

BACKGROUND

- Prophylactic antibiotics are variably prescribed after isolated upper extremity gunshot wounds (GSWs).
- While prescribing patterns may be influenced by several clinical factors, little evidence is available to guide practice.
- Infection rate in the literature is low (<5%).

OBJECTIVES

- To determine the infection rate in upper extremity GSWs and associated risk factors
- To assess prophylactic antibiotic prescribing patterns.
- To assess if antibiotic prescription impacts infection rate.

METHODS

- Retrospective chart review of all patients presenting to our level 1 trauma center with GSWs to the upper extremity from 2008-2018 excluding patients with additional GSWs outside the UE and patients hospitalized for more than 48 hours
- Bivariate and multivariable linear regression to identify patient and injury related factors predictive of prophylactic antibiotic prescription.

RESULTS

- 281 patients; median follow-up duration 20 d
- 40% received prophylactic antibiotics (86% received Cephalexin)
- Multivariable analysis
 - Anatomic level of injury and presence of a ballistic fracture had significant independent associations with prophylactic antibiotic administration
- 9 /281 (3%) developed infection. Average time to infection 31 days. Infection rate similar between groups who did (2%) and did not receive (5%) prophylactic antibiotics.
- In patients with >30 days follow-up, infection rate was 6%. Incidence of infection was similar in those who did receive (5%) and did not receive (7%) prophylactic antibiotics.

CONCLUSIONS

- Hand injuries and bony injuries were more often treated with prophylactic antibiotics.
- Infection rate was low, which prohibited statistical analysis of risk factors for infection.
- However, infection risk was not substantially different in populations who did and did not receive prophylactic antibiotics

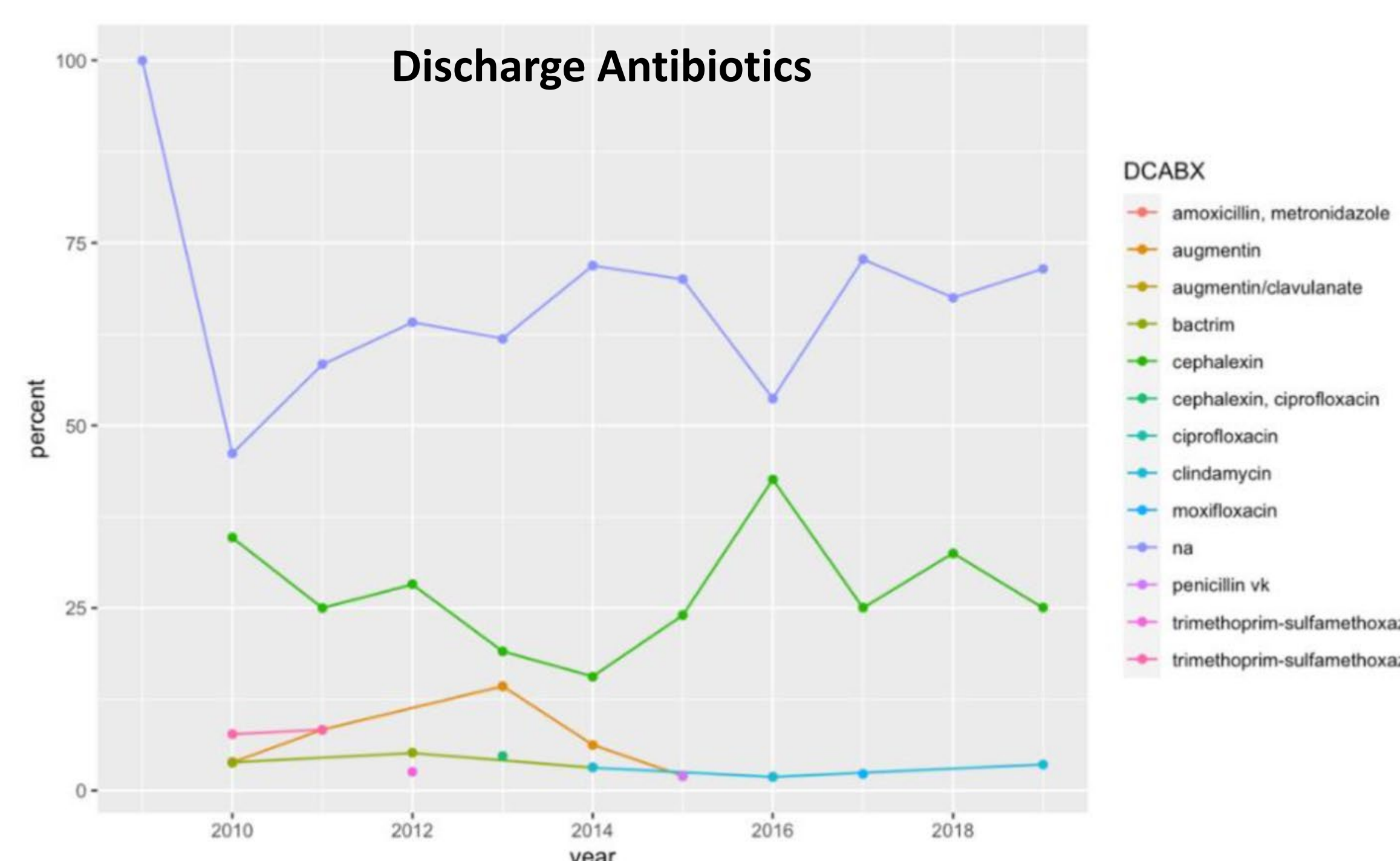


Table II: Predictors of Antibiotic Prescriptions after Upper Extremity GSW: Multivariable Analysis (All Eligible)

Explanatory Variables with Independent Predictive Value for Antibiotic Prescription	Unstandardized Beta	Standard Error	Standardized Beta	P	Model R Squared
Hand Level Injury	0.422	0.066	0.42	<0.001	0.326
Shoulder Level Injury	-0.14	0.059	-0.131	0.023	
Ballistic Fracture	0.121	0.057	0.124	0.034	

Table I: Description of Upper Extremity GSW Population

Total N=281	Entire Qualifying Population
Age (y)	31 +/- 114
Sex	
Male	245 (87%)
Female	36 (13%)
ADI	82 +/-21
Ethnicity	
White	50 (18%)
Non-White	231 (82%)
Comorbidity	
Diabetes	8 (3%)
Psychiatric	9 (3%)
Smoker	142 (51%)
Level	
Shoulder	94 (34%)
Arm	81 (29%)
Elbow	12 (4%)
Forearm	26 (9%)
Wrist	12 (4%)
Hand	107 (38%)
Ballistic Fracture	143 (51%)
Operative Treatment	90 (32%)
Hardware Implanted	33 (12%)
Antibiotics Administered in Hospital	117 (42%)
Antibiotics Prescribed at Discharge	111 (40%)
Follow-up Duration (d)	62 +/-126
Infectious Complication	9 (3%)

Main References

- Hong JP et al. Diabetic foot reconstruction using free flaps increases 5-year-survival rate. *Plast Reconstr Surg.* 2013;66(2):243-250.
- Colen LB. Limb Salvage in the patient with severe peripheral vascular disease: the role of microsurgical free-tissue transfer. *Plast Reconstr Surg.* 1987;79(3):389-395.
- Binkley et al (1999): The Lower Extremity Functional Scale (LEFS): Scale development, measurement properties, and clinical application. *Physical Therapy.* 79:371-383

Main References

1. Hong JP et al. Diabetic foot reconstruction using free flaps increases 5-year-survival rate. *Plast Reconstr Surg.* 2013;66(2):243-250.
2. Colen LB. Limb Salvage in the patient with severe peripheral vascular disease: the role of microsurgical free-tissue transfer. *Plast Reconstr Surg.* 1987;79(3):389-395.
3. Binkley et al (1999): The Lower Extremity Functional Scale (LEFS): Scale development, measurement properties, and clinical application. *Physical Therapy.* 79:371-383