Impact of DRIP Score Documentation at Time of Physician Order Entry on Combination Antimicrobials in Treatment of Community Acquired Pneumonia

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Tenet Health

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Background

- The Drug Resistance in Pneumonia (DRIP) score was developed in 2016 to identify patients with community-acquired pneumonia who are likely to have a resistant pathogen.
  - DRIP had a higher sensitivity and specificity than HCAP criteria in identifying patients with a resistant pathogen (Webb et al. Antimicrob Agents Chemother. 2016;60(5):2652-63).
- An internal medication use evaluation conducted in 2019 showed that prescribers at DMC are not adherent to these new guidelines, but it did not detail what was being prescribed.

Objective

- To investigate whether the implementation of DRIP score documentation at the time of physician order entry and simultaneous updates to institutional CAP guidelines have impacted antimicrobial selection process and overall consumption of broad- spectrum antibiotics in patients with CAP.
- Primary outcome: Difference in overall consumption of antibiotics used for treatment of CAP in patients before and after DRIP score documentation of order entry began.
- Secondary outcome: Percent adherence to DMC guidelines for empiric CAP treatment.

Methods

- Data were requested for a time frame before and after DRIP scoring was added to CAP guidelines: June 15, 2017 - September 14, 2017 and June 15, 2018 - September 15, 2018.
- Participants were included as "Pneumonia, DRIP <4" if *any* antimicrobial ordered for that participant during the visit was tagged with that ordering indication; once considered as "DRIP <4", all antimicrobials were captured for that admission; a participant could be present in both "DRIP <4" and "DRIP ≥4" groups if different antimicrobial orders were tagged with different indications for use.
- Consumption of antibiotics was defined as days of therapy per 1000 patient days (DOT/1000 pt days).

Methods

- Empiric therapy was defined as all antibiotics given to the patient between 12 and 36 hours after the first antibiotic administration to allow for early discontinuation of unrelated therapies

Recommendations for Patients with CAP

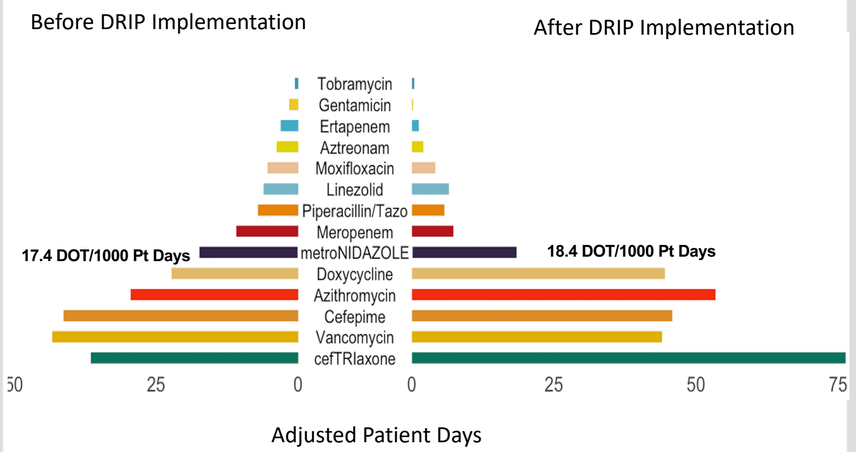
		Admitted to non-ICU	Admitted to ICU
CAP DRIP < 4	**First Line Therapy**	CRO + DOX CRO + AZM	CRO + AZM + VAN CRO + DOX + VAN
	Penicillin-allergic Patients	MOX	MOX + VAN
CAP DRIP > = 4	**First Line Therapy**	CPE + AZM + VAN	CPE + AZM + TOB + VAN
	Penicillin-allergic Patients	AZTM + VAN + AZM ± TOB AZTM + VAN + DOX ± TOB	AZTM + VAN + AZM + TOB AZTM + VAN + DOX + TOB

Antibiotic Abbreviations

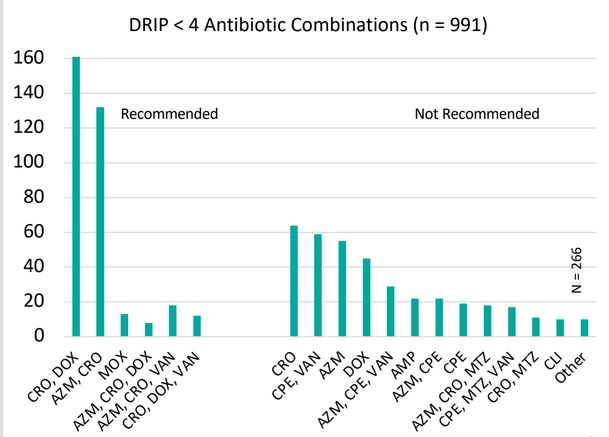
AMP	Ampicillin	AZM	Azithromycin
AZTM	Aztreonam	CLI	Clindamycin
CPE	Cefepime	CRO	Ceftriaxone
DOX	Doxycycline	MTZ	Metronidazole
MOX	Moxifloxacin	TZP	Piperacillin/Tazobactam
VAN	Vancomycin		

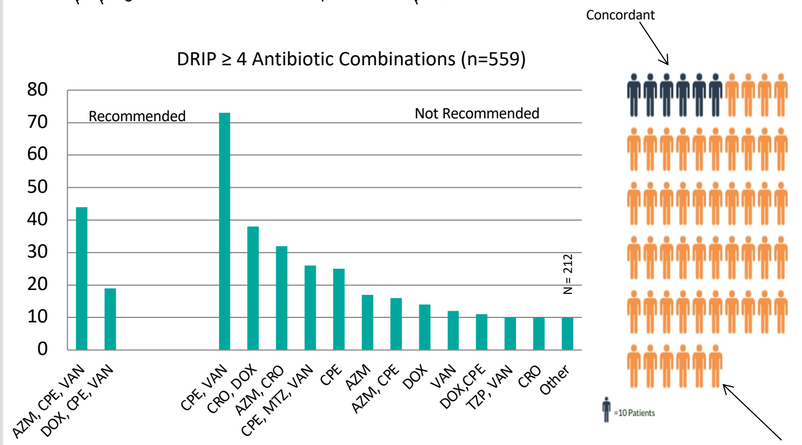
Results

Consumption of Antibiotics (DOT/1000 pt Days)



Results





Future Directions

- Common reasons for noncompliance in DRIP ≥ 4 was lack of azithromycin and/or tobramycin selection. Further investigation is warranted to determine why physicians are not selecting these agents at order entry.
- Carbapenem use has decreased since the implementation of DRIP scoring criteria into DMC CAP guidelines while use of ceftriaxone, azithromycin, and doxycycline has increased.
- Cefepime use has not decreased with after DRIP score documentation was implemented
- We are initiating a new quality improvement project to improve DRIP score documentation for cefepime where physicians document the DRIP score on a separate form and pharmacists are to verify the score. The goal of this project is to improve documentation of DRIP and therefore improve concordance to CAP guidelines.

Disclosure: Authors of this presentation have nothing to disclose concerning financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.