

Automatic Change of Parenteral to Enteral Medications in Adult Patients Policy and Procedure

Samantha Caudle and Kevin Le, PharmD Candidates

P4 Pharmacy Students

Cheri Walker, PharmD, BCPS

Assistant Professor of Pharmacy Practice

College of Pharmacy

Southwestern Oklahoma State University

November 19, 2015

Objectives

- Recognize importance of converting IV to PO medications at ISMC
- Discuss recent revisions to the Automatic Change of Parenteral to Enteral Medications in Adult Patients Policy and Procedure
- Locate pertinent inclusion and exclusion criteria in Cerner
- Review facility plan for completion of the IV to PO report
- Apply knowledge learned by example cases

Advantages to Oral Administration:

- Oral formulations on the market are easier to administer, safe, and achieve desired therapeutic concentrations
- Compared to IV preparations, oral medications
 - Have decreased associated risk
 - Are beneficial for patient and hospital
 - Lower associated cost

Advantages to Oral Administration

Decreased Risk

- Lower risk of secondary infection
- No infusion related adverse effects
- Treatment resistant organisms

Patient Factors

- More comfortable
- Able to ambulate
- Earlier discharge

Expense

- Generally less expensive dosage form
- Doesn't require IV sets, pumps, lab monitoring
- Preparation time

Cost Comparison

Drug	IV Cost (\$) for Average LOS (6 days)	Cost (\$) IV X 2 days + PO X 4 days	Cost Savings (\$) for 1 patient	Cost savings (\$) for 10% admits (7,626)
Pantoprazole 40 mg qDAY	21	8	13	99,138
Levetiracetam 500 mg BID	33	14	19	144,894
Levofloxacin 750 mg qDAY	22	9	13	99,138
Ciprofloxacin 400 mg IV q12h to 500 mg PO q12h	26	10	16	122,016

Total Savings per year: \$465, 186

Inclusion Criteria

- **ALL** requirements must be met
- Age $\geq$ 18 years
- Overall improvement for reason medication was prescribed
 - H2 blockers and PPIs $\rightarrow$ No GI bleeding, high gastric residuals, or NG output
- Functional and accessible GI tract

Exclusion Criteria

- **ICU** *no longer excluded*
- NPO status
- Antibiotics for
 - Bacteremia
 - Endocarditis
 - Meningitis
 - Abscesses
 - Neutropenia
 - Toxic Shock Syndrome

Drugs Included in Policy

Acetaminophen	Folic acid
Azithromycin	Levetiracetam
Ciprofloxacin	Levofloxacin
Clindamycin	Linezolid
Digoxin	Metronidazole
Doxycycline	Pantoprazole
Famotidine	Thiamine
Fluconazole	Voriconazole

Dosing Equivalencies

- All doses and frequencies are the same for IV and PO except for the following:

IV	PO
Acetaminophen 600-1000 mg Acetaminophen 325- 550 mg	Acetaminophen 650 mg Acetaminophen 325 mg
Ciprofloxacin 400 mg q8h Ciprofloxacin 400 mg Ciprofloxacin 200 mg	Ciprofloxacin 750 mg BID Ciprofloxacin 500 mg Ciprofloxacin 250 mg
Clindamycin 600 mg q6h or q8h Clindamycin 900 mg q8h	Clindamycin 300 mg q6h Clindamycin 450 mg q8h
Voriconazole 4 mg/kg	Voriconazole Patients < 40 kg: 100 mg q12h Patients ≥ 40 kg: 200 mg q12h

Special Non-Policy Considerations

- Antibiotics in general
 - If an infectious diseases physician is consulted ensure there is no specific reason for IV therapy
 - Example: *C. difficile* infection requiring oral vancomycin and IV metronidazole
- Fluoroquinolones
 - If receiving tube feeding, consider waiting on interchange due to drug/food interaction
- Vancomycin
 - Not on the IV to PO policy
 - Indications for IV and PO are different and non-interchangeable

Locating Information in Cerner

I. Age

1. Patient demographic bar on the top of the patient homepage

II. Diet:

1. Menu
2. Orders
3. Diet

– If PO → Evaluate GI function:

1. Menu
2. Results/Flowsheets
3. Assessments
4. Gastrointestinal

– IF NPO and Receiving Tube Feeds:

1. Menu
2. Results/Flowsheets
3. Assessments
4. Tube Feeding Info

Locating Information in Cerner

I. Vitals

1. Menu
2. Results/Flowsheets
3. Vitals

II. CBC

1. Menu
2. Results/Flowsheets
3. Laboratory tab

III. Cultures

1. Menu
2. Results/Flowsheets
3. Microbiology

Patient Case #1

AB is a 42 YOF admitted to ISMC for shortness of breath, fatigue, and respiratory distress. She has a PMH significant for GERD and HTN. An EGD was done and showed significant GI bleed. She has not had any nausea, vomiting, or diarrhea for the last 24 hours. She is receiving a pantoprazole drip. Is she a candidate for an IV to PO interchange for pantoprazole?

Patient Case #2

- ER is a 32 YOM being seen for a severe carbuncle infection that has failed I&D and previous oral antibiotic therapies. The skin cultures came back positive for MRSA and the prescribing doctor wishes to continue therapy with Linezolid 600mg IV q12h. Would he be a candidate for IV to PO change?

Documentation Procedure

Pharmacist should

- Enter/modify order
- Route—PO or Per Tube
- Frequency should stay the same unless otherwise noted in policy
- Order comment: “IV to PO interchange per P&T protocol”

Physician or designee may override by rewriting order with statement “No PO” or “Do not change to oral medication”

Completion of IV to PO Report

- IV to PO report has been updated
 - Added new medications
 - Added ICU floors
- Auto-print time 0600 and 1730 daily
- Goals for completion
 - Evening shift to complete on weekdays
 - Day shift and weekend staff as time allows
- Store completed reports on shelf above mobile baskets

Summary

- IV to PO interchange reduces IV related treatment complications, enhances patient convenience, and minimizes hospital and healthcare costs.
- Medications added to the policy include acetaminophen, clindamycin, and pantoprazole
- Patients in the ICU are no longer excluded from this policy
- Many patient factors can be readily identified in Cerner

Automatic Change of Parenteral to Enteral Medications in Adult Patients Policy and Procedure

Samantha Caudle and Kevin Le, PharmD Candidates

P4 Pharmacy Students

Cheri Walker, PharmD, BCPS

Assistant Professor of Pharmacy Practice

College of Pharmacy

Southwestern Oklahoma State University

November 19, 2015