mmol per litre of PD fluid.
- Serum potassium <4.5mmol per litre-add 3.5mmol per litre of PD fluid.
- Serum potassium <4.0mmol per litre-add 4.0mmol per litre of PD fluid.

5.2 GUIDELINES ON ADDING 1% LIGNOCAINE TO PERITONEAL DIALYSIS FLUID

Introduction:

To administer 1% Lignocaine via peritoneal dialysis fluid, as per hospital policy and An Bord Altranais safe administration of drugs.

Indications for 1%Lignocaine therapy via peritoneal dialysis fluid

- To reduce pain on instillation of Peritoneal dialysis fluid into the peritoneum (opinion based)
(Constipation, migration of catheter to subphrenic or other sites are reasons for causing pain)

Complications associated with administering 1% Lignocaine through the peritoneal catheter.

- Contamination
- Drug error/Reaction

Close windows and doors

Decontaminate Hands and collect the following Equipment

Equipment:

- Dialysis fluid (Physioneal +/-Extraneal) Check prescription
- 1% Lignocaine vial (**1ml per litre of dialysis fluid as per consultant nephrologists'**)
- 2.5ml syringe per bag of dialysis fluid.
- One green needle/Glass filter for ampoule.
- One blue needle per bag of dialysis fluid.
- One Disinfection wipe per bag of dialysis fluids.
- 1 sterile drape.
- One pair of sterile gloves.
- Disinfection wipes.
- 1 cleaned , decontaminated and prepared Trolley

5.3 GUIDELINES FOR THE ADDITION OF MEDICATION TO PD FLUID VIA TENCKHOFF CATHETER

ACTION
<ol style="list-style-type: none"> 1. Check that the patients prescription sheet is correct 2. Check for any known allergies 3. Check drug dose is correct for renal function. 4. Check drug vial name, expiry, concentration /volume/diluent/displacement value. 5. Check PD fluid type/ clear/ intact /no leaks/no particles/expiry date and prescription is correct for individual patient i.e. weight 6. <u>Decontaminate hands.</u> 7. Open all equipment onto sterile drape on trolley 8 Place dialysis fluid onto drape. 9. Clean neck of vials with Disinfection wipes and open- 10. <u>Decontaminate hands</u> and apply sterile glove. <u>ANTIBIOTIC</u> Prepare required drugs. 11. Draw up required amount of antibiotic in syringes for each bag using filter needles/green needle. 12. Change green needles to blue needle for administration to dialysis fluid. Line up your antibiotics and heparin as per bag. 13. Apply a Disinfection wipe on the top of the port and clean the area allowing it to dry for a minimum 30 seconds. 14. Administer the heparin first into the port using blue needle Add the antibiotic(s) with blue needles also ensure <u>no</u> leakage or back flow lost. 15. Label all dialysis fluid with correct drug labels. <p><u>Potassium</u></p> <ol style="list-style-type: none"> 1. Follow number 1- 10 as above. 2. Draw up required amount of Potassium in syringes for each bag using green needle. 3. Change the green needle to blue needle for administration to dialysis fluid. 4. Apply a Disinfection wipe on the port and clean the area allowing it to dry for a minimum of 30 seconds. 5. Administer the Potassium into the port using blue needle. 6. Label all dialysis fluid bags with correct drug labels. <p><u>Lignocaine</u></p> <p>Follow 1-10 as above</p> <ol style="list-style-type: none"> 1. Draw up required amount of Lignocaine in syringes for each bag using green needle/filter. 2. Change needle to blue needle for administration to dialysis fluid. 3. Apply a Disinfection wipe on the top of the port and clean and dry for a minimum of 30 seconds. 4. Administer the Lignocaine into the port using blue needle. 5. Label all dialysis fluid with correct drug labels. 6.. Document administered medication in the prescription chart <p>Dispose of all needles into sharps bin and other equipment appropriately and decontaminate hands.</p>

5.4 GUIDELINES FOR USE OF UROKINASE VIA A TENCKHOFF CATHETER:

Introduction:

- Urokinase is often used to unblock a Tenckhoff catheter
- Urokinase should only be used if medically prescribed and if heparinisation of the catheter has been unsuccessful

Indications:

- To unblock a Tenckhoff catheter
- Removal of bio-film post peritonitis.

Definition:

When a catheter is blocked, filling and draining is problematic, thus interfering with adequate dialysis. Urokinase is often used to unblock Tenckhoff catheters successfully when heparinisation has failed.

Complications associated with flushing a Tenckhoff catheter:

1. Contamination
2. Drug error/Reaction

Close windows and doors & Decontaminate Hands and collect the following Equipment

Equipment

Videne 10% antiseptic solution (iodinated povidone) Minicap x1 Sterile gloves Disinfection wipes. 10ml syringe x1 2.5ml syringe x1 1ml syringe x1	Sterile Drape Green needle x 2 Urokinase 10,000 IU vial 0.9% sodium chloride ampoules x2 Dressing pack 1 cleaned, decontaminated and prepared Trolley
---	--

ACTION

1. Check that prescription is correct.
2. **Decontaminate hands**
3. Open out sterile drape. Place equipment on the sterile trolley.
4. Pour Videne (iodine) into dressing pack
5. Clean Urokinase vial with Disinfection wipe and allow drying for minimum 30 seconds.
6. Open the 0.9% NaCl ampoules.
7. **Decontaminate hands** and apply sterile gloves.
8. Dilute Urokinase as per instructions.
9. **For 11kg child or greater :**
Draw up 1ml of Urokinase i.e. 5,000iu, further dilute this with 6 ml of 0.9% NaCl (to make a volume of 7ml) for **Or**
If the child is 10 kg or less draw up 0.6ml of Urokinase i.e. 3000iu, further dilute this With 4.4ml of 0.9% NaCl to make a volume of 5 mls.
10. **Check doses as prescribed by nephrologist.**
11. Cover the trolley with a sterile drape and transfer to the patient's room.
12. Explain procedure to child and family.
13. **The checking nurse: Check patient's identification bands, clean Transfer set with Disinfection wipes and discard. Wrap a new Disinfection wipes around same.**
14. Pick up catheter holding Disinfection wipes and place sterile field beneath the catheter and discard Disinfection wipes.
15. Clean Transfer set (i.e. mini cap and blue twist clamp using Videne (iodine) soaked gauze and discard.
16. Remove mini-cap and discard.
17. Place syringe on end (**never** touch the navy part of transfer set with **anything**)
18. Open twist clamp.
19. Instil Urokinase / 0.9% saline mix (never withdraw from Tenckhoff catheter)
20. Close twist clamp.
21. Remove the syringe and apply new mini-cap.
22. Leave **at least 4 hours** or instructed by Nephrologist.
23. Document procedure.

6.0 GUIDELINES ON FLUSHING A TENCKHOFF CATHETER WITH 0.9% SODIUM CHLORIDE (10MLS) PLUS HEPARIN 1:1000UNITS (1ML).

Introduction:

- Preservative free heparin 1:1000iu/ml 1ml and 0.9% sodium chloride 9ml is instilled into a peritoneal Tenckhoff catheter using aseptic technique.

Indications:

- To flush a Tenckhoff catheter safely to check patency.
- To prevent blockage when not in use-For greater than 48 hours.
- Post operatively the Tenckhoff catheter should be **flushed weekly for the first week** and then alternate weeks if the catheter is not in use.
- To unblock a Tenckhoff catheter.

Definition:

Flushing a catheter when the peritoneal catheter is not in use helps to maintain patency. Randolph et al (1998) found that prophylactic use of heparin decreases bacterial colonisation of the catheter and may reduce the risk of peritonitis. Heparin coats the tip of the catheter and inhibits the formation of fibrin sheaths. (wynsma1998).

Complication Risk associated with flushing a Tenckhoff catheter:

1. Risk of contamination episode.
2. Drug error

Equipment

1. Videne 10% Antiseptic solution (iodinated Povidone)	7. Green needle
2. 0.9% Sodium chloride 9 mls (or 6 mls for flex neck catheter)	8. 2.5 ml syringe
3. 1 : 1000iu Heparin (Preservative Free) X1 vial	9. 10 ml syringe
4. Dressing Pack	10. Disinfection wipes
5. Sterile Gloves/sterile field	11. Minicap
6. Filter Needle	

ACTION

1. **Decontaminate hands** /clean trolley.
 2. Gather all equipment.
 3. Close all windows and doors.
 4. Check that prescription is correct
 5. **Decontaminate hands:**
 6. Open out sterile drape. Place equipment on sterile trolley.
 7. Pour Videne (iodine) into dressing pack.
 8. Clean neck of Heparin ampoule with Disinfection wipe and break lid off.
 9. Clean and open 0.9% NaCl.
 10. **Decontaminate hands** and apply sterile gloves.
 11. Draw up 1ml of heparin 1:1000units in a 2.5ml syringe with filter needle and dilute to 10mls with 9ml of 0.9% NACL. As prescribed.
- OR**
- If using a flex neck catheter** use 1 ml of Heparin dilute as above to 6 mls with 5mls of 0.9% NACL.
12. Cover the trolley with a sterile drape and transfer to the patients room
 13. Explain procedure to child and family
 14. **The checking nurse: Checks patient's identification band cleans Transfer set with Disinfection wipes and discards. Wrap a new Disinfection wipes around same.**
 15. Pick up catheter holding Disinfection wipes and place sterile field beneath the catheter and discard Disinfection wipes.
 16. Clean Transfer set (i.e. mini cap and blue twist clamp using Videne (iodine) soaked gauze and discard.
 17. Remove mini-cap and discard.
 18. Place syringe on end (**never** touch the navy part of transfer set with anything)
 19. Open twist clamp.
 20. Instil Heparin / 0.9% saline mix (never withdraw from Tenckhoff catheter
 21. Close twist clamp
 22. Remove the syringe and apply new mini-cap.
 23. Document procedure

Appendix 1 Advice Sheet

POST TENCHKOFF CATHETER INSERTION DISCHARGE ADVICE SHEET

- Your child is being sent home with a new Tenchkoff catheter.
- This catheter takes six weeks to heal, therefore avoid direct contact with water.
- No baths or showers during this period (Head –toe wash) and avoid sports.
- Once the six week period has elapsed, resume shower or **shallow** bath (**not submerging exit site**). During shower or bathing leave dressing intact and post shower/bathing and drying change dressing as per PD exit site guidelines
- No swimming
- Cleaning and changing of dressing performed on alternate days or daily if dressing becomes wet, soiled or dislodged or a crust or signs of infection are evident.
- Observe site for redness, ooze, crusts and granulation tissue– inform renal nurse or team as a swab is required.
- If the exit site has grown a positive culture /or looks infected, clean daily, until prescribed course of antibiotics are completed.
- Crusts around exit site should not be removed-change dressing daily.
- The exit site will be formally examined by a renal nurse at each clinic visit.
- Your child's catheter tubing needs to be supported next to their body to reduce the risk of it getting pulled and damaged – Site covered with mepore/allevyn, tubing anchored downward with Mefix tape.
- If the white mini cap should come off the end of the catheter, or the blue tip is touched by accident, clamp the tubing near abdomen, and replace with a new cap. **Do not use. Phone renal nurse or ward immediately for change of transfer set, specimen and antibiotics for 48 hours to prevent peritonitis developing.**
- If catheter leaks, or is cut, clamp above the hole nearest the abdomen. **Do not use and follow the above step.**
- If your child develops a temperature, abdominal pain or discomfort, vomiting, cloudy fluid or presence of fibrin (white cotton thread like particles), inform renal nurse or ward immediately to rule peritonitis. A sample of PD fluid must be sent to the lab and your child will need to be reviewed by the renal team.

Discharge Checklist:	Date and Sign:
Date Peritoneal Catheter inserted.	
Date to return to clinic.	
Take home spare clamps, gauze, caps, alcowipes, tubi-grip and dressings.	
Understand what to do if there is a problem with the catheter (e.g. if the cap comes off).	
Understand what to do if there is a problem with the dressing.	

REFERENCES:

Baxter Health Care Corporation.(2010) *Patient at home Guide*.

Bradley A, Warady B, Bakkaloglu S, et al .(2012), *International Society for Peritoneal Dialysis. Consensus guidelines for the prevention and treatment of catheter-related infections and Peritonitis in Pediatric patients receiving peritoneal dialysis*:2012 update. *Peritoneal Dialysis International*, vol. 32, 532-580.

Chow KM, Szeto CC, Law MC, Fun Fung JS, Kam – Tao Li P, (2007) *Influence of Peritoneal Dialysis training nurses' experience on peritonitis rates*. *Clinical Journal American Society Nephrology* 2007; 2:647 – 52.

Jones L, Aldridge M. (2011). *Organisation and management of a paediatric dialysis programme*. In: Warady BA, Schaefer FS, Alexander SR, eds. *Paediatric Dialysis*. New York, NY: Springer; 2011

Levy J, Morgan J, Brown E. (2004). *Oxford Handbook of Dialysis*. Oxford University Press

Rees L, Webb N, Brogan P. (2006). *Paediatric Nephrology*. Oxford Medical Publications.

Tong MK, Leung KT, Siu YP, Lee KF, Lee HK, Yung CY, et al. (2005) *Use of intraperitoneal Urokinase for resistant bacterial peritonitis in continuous ambulatory peritoneal dialysis*. *Journal of Nephrology*; 18:204-8.

Warady B, Schaefer F, Fine RN, Alexander SR, (2004). *Pediatric Dialysis*. Kluwer Academic Publishers

Appendix 2 Pre-operative checklist

ABDOMINAL SURGERY / PERITONEAL DIALYSIS CATHETER PRE-OPERATIVE CHECKLIST							
For all patients undergoing		a). insertion of a new PD catheter or					
		b). Any abdominal surgery e.g. Gastrostomy tube insertion,					
		Herniotomies, re-positioning/exchange of existing Peritoneal					
		Dialysis Catheter with an existing Peritoneal Dialysis catheter.					
<p>Must have Pre-operative antibiotic cover - Gram Positive Cover: Vancomycin 10mg/kg Stat dose, Gram Negative Cover: Ciprofloxacin 5mg/kg stat dose to prevent development of early bacterial peritonitis. (Discuss with Consultant Nephrologist re fungal cover, if required. For patients with known allergies/resistance to above drugs discuss with Nephrologist re alternative antibiotics.)</p>							
<p>Flucloxacillin cover required for MSSA pre and post operatively. For patients in group b) advise 48 hour cover with Vancomycin and Ciprofloxacin (depending on allergy / sensitivity) unless otherwise specified. Vancomycin level taken at 24 hours if not on PD, discuss IV / IP route used for continued therapy. Also antifungal oral cover required. Discuss drug and duration</p>							
						(Ledermann S. E. et al. 2002)	
Anti-infectious Cover	Drug name			Administered/date			Comments
Gram +ve							
Gram -ve							
Anti-fungal							
Patient specific							
	Patient details						
Name:							
Hospital number:						Gender:	
Date of birth						Age of child:	
Drug allergies:							
Dry weight:							
Diagnosis:							

Pre-Operative care - Peritoneal Dialysis catheter (see protocol)							
Full set of body/nasal swabs:		MRSA		MSSA			
Date of screen:							
MSSA colonised pre op?		Yes		No		Don't know	
MRSA colonised pre op?		Yes		No		Don't know	
Pre op MSSA eradication?		Yes		No			
Successful eradication?		Yes		No		Don't know	
Pre op MRSA eradication?		Yes		No			
Successful eradication?		Yes		No		Don't know	
Bowel assessment (constipation)							
Pre-op bloods							
Hydrex hair and body wash:							
Antibiotics prescribed:		Yes		No			
Antifungals prescribed:		Yes		No			
Antibiotics administered:		Yes		No			
Antifungals administered:		Yes		No			
Post op heparinised flushes px:		Yes		No			
	Post-operative Peritoneal Dialysis catheter						
Date of insertion:				Type of catheter:			
Post op dressing used:							
Immobilisation of catheter:							
Post op dressing satisfactory?		Yes		No			
Remarks / comment:							
Omentectomy performed:		Yes		No			
Flushes:		Yes		No			
Catheter rest time:				Date PD started:			
Other stomas:							

	Peritoneal dialysis exit site					
Duration of aseptic dressings:				Type of dressing used :		
Subsequent dressings used:						
Topical treatment:						
Exit site-up/down or side exit:						
? Post-operative leak:		Yes		No		
If 'yes' discuss antibiotic cover		Gram +ve		Gram -ve		
Infection score performed:		Yes		No		
Score:						
Photo taken:		Yes		No		
Clinical Photographer Dave Cullen contact via switch						
	Abdominal surgery with existing PD catheter:					
Date of surgery:						
Type of surgery:						
Open gastrostomy or PEG:						
Indication for surgery:						
	Post-operative follow up:					
Duration of follow up:						
Duration of PD interruption:						
Start time of Gastrostomy use:						
Other complications:						
Outcomes and remarks:						
	Outcomes and remarks:					
PD sample sent?:		Yes		No		
Indications for PD sample:						
PD sample result:						
Early peritonitis i.e.						
<7 days post op:						
Episodes of peritonitis prior						

to surgery/ dates:							
Episodes of peritonitis post							
surgery /dates:							
Episodes of fungal peritonitis							
post-surgery/ dates:							
Where antibiotics differ from standard prescription i.e. allergy / resistance / Consultant choice. <u>Please note reason:</u>							
	N.B See peritonitis audit form					ISSUED JULY2011	