

7-day clindamycin prophylaxis regimen in patients undergoing head and neck cancer microvascular reconstruction increases risk of *C. diff* diarrhea: fiction or fact?

Greene JB¹, Veve MP^{1,2}, Davis SL^{1,2}, Williams A¹, Ghanem TA^{1,2}

¹Henry Ford Hospital, Detroit, MI, USA

^{1,2}Wayne State University, Detroit, MI, USA

Contact:
Tamer A. Ghanem
TGHANEM1@hfhs.edu



Introduction

Prophylactic antibiotics are commonly prescribed for patients who require a free flap for head and neck cancer reconstruction in the perioperative period. While there are no consensus guidelines for antibiotic recommendations in this setting, clindamycin is commonly selected based on its broad spectrum, including coverage against methicillin-resistant *Staphylococcus aureus*. Clindamycin use is also historically associated with *Clostridium difficile*-associated diarrhea (CDAD), with reports of occurrence in up to ~20% of patients.

Significant questions exist regarding the optimal antimicrobial prophylaxis in microvascular reconstruction for head and neck cancer:

Are broad-spectrum antimicrobials needed?

What duration of post-operative prophylaxis is necessary?

Are there preventable adverse effects related to antimicrobial prophylaxis?

Are there modifiable patient risk factors for poor outcomes?

The objective of this study was to compare *Clostridium difficile* (*C. diff*) infection of the general population to head/neck cancer patients undergoing microvascular reconstruction that received post-operative antibiotics.

Methods

Study Design

This was an IRB approved, cross sectional study conducted at a tertiary academic center in Detroit, Michigan.

Study Population

The study population included hospitalized patients who received head/neck microvascular reconstructive surgery and antibiotic prophylaxis from 1/2012 to 8/2015.

Data Collection

Clinical and microbiological data were collected from electronic medical records using a standardized case report form. Data collected included:

- Patient demographics (age, date of surgery)
- Select comorbid conditions (ASA Class, diabetes)
- Post-operative antibiotic prophylaxis regimen
- Development of CDAD and patient disposition/outcome.

Microbiological data collected included:

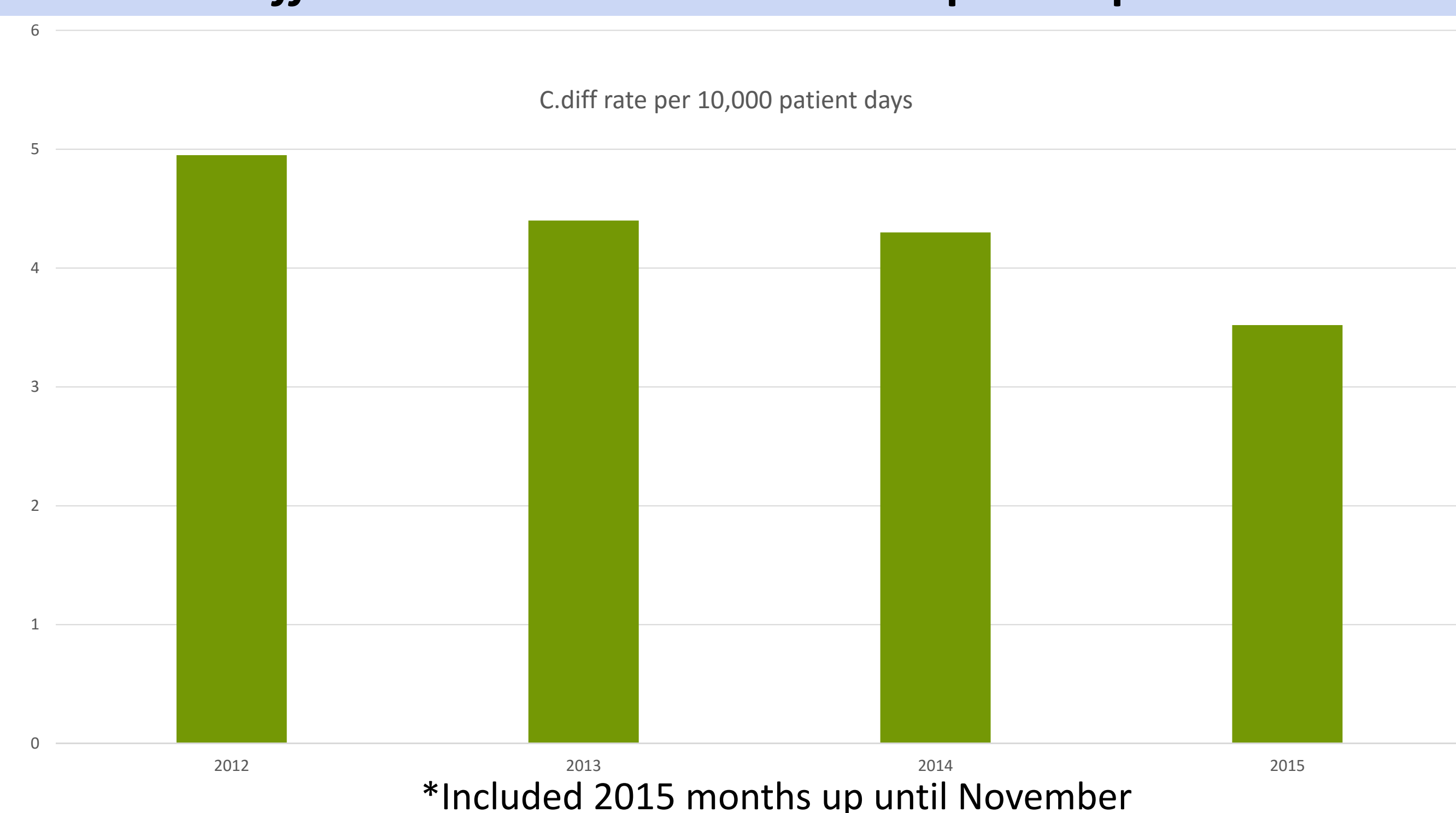
- CDI testing method (toxin A/B or PCR) and date of positive CDI. All laboratory testing was completed by the Henry Ford Health System Clinical Microbiology Core Laboratory according to Clinical and Laboratory Standards Institute (CLSI) standards.

Statistical Analysis

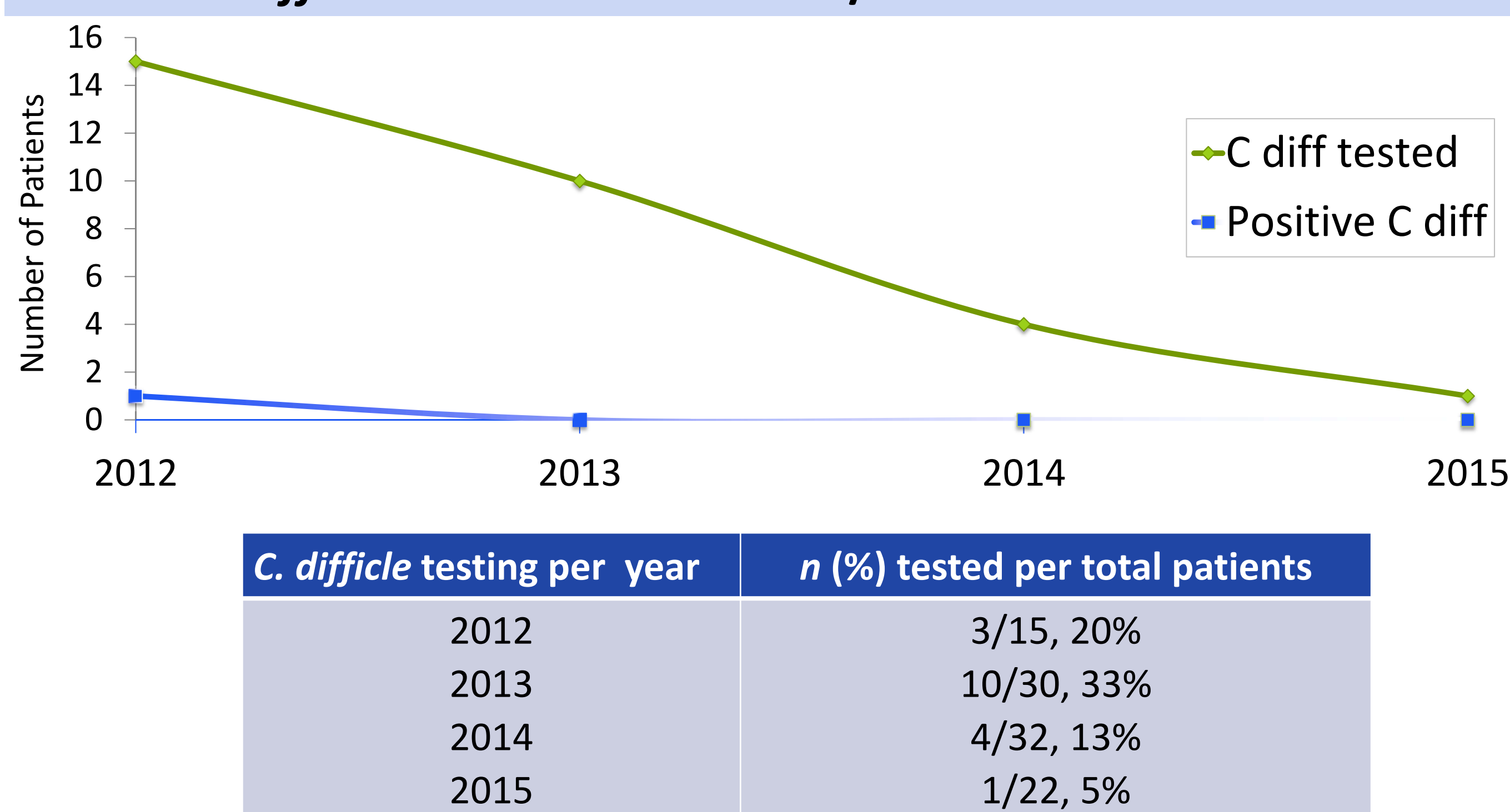
Descriptive statistics were used to evaluate the patient populations and to compare incidence of *C. difficile* infections. The yearly incidence of CDAD was compared to the general populations during the timeframe.

Results

C. difficile Incidence in General Hospital Population



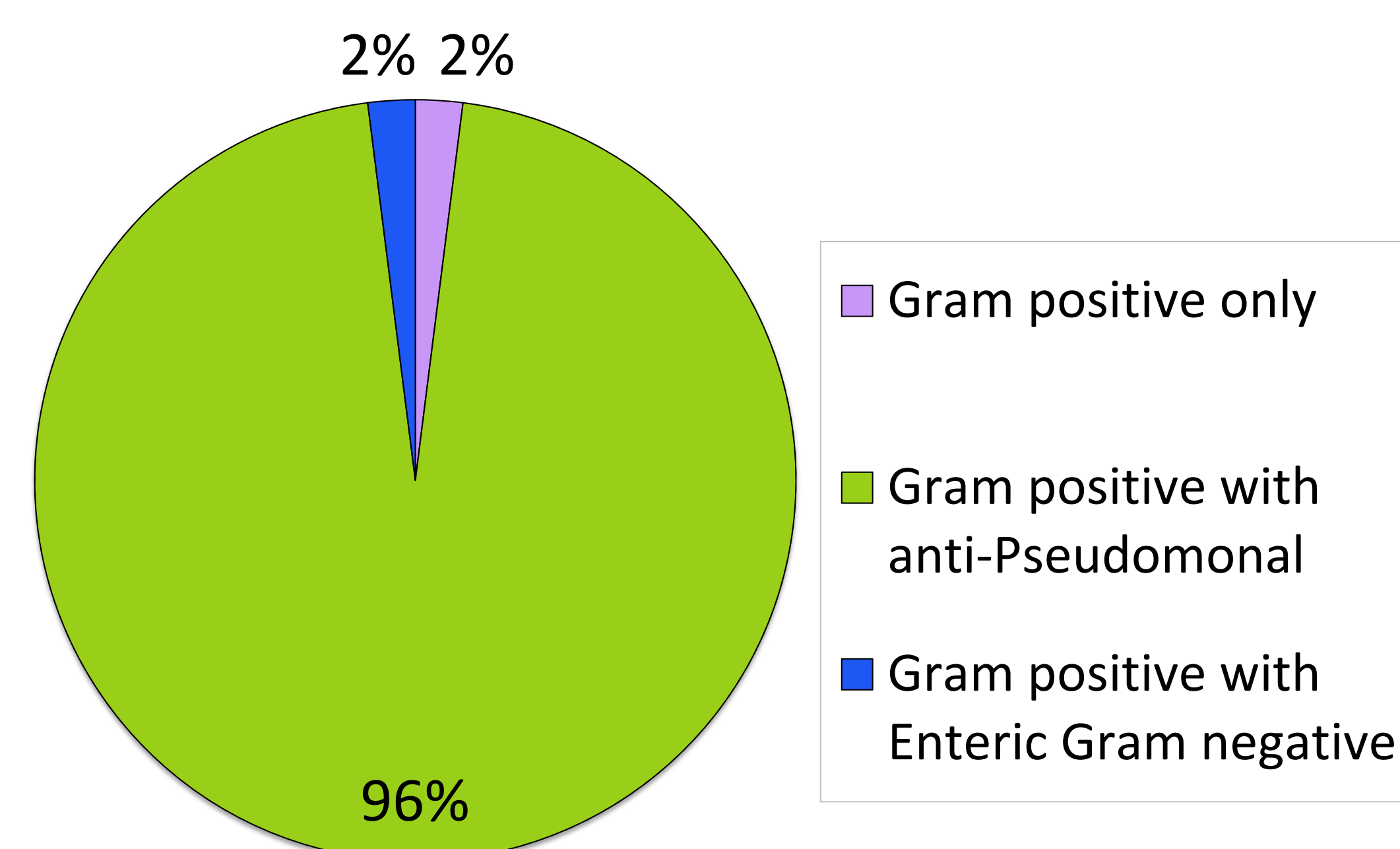
C. diff Annual Trends for Head/Neck Cancer Patients



Patient Characteristics

Baseline Characteristics (n, % or median, IQR)	n = 99
Age, years	62 (54–71)
Male sex	32 (32.3)
History of tobacco use	75 (75.8)
Diabetes	21 (21.2)
History of radiation therapy	37 (37.4)
History of chemotherapy	23 (23.2)
ASA Class I-II	8 (8.1)
ASA Class III or higher	91 (91.9)

Additional Antibiotic Therapy*



*99 patients received a 7 day median duration of antibiotics

Discussion

Prevention Measures

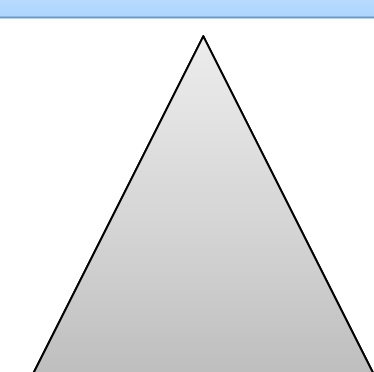
- Appropriate hand-washing
- Contact Isolation
- Quality reporting

Anti-infective Measures

- Reducing antibiotic overuse
- Restoring natural gut flora
- Shortening antibiotic durations

Infection Control

Antimicrobial Stewardship



Conclusions

- Patients receiving broad-spectrum antibiotics have been shown to be at an increased risk for developing CDAD.
 - The overall incidence of CDAD for our head/neck cancer patients was lower than expected (< 1%).
- Additional comparisons to HSN CDAD Quality Reporting measures are needed to better understand CDAD risks in our patient population