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Supplementary Digital Content

Appendix 1: Antibiotic choice by Gustilo Type and use of local adjuvants.

	Gustilo Type	N (%)	Difference, 95% CI
Systemic Antibiotics			
Cefazolin only			
	I and II (n=704)	430 (61.1%)	Ref (0.0)
	IIIA (n=424)	202 (47.6)	-13.0% (-18.8 to -7.2)
	IIIB and IIIC (n=95)	29 (30.5%)	-32.1% (-41.2 to -22.9)
Clindamycin only			
	I and II (n=704)	16 (2.2%)	Ref (0.0)
	IIIA (n=424)	2 (0.5%)	-1.6% (-3.1 to -0.1)
	IIIB and IIIC (n=95)	3 (3.2%)	1.1 (-2.6 to 4.8)
Cefazolin, Aminoglycosides, +/- Penicillin			
	I and II (n=704)	42 (6.0%)	Ref (0.0)
	IIIA (n=424)	60 (14.2%)	9.7% (4.1 to 15.2)
	IIIB and IIIC (n=95)	19 (20.0%)	11.3% (2.8 to 19.8%)
Ceftriaxone only			
	I and II (n=704)	14 (2.0%)	Ref (0.0)
	IIIA (n=424)	10 (2.4%)	-0.0% (-1.6 to 1.5)
	IIIB and IIIC (n=95)	1 (1.1%)	-0.2% (-3.9 to 3.5)
IV Vancomycin			
	I and II (n=704)	40 (5.7%)	Ref (0.0)
	IIIA (n=424)	41 (9.7%)	2.8% (-0.4 to 5.9)
	IIIB and IIIC (n=95)	8 (8.4%)	3.4% (-2.7 to 9.5)
IV Piperacillin/Tazobactam			
	I and II (n=704)	15 (2.1%)	Ref (0.0)
	IIIA (n=424)	25 (5.9%)	3.6% (-0.3 to 7.6)
	IIIB and IIIC (n=95)	10 (10.5%)	6.8% (-0.2 to 13.8)
Local Antibiotic Use			
Topical Powder			
	I and II (n=704)	252 (35.9%)	Ref (0.0)
	IIIA (n=424)	128 (30.1%)	0.5% (-4.2 to 5.1)
	IIIB and IIIC (n=95)	22 (23.2%)	-13.2% (-20.6 to -5.9)
Cement with Antibiotic			
	I and II (n=704)	10 (1.4%)	Ref (0.0)
	IIIA (n=424)	27 (6.4%)	5.0% (0.4 to 9.7)
	IIIB and IIIC (n=95)	15 (15.8%)	12.4% (1.5 to 23.3)
Bio-absorbable Delivery			

	I and II (n=704)	1 (0.1%)	Ref (0.0)
	IIIA (n=424)	3 (0.6%)	0.4% (-0.6 to 1.4)
	IIIB and IIIC (n=95)	0 (0.0%)	-0.1% (-0.4 to 0.2)

Note: Differences account for between-hospital variance by including a hospital variable as a random intercept in the models.

Appendix 2: Antibiotic choice by Gustilo Type and use of local adjuvants in patients with ISS < 10

	Gustilo Type	N (%)	Difference, 95% CI
Systemic Antibiotics			
Cefazolin only			
	I and II (n=219)	131 (59.8%)	Ref (0.0)
	IIIA (n=70)	33 (47.1%)	-13.4% (-26.7 to -0.2)
	IIIB and IIIC (n=12)	4 (33.3%)	-30.4% (
Clindamycin only			
	I and II (n=219)	10 (4.6%)	Ref (0.0)
	IIIA (n=70)	2 (2.9%)	-1.1% (-6.2 to 4.1)
	IIIB and IIIC (n=12)	1 (8.3%)	5.3% (-12.6 to 23.1)
Cefazolin, Aminoglycosides, +/- Penicillin			
	I and II (n=219)	11 (5.0%)	Ref (0.0)
	IIIA (n=70)	8 (11.4%)	6.0% (-2.1 to 14.1)
	IIIB and IIIC (n=12)	1 (8.3%)	2.2% (-11.9 to 16.3)
Ceftriaxone only			
	I and II (n=219)	4 (1.8%)	Ref (0.0)
	IIIA (n=70)	0 (0%)	-0.6% (-4.9 to 3.8)
	IIIB and IIIC (n=12)	0 (0%)	-1.8% (-14.4 to 10.9)
IV Vancomycin			
	I and II (n=219)	14 (6.4%)	Ref (0.0)
	IIIA (n=70)	8 (11.4%)	5.0% (-3.1 to 13.2)
	IIIB and IIIC (n=12)	2 (16.7%)	10.3% (-11.1 to 31.6)
IV Piperacillin/Tazobactam			
	I and II (n=219)	7 (3.2%)	Ref (0.0)
	IIIA (n=70)	5 (7.1%)	5.7% (-4.8 to 16.1)
	IIIB and IIIC (n=12)	5 (41.7%)	21.1% (-8.4 to 50.6)
Local Antibiotic Use			
Topical Powder			
	I and II (n=219)	70 (32.0%)	Ref (0.0)
	IIIA (n=70)	23 (32.9%)	5.6% (-7.3 to 18.5)
	IIIB and IIIC (n=12)	1 (8.3%)	-20.4% (-40.6 to -0.2)
Cement with Antibiotic			
	I and II (n=219)	2 (0.9%)	Ref (0.0)
	IIIA (n=70)	3 (4.3%)	2.5% (-4.7 to 9.7)

	IIIB and IIIC (n=12)	4 (33.3%)	17.1% (-16.3 to 50.5)
Bio-absorbable Delivery			
	I and II (n=219)	0 (0.0%)	Ref (0.0)
	IIIA (n=70)	1 (1.4%)	1.4% (-1.4 to 4.2)
	IIIB and IIIC (n=12)	0 (0.0%)	-

Note: Differences account for between-hospital variance by including a hospital variable as a random intercept in the models.

Appendix 3: Four regression models of factors associated of prescribing pattern, adjusted for the treating trauma center as random intercept.

		Cephalosporin Only	Cephalosporin and Other Category	Cephalosporin and Aminoglycosides	Other Category Only
Gustilo Type					
	I	Ref (1.0)	Ref (1.0)	Ref (1.0)	Ref (1.0)
	II	0.74 (0.52 – 1.06)	0.83 (0.45 – 1.53)	2.21 (0.93 – 5.24)	0.86 (0.40 – 1.85)
	IIIA	0.52 (0.36 – 0.76)	1.24 (0.68 – 2.28)	3.37 (0.93 – 5.24)	0.59 (0.23 – 1.47)
	IIIB/C	0.46 (0.26 – 0.80)	0.98 (0.33 – 2.88)	2.69 (0.40 – 8.11)	1.22 (0.36 – 4.21)
Contamination					
	1	Ref (1.0)	Ref (1.0)	Ref (1.0)	Ref (1.0)
	2	0.85 (0.62 – 1.16)	0.73 (0.41 – 1.30)	1.32 (0.72 – 2.40)	0.45 (0.18 – 1.13)
	3	0.78 (0.49 – 1.24)	0.43 (0.15 – 1.29)	1.25 (0.51 – 3.07)	1.31 (0.45 – 3.83)
Multifracture		0.56 (0.35 – 0.91)	1.46 (0.66 – 3.22)	1.97 (0.88 – 4.40)	0.38 (0.05 – 2.82)
Intraclass Correlation Coefficient		0.10	0.13	0.26	0.06

Appendix 4: Subset of patients with an ISS value (n=696). ISS, dichotomized at ≥ 10 , is included as a covariate in the model.

		Cephalosporin Only	Cephalosporin and Other Category	Cephalosporin and Aminoglycosides	Other Category Only
Gustilo Type					
	I	Ref (1.0)	Ref (1.0)	Ref (1.0)	Ref (1.0)
	II	0.79 (0.51 – 1.24)	0.86 (0.41 – 1.81)	2.46 (0.88 – 6.88)	0.97 (0.40 – 2.38)
	IIIA	0.55 (0.34 – 0.88)	0.94 (0.43 – 2.03)	2.66 (0.90 – 7.85)	0.55 (0.17 – 1.83)
	IIIB/C	0.63 (0.30 – 1.29)	0.66 (0.33 – 2.88)	2.03 (0.46 – 9.05)	0.96 (0.16 – 5.70)
Contamination					
	1	Ref (1.0)	Ref (1.0)	Ref (1.0)	Ref (1.0)
	2	0.88 (0.59 – 1.33)	0.75 (0.35 – 1.58)	0.88 (0.41 – 1.91)	0.62 (0.20 – 1.94)
	3	0.79 (0.51 – 1.24)	0.52 (0.14 – 1.89)	1.12 (0.36 – 3.52)	1.28 (0.31 – 5.30)
Multifracture					
		0.62 (0.33 – 1.19)	0.64 (0.19 – 2.21)	2.96 (1.08 – 8.12)	0.92 (0.12 – 7.29)
ISS					
	<10	Ref (1.0)	Ref (1.0)	Ref (1.0)	Ref (1.0)
	≥ 10	0.85 (0.60 – 1.21)	2.03 (1.07 – 3.82)	1.73 (0.80 – 3.73)	0.32 (0.13 – 0.76)
Intraclass Correlation Coefficient		0.08	0.13	0.30	0.05

Appendix 5: Factors associated with duration of antibiotic prophylaxis from admission and duration of antibiotic prophylaxis following wound closure, adjusted for the treating trauma center as random intercept.

		Duration of Antibiotics from Admission	Duration of Antibiotics from Wound Closure
Intercept		2.92 (2.34 – 3.51)	2.54 (1.89 – 3.20)
Gustilo			
	I	Ref (0.0)	Ref (0.0)
	II	0.34 (-0.23 – 0.92)	0.39 (-0.24 – 1.01)
	IIIA	0.23 (-0.37 – 0.84)	0.39 (-0.27 – 1.05)
	IIIB/C	0.89 (-0.07 – 1.84)	0.62 (-0.42 – 1.65)
Contamination			
	1	Ref (0.0)	Ref (0.0)
	2	0.43 (-0.09 – 0.95)	0.52 (-0.05 – 1.09)
	3	1.66 (0.84 – 2.37)	1.36 (0.48 – 2.25)
Multifracture		0.96 (0.11 – 1.81)	1.25 (0.33 – 2.18)
Intraclass Correlation Coefficient		0.04	0.04

Appendix 6: Subset of patients with an ISS value (n=696). ISS, dichotomized at ≥ 10 , is included as a covariate in the model.

		Duration of Antibiotics from Admission	Duration of Antibiotics from Wound Closure
Intercept		2.81 (2.17 – 3.46)	2.36 (1.65 – 3.06)
Gustilo			
	I	Ref (0.0)	Ref (0.0)
	II	-0.19 (-0.78 – 0.41)	-0.11 (-0.78 – 0.55)
	IIIA	0.30 (-0.34 – 0.95)	0.54 (-0.18 – 1.25)
	IIIB/C	1.71 (0.71 – 2.70)	1.49 (0.37 – 2.61)
Contamination			
	1	Ref (0.0)	Ref (0.0)
	2	0.42 (-0.14 – 0.98)	0.57 (-0.05 – 1.20)
	3	0.48 (-0.35 – 1.32)	0.33 (-0.60 – 1.26)
Multifracture		0.73 (-0.17 – 1.63)	0.87 (-0.14 – 1.18)
ISS			
	<10	Ref (0.0)	Ref (0.0)
	≥ 10	0.34 (-0.09 – 0.87)	0.35 (-0.18 – 0.89)
Intraclass Correlation Coefficient		0.07	0.07