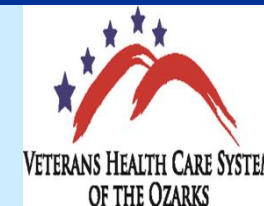




Effects of a three-part antimicrobial stewardship intervention on duration of treatment of pneumonia in a primary hospital setting

Jennifer L. Cole, PharmD, BCPS, BCCCP, Jennifer E. Stark, PharmD, BCPS, Bradley D. Hodge PharmD
Veterans Healthcare System of the Ozarks, Fayetteville, AR



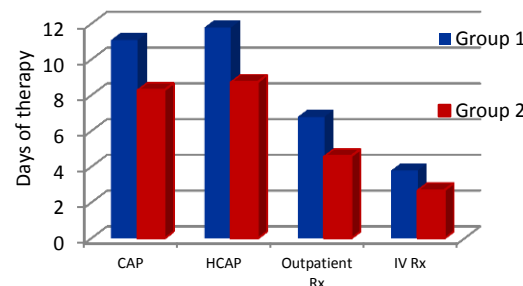
Background

- Baseline prescribing habits for uncomplicated pneumonias at our facility were shown to be longer than those currently recommended ¹
- Unnecessary antimicrobial use is associated with increased resistance, increased adverse events, and elevated cost ²
- Objective was to determine if a pharmacy directed multifaceted stewardship intervention could reduce treatment duration
- Study facility: primary hospital, 50 acute care beds, 1 FTE for clinical pharmacy activities, no ID physician on staff

Methods

- Retrospective before and after chart review
- 12 months pre intervention (Group 1), 12 months post intervention (Group 2)
- Inclusion: uncomplicated pneumonia diagnosis, 48hr admission or longer, at least 24hr of antibiotics given
- Exclusion: transfer from outside hospital, HAP, hospitalized > 14 days, recurrent pneumonias, documented *Pseudomonas* infection, complicated pneumonia
- Three part intervention strategy
 - 1) Provider education of baseline results and review of current guidelines, barriers and perceptions were assessed
 - 2) Prospective intervention and feedback daily
 - 3) Developed and implemented stewardship note and template
- Primary outcome: days of total antibiotic treatment
- Secondary outcomes: days of IV antibiotics, days of outpatient antibiotics, length of stay, incidence of *Clostridium difficile*, and 28 day readmissions
- Pneumonia Severity Index (PSI) calculated on hospital day 1

Results



- Group 1 n=103, Group 2 n=88
- Duration of antibiotic therapy was significantly reduced in:
 - CAP 11.1 days vs 8.4 days ($p<0.0001$)
 - HCAP 11.8 days vs 8.8 days ($p=0.002$)
 - Outpatient prescriptions 6.3 days vs 4.7 days ($p=0.001$)
 - IV antibiotics 3.8 days vs 2.7 days ($p<0.001$)

PSI	Group 1 n (%)	Group 2 n (%)	
Class I	3 (2.9)	1 (1.1)	$p=0.641$
Class II	9 (8.7)	7 (7.9)	$p=0.974$
Class III	25 (24.2)	12 (13.6)	$p=0.092$
Class IV	51 (49.5)	55 (62.5)	$p=0.053$
Class V	15 (14.5)	13 (14.7)	$p=0.911$

- Mean length of stay was shorter in the follow up group: 4.9 days vs 4.0 days ($p=0.02$)
- There were no recorded cases of *Clostridium difficile* in either group
- 28 day readmissions: Group 1 n= 11, Group 2 n=8
- Pneumonia severity was similar in both groups

Conclusion

A pharmacist led multifaceted stewardship intervention can successfully shorten duration of antibiotic therapy in uncomplicated pneumonias to be more consistent with current guidelines in a primary hospital setting.

References

1. Mandell LA, Wunderink RG, Anzueto A et al. Infectious diseases society of America/American Thoracic Society consensus guidelines of the management of community-acquired pneumonia in adults. *Clin Infect Dis* 2007;44:s27-72.
2. Shlaes DM, Gerding DN, John JF et al. Society for Healthcare Epidemiology of America and Infectious Diseases Society of America joint committee on the prevention of antimicrobial resistance: guidelines for the prevention of antimicrobial resistance in hospitals. *Clin Infect Dis* 1997;25:584-99.