

**Bon Secours Richmond
Pharmacy & Therapeutics Committees
IV to Oral Conversion Program
11/04**

Recommendations: Not accepted by P&T or MCEIC

- Medications administered by the IV route, which are well absorbed or equally efficacious when given orally, will be converted to oral therapy when the patient's oral route is usable and the patient's condition is compatible with oral therapy.
- The following medications demonstrate equivalent blood levels and efficacy when given orally as compared to intravenous administration: Bactrim (sulfamethoxazole / trimethoprim), clindamycin, doxycycline, fluconazole, fluoroquinolones (ciprofloxacin, levofloxacin), linezolid, metronidazole, minocycline, proton pump inhibitors, rifampin, and voriconazole. They will be converted to the oral route if the patient meets the following criteria:
 - The patient is taking oral medicines, receiving tube feedings or other medicines by feeding tube, or is receiving either a soft or regular diet.
 - The patient has received 2 days of IV therapy.
 - The patient's condition is compatible with oral therapy [improvement or resolution of symptoms of infection during parenteral therapy (temperature less than 100.4 for 24 hours, HR at baseline or \leq 100, SBP $>$ 100 mm Hg (hemodynamically stable), O₂ saturation $>$ 90% on room air or baseline, WBC declining, and mental status at baseline)]
 - **The patient is not in a critical care area.**
 - **The patient is not being treated for or have the following conditions: bacteremia, endocarditis, neutropenia, fungemia, Legionella pneumonia, mediastinitis, meningitis or other CNS infections, osteomyelitis, and vascular graft infections.**
 - **The patient does not have decompensated CHF, active gastrointestinal bleeding, malabsorption syndrome, short bowel syndrome, severe diarrhea, uncontrolled nausea and vomiting, continuous nasogastric suctioning, or continuous enteral nutrition (fluoroquinolones only) and is not at risk for aspiration.**
- Fluoroquinolone and tetracycline administration times will be adjusted by the pharmacist to avoid interacting medications and di/trivalent minerals (aluminum, calcium, iron, zinc) that decrease fluoroquinolone absorption: aluminium, antacids (magnesium/aluminum), calcium acetate, calcium carbonate, calcium polycarbophil, dairy products, didanosine chewable tablets, iron products, multivitamins with minerals, sucralfate, and sevelamer. Fluoroquinolones and tetracyclines will be administered at least 2 hours before or 4 hours after interacting agents.
- Pharmacy will write an order in the chart when implementing the IV to oral conversion.

IV to Oral Conversion Program (Equivalent Doses)			
	IV	Oral	Oral Bioavailability
Co-trimoxazole / Bactrim	Same	Same	95%
Ciprofloxacin	400 mg	500 mg	80%
Ciprofloxacin	200 mg	250 mg	80%
Clindamycin	Same up to 450 mg per dose	Same	90%
Doxycycline	Same	Same	95%
Fluconazole	Same	Same	93%
Levofloxacin	Same	Same	99%
Linezolid	Same	Same	100%
Metronidazole	Same	Same	100%
Minocycline	Same	Same	90%
Protonix	Same	Same	77%
Rifampin	Same	Same	95%
Voriconazole	Same	Same	96%

* Clindamycin has no useful gram-negative aerobic activity. Metronidazole is preferred for Bacteroides fragilis. Diarrhea is a common side effect for clindamycin.

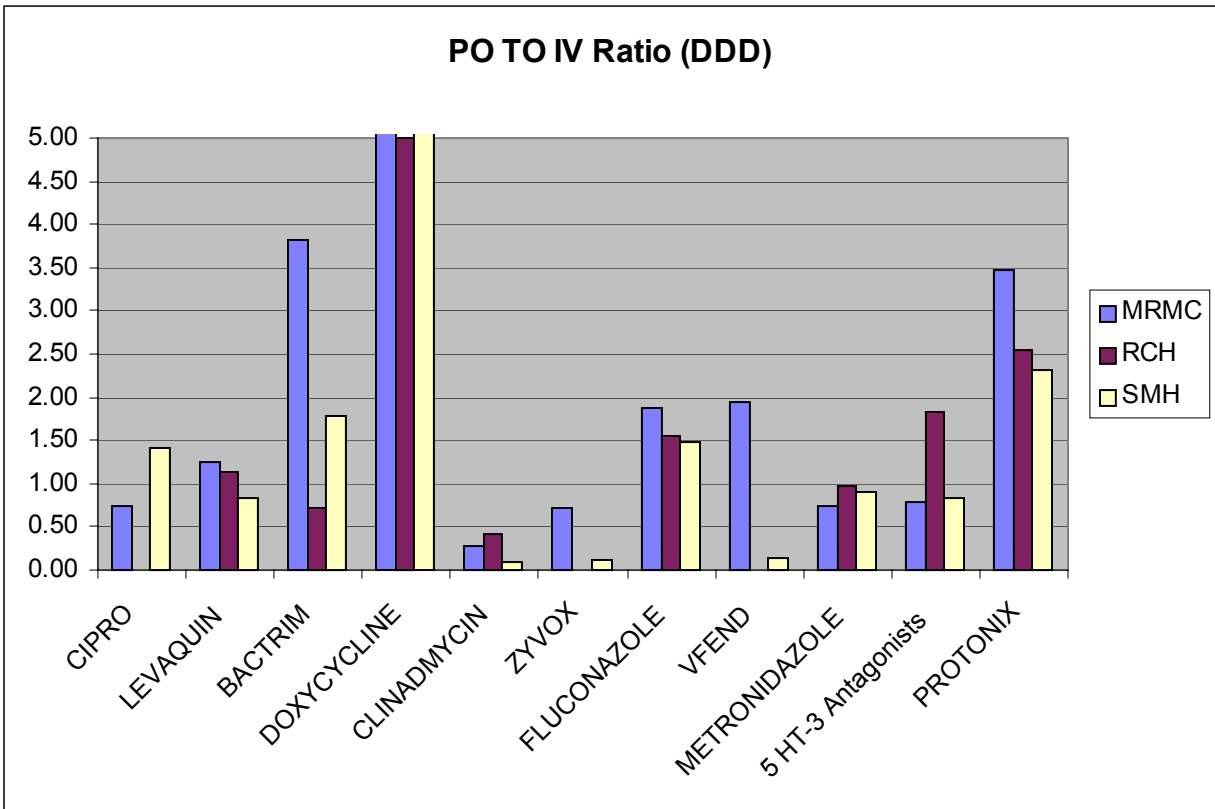
	Total Yearly Potential Cost Saving*	Projected Cost Savings per Year**
MRMC	\$174,239	\$52,197
RCH	\$29,569	\$8,871
SMH	\$318,707	\$95,612
BSR Richmond	\$522,515	\$156,754

* Potential cost saving assumes all IV doses are converted to oral.

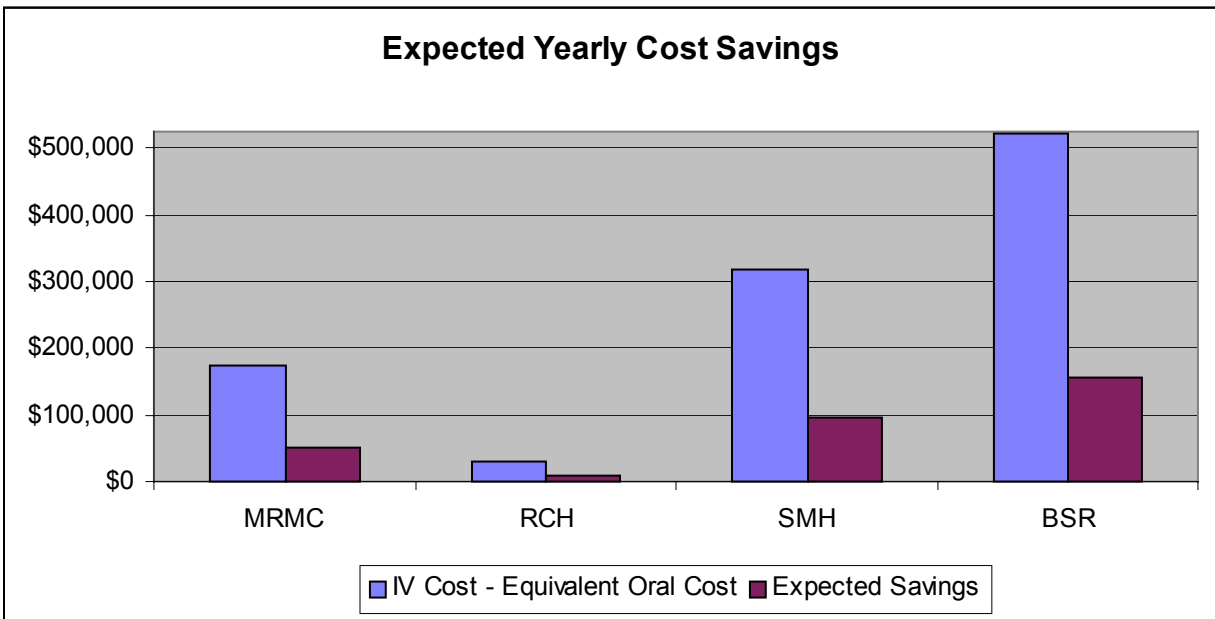
**This assumes ALOS of 5 days with IV to oral conversion after 2 days of IV therapy with 50% of patients meeting criteria for IV to oral conversion.

Findings

- Oral therapy offers several potential advantages when compared to parenteral:
 - Minimal expertise required for administration.
 - Minimal pharmacy/nursing time involved for preparation and administration.
 - Decreased material and drug acquisitions cost.
 - Lower patient charge.
 - Decreased wastage.
 - Greater patient comfort.
 - Decreased potential for phlebitis, extravasation, line infection, and other complications of IV administration.
 - Decreased IV fluid administration.
- Interqual criteria for the acute care setting does not require drugs be given by the IV route, but does require that the patient meet intensity of service criteria. Most insurance companies and CMS use these criteria.
- Conversion to the oral route does not necessitate discharge if the patient meets criteria for intensity of service or does not meet the discharge screening criteria.
- Studies have demonstrated equivalent outcomes with IV to oral conversion programs.
- The priority for IV to PO interventions ordered by cost savings per day (highest to lowest) are: Vfend 200 mg BID, Zofran 32 mg daily, Zyvox 600 mg BID, Cipro 400 mg BID/ Diflucan 400 mg daily, Cleocin 600 q6h, Kytill 1 mg daily, Cleocin 300 mg Q6H, Doxycycline 100 mg BID, Levaquin 500 mg daily, Metronidazole 500 Q6H, Protonix 40 daily, Bactrim BID, and Levaquin 750 mg daily.

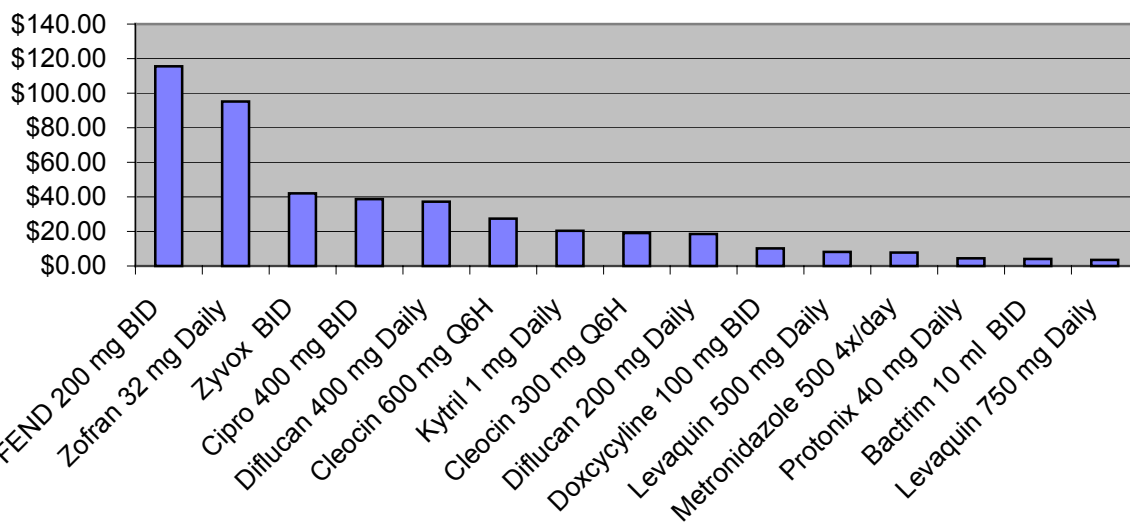


PO to IV ratio: Daily Oral Doses / Daily IV Doses

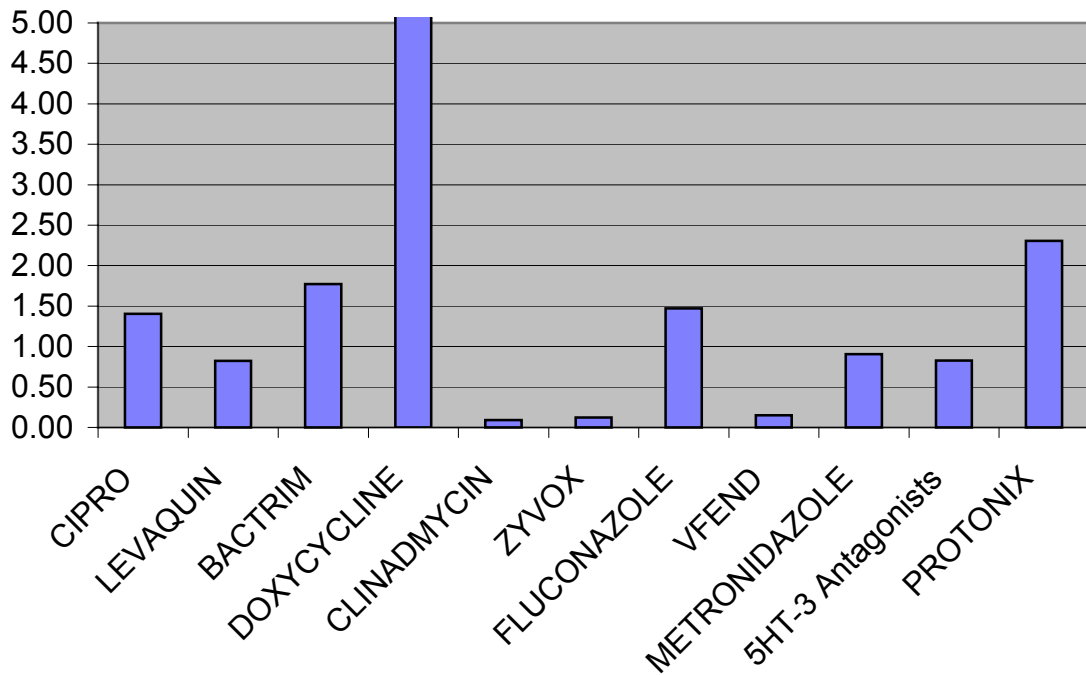


Expected savings assumes ALOS of 5 days with IV to oral conversion after 2 days of IV therapy with 50% of patients meeting criteria for IV to oral conversion.

Cost Saving Per Day For IV to Oral Conversion

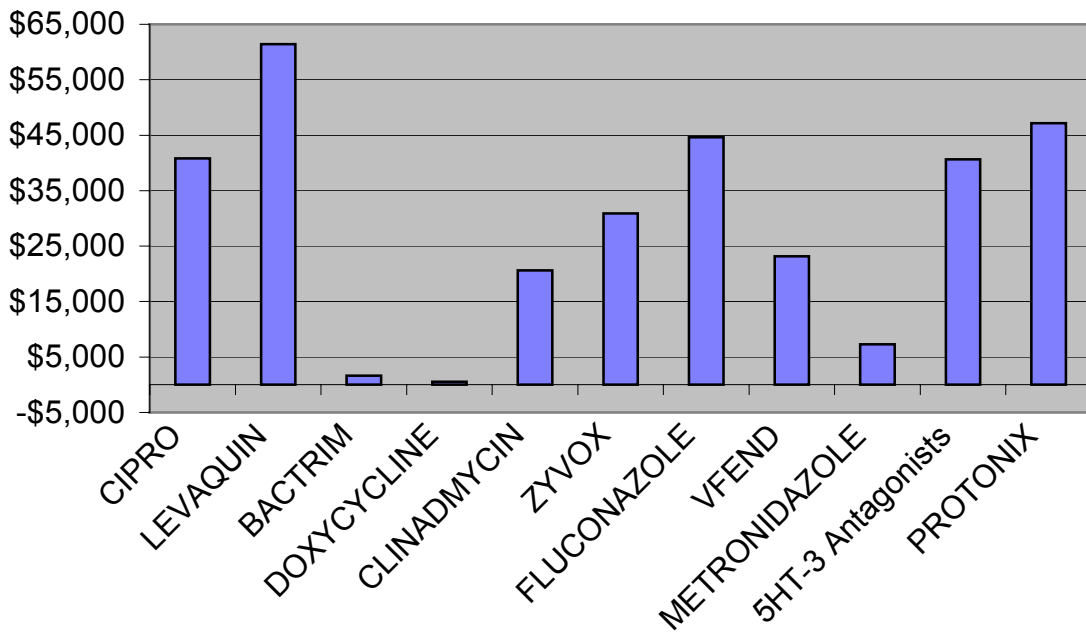


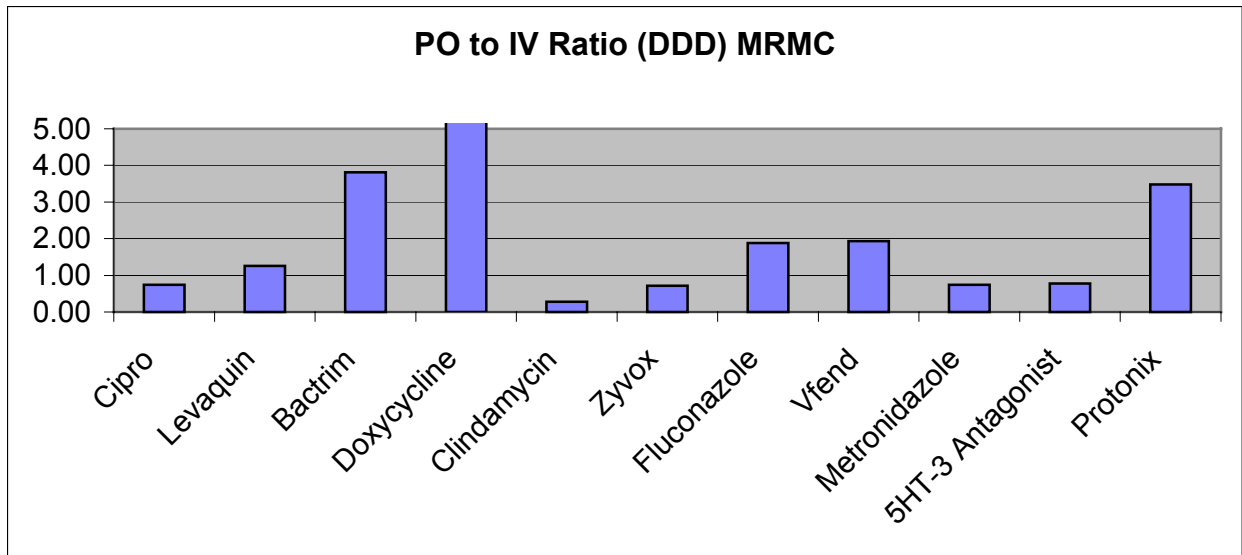
PO to IV Ratio (DDD) SMH



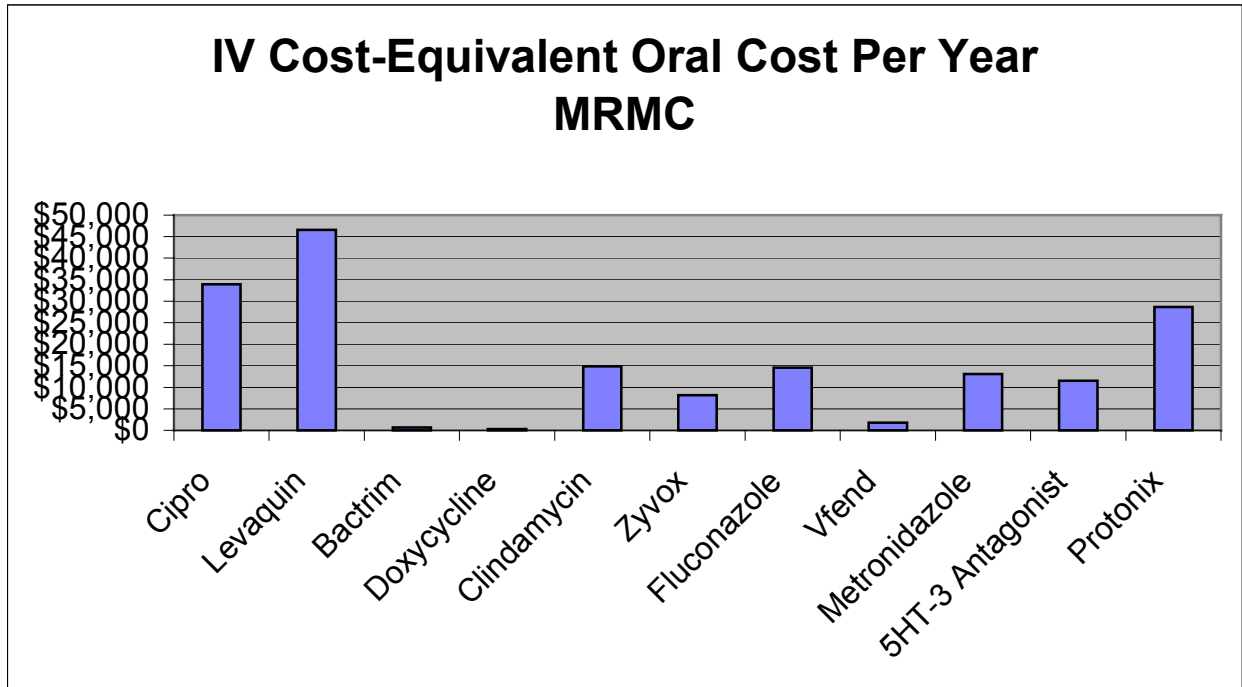
PO to IV ratio: Daily Oral Doses / Daily IV Doses

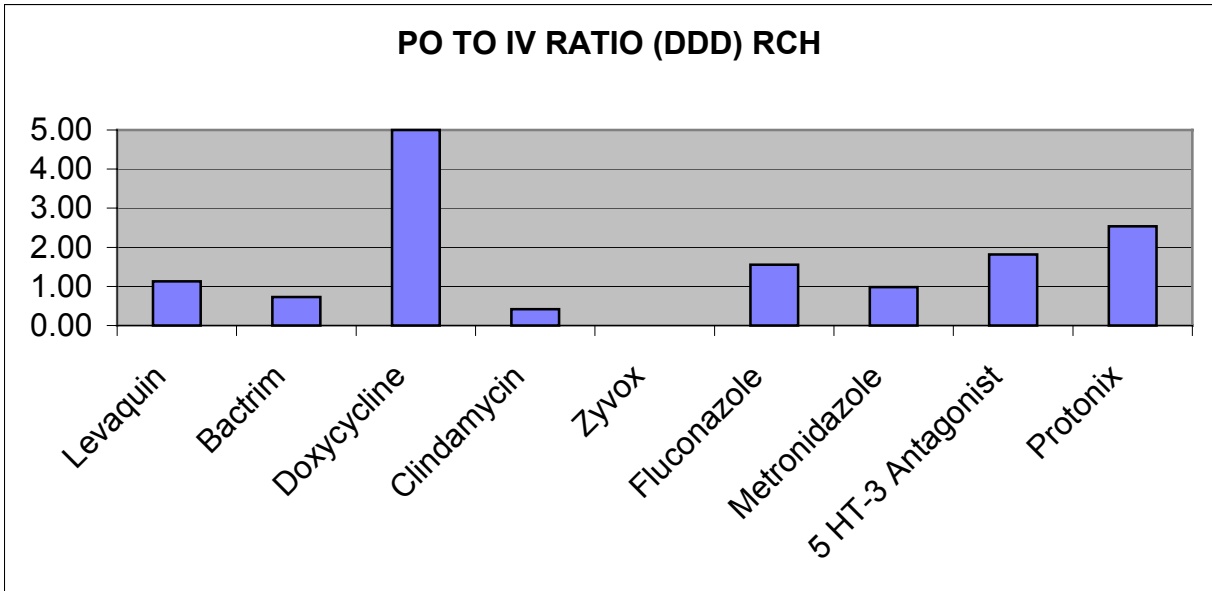
IV Cost-Equivalent Oral Cost Per Year SMH





PO to IV ratio: Daily Oral Doses / Daily IV Doses





PO to IV ratio: Daily Oral Doses / Daily IV Doses

