

Raising the Bar: Putting the Patient First

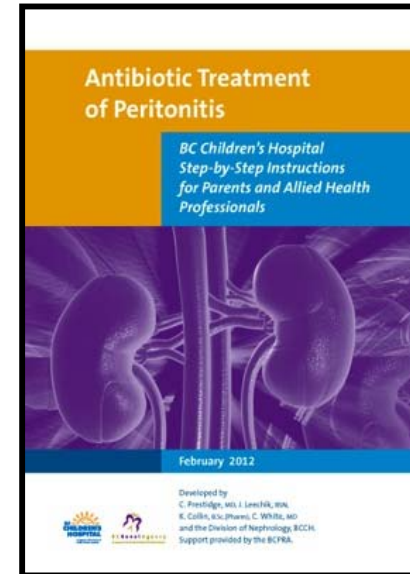
Peritonitis starts at home: So why treat it in the hospital?

BC Kidney Days
2012

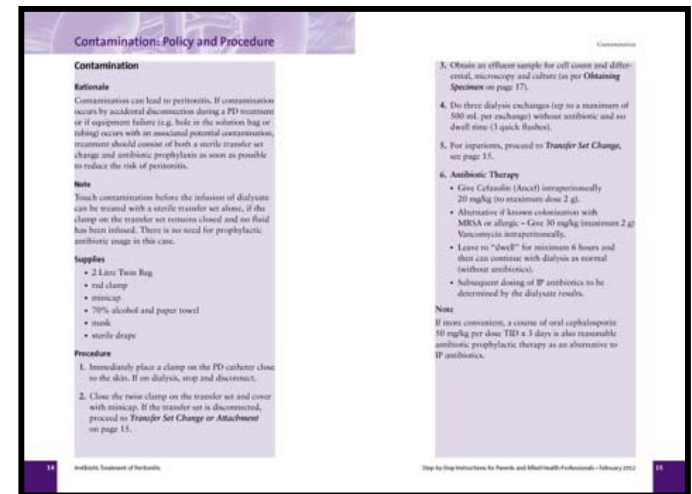
Jennifer Leechik, RN
Kathleen Collin, BScPharm
Colin White, MD

Objectives of Talk

1. Describe *at least* 3 benefits to patient care related to this protocol development project.



2. Develop an appreciation of benefits of working with a professional content design firm.



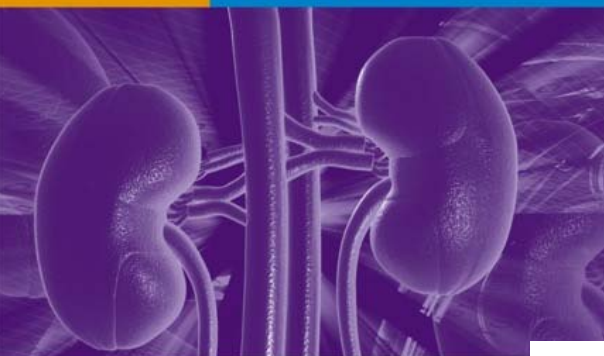
Background to Peritonitis “Kit/Protocol” Project



- International Pediatric Peritonitis Guidelines last adjusted/published 2000
 - **On-going** discussions ‘out-there’ to update based on current knowledge base
 - No obvious date for this to come out
- We had many at-risk patients/ across the whole province
- We had a good sense of our ‘local’ organisms/ sensitivities
- More fellows/docs in the program
 - Difficult to remain consistent in approaches/ application of knowledge
- Uncommon event
 - Hard to keep families trained/ prepared
- Always difficult to source Abx and equipment at night/ weekend
- We had an excellent ‘team’ willing to work on project
 - Fellow, PD Nurse, Pharmacist

Antibiotic Treatment of Peritonitis

BC Children's Hospital
Step-by-Step Instructions
for Parents and Allied Health Professionals



February 2012



Developed by
C. Prestidge, MD, J. Leechik, BSN,
K. Collin, BSc(Pharm), C. White, MD
and the Division of Nephrology, BCCH.
Support provided by the BCPRA.

OBJECTIVE # 1

K. Collin
J. Leechik

Administering Antibiotics

Vancomycin Mixing Instructions for Addition to Dialysis Fluid

What supplies do I need to mix Vancomycin?

- one vial vancomycin 500 mg
- two alcohol swabs
- one 10 mL syringe, or other convenient size
- one 10 mL Sterile Water for Injection
- one 20 (or 22) gauge needle

What do I do?

"Aseptic technique" means "clean method," and is used to keep needles, syringe parts (plunger and syringe tip) and other important items very clean. Avoid eating, drinking, and talking when you are performing an aseptic technique. Vancomycin should be mixed with an "aseptic" (clean) technique according to the following instructions:

1. Check expiration on the vial. Discard if outdated.
2. Clean your work surface with rubbing alcohol. Wash your hands with soap.
3. Remove the top of the vancomycin vial.
4. Wipe the rubber seal on the vancomycin vial with the alcohol swab for 1 minute.
5. Open a needle package, and with the cap on the needle, place the needle on the syringe. Set it aside.
6. Open the Sterile Water vial and swab the rubber seal for 1 minute. Remove the cap from the needle on the syringe. Using the needle and syringe, measure 5 mL of Sterile Water.

Administering Antibiotics

7. Add the 5 mL of Sterile Water to the vancomycin vial, slowly against the side of the vial to prevent foaming. Put the cap back on the needle, for safety and sterility. Set aside the needle and syringe.

8. Carefully swirl or "rock and roll" the vancomycin vial until the powder is completely dissolved. If after lots of shaking, there is still "powder" that won't dissolve, don't use this vial, discard it and start over with a new vial.

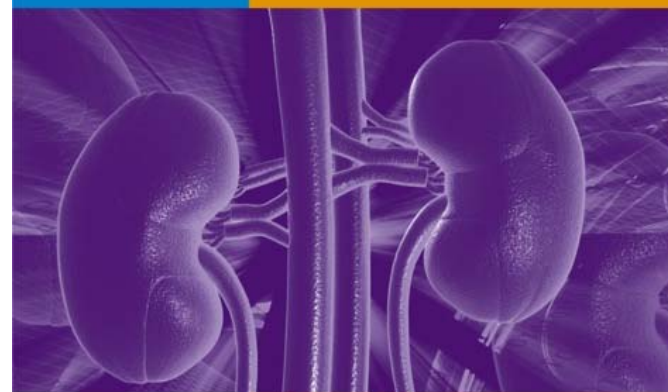
9. The strength of the vancomycin in the vial is: **100 mg per milliliter (100 mg/mL)**. Use the alcohol swab again to clean the top. Using the syringe and needle, inject about some air into the vial, then pull out the amount of vancomycin you need. The nephrologist will tell you how much you need.

Add _____ mL of vancomycin solution to _____ Litres of Dialysis fluid

10. Measure and add the vancomycin to the dialysis solution as the nurse has taught you.
11. Carry out procedures of peritoneal dialysis according to directions from your nephrologist.
12. Unopened and sealed vancomycin powder should be

Empiric Management of Peritonitis

BC Children's Hospital
On-Call Handbook



February 2012



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Describe *at least* 3 benefits to **patient care** related to this protocol development project.

1. Allowed Standardized Antibiotics

- Ensured availability 24/7/365
- “Certainty” of treatment success based on local patterns of bugs/ sensitivities
- Physicians will be more competent/knowledgeable when using 2-3 drugs regularly
- Pharmacare benefit



Describe *at least* 3 benefits to **patient care** related to this protocol development project.

2. Allowed Standardized Education for the Family

- Streamline teaching
 - One method
 - Limited antibiotic choices: 2-3 drugs
- Uniformity
 - Standardized Antibiotic Concentrations
 - Standard worksheets



Describe *at least* 3 benefits to **patient care** related to this protocol development project.

3. Allowed “Mirroring” of Physician and Family Information

- All Physician instructions are complete duplicates of Families instructions
 - Being on “the same page”
 - Assists understanding in face of language disconnect
 - Family can follow physician’s train of thought
 - Allows clear and consistent repetition of instructions

PHYSICIAN BOOKLET



FAMILY BOOKLET

Describe *at least* 3 benefits to **patient care** related to this protocol development project.

4. Creation of Dosing Worksheets

- Safety in drug delivery
 - Dose
 - Compatibility
 - CAPD vs CCPD

- Incorporated standard 'correction factors'
 - Dwell volume reduction requires antibiotic dose adjustment
 - Anuria vs. Urine output

Describe *at least* 3 benefits to **patient care** related to this protocol development project.

Cefazolin and Ceftazidime Dosing Worksheet

Note Cephalosporins are to be continuously dosed (i.e. antibiotic in all dialysate bags).
Continuously dosed antibiotics are prescribed as a concentration (i.e. mg/L).

1. Patient's Current PD Prescription

(NB. clarify with nursing staff/parent the number and size of dialysate bags used)

2. Patient Anthropometric Data

(Refer to most recent clinic note.)

$$BSA = \frac{\sqrt{(\text{height cm}) \times (\text{weight kg})}}{3600}$$

$$= \text{m}^2 \text{ (A)}$$

3. "Correction Factor"

(To adjust for use of reduced fill volumes.)

$$\text{Optimal Fill Volume (1100 mL/m}^2 \times \text{A)} = \frac{\text{mL}}{\text{mL}}$$

$$\text{Fill volume to be used}^* = \frac{\text{mL}}{\text{mL}}$$

$$= \text{mL} \text{ (B) Express to 1 decimal}$$

(*use patient's usual fill volume or decrease by 25% if in pain)

4. Dosing

(Choose appropriate dose of antibiotic based on residual urine output and multiply by correction factor (B) to determine final dose needed to provide required mass of antibiotic.)

Cefazolin or Ceftazidime	Loading Dose (C)	Maintenance Dose (D)
Anuric	500 mg/L	125 mg/L
Non-anuric	625 mg/L	150 mg/L

NB. Anuric: >12 years = <100 mL/day; <12 years = <50 mL/day

Loading Dose (initial dwell for minimum of 6 hours) =

$$\text{mg/L (C)} \times \text{mL (B)} = \text{mg/L (E)}$$

Final concentration to provide required mass antibiotic

Maintenance Dose (added to every dialysate bag) =

$$\text{mg/L (D)} \times \text{mL (B)}^* = \text{mg/L (F)}$$

*Use optimal fill volume (B-1) if possible Final concentration to provide required mass of antibiotic

5. Administration

(Also refer to parent antibiotic mixing instruction sheets, note cefazolin and ceftazidime are reconstituted by parents to a 100 mg/mL solution.)

Loading Dose (generally use 2 L Twin Bag)

$$\text{i. } 2 \text{ L} \times \text{mg/L (E)} = \text{mg (G)}$$

$$\text{ii. } \text{mg (G)} \div 100 \text{ mg/mL} = \text{mL}$$

(of 100 mg/mL antibiotic) to be added to 2 L bag, mixit and dwell for a minimum of 6 hours, then commence maintenance dosing

Maintenance Dose

(Select bag sizes to be used by patient when on cyclor (including last fill bag) or twin bags (if CAPD), as per usual PD prescription.)

Dose (mg/L) (F)

$$2 \text{ L} \times \text{mg/L (F)} = \text{mg} \div 100 \text{ mg/mL} = \text{mL}$$

(of 100 mg/mL antibiotic) added to each 2 L bag

$$2.5 \text{ L} \times \text{mg/L (F)} = \text{mg} \div 100 \text{ mg/mL} = \text{mL}$$

(of 100 mg/mL antibiotic) added to each 2.5 L bag

$$3 \text{ L} \times \text{mg/L (F)} = \text{mg} \div 100 \text{ mg/mL} = \text{mL}$$

(of 100 mg/mL antibiotic) added to each 3 L bag

$$5 \text{ L} \times \text{mg/L (F)} = \text{mg} \div 100 \text{ mg/mL} = \text{mL}$$

(of 100 mg/mL antibiotic) added to each 5 L bag

6. Example Prescription for Outpatients

(Prescribe first 3 days to cover empiric therapy.)

Cefazolin or Ceftazidime for intraperitoneal administration for peritonitis.

Loading Dose

Add mg/L (E) x 2 L dialysate x 1 dose.

Maintenance Dose

Add mg/L (F) x litres = mg
(total per day) x 3 days

Develop an appreciation of benefits of working with a **professional content design firm**.

1. Track record of success

- They have one ...you don't
 - Gave us confidence when things not going smoothly on our end of design process

2. Relieves Workload on **Clinical** Team

- They had sophisticated programs to take our ideas and create practical visual layouts

3. Consistency

- OVER AND OVER (and OVER) again they caught differing language or phrases between sections and diagrams and forced us to fix!

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4. Special Knowledge

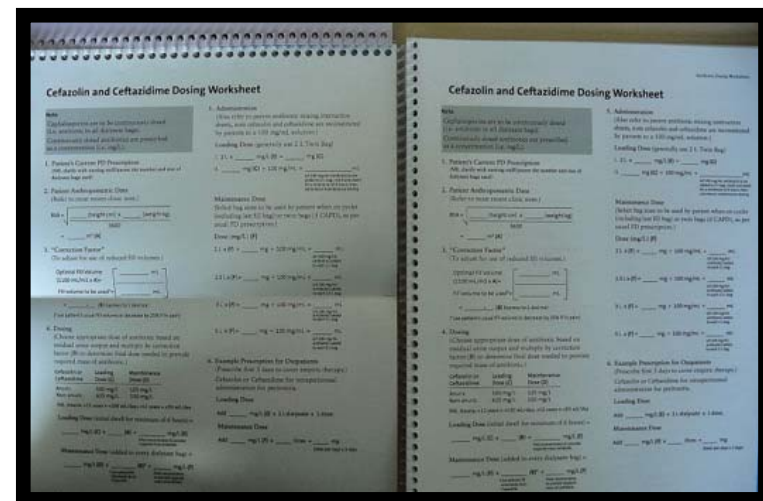
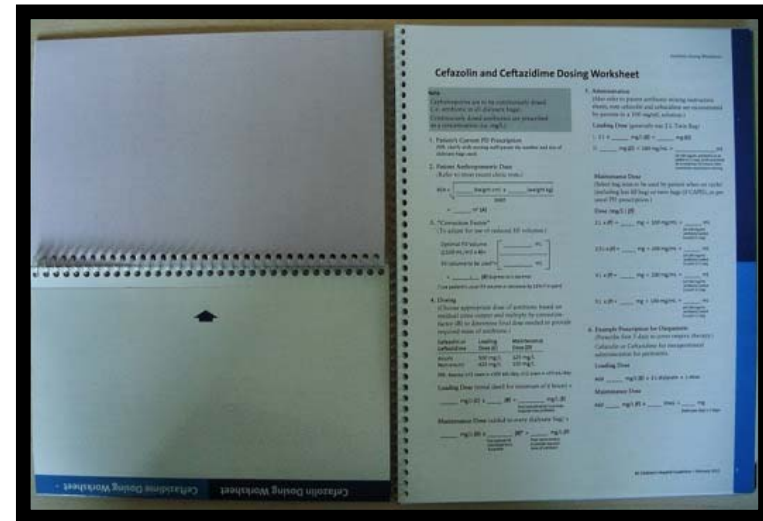
- Paper types
- “Extended” pages
- Bindings

5. Usability of Output

- Fonts
- Colours
- Layouts

6. Formats

- Print
- PDF
- Handheld



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Contamination: Policy and Procedure

Contamination

Rationale

Contamination can lead to peritonitis. If contamination occurs by accidental disconnection during a PD treatment or if equipment failure (e.g. hole in the solution bag or tubing) occurs with an associated potential contamination, treatment should consist of both a sterile transfer set change and antibiotic prophylaxis as soon as possible to reduce the risk of peritonitis.

Note

Touch contamination before the infusion of dialysate can be treated with a sterile transfer set alone, if the clamp on the transfer set remains closed and no fluid has been infused. There is no need for prophylactic antibiotic usage in this case.

Supplies

- 2 Litre Twin Bag
- red clamp
- minicap
- 70% alcohol and paper towel
- mask
- sterile drape

Procedure

1. Immediately place a clamp on the PD catheter close to the skin. If on dialysis, stop and disconnect.
2. Close the twist clamp on the transfer set and cover with minicap. If the transfer set is disconnected, proceed to *Transfer Set Change or Attachment* on page 15.

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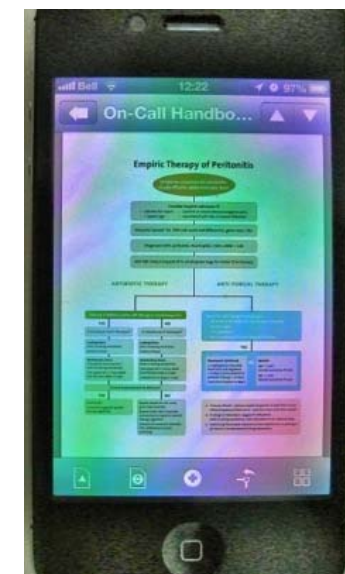
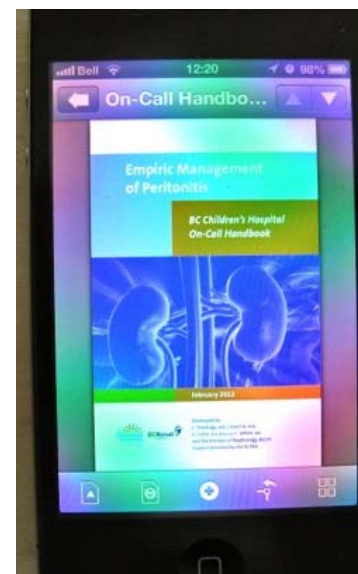
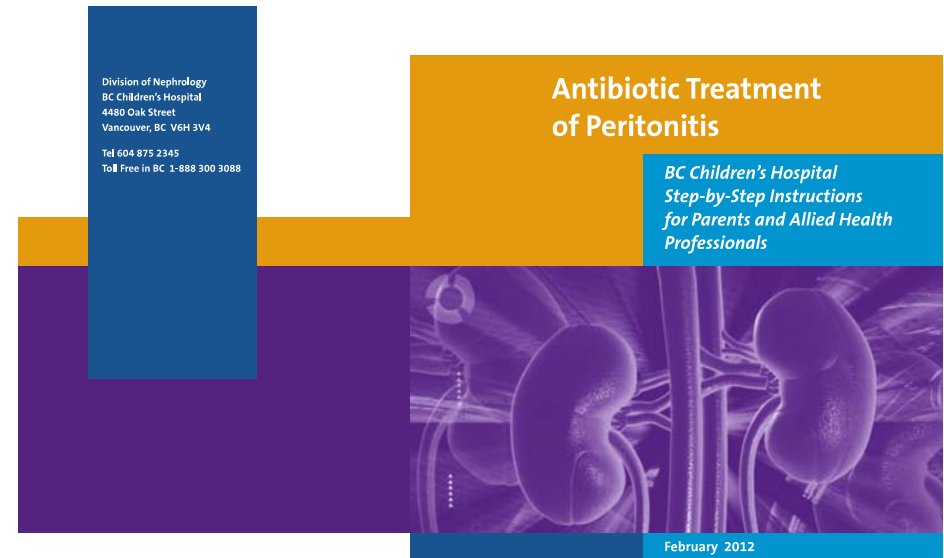
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Thanks

- BCPRA and Donna M-B for putting us in contact with Linda Coe Designs
- Linda herself who put up with more dithering than she should have needed to!
- All the members of our Division who put in countless hours listening to evidence reviews and providing needed guidance for our clinical design work

Questions

