

An Evaluation of Inpatient Ceftaroline Use Between Two Hospitals Within the Same Healthcare System

Nicole Webb, PharmD, Melissa Danek, PharmD, BCPS, BCIPD

BACKGROUND

Current FDA approved uses for ceftaroline include community acquired pneumonia and skin and soft tissue infections.¹ Several promising off-label uses have been described in the literature. Unfortunately, large prospective randomized controlled trials remain lacking in the current literature for the assessment of the efficacy and safety of ceftaroline used in off-label indications.

A number of retrospective studies and case reports have described ceftaroline monotherapy or combination therapy with daptomycin for improved clearance of staphylococcal bacteremia or other complicated gram positive infections.²⁻⁴

Currently at Kaleida Health, ceftaroline fosamil is available on formulary for inpatient use, restricted to ID approval.

PURPOSE

The purpose of the medication use evaluation is to evaluate the current use of ceftaroline fosamil in both on and off-label indications. A cost analysis of antibiotics was also assessed.

Primary Objective:

- Identify the indications for inpatient use of ceftaroline at Buffalo General Medical Center (BGMC) and Millard Fillmore Suburban Hospitals (MFSH)

Secondary Objective:

- Assess the associated cost of ceftaroline use

DESIGN/METHODS

Retrospective, observational study from July 2018 to July 2019.

Inclusion Criteria:

- Adults > 18 years old
- Documentation of at least two administered doses of ceftaroline

Exclusion Criteria:

- Admission for cystic fibrosis exacerbation

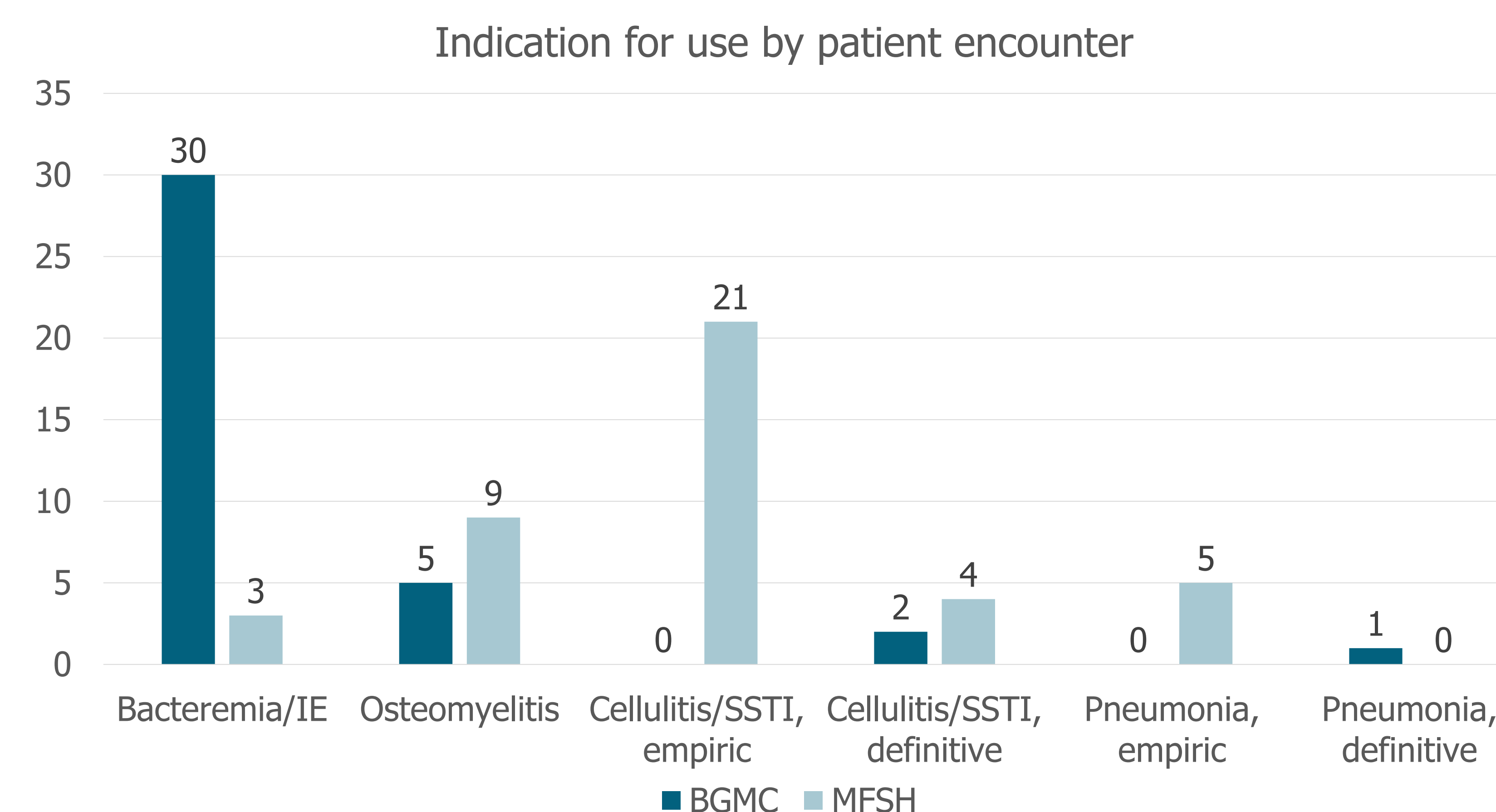
RESULTS

A total of 1569 doses of ceftaroline, representing 83 individual patient encounters, were reviewed for inclusion into the MUE

- 3 patient encounters (80 doses) were excluded due to indication for cystic fibrosis exacerbation
- 80 patient encounters (1489 doses) were included for evaluation
- Ceftaroline was used as monotherapy in 30 patient encounters overall, 24 patients (80%) at MFSH and 6 patients (20%) at BGMC
- No adverse effects associated with the use of ceftaroline were identified

Patient demographics	BGMC	MFSH	All patient encounters
Age – mean (SD)	57.5 (±17.2)	60 (±18.2)	58.9 (±17.8)
Male – n (%)	24 (63.2)	23 (54.8)	47 (56.6)
SCr – mean (SD) (Excluding HD patients)	1.58 (± 1.31)	1.38 (±1.05)	1.7 (±1.18)

	BGMC	MFSH	All patient encounters
Patient encounters, n (%)	38 (47.5)	42 (52.5)	80
Doses dispensed, n (%)	1198 (80.5)	291 (19.5)	1489
Mean duration of inpatient antibiotic therapy (SD)	29.6 (±26.8)	6.5 (±2.7)	17.5 (±21.6)
Mean duration of ceftaroline therapy (SD)	14.2 (±14.4)	3.8 (±1.9)	8.7 (±11.3)



RESULTS

Antibiotic	Unit Cost
Ceftaroline (400mg/600mg vial)	\$151.69
Vancomycin (pre-made/frozen bags)	\$7.62-20.65
Daptomycin (500mg vial)	\$91.18

Ceftaroline Indication	No. doses (BGMC)	Associated Cost (BGMC)	No. doses (MFSH)	Associated Cost (MFSH)
Bacteremia/IE	1090	\$165,342.10	23	\$3488.87
Osteomyelitis	84	\$12,741.96	56	\$8494.64
Cellulitis/SSTI, empiric	0	\$0	162	\$24573.78
Cellulitis/SSTI, definitive	18	\$2,730.42	21	\$3185.49
Pneumonia, empiric	0	\$0	29	\$4399.01
Pneumonia, definitive	6	\$910.14	0	\$0
Total	1198	\$181,724.62	291	\$44,142

CONCLUSIONS

- The use of ceftaroline between sites varied greatly in the period of July 2018 and July 2019. At Buffalo General Medical Center, the use was primarily in patients with persistent MRSA bacteremia without or without infective endocarditis (30/38, 78.9%) and as a second or third line agent. In contrast, the use at Millard Fillmore Suburban Hospital was spread across several indications including: empiric for cellulitis/SSTI (21/42, 50%), osteomyelitis (9/42, 21.5%), and empiric for pneumonia (5/42, 11.9%).
- Due to the associated higher cost of the antibiotic and wide-availability of effective alternative medications, use in practice should be limited and reserved for therapy that is more definitive rather than empiric.

Disclosure

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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