



Prospective Audit and Feedback: A Targeted Intervention on Antibiotic Prescribing

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Introduction

- Ceftaroline is a cephalosporin antibiotic utilized for various infections due to its broad-spectrum of activity including coverage of methicillin-resistant staphylococcus aureus (MRSA).
- A number of alternative antibiotics are available at our institution for MRSA infections and our Antibiotic Stewardship Program (ASP) monitors prescribing patterns.
- A significant increase in ceftaroline use was noted at our institution in 2023. A targeted ASP intervention was initiated to prospectively evaluate ceftaroline use and provide real-time feedback to prescribers.

Objective

The purpose of this study is to evaluate the impact of our ASP initiative by evaluating ceftaroline use before and after our intervention.

Methods

- A drug utilization report was generated using Cerner Discern Analytics to identify patients who received ceftaroline from January 2023 to August 2023. This data included the number of patients dispensed ceftaroline, doses administered, and prescribers of this medication.
- Pharmacy drug acquisition expenditures were obtained for ceftaroline based on purchasing. Study researchers compiled this data to evaluate prescribing patterns and costs at our institution.
- Patient electronic medical records were accessed to determine appropriate prescribing. Members of our ASP began this initiative in September 2023 to monitor ceftaroline prescribing in real-time, ensure appropriate utilization, and provide feedback to prescribers.
- Pharmacists from our ASP provided education to ceftaroline prescribers with the support of Infectious Disease providers. Data was collected through November 2023 and the utilization and costs of ceftaroline before and after this ASP initiative was compared.

Results

Table 1 2023 Costs

Month	City	Mainland
January	\$4,238.65	\$8,413.24
February	\$8,413.24	\$10,516.55
March	\$4,206.62	\$14,947.38
April	\$12,587.85	\$8,370.56
May	\$14,691.18	\$10,420.50
June	\$29,575.14	\$14,659.19
July	\$2,503.31	\$25,052.29
August	\$13,540.94	\$6,319.11
September	\$0.00	\$4,225.10
October	\$0.00	\$20,047.60
November	\$5,604.72	\$5,820.35

Figure 1 2023 Cost Trends with Intervention

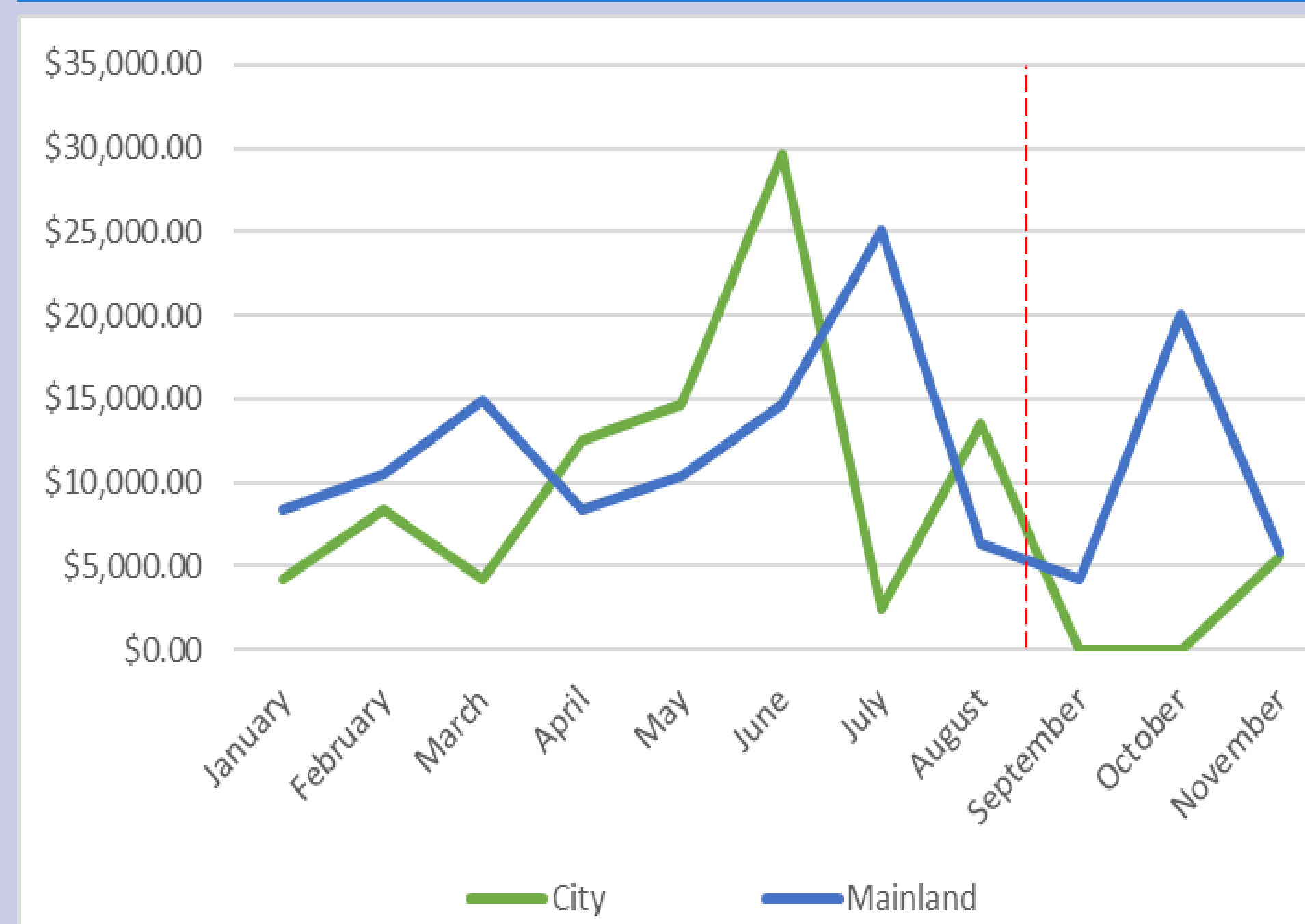


Table 2 2023 Vials Dispensed

Month	City	Mainland
January	37	28
February	39	49
March	14	65
April	80	63
May	70	57
June	115	66
July	64	110
August	59	15
September	10	36
October	0	103
November	6	27

Figure 2 2023 Dispense Trends with Intervention

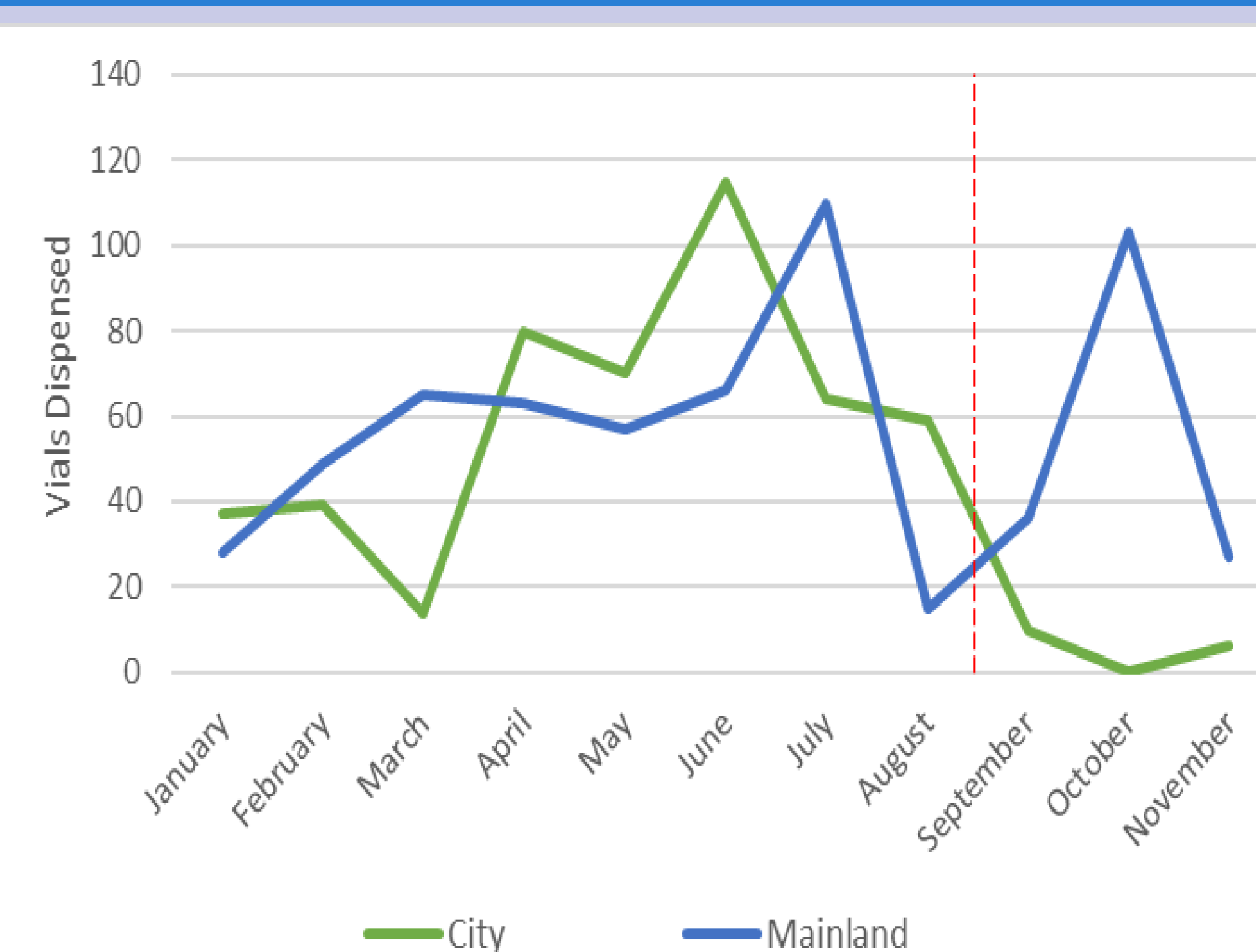


Table 3 Monthly Averages Pre- and Post-Intervention

Measures	Pre-Intervention	Post-Intervention	Reduction
Cost / Month	\$23,556.97	\$11,899.26	49.5%
Patients / Month	14	6	57.1%
Vials Dispensed / Month	116	61	47.4%

Discussion

- The average monthly expenditure at our institution for ceftaroline before and after our intervention was \$23,556.97 and \$11,899.26, respectively. An average costs saving of \$11,657.71 per month was realized following our real-time intervention (**Table 3**). Purchases for ceftaroline from June to August were approximately \$91,650. Post-intervention purchases from September to November decreased to \$35,698, a 61% decrease in spending.
- Following the implementation of our targeted intervention, there was a substantial decrease in the amount of ceftaroline dispensed. June to August saw 429 vials dispensed while September to November had only 182 vials. This was a 58% decrease in ceftaroline utilization.
- Success of our intervention conveys the importance of pharmacists' role in prescriber education and the necessity for ongoing stewardship activities.
- Our results suggest exploring additional antibiotics and high-cost medications within our institution and considering future targeted audits to ensure optimal prescribing choices.

Conclusion

Prospective audit and feedback is an effective tool for ASPs. Antibiotic stewardship program led education with real-time prescriber feedback can enhance antibiotic prescribing choices and save hospital systems significant expenses.