

# **Pharmacist Led Protocol for IV to Oral Antibiotic Switch in an Antibiotic Stewardship Program**

## **University of Hawaii-Hilo College of Pharmacy**

### **Project Description & Implementation Overview**

Many hospitals use IV medications for a longer duration than may be necessary. Because lengthy hospital stays and costly medication therapy contribute to rising healthcare costs and potential safety issues, we designed a simple protocol to facilitate an IV to oral switch for two commonly converted drugs, levofloxacin and metronidazole at Wilcox Hospital. Wilcox Hospital is an 86-bed Level III Trauma Center in rural Lihue, Kauai, which does not have an established protocol for intravenous to oral conversion. By following specific inclusion/exclusion criteria, the pharmacist will initiate the switch to oral meds, allowing earlier patient discharge, resulting in less exposure to hospital associated bacteria resistant infections, and cost savings for payers. In addition, the protocol creates a platform for interdisciplinary collaboration between physicians, nurses and pharmacists, paying special attention to the role of student pharmacists.

The integration of an Antibiotic Stewardship Program at Wilcox Memorial hospital has not only benefited the hospital financially and microbiologically but has provided a teaching program for student pharmacists within the Hawaiian Islands. Through this program, it has allowed student pharmacists the ability to monitor antimicrobial use within the hospital and provide appropriate interventions when required. These interventions are aimed at delaying antimicrobial resistance and are key to the survival of available agents in the treatment of infectious disease.

The integration of Antibiotic stewardship programs within hospitals is just the first step in the mandating of set guidelines in prescribing medications within hospitals. It is hoped that as these set guidelines become enforced and their impact begins to be seen in both improved patient outcomes and hospital costs that other departments in the hospital such as anticoagulation therapy will begin implementing protocols for patient therapy.

### **Purpose of the Project**

The purpose of this project was to:

- Create a student-pharmacist led protocol to facilitate the switch from IV to oral antibiotics in an inpatient pharmacy
- Expose student-pharmacists to the critical role pharmacists play in the safety of patients and cost-savings in hospital settings

### **Project Budget: Expenses and Revenues**

- There were no expenses and no revenues for this project.

## **Who and How Many Chapter Members are involved?**

This project was an individual assignment and involved three chapter members. More or less members may work on this project, depending on the needs and space at the hospital.

## **Who Should be Targeted? Audience or Involvement? How Do You Find Them? How Do You Contact?**

The target hospital(s) were those in need of protocol for automatic switch of intravenous to oral therapy for antibiotics. The volunteers were student pharmacists willing to make cost savings adjustments and provide optimal therapy with preceptors that work in hospitals.

## **What Materials are Needed? Outside Resources, Ordering, etc?**

There were no outside materials needed for this project.

## **Timeline for Implementation and Execution**

### Identifying the Opportunity

- Summer/Fall : Wilcox Memorial Hospital did not have a protocol to implement the automatic switch of intravenous to oral therapy for any medications. Through biweekly meetings with the infectious diseases specialist and lead nurse in an Antibiotic Stewardship, we realized that many patients on intravenous antibiotics did not have a compelling indication that warranted this route of administration.

### Ensuring Therapeutic Equivalency

- Fall: Thorough research was done through various tertiary sources to find primary literature involving previously created intravenous to oral conversion protocols. In addition, studies involving the therapeutic equivalencies of the antibiotic dosage forms were examined to ensure safe and efficacious conversions.

### Develop Inclusion/Exclusion Criteria

- Fall: Using the evidence, we created a basic inclusion and exclusion criteria for hospitals to use in order to implement the automatic switch and collaborate with clinical pharmacist to ensure that everything is accurate and clinically logical.
- Below are the inclusion and exclusion criteria that we created for pharmacists to follow. The inclusion criteria must have a “Yes” in each box, and the exclusion criteria must have a “No” in each box in order for the conversion to proceed.

### Inclusion Criteria

	<b>Yes</b>	<b>No</b>
Have received > 48 hours of intravenous antimicrobial therapy	√	
Afebrile for > 24 hours	√	
Able to take oral antibiotics (as evidenced by other oral medications on chart)	√	
WBC < 15,000/mm <sup>3</sup>	√	

### Exclusion Criteria

	<b>Yes</b>	<b>No</b>
Severe trauma within last 72 hours or patient hemodynamically unstable		√
Documented CNS infection, endocarditis, or other serious infections that requires IV antibiotics		√
Neutropenia (ANC<500)		√
Pseudomonas infection and on abx <24 hours		√
Immunocompromised		√
Younger than 18 years old		√

Present to relevant authoritative figures and gain support

- Spring: With support from the infectious diseases specialist M.D and PharmD. and head nurse, present the protocol at the next P&T meeting

Wait for approval

- Spring: Still pending

Implement protocol and present to other student pharmacists

- Spring: Once protocol is approved, it may be enforced in hospital. The information should be shared with colleagues to show the impact that student pharmacists may have in a professional setting.

## **Project Evaluation:**

### **What Went Well? What Didn't? How Would You Improve for the Next Year?**

Wilcox Memorial Hospital is very unique in the sense that it is a rural hospital that at the time did not have any pharmacy-driven protocols for the conversion from IV to oral antibiotics. It was discovered at our antibiotic stewardship meetings that there was an average of 76 recommendations by the pharmacy department regarding drug usage per month. Among these, approximately 14 were intravenous to oral dose conversions for Levofloxacin or Metronidazole. Because of this trend and timing, we were able to take such an instrumental role in creating the protocol for future dose conversions.

The setup at the hospital with the biweekly meetings went extremely well, but it would be better in the future to perhaps rotate in other pharmacy staff members and nurses so they can give their input about drug therapy and what went well and didn't go well for specific patient populations. This could help communication barriers and increase the interdisciplinary partnership between pharmacy (PharmD) and medicine (MD).

### **Project Checklist:**

- Identify opportunity
- Ensure therapeutic equivalency and obtain evidence-based models
- Develop inclusion/exclusion criteria
- Gain support from I.D. (Infectious Diseases) specialist, I.D. nurse personnel, pharmacy staff
- Present to Pharmacy & Therapeutics Committee at quarterly meeting
- Gain approval and implement protocol
- Share project with other student pharmacists