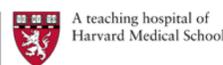


Impact of a Prospective Audit and Feedback Antimicrobial Stewardship Initiative on Pneumonia Treatment at an Academic Teaching Hospital

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Background

- Antimicrobial stewardship programs may reduce antimicrobial resistance & adverse effects
- Action is a core element of stewardship
 - Preauthorization: restriction of certain broad spectrum agents prior to initial administration
 - Prospective audit & feedback: revisiting antimicrobial agents after a certain period of time, usually after 48 to 72 hours of treatment
- IDSA & SHEA guidelines strongly recommend preauthorization and/or prospective audit and feedback as a primary stewardship intervention
- A dual intervention strategy has not been systematically studied to-date

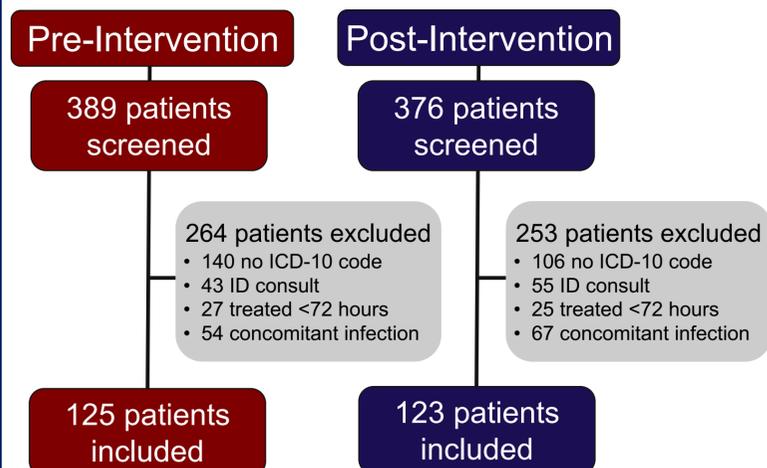
Methods

- Objective:**
- To measure the impact of prospective audit and feedback for pneumonia patients to supplement an established robust preauthorization program
- Primary Outcome:**
- Optimal days of therapy received based on hospital-approved guidelines (%)
- Secondary Outcomes:**
- Days of therapy, length of stay (LOS), *Clostridioides difficile* infection (CDI), and in-hospital mortality
- Design & Setting:**
- IRB-approved, pre-post, retrospective design
 - 673-bed academic teaching hospital
 - 6-week duration pre- & post-intervention

Methods Continued

- Intervention:**
- Prospective audit and feedback after at least 72 hours of pneumonia treatment
 - Interventions made via page, phone, or in-person
 - Examples of recommendations included duration of therapy, de-escalation, & IV to PO interchange
- Inclusion Criteria:**
- Inpatients ≥18 years old
 - Orders for respiratory antimicrobials with pneumonia indication
 - Azithromycin, cefepime, ceftazidime, ceftriaxone, levofloxacin, meropenem, piperacillin/tazobactam
- Exclusion Criteria:**
- Lack of ICD-10 pneumonia diagnosis code
 - Infectious diseases consult prior to review
 - Antimicrobial treatment <72 hours
 - Concomitant extra-pulmonary or viral infection

Eligibility



Results

Baseline Characteristics:

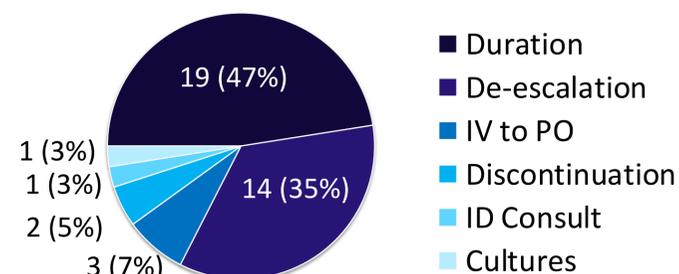
	Intervention		p-value
	Pre (n=125)	Post (n=123)	
Age (years), median [IQR]	70 [59-85]	71 [60-82]	0.74
Female sex, n (%)	66 (52.8)	56 (45.5)	0.25
Elixhauser comorbidity score, median [IQR]	5 [3-6]	5 [3-6]	0.43
Pneumonia Type, n (%)			
CAP	60 (48.0)	54 (43.9)	0.52
HCAP	47 (37.6)	42 (34.1)	0.57
HAP & VAP	18 (14.4)	27 (22.0)	0.12

CAP: community-acquired pneumonia HCAP: healthcare-associated pneumonia
 HAP: hospital-acquired pneumonia VAP: ventilator-associated pneumonia

Interventions:

- 27 of 40 interventions accepted (67.5%)

Intervention Type (n=40)



Primary Outcome:

	Intervention		p-value
	Pre (n=125)	Post (n=123)	
Optimal/overall days of therapy	510/776	597/770	
% Optimization	65.7%	77.5%	<0.0001

Results Continued

Secondary Outcomes:

	Intervention		
	Pre (n=125)	Post (n=123)	p-value
LOS (days), median [IQR]	8 [5-12]	8 [6-12]	0.16
Days of therapy, median [IQR]	5 [4-8]	6 [5-7.5]	0.25
CDI, n (%)	4 (3.2)	4 (3.3)	0.98
In-hospital mortality, n (%)	13 (10.4)	13 (10.6)	0.97

Discussion & Conclusion

Discussion:

- This is one of the first studies to evaluate prospective audit and feedback in addition to preauthorization
- Interventions were time-consuming (2-4 hours/day)
- Lack of procalcitonin and other rapid diagnostics

Limitations:

- Single center, non-randomized, pre-post design
- Did not assess for differences in clinical cure

Conclusion:

- Initiation of a prospective audit and feedback program in addition to pre-authorization led to increased therapy optimization, but no difference in other patient outcomes

Disclosures

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