OSU MEDICAL CENTER / PHARMACY

Antibiotic prescriptions upon hospital discharge: a blind spot of antimicrobial stewardship

CENTER FOR HEALTH SCIENCES
OKLAHOMA STATE UNIVERSITY

Laura Holliday, PharmD; Crystal David, PharmD, BCPS; Anjly Kunapuli, PharmD, Erica Martin, PharmD, BCPS

BACKGROUND

- Transitions of care are a known source of patient vulnerability. The incidence of medication errors during transitions of care is well-documented.[1]
- Discharge from the hospital has proven to be one area where antimicrobial stewardship is absent or lacking and can result in the following:[2]
  - Poor clinical outcomes
  - Adverse drug events
  - Emergence of multidrug-resistant organisms
- In one study, 53% of cases reviewed found prescriptions for antibiotics given to patients at discharge were inappropriate[1]
- Large discrepancies exist between guideline recommendations and antimicrobials prescribed upon hospital discharge[2]
- At this time, no prior study at Oklahoma State University Medical Center (OSUMC) has analyzed the impact of antimicrobial stewardship at hospital discharge

INTRODUCTION

- For patients who require antibiotics upon discharge, determining an optimal antibiotic regimen can be challenging. There are many factors to consider including IV to PO conversion, duration of therapy, drug costs, and medication allergies
- Inpatient antimicrobial stewardship programs are designed to target antibiotic prescribing throughout a patient's inpatient stay
- Stewardship programs also exist which target antibiotic prescribing in clinics and other outpatient services; however, the reach of antimicrobial stewardship during the transition from inpatient to outpatient is lacking

OBJECTIVES

The objective of this study was to assess antibiotics prescribed at discharge for patients diagnosed with either community acquired pneumonia (CAP) or uncomplicated urinary tract infection (UTI) during their stay at OSUMC to better assess if there is a need for antibiotic stewardship to play a stronger role during this transition of care.
Specific aims of this study include:

- Identify the rate of optimal antibiotic regimens upon hospital discharge
- Analyze errors that occur most often regarding prescribed outpatient antibiotic prescriptions
- Investigate opportunities for antimicrobial stewardship upon discharge to improve transitions of care

METHODS

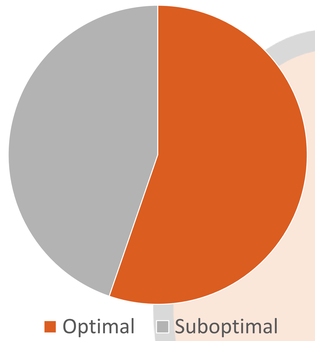
This study was a retrospective chart review based on a report of patients age 18 years and older discharged from OSUMC from 7/1/2018 to 6/30/2019 with CAP or uncomplicated UTI. Patients with multiple types of infection were excluded from the study. For the purposes of this study, Optimal therapy is defined as:

- Prescription in accordance with nationally-approved guidelines for the management of CAP and UTI
- Effective and narrowest spectrum of activity
- Correct dose for indication, organ dysfunction, and medication allergies
- Correct duration of therapy
- Data collected was organized and evaluated using REDCap™.

The following data was obtained:

- Date of discharge
- Days of optimal inpatient antibiotic therapy
- Discharge antibiotic regimen
- Infection type (CAP vs. uncomplicated UTI)
- Pertinent laboratory and microbiology data
- Bacteria cultured with source and date results finalized
- Infectious diseases consultation obtained (yes/no)

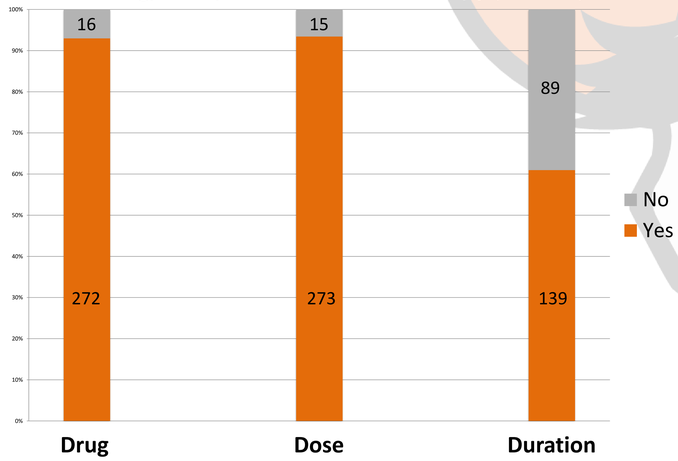
Percent of Patients on an Optimal Antibiotic Regimen



Patient Demographic Information	
Median age	63 (21-95)
Sex	
Male	83 (36.4%)
Female	145 (63.6%)
Ethnicity	
White	148 (64.9%)
Black	42 (18.4%)
Hispanic	5 (2.2%)
*AN/AI**	30 (13.2%)
Other	3 (1.3%)
Height (inches)	65.9
Weight (kg)	83.8

*Alaska Native/American Indian

Percent of Patients Discharged with an Optimal Drug, Dose, and Duration of Therapy (n = 228)



RESULTS

A report was obtained containing charts from 7/1/2018-6/30/2019, and 228 patient charts met the aforementioned inclusion criteria. Of those included, patients were primarily female (63.6%) with a median age of 63 (range 21-95). Approximately 45% of patients were discharged on a suboptimal antibiotic regimen. The most common reason for a suboptimal regimen was an inappropriate duration of therapy (89 cases) followed by an incorrect medication (16 cases) and an incorrect medication dose (15 cases). Of the patients discharged on a sub-optimal antimicrobial regimen, the majority were managed by internal medicine (58%) and family medicine (41%). Of the cases in which cultures were obtained, only 44.5% of cultures were finalized prior to patient discharge, and just 1 case had consulted an infectious diseases specialist.

CONCLUSIONS

The most common reason for a sub-optimal antibiotic regimen upon hospital discharge was an incorrect duration of therapy. By completing this study, we hope to gain more insight into how we can better serve our institution by educating physicians, promoting antibiotic stewardship, and optimizing transitions of care.

REFERENCES

1. Norihiro et al. Antibiotic prescribing at the transition from hospitalization to discharge: a target for antibiotic stewardship. Infect Control Hosp Epidemiol. 36(4): 474–478. Published April 2015. Accessed August 14, 2019.
2. Chavada et al. 'Careful goodbye at the door': is there a role for antimicrobial stewardship interventions for antimicrobial therapy prescribed on hospital discharge? BMC Infectious Diseases. 18(225). Published May 16, 2018. Accessed August 16, 2019.