

Impact of Intensified Clindamycin Stewardship Initiatives in Three Phases: A Quasi-Experimental Study

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Background

- Clindamycin is commonly used to treat respiratory tract, odontogenic, and skin/soft tissue infections¹
- National and local resistance rates to Streptococcal (26-30%) and Staphylococcal (17-32%) species and anaerobes (68-74%) are increasing^{2,3}
- Use associated with *Clostridioides difficile* infections (CDI)⁴
- Restricting clindamycin reduces CDI rates, overall use, and hospital costs⁵
- Current literature evaluates clindamycin restriction in the setting of CDI endemics rather than restriction implementation⁵⁻⁷
- Local clindamycin stewardship initiatives include educational in-services, internal treatment guidelines, prospective order reviews, and criteria for use

Purpose

- To evaluate if local stewardship initiatives impact clindamycin utilization and outcome metrics at an academic medical center

Outcomes

- **Primary**
 - **Inappropriate clindamycin utilization:**
 - Resistant organism recovered in cultures
 - Concurrent antibiotic(s) with duplicative activity
 - A non-necrotizing infection
 - An alternative agent is preferred by guidelines or expert opinion
 - Alternative reasons per investigator discretion
- **Secondary**
 - 30-day CDI
 - 30-day readmission rates
 - 30-day in-hospital mortality
 - Clindamycin days of therapy (DOT)/1000 patient days (PD)
 - Demographics

Methods

Phase 1 (January-March 2018)

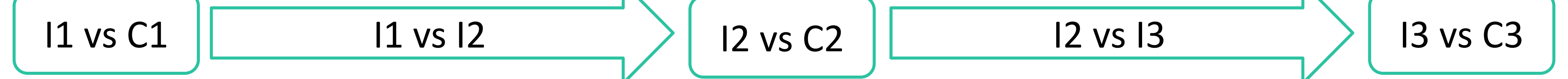
- Pre-study period

Phase 2 (January-March 2019)

- Educational in-services
- Prospective order reviews by the ID pharmacist

Phase 3 (January-March 2020)

- Criteria restrictions
- Prospective order reviews by clinical pharmacists



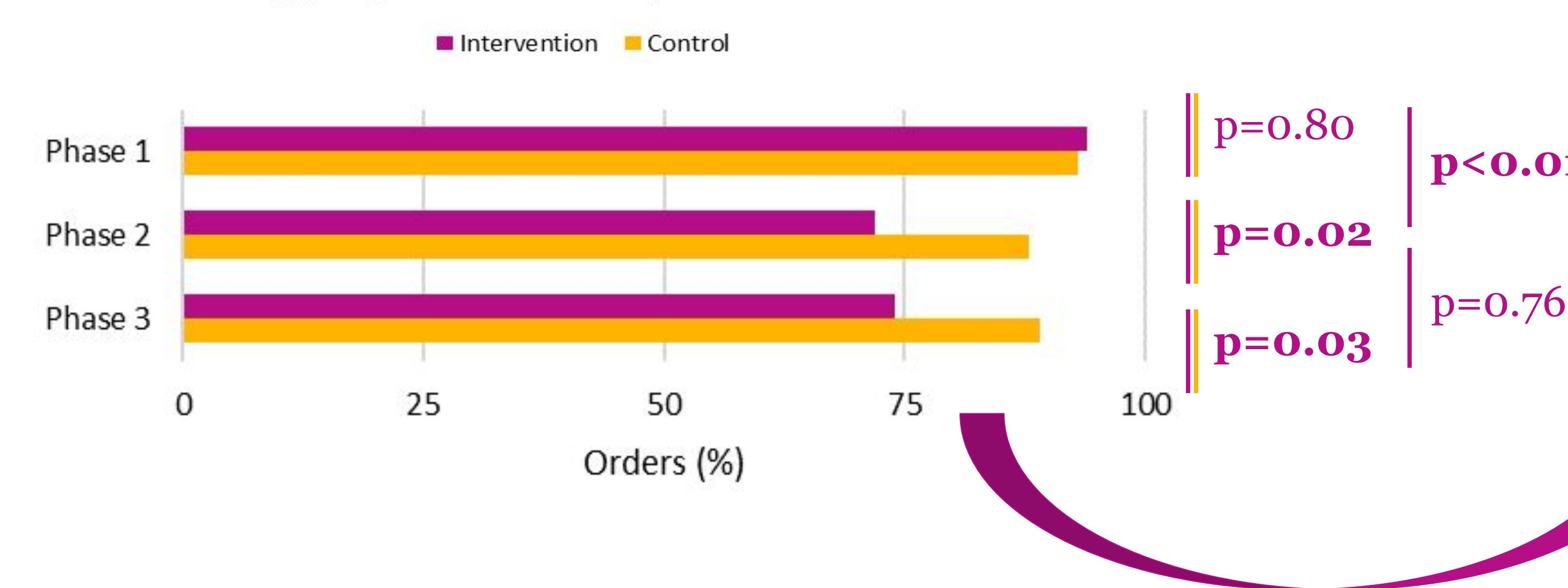
Results

Demographics, n (%)

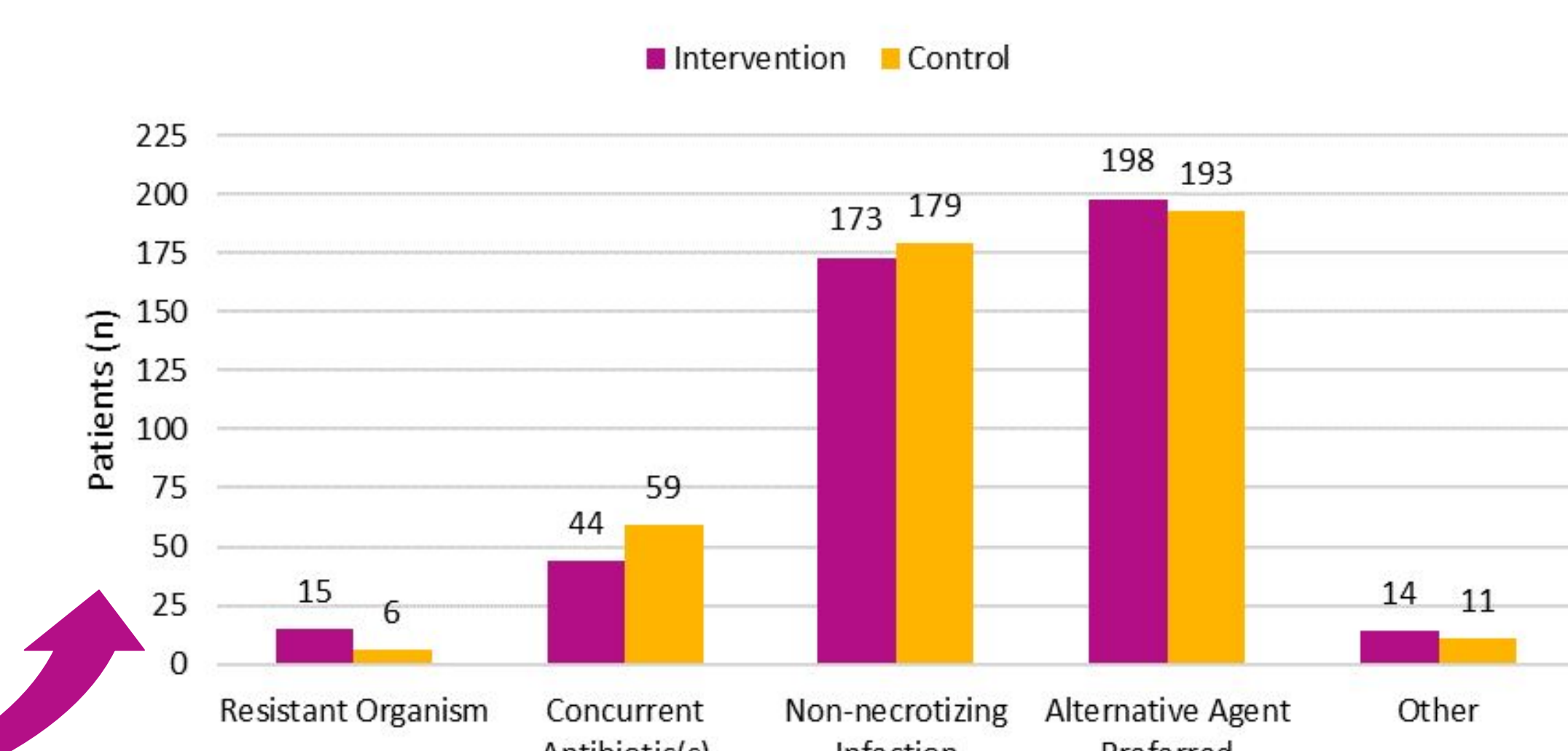


Outcome	n (%)						p-value (I1-I3)
	I1 (n=87)	I2 (n=94)	I3 (n=82)	C1 (n=90)	C2 (n=65)	C3 (n=63)	
Inappropriate utilization	82 (94)	68 (72)	61 (74)	84 (93)	57 (88)	56 (89)	<0.01
30-day CDI	1 (1)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0.64
30-day readmission rates Infectious	16 (18)	29 (31)	18 (22)	25 (28)	11 (17)	11 (18)	0.13
30-day in-hospital mortality	11 (69)	19 (66)	8 (44)	13 (52)	10 (91)	9 (82)	0.26
30-day in-hospital mortality	0 (0)	2 (2)	0 (0)	2 (2)	2 (3)	0 (0)	0.33
Clindamycin DOT/1000 PD	10	9.2	6.2	15.3	10.4	10.5	-

Inappropriate Clindamycin Utilization



Inappropriate Clindamycin Utilization Components



Discussion

- **A difference in inappropriate prescribing was demonstrated (p<0.01)**
 - Inappropriate prescribing was reduced from 94% to 72% through local prospective order reviews and education
 - Readmission rates due to an infection were reduced from 69% to 44%
- No difference found in any of the secondary outcomes
 - Clindamycin DOT/1000 patient days was reduced from 10 to 6.2 days
 - Most patients were prescribed clindamycin in the ED, which may have prevented the opportunity for follow-up
- Resistance was detected in 36% of the organisms with susceptibility results
- Unadministered clindamycin doses that may have been switched to a preferred alternative agent were not included

Conclusions

- Pre-intervention inappropriate clindamycin prescribing was >90% and was reduced by 20% with stewardship initiatives
- **Future directions**
 - The ED is an area for further stewardship opportunities
 - Remove clindamycin from the ED automated dispensing cabinets
- Our initiatives may serve as a model for other institutions

References

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