

**Bon Secours Richmond Health System
Pharmacy & Therapeutics Committee
April 2002**

Recommendations for Surgical Prophylaxis: MEC Approved

- Use 15 mg/kg of Vancomycin for surgical prophylaxis (Maximum Dose: 2gm) round to nearest dose evenly divisible by 250 milligrams.
- Use 2 gm of cefazolin (Ancef) for patients weighing greater than 100 kg.

Findings:

- Obesity-associated physiological changes with potential consequences for antimicrobial pharmacokinetics.¹
 - Increased body mass, both lean body mass and adipose tissue
 - Increased cardiac output and blood volume
 - Increased renal clearance
 - Hepatic metabolic changes
 - Changes in serum protein levels
- Obesity is a risk factor linked to increased surgical infections
- For prophylaxis to be effective, the drug concentration must be maintained above the MIC for the offending agent.
- A study of gastroplasty patients demonstrated increasing the dose of cefazolin from 1 gm to 2 gm preoperatively was associated with a decrease in infection rate from 15% to 5% (national norm).

Expected Peak for 15 mg/kg Dose of Vancomycin													
Creatinine Clearance (ml/min)	140	120	95	85	75	65	55	45	35	25	15	7.5	2.5
Peak (mcg/ml)	21.1	21.4	21.7	21.8	22.0	22.1	22.2	22.4	22.5	22.6	22.8	22.9	23.0
Number of Hours before level drops to 10 mcg/ml	6.2	7.3	9.3	10.4	11.8	13.6	16.0	19.3	24.3	32.5	48.9	78.0	128.4

References:

1. Forse RA, Karam B, MacLean LD, Christou NV. Antibiotic prophylaxis for surgery in morbidly obese patients. *Surgery* 1989;106:750-757.
2. Wurtz R, Itokazu G, Rodvold K. Antimicrobial Dosing in Obese Patients. *Clinical Infectious Diseases* 1997;25:112-118.
3. ASHP Reports. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery. *American Journal of Health-System Pharmacists* 1999;56:1839-1888.
4. Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP. The Timing of Prophylactic administration of Antibiotics and the Risk of Surgical-Wound Infection. *NEJM* 1992;326:281-286.
5. Kitzes-Cohen R, Farin D, Piva G, Ivry S, Sharony R, Amar R, Uretzky G. Pharmacokinetics of Vancomycin Administered as Prophylaxis Before Cardiac Surgery. *Therapeutic Drug Monitoring* 2000;22:661-667.