

Beta-lactam Standardized Allergy Assessment/Graded Challenge

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Introduction/Problem

Documentation of allergies to beta-lactam (BL) antibiotics in the medical record was found to be approximately 30% for patients ordered antibiotics from a sample of 3750 patients. This leads to the decision to either use a non beta lactam (NBL) (30%) or utilize another agent that is somewhat structurally dissimilar (70%). Patients treated with NBL are 3 times as likely to develop an adverse effect or be readmitted for infection.

Beta-lactam allergy assessment, re-challenge and de-labeling remain an important target for stewardship. Published protocols have been validated at large teaching institutions with improvements in documentation and the care of patients with labeled allergies, including drug challenge protocols and desensitization for true allergies. At BIDMC, the Antimicrobial Stewardship program with Pharmacy, Infectious Diseases, Allergy ,and Nursing, developed a guidance document for multidisciplinary assessments of drug allergies upon admission and at the point of prescribing antibiotics to include a series of standard questions, medical record review and appropriate clarifications for the medical record. Additional instructions for Nursing, Pharmacy, and Physician staff were also prepared to clarify the approach to graded challenges versus desensitization. The scope includes all inpatient areas and the IOM Dimension is Effectiveness , Safety and Patient Centered Care.

Aim/Goal

To improve beta-lactam allergy assessment, de-label or relabel patients so that they can receive the drug of choice for infection and avoid the adverse effects, substandard outcomes, increased costs and readmissions associated with alternate therapies.

To decrease the number of full desensitizations requiring ICU admission and one-on-one RN care relative to graded or full challenges.

The Team

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Pharmacy/Stewardship
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Allergy/Immunology
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Pharmacy

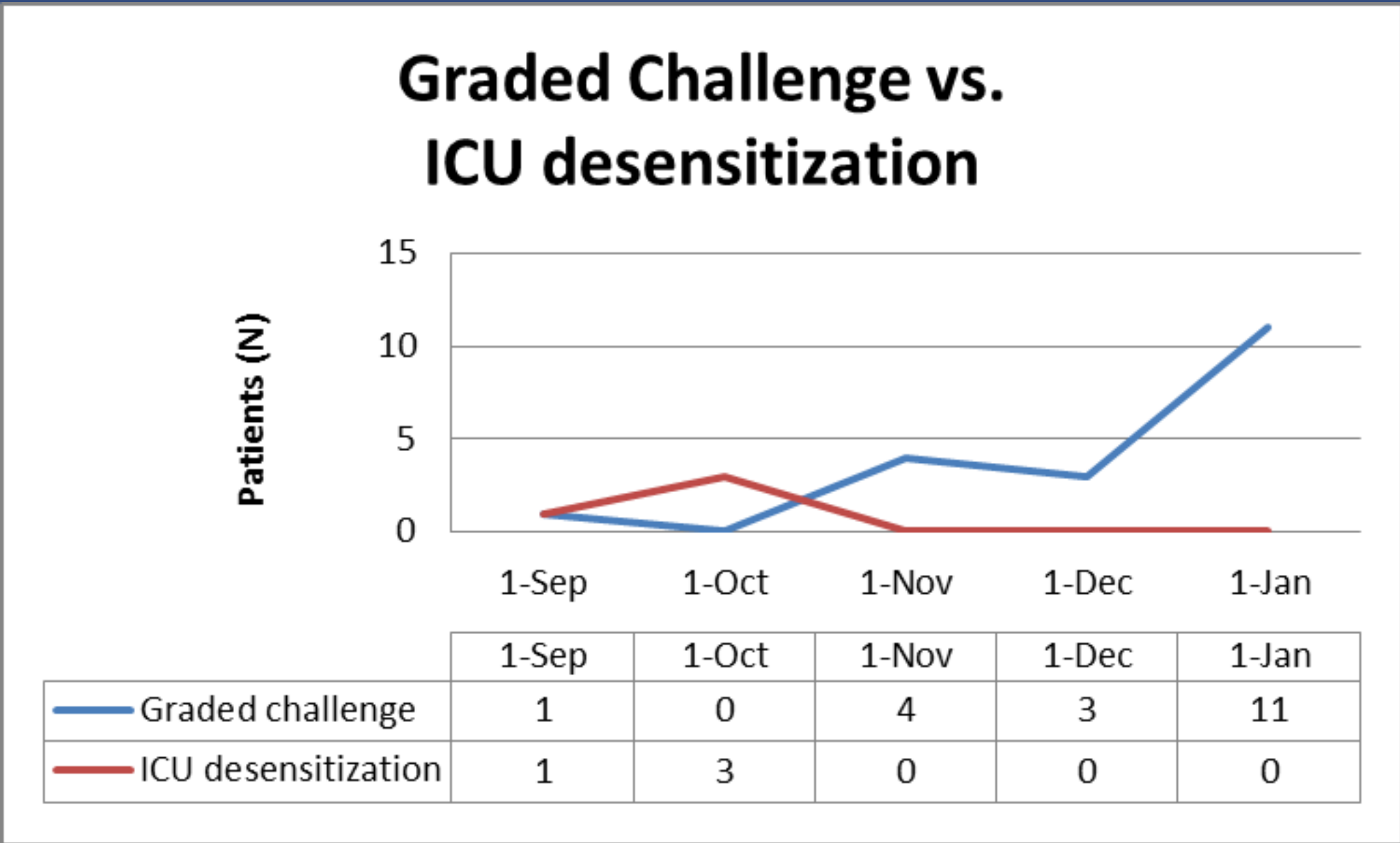
The Interventions

- National stewardship and internal data both identified a high percentage of patients labelled as having a BLallergy in the medical record triggering alerts to prescribers.
- Attempted to review drug alerts and frequency of NBL prescribing which has been problematic to identify with current systems.
- Stewardship, Allergy, Pharmacy reviewed published data on BL allergy screening and new approaches to challenges other than full desensitization.
- A full guideline was created for multidisciplinary caregivers to assess and screen and promote more thoughtful BL antibiotic challenges with computerized support for ordering.

Results/Progress to Date

Introduction of the guideline was launched in September of 2016 with education of Pharmacists, Stewardship team members, Infectious Diseases staff, medical house staff and RN staff.

Specific computer provider order entry (CPOE) were defined for graded challenges for IV BL antibiotics to decrease the potential for error and standardize the process.



The number of graded challenges increased over 1000% in the first 5 months post implementation, many of which would have otherwise been ICU desensitizations.

For more information, contact:

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More Results/Progress to Date

Type I reaction

Mild

Consider graded or full rechallenge with the same drug in the same class

If pcn or pcn derivative, use 3rd or 4th generation cephalosporin OR cephalosporin with a dissimilar side chain by full challenge

If cephalosporin, use a cephalosporin with a dissimilar side chain or a carbapenem either by full challenge

Moderate

If pcn or pcn derivative, use 3rd or 4th generation cephalosporin by graded challenge

If cephalosporin, use a cephalosporin with a dissimilar side chain or a carbapenem by graded challenge

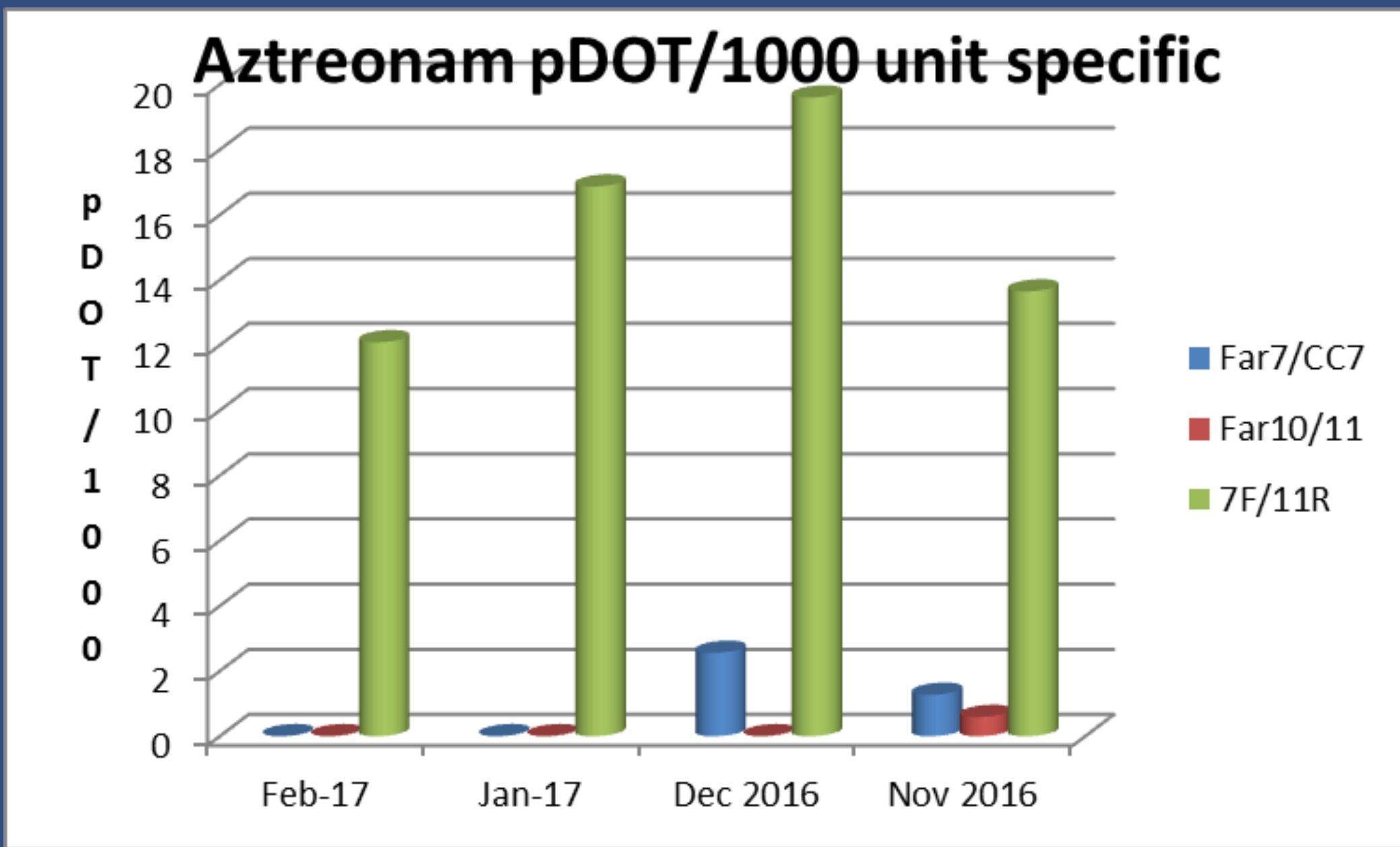
Consider full desensitization same drug with allergy consult

Severe

If pcn or pcn derivative, use 3rd or 4th generation cephalosporin by graded challenge

Use alternative agent targeted to microbial coverage

If penicillin/cephalosporin is the drug of choice → consider desensitization



Detailed flow sheet for approach to BL allergy (type 1) includes decision support for direct challenge, graded challenge, or desensitization.

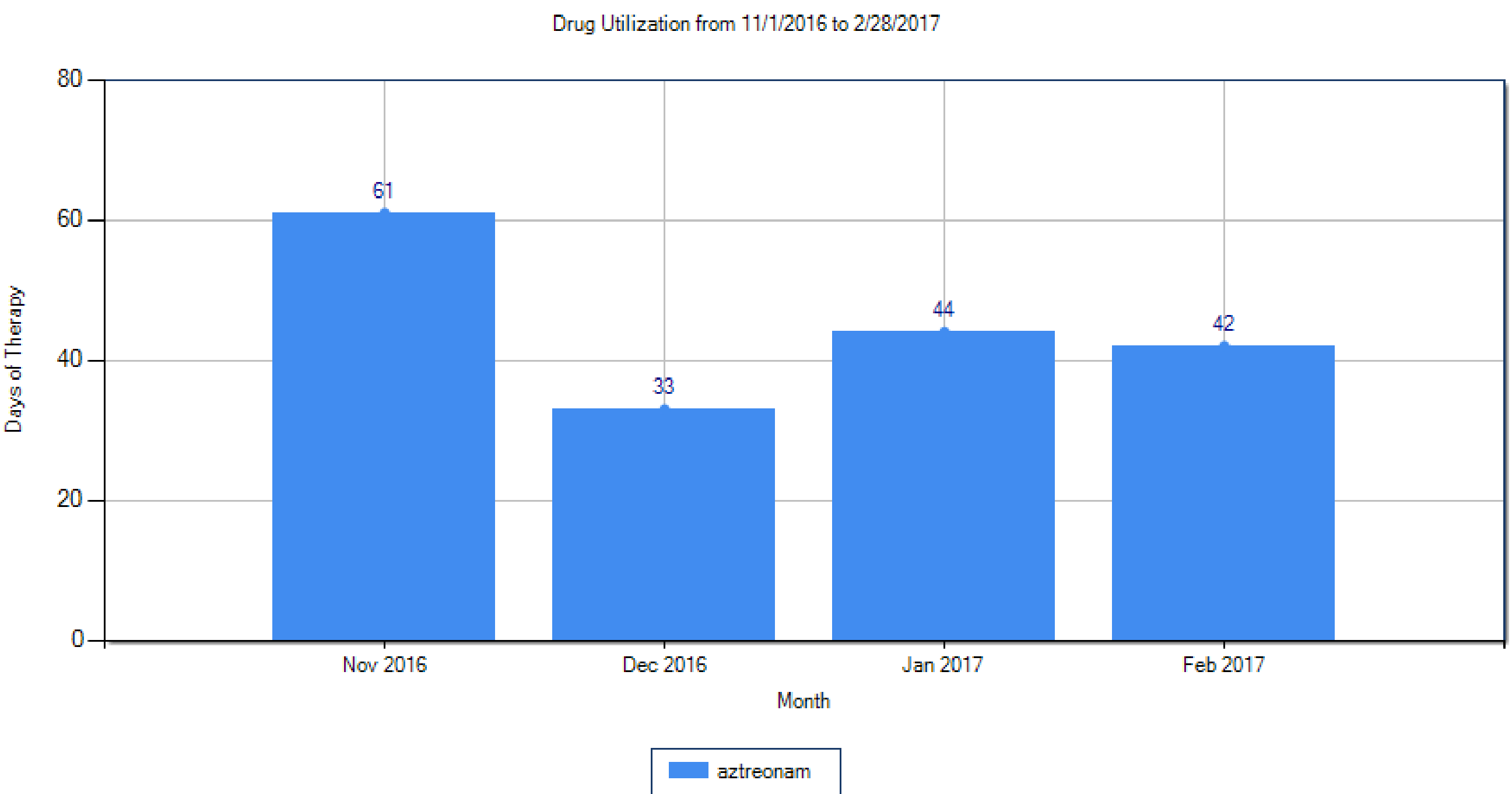
Hem/Onc patient care unit showed a peak in utilization of Aztreonam compared to West Medicine patient care units or Hepatobiliary/SOT/Neurology patient care units.

Lessons Learned

- Practice change across the institution which involves more careful record review and patient interview can be difficult to launch with 100% adherence.
- Limitations of our patient care databases for allergy bypass and allergy assessment make for a difficult snapshot of a true denominator and the quality of documentation.
- Graded challenge can be an acceptable alternative to desensitization or use of NBL antibiotics that may be less effective or more toxic.

Next Steps

- A global email will be sent in the near future with more intranet hyperlinks for further provider penetration.
- More floor based education and a method to track interventions will be implemented.
- A closer review of aztreonam utilization on the Hematology Oncology units will be endeavored.



Aztreonam is a surrogate antibiotic “marker” for avoidance of the “typical” BL class of penicillins and cephalosporins. A snapshot of four months post protocol demonstrates a decrease in days of therapy.

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