Poster #1044

Impact of Interdisciplinary Rounds on Antimicrobial Use at a Community Hospital

johns200@mc.duke.edu
DUMC Box 103259
Room 173 Hanes House
Durham, NC 27710
Phone: (919) 684-2374

dason DUKE ANTIMICROBIAL STEWARDSHIP OUTREACH NETWORK

Emma Castillo, MD[1], Luke Heuts, PharmD, BCPS[1], Elizabeth Dodds Ashley, PharmD, MHS, BCPS[2,3], Rebekah Moehring, MD, MPH[2,3], Michael Yarrington, MD[2,3], Melissa Johnson, PharmD, MHS[2,3]

1- Nash UNC Health Care, Rocky Mount, NC, USA; 2- Duke Antimicrobial Stewardship Outreach Network, Durham, NC, USA;
3- Division Of Infectious Diseases, Duke University Medical Center, Durham, NC, USA

Duke Center for Antimicrobial Stewardship and Infection Prevention

Abstract

Background: Antimicrobial stewardship (AS) implementation is challenging in resource-limited settings such as smaller community hospitals that may lack dedicated personnel resources or have limited access to infectious diseases experts with dedicated time for AS. Few studies have evaluated the impact of interdisciplinary rounds as a strategy to optimize antimicrobial use (AU) in the community hospital setting.

Methods:
We evaluated the impact of interdisciplinary rounds in a 280-bed acute care non-teaching, community hospital with an established ASP. The primary outcome was facility-wide antibiotic utilization pre- and post-implementation. Rounds included key healthcare personnel (hospitalists, clinical pharmacists, case managers, nurses) reviewing a majority of patients on inpatient wards Monday through Friday, with discussion of diagnosis, antibiotic selection, dosing, duration, and anticipated discharge plans. AU was compared for a 7-month post-intervention period (6/1/2018-12/31/2018) versus similar months in 2017 based on days of therapy (DOT)/1,000 patient days (pd) and length of therapy (LOT) per antimicrobial use admission. In addition, trends in AU for the post-intervention period were compared with the previous 17-months (1/1/2017-5/31/2018) using segmented binomial regression.

Results:
Interdisciplinary rounds incorporating AS principles was associated with a decrease in overall AU in this facility, with a significant decrease of 16.33% ($p < 0.0001$) in DOT/1,000 pd in the first month and was stable (decrease of 1.1% per month, $p=0.15$) thereafter (Figure 1). There was no significant change in LOT/admission after the first month of the intervention, but the trend demonstrated a 2% per month decrease ($p < 0.03$) thereafter (Figure 2). Comparing 2018 intervention months with similar months of 2017, use of antibacterial agents decreased on average by 191.3 (95% CI -128.2 to -254.4) DOT/1,000 pd (Figure 3) and 0.546 (95% CI: -0.28 to -0.81) days per admission (Figure 4).

Conclusion:
In this community hospital with an existing antimicrobial stewardship program, implementation of interdisciplinary rounds was associated with a substantial decrease in antimicrobial use. This was sustained for at least a seven-month period.

Background

- Implementation of antimicrobial stewardship may be challenging in resource-limited settings
- Smaller community hospitals may lack dedicated personnel to carry out stewardship activities
- We aimed to evaluate the impact of interdisciplinary rounds on antimicrobial use in a community hospital setting

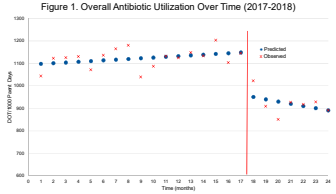
Methods

- Setting: 280-bed acute care non-teaching community hospital
  - The hospital had previously established (2016-2018) empiric therapy guidelines and ordersets for most common infections
  - The hospital has an active ASP led by an ID Physician and a Clinical Pharmacist
- Outcomes: facility-wide antibiotic utilization pre-and post-implementation
  - Days of Therapy (DOT) / 1,000 Patient Days (PD)
  - Length of Therapy (LOT) / Antimicrobial Use Admission
- Intervention: Interdisciplinary rounds (hospitalists, clinical pharmacists, case managers, nurses) reviewing a majority of patients on inpatient wards Monday-Friday
  - Discussion included diagnosis, antibiotic selection, dosing, duration, and discharge plans
- Time frame of analysis:
  - Pre-intervention period: 1/1/2017-5/31/2018
  - Post-intervention period: 6/1/2018-12/31/2018
- Statistical analysis
  - Segmented binomial regression to compare antibiotic utilization pre- and post- intervention for 17 months prior and 7 months post-intervention

Results

- The intervention was associated with a 16.33% ($p < 0.0001$) reduction in DOT/1,000 Patient Days in the first month and was stable (decrease of 1.1% per month, $p=0.15$). (Figure 1)

Figure 1. Overall Antibiotic Utilization Over Time (2017-2018)



- There was no significant change in LOT/Antimicrobial Use Admission after the first month of the intervention, but the trend demonstrated a 2% per month decrease ($p < 0.03$) thereafter. (Figure 2)

Figure 2. Overall Length of Antibiotic Therapy Per Antimicrobial Use Admission Over Time (2017-2018)

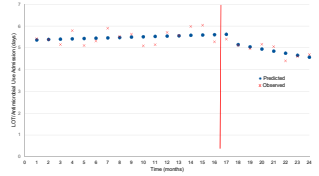
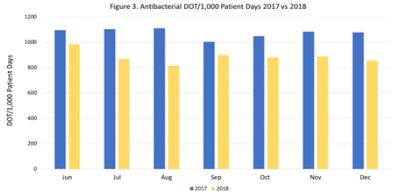
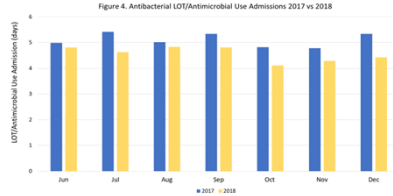


Figure 3. Antibacterial DOT/1,000 Patient Days 2017 vs 2018



	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean (95% CI)
Difference (DOT/1,000 Patient Days)	113	235	297	106	169	197	222	191.3 (-128.2 to -254.4)
Percent Difference	10.3%	21.3%	26.7%	10.6%	16.1%	18.2%	20.6%	17.7%

Figure 4. Antibacterial LOT/Antimicrobial Use Admissions 2017 vs 2018



	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean (95% CI)
Difference (LOT/Admission, Days)	0.18	0.79	0.19	0.53	0.71	0.50	0.92	0.55 (-0.28 to -0.81)
Percent Difference	3.6%	14.6%	3.8%	9.9%	14.7%	10.4%	17.2%	10.6%

Conclusions

- Implementation of interdisciplinary rounds was associated with a significant decrease in antimicrobial use in this community hospital.
- This intervention was feasible with coordination of existing hospital resources, and has had sustained effects over time.

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Duke University School of Medicine