

## Problem Statement

Evidence shows that patients who report penicillin allergies have a 50% increased chance of developing a surgical site infection because they are more likely to receive substandard antibiotic prophylaxis.

At the project site, substituting clindamycin for cefazolin in penicillin-allergic patients has been a common practice due to a long-held belief in cross-reactivity between cefazolin and penicillin. In the fall of 2022, 59 of the 112 penicillin-allergic orthopedic surgery patients received cefazolin prophylactically.

## Purpose

### Purpose Statement:

The purpose of this quality improvement (QI) project is to increase the administration of cefazolin to penicillin-allergic orthopedic surgery patients by 50% implementing a risk-stratification allergy assessment tool.

### Process Goal:

- 100% compliance with completion of the stratification tool for all penicillin-allergic orthopedic surgery patients.

### Outcome Goal:

- To increase the rate of cefazolin administration to penicillin-allergic patients by 50% by the end of the implementation period.

## Methods

### Setting:

- Preoperative holding area at a Baltimore hospital.



### Population:

- Penicillin-allergic orthopedic surgery patients.

### Intervention:

- Implementation of a risk-stratification allergy evaluation tool for anesthesia providers to thoroughly evaluate the patient's allergy and assess appropriateness of cefazolin administration.

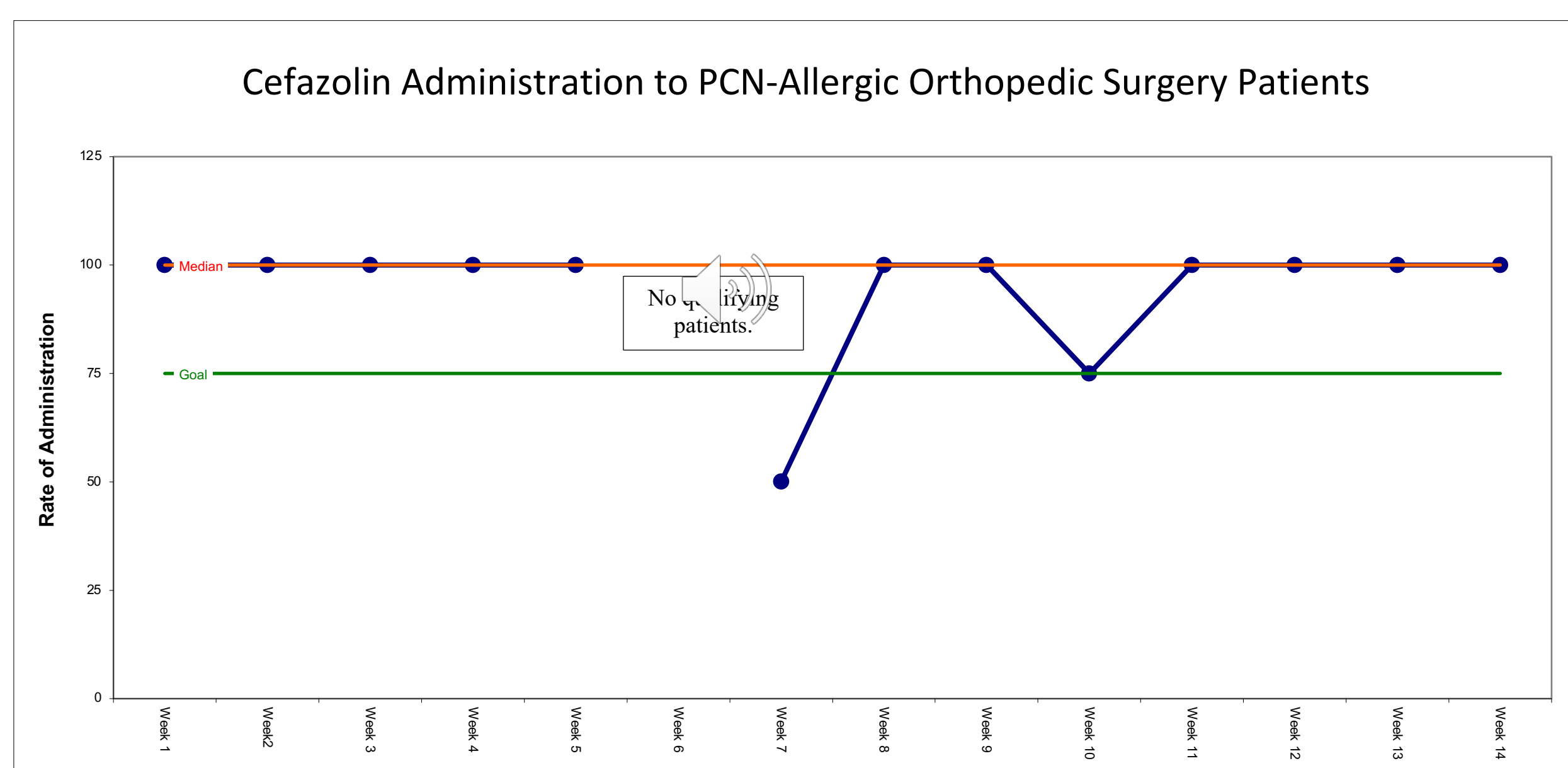
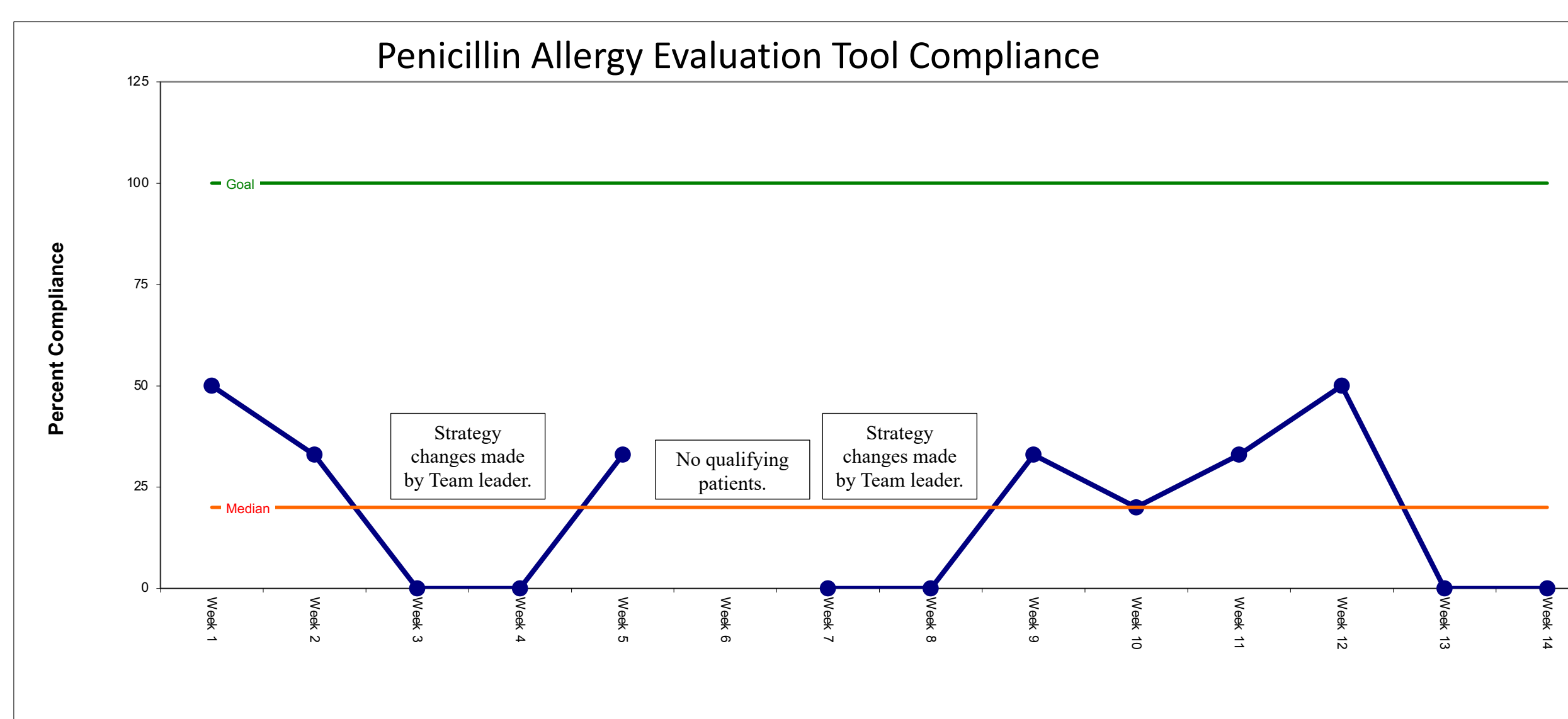
### Implementation Strategies:

- Education, dissemination of resources, verbal reminders, progress emails.

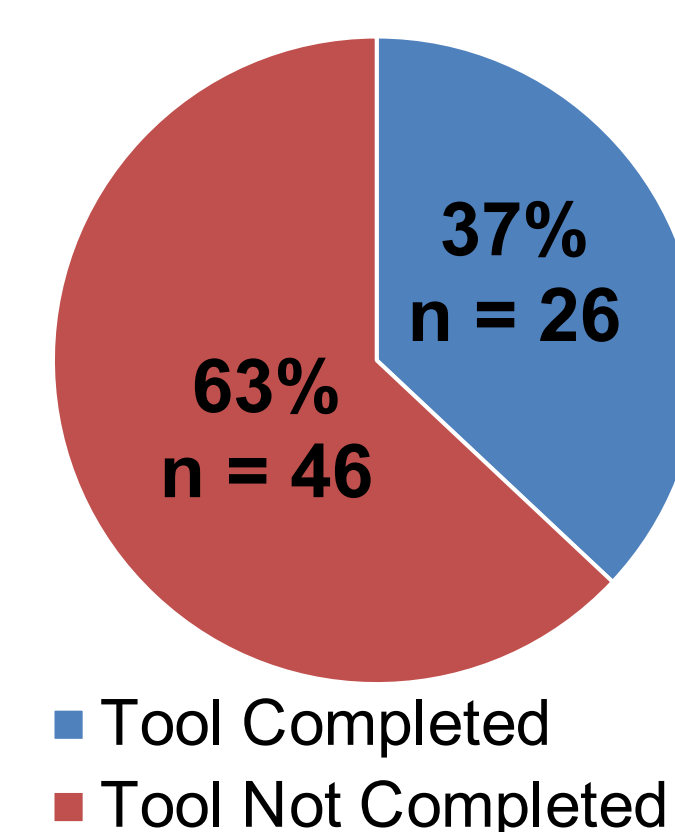
### Data Collection:

- Completion of the evaluation tool was tracked in RedCap.
- Chart audits were conducted to cefazolin administration.

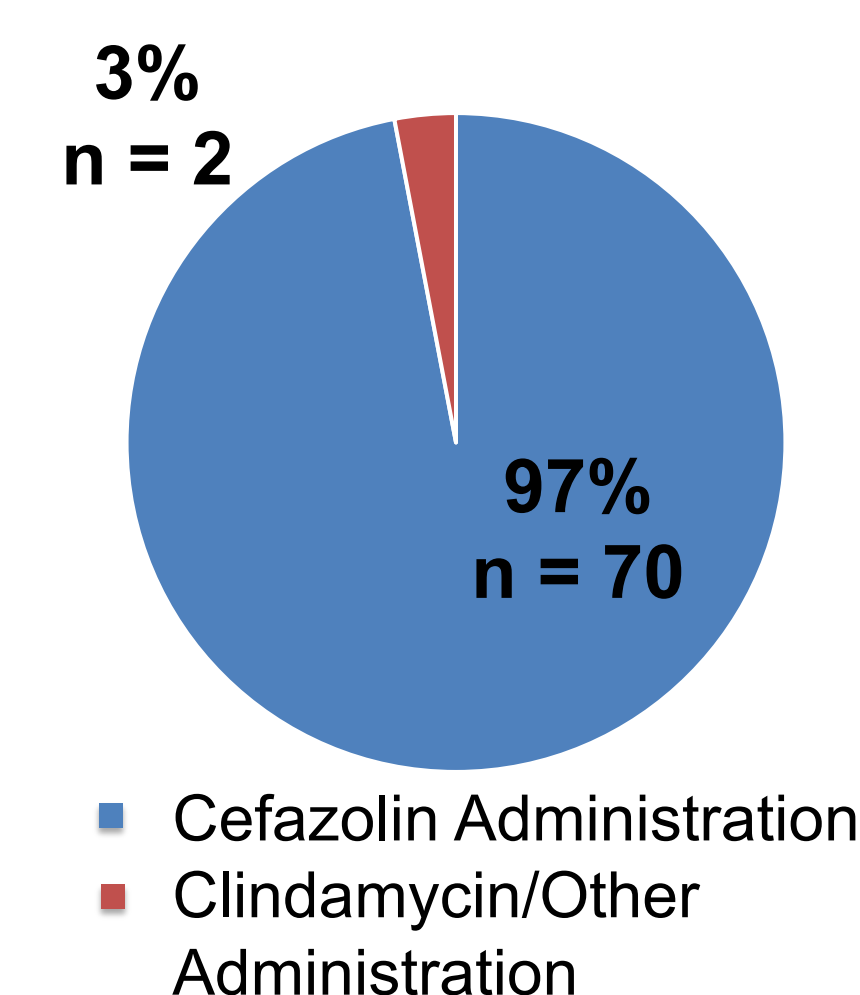
## Results



### Tool Completion Compliance



### Cefazolin Administration



- N= 72
- Compliance for completion of the risk-stratification tool was 37%.
- The rate of cefazolin administration to penicillin-allergic orthopedic surgery patients was 97%.

Eligible Patients Per Week														
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Number of Patients	6	6	5	5	6	0	8	7	6	4	6	4	5	4

## Discussion

### Goals:

- The process goal of 100% compliance with completion of the stratification tool was not met.
- The outcome goal to increase the rate of cefazolin administration to penicillin-allergic orthopedic surgery patients by 50% was met.

### Limitations:

- Changes in pre-anesthetic evaluation process.
- Multiple process changes taking place at once.
- Nationwide clindamycin shortage.

Administration of cefazolin increased significantly, but can't be directly associated to the interventions implemented.

## Conclusion

### Implications:

Removing penicillin-allergy labels can be a cumbersome, sweeping process change. Implementing risk-stratification tools can be useful for clinicians to easily evaluate penicillin allergies bedside, ensure administration of appropriate antibiotics, and help improve patient outcomes.

### Spread & Sustainability:

- This tool could easily be implemented across all penicillin-allergic surgical patient populations.
- Integration into the electronic medical record would improve compliance.

### Next Steps:

- Explore expansion to other patient populations.
- Explore implementation during pre-surgical evaluation. This could lead to removal of the penicillin allergy from the patient's chart.

## References

