

Table 1. Patient demographic and clinical characteristics

Characteristic	HA-MRSA (n=1519)	CA-MRSA (n=1734)	SSTI (n=3336)	Control (n=3336)
Male sex	776 (51)	813 (47)	1626 (49)	1626 (49)
Age in years at infection or visit				
Median	59.9	24.2	42.0	42.0
<7	144 (10)	323 (19)	475 (14)	475 (14)
7 to <19	72 (5)	409 (24)	495 (15)	497 (15)
19 to <46	248 (16)	554 (32)	820 (25)	816 (25)
46 to <62	315 (21)	250 (14)	583 (18)	583 (18)
62 to <75	292 (19)	112 (6)	423 (13)	487 (14)
≥75	448 (29)	86 (5)	540 (16)	498 (15)
Race/Ethnicity				
White <sup>a</sup>	1461 (96)	1631 (94)	3199 (96)	3165 (95)
Black	28 (2)	54 (3)	51 (2)	64 (2)
Hispanic	15 (1)	35 (2)	59 (2)	64 (2)
Other	11 (1)	13 (1)	27 (1)	42 (1)
Unknown	4 (0)	1 (0)	0	3 (0)
Adult BMI <sup>b</sup>	n=1314	n=1038	n=2418	n=2418
Normal	328 (25)	229 (22)	601 (25)	523 (22)
Overweight	284 (22)	247 (24)	1012 (42)	697 (29)
Obese	535 (41)	406 (39)	372 (15)	819 (34)
Missing	167 (13)	156 (15)	372 (15)	379 (16)
Child BMI <sup>c</sup>	n=102	n=583	n=805	n=918
Normal	50 (49)	239 (41)	352 (44)	488 (53)
Overweight	15 (15)	109 (19)	128 (16)	107 (12)
Obese	28 (28)	106 (18)	124 (15)	95 (10)
Missing	9 (9)	129 (22)	201 (25)	228 (25)
Smoking <sup>d</sup>				
Never	1078 (71)	1444 (83)	1540 (90)	3025 (91)
Season <sup>e</sup>				
Winter	369 (24)	387 (22)	769 (23)	891 (27)
Spring	334 (22)	307 (18)	753 (23)	815 (24)
Summer	399 (36)	468 (27)	953 (29)	783 (24)
Fall	417 (27)	572 (33)	861 (26)	847 (25)
Community type <sup>f</sup>				
City	239 (16)	256 (15)	376 (11)	327 (10)
Borough	394 (26)	548 (32)	840 (25)	854 (26)
Township	705 (46)	743 (43)	1774 (53)	1802 (55)
Missing <sup>g</sup>	181 (12)	187 (11)	414 (14)	353 (11)
Socioeconomic deprivation <sup>h</sup>				
Median	-4.1	-4.4	-5.0	-5.0
Any antibiotic prescription in two years prior	1160 (76)	1267 (73)	2341 (70)	1720 (52)
Antibacterial prescriptions <sup>i</sup>				
No prescription	588 (39)	817 (47)	1712 (51)	2228 (67)
Carbapenems	8 (1)	0	2 (<1)	0
Cephalosporins	396 (26)	320 (18)	502 (15)	220 (7)
Clindamycin	68 (4)	36 (2)	64 (2)	20 (1)
Linezolid	7 (<1)	0	1 (<1)	1 (<1)
Macrolides	221 (15)	241 (14)	460 (14)	215 (9)
Penicillins	362 (24)	446 (26)	741 (22)	531 (16)
Penicillin	12 (1)	12 (1)	26 (1)	22 (1)
Amino	217 (14)	351 (20)	553 (17)	404 (12)
Antistaphylococcal	8 (1)	2 (<1)	4 (<1)	2 (<1)
β-lactam/β-lactamase inhibitors	178 (12)	161 (9)	267 (8)	153 (5)
Quinolones	340 (22)	112 (6)	242 (7)	167 (5)
Tetracyclines	86 (6)	81 (5)	157 (5)	84 (3)

Table 1 (Cont.)

Characteristic	HA-MRSA (n = 1519)	CA-MRSA (n = 1734)	SSTI (n = 3336)	Control (n = 3336)
TMP/SMX	170 (11)	175 (10)	225 (7)	136 (4)
Vancomycin	73 (5)	2 (<1)	19 (1)	9 (<1)
Antibacterial drug prescriptions <sup>i</sup>				
0	588 (39)	817 (47)	1705 (51)	2228 (67)
1	291 (19)	402 (23)	783 (23)	639 (19)
2–3	334 (22)	350 (20)	613 (18)	349 (10)
≥4	306 (20)	165 (10)	235 (7)	120 (4)

Data are no. (%) of patients, unless otherwise indicated. BMI, body mass index; CA-MRSA; community-associated methicillin-resistant *S. aureus*; HA-MRSA; healthcare-associated MRSA; IQR, interquartile range; SSTI, skin and soft tissue infection; TMP/SMX, Trimethoprim/sulfamethoxazole.

<sup>a</sup> White, non-Hispanic.

<sup>b</sup> Body mass index was categorized as normal (< 25 kg/m<sup>2</sup>), overweight (25 to 29.9 kg/m<sup>2</sup>) and obese (30 kg/m<sup>2</sup> or greater) for persons 18 to 59.9 years of age, the most recent height and a weight within two years of the encounter/visit were used; for persons 60 and older the most recent height and weight, within one year of encounter/visit were used. Missing either due to the absolute value of the *z*-score being greater than 5 or if a height and weight were not recorded in the vitals table within 3 months prior to the diagnosis or visit.

<sup>c</sup> Body mass index *z*-scores for children aged 2 to 18 were calculated using the 2000 CDC Growth Reference by implementing the *zanthro* function in Stata Version 11; Normal, *z*-score < 85<sup>th</sup> percentile; Overweight, 85<sup>th</sup> percentile ≤ *z*-score < 95<sup>th</sup> percentile; Obese, *z*-score ≥ 95<sup>th</sup> percentile.

<sup>d</sup> Based on presence of ICD-9 codes 305.1 (tobacco use disorder), V15.82 (history of tobacco use), 649.0 (tobacco use complicating pregnancy) or CPT codes 99406 or 99407 (smoking cessation counseling).

<sup>e</sup> Season of onset: spring (March – May), summer (June – August), autumn (September – November), winter (December – February).

<sup>f</sup> Census tracts were assigned to patients in cities due to the large geographic area and heterogeneous community of some cities.

<sup>g</sup> The overall geocoding rate was 88.6%, non-geocoding patients could not be assigned an community type or a community socioeconomic deprivation score and thus were omitted from multilevel analysis.

<sup>h</sup> Community socioeconomic deprivation was assigned at the township, borough or census tract-level and it is based on six indicators (all percentages) derived from US Census 2000 data: combined less than high school education, not in the labor force, in poverty, on public assistance, civilian unemployment, and does not own a car; a higher score represents a more deprived community.

<sup>i</sup> Order for an antimicrobial prescription in the 30 to 365 days prior to infection or visit.

<sup>j</sup> Count of antimicrobial prescription order in the 30 to 365 days prior to infection or visit.

Table 2. Associations of demographic and clinical characteristics with MRSA and SSTI case status compared to controls, in multinomial and binomial logistic regression models, respectively<sup>a</sup>

Characteristic	HA-MRSA		CA-MRSA		SSTI	
	Crude OR (95% CI)	Adjusted OR <sup>b</sup> (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)
Male sex	1.1 (1.0–1.2)	1.0 (0.9–1.2)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (0.9–1.1)
Age in years at infection or visit						
<7	0.6 (0.4–0.7)	0.8 (0.6–1.0)	1.6 (1.3–1.9)	1.9 (1.6–2.4)	1.0 (0.8–1.2)	1.3 (1.1–1.5)
7 to <19	0.3 (0.2–0.4)	0.4 (0.3–0.5)	1.9 (1.6–2.3)	2.3 (1.8–2.8)	1.0 (0.8–1.2)	1.2 (1.0–1.5)
19 to <46	0.6 (0.5–0.7)	0.6 (0.5–0.7)	1.6 (1.3–1.9)	1.6 (1.3–1.9)	1.0 (0.9–1.2)	1.0 (0.9–1.2)
46 to <62	Reference	Reference	Reference	Reference	Reference	Reference
62 to <75	1.2 (0.9–1.4)	1.2 (1.0–1.5)	0.6 (0.4–0.7)	0.6 (0.4–0.7)	0.9 (0.8–1.1)	1.0 (0.8–1.2)
≥75	1.7 (1.4–2.0)	2.0 (1.6–2.4)	0.4 (0.3–0.5)	0.4 (0.3–0.6)	1.1 (0.9–1.3)	1.2 (1.0–1.5)
Race/Ethnicity						
White <sup>c</sup>	Reference	Reference	Reference	Reference	Reference	Reference
Black	0.9 (0.6–1.5)	1.4 (0.9–2.2)	1.6 (1.1–2.4)	1.3 (0.9–1.8)	0.8 (0.5–1.1)	0.8 (0.5–1.1)
Hispanic	0.5 (0.3–0.9)	0.8 (0.4–1.4)	1.1 (0.7–1.7)	0.8 (0.5–1.3)	0.9 (0.7–1.4)	1.0 (0.7–1.4)
Other	0.6 (0.3–1.1)	0.9 (0.5–1.8)	0.6 (0.3–1.1)	0.5 (0.3–1.0)	0.6 (0.4–1.0)	0.7 (0.4–1.1)
Adult BMI <sup>d</sup>						
Normal	Reference	Reference	Reference	Reference	Reference	Reference
Overweight	0.6 (0.5–0.7)	0.6 (0.5–0.8)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	1.7 (1.2–2.2)	1.5 (1.1–2.1)
Obese	1.3 (1.1–1.5)	1.1 (0.9–1.3)	1.3 (1.1–1.5)	1.3 (1.0–1.6)	1.8 (1.3–2.4)	1.7 (1.2–2.3)
Child BMI <sup>e</sup>						
Normal	Reference	Reference	Reference	Reference	Reference	Reference
Overweight	0.8 (0.5–1.5)	1.0 (0.5–1.9)	1.4 (1.0–1.8)	1.5 (1.1–2.1)	1.2 (0.9–1.6)	1.2 (0.9–1.7)
Obese	2.1 (1.3–3.5)	2.2 (1.3–3.7)	1.5 (1.1–2.1)	1.7 (1.2–2.3)	1.4 (1.0–1.8)	1.4 (1.0–1.9)
Smoking						
Ever	4.0 (3.4–4.7)	3.9 (3.3–3.6)	2.0 (1.6–2.3)	2.4 (2.0–2.8)	2.4 (2.0–2.7)	2.4 (2.2–3.0)
Season <sup>f</sup>						
Winter	Reference	Reference	Reference	Reference	Reference	Reference
Spring	1.0 (0.8–1.2)	1.0 (0.8–1.2)	0.9 (0.7–1.0)	0.9 (0.7–1.0)	1.1 (0.9–1.2)	1.1 (0.9–1.2)
Summer	1.2 (1.0–1.5)	1.3 (1.1–1.6)	1.4 (1.2–1.6)	1.3 (1.1–1.6)	1.4 (1.2–1.6)	1.4 (1.2–1.6)
Fall	1.2 (1.0–1.4)	1.2 (1.0–1.5)	1.6 (1.3–1.8)	1.5 (1.3–1.8)	1.2 (1.0–1.3)	1.2 (1.0–1.3)
Community type <sup>g</sup>						
Township	Reference	Reference	Reference	Reference	Reference	Reference
Borough	1.1 (0.9–1.3)	1.2 (1.0–1.4)	1.5 (1.2–1.7)	1.4 (1.2–1.7)	1.1 (1.0–1.2)	1.1 (0.9–1.2)
City <sup>h</sup>	1.8 (1.3–2.5)	1.9 (1.4–2.6)	1.6 (1.2–2.2)	1.7 (1.2–2.3)	1.2 (1.0–1.5)	1.2 (1.0–1.4)
Socioeconomic deprivation, per quartile <sup>i</sup>	1.2 (1.1–1.2)	1.2 (1.1–1.2)	1.1 (1.0–1.1)	1.1 (1.1–1.2)	1.1 (1.0–1.1)	1.1 (1.0–1.1)
Any antibiotic prescription in the two years prior	3.0 (2.7–3.5)	2.9 (2.6–3.4)	2.5 (2.2–2.9)	2.5 (2.2–2.8)	2.2 (2.0–2.4)	2.1 (1.9–2.3)

Table 2 (Cont.)

Characteristic	HA-MRSA		CA-MRSA		SSTI	
	Crude OR (95% CI)	Adjusted OR <sup>b</sup> (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)
Antibiotic prescription <sup>j</sup>						
No prescription	Reference	Reference	Reference	Reference	Reference	Reference
Cephalosporins	5.0 (4.2–6.0)	4.9 (4.1–5.9)	3.2 (2.7–3.8)	3.2 (2.7–3.8)	2.9 (2.5–3.5)	2.1 (1.8–2.5)
Clindamycin	7.8 (4.7–12.8)	7.4 (4.4–12.4)	3.5 (2.0–6.1)	3.2 (1.8–5.6)	4.2 (2.5–6.9)	2.3 (1.4–3.9)
Macrolides	1.6 (1.4–2.0)	1.6 (1.3–1.9)	1.5 (1.3–1.9)	1.5 (1.2–1.8)	1.9 (1.6–2.2)	1.2 (1.0–1.4)
Penicillins	1.7 (1.4–1.9)	2.1 (1.8–2.5)	1.8 (1.6–2.1)	1.6 (1.3–1.8)	1.8 (1.6–2.1)	1.4 (1.2–1.6)
Penicillin	1.2 (0.6–2.3)	2.1 (1.0–4.4)	1.0 (0.5–2.1)	0.8 (0.4–1.7)	1.6 (0.9–2.9)	0.9 (0.5–1.7)
Amino	1.2 (1.0–1.4)	1.6 (1.3–1.9)	1.8 (1.6–2.2)	1.6 (1.3–1.8)	1.8 (1.5–2.0)	1.3 (1.1–1.5)
Antistaphylococcal	8.8 (1.9–42)	7.9 (1.6–39)	1.9 (0.3–13.7)	1.7 (0.2–12.4)	2.6 (0.5–14.2)	1.1 (0.2–7.0)
β-lactam/β-lactamase inhibitors	2.8 (2.2–3.5)	3.1 (2.4–3.9)	2.1 (1.7–2.7)	1.9 (1.5–2.3)	2.3 (1.9–2.9)	1.5 (1.2–1.8)
Quinolones	5.5 (4.5–6.7)	3.9 (3.1–4.7)	1.3 (1.0–1.7)	1.8 (1.4–2.3)	1.9 (1.5–2.3)	1.1 (0.9–1.4)
Tetracyclines	2.3 (1.7–3.2)	2.2 (1.6–3.0)	1.9 (1.4–2.6)	2.0 (1.6–2.5)	2.4 (1.8–3.2)	1.7 (1.3–2.2)
TMP/SMX	3.0 (2.3–3.7)	2.9 (2.3–3.7)	2.6 (2.1–3.3)	2.5 (2.0–3.2)	2.2 (1.7–2.7)	1.4 (1.1–1.7)
Vancomycin	18.7 (9.3–37)	13.3 (6.5–27)	0.4 (0.1–2.0)	0.4 (0.1–2.0)	2.7 (1.2–6.1)	1.1 (0.5–2.6)
Antibiotic prescription <sup>k</sup>						
0	Reference	Reference	Reference	Reference	Reference	Reference
1	1.7 (1.5–2.1)	1.7 (1.5–2.1)	1.7 (1.4–2.0)	1.7 (1.4–2.0)	1.6 (1.4–1.8)	1.5 (1.4–1.7)
2–3	3.6 (3.1–4.3)	3.6 (3.0–4.4)	2.7 (2.3–3.2)	2.5 (2.1–3.0)	2.2 (1.9–2.6)	2.1 (1.8–2.5)
≥4	9.7 (7.7–12.2)	9.0 (7.1–11.5)	3.8 (2.9–4.8)	3.7 (2.9–4.8)	2.6 (2.1–3.3)	2.4 (1.9–3.1)

Data are no. (%) of patients, unless otherwise indicated.

BMI, body mass index; CA-MRSA; community-associated methicillin-resistant *S. aureus*; HA-MRSA; healthcare-associated MRSA; SSTI, skin and soft tissue infection; TMP/SMX, trimethoprim/sulfamethoxazole.

<sup>a</sup> SSTI cases and controls were frequency-matched to MRSA cases on age, sex, and year of diagnosis or outpatient encounter.

<sup>b</sup> Adjusted for category (<7, 7 to <19, 19 to <45, 46 to <62 [ref], 62 to <75 and 75 and older), sex, race/ethnicity, ever-smoking status.

<sup>c</sup> White, non-Hispanic.

<sup>d</sup> Body mass index was categorized as normal (<25 kg/m<sup>2</sup>), overweight (25 to 29.9 kg/m<sup>2</sup>) and obese (30 kg/m<sup>2</sup> or greater) for persons 18 to 59.9 years of age, the most recent height and a weight within two years of the encounter/visit were used; for persons 60 and older the most recent height and weight, within one year of encounter/visit were used. Missing either due to the absolute value of the *z*-score being greater than 5 or if a height and weight were not recorded in the vitals table within 3 months prior to the diagnosis or visit.

<sup>e</sup> Body mass index *z*-scores for children aged 2 to 18 were calculated using the 2000 CDC Growth Reference by implementing the zanthro function in Stata Version 11; Normal, *z*-score < 85<sup>th</sup> percentile; Overweight, 85<sup>th</sup> percentile ≤ *z*-score < 95<sup>th</sup> percentile; Obese, *z*-score ≥ 95<sup>th</sup> percentile.

<sup>f</sup> Season of onset: spring (March – May), summer (June – August), autumn (September – November), winter (December – February).

<sup>g</sup> The overall geocoding rate was 88.6%, non-geocoding patients could not be assigned a community type or a community socioeconomic deprivation score and thus were omitted from multilevel analysis.

<sup>h</sup> Census tracts were assigned to patients in cities due to the large geographic area and heterogeneous community of some cities.

<sup>i</sup> ORs for socioeconomic deprivation are quartile increase in level; a higher quartile represents a more deprived community.

<sup>j</sup> Order for an antimicrobial prescription in the 30 to 365 days prior to infection or visit, these are additionally adjusted for all other antibiotic classes in the table. Data on linezolid is not presented due to small cell sizes.

<sup>k</sup> Count of antimicrobial prescription order in the 30 to 365 days prior to infection or visit.

Table 3. Associations of acute and chronic conditions in the two years preceding MRSA and skin and soft tissue infection with MRSA and SSTI case status compared to controls, in multinomial and binomial logistic regression models, respectively<sup>a</sup>

Condition	Unadjusted Analysis <sup>b</sup>						Adjusted Analysis <sup>c</sup>					
	CA-MRSA		SSTI		HA-MRSA		CA-MRSA		SSTI			
	Crude OR (95% CI)	P	Crude OR (95% CI)	P	Crude OR (95% CI)	P	Adjusted OR (95% CI)	P	Adjusted OR (95% CI)	P	Adjusted OR (95% CI)	P
<b>Respiratory tract</b>												
<b>Acute</b>												
Bronchitis	1.9 (1.6–2.2)	<0.001	1.4 (1.2–1.6)	<0.001	1.4 (1.3–1.6)	<0.001	1.1 (1.0–1.3)	0.17	1.0 (0.9–1.2)	0.66	1.0 (0.9–1.2)	0.96
Otitis media	0.9 (0.7–1.2)	0.55	1.8 (1.5–2.2)	<0.001	1.3 (1.0–1.5)	0.01	1.0 (0.7–1.3)	0.80	1.0 (0.8–1.2)	0.85	0.9 (0.8–1.1)	0.50
Pharyngitis	0.6 (0.5–0.8)	<0.001	1.5 (1.3–1.8)	<0.001	1.3 (1.2–1.5)	<0.001	0.7 (0.6–0.9)	0.01	0.8 (0.7–0.9)	0.01	1.0 (0.9–1.2)	0.60
Rhinosinusitis	0.9 (0.7–1.0)	0.04	1.5 (1.3–1.7)	<0.001	1.4 (1.3–1.6)	<0.001	0.6 (0.5–0.7)	<0.001	0.8 (0.7–0.9)	0.01	0.9 (0.8–1.1)	0.40
Streptococcal sore throat	0.6 (0.4–1.0)	0.04	1.8 (1.3–2.5)	<0.001	1.4 (1.0–1.8)	0.03	0.9 (0.5–1.4)	0.63	0.9 (0.7–1.3)	0.65	1.1 (0.8–1.4)	0.72
Upper respiratory infection	1.1 (0.9–1.3)	0.40	1.6 (1.3–1.8)	<0.001	1.3 (1.2–1.5)	<0.001	1.1 (0.9–1.3)	0.51	1.0 (0.8–1.2)	0.82	1.1 (1.0–1.3)	0.15
<b>Chronic</b>												
Asthma	2.2 (1.8–2.6)	<0.001	1.6 (1.3–2.0)	<0.001	1.5 (1.3–1.8)	<0.001	1.8 (1.5–2.3)	<0.001	1.2 (1.0–1.4)	0.14	1.2 (1.0–1.4)	0.04
COPD	4.0 (3.5–4.6)	<0.001	1.1 (1.0–1.3)	0.20	1.5 (1.4–1.7)	<0.001	2.7 (2.3–3.1)	<0.001	1.0 (0.8–1.1)	0.57	1.2 (1.1–1.4)	0.002
Lung diseases	13.8 (11.3–16.8)	<0.001	0.8 (0.6–1.1)	0.10	1.6 (1.3–2.0)	<0.001	8.5 (6.9–10.6)	<0.001	0.9 (0.7–1.3)	0.75	1.2 (0.9–1.5)	0.22
Rhinosinusitis	3.2 (2.3–4.3)	<0.001	1.2 (0.8–1.8)	0.27	1.6 (1.2–2.2)	0.002	2.1 (1.5–2.9)	<0.001	0.9 (0.6–1.3)	0.63	1.2 (0.9–1.6)	0.24
<b>Cardiac</b>												
Heart diseases	5.6 (4.9–6.5)	<0.001	0.4 (0.3–0.5)	<0.001	1.3 (1.1–1.5)	<0.001	3.9 (3.3–4.7)	<0.001	0.7 (0.5–0.9)	<0.01	1.2 (1.0–1.4)	0.08
Hypertension	2.7 (2.4–3.1)	<0.001	0.4 (0.4–0.5)	<0.001	1.1 (1.0–1.3)	0.01	1.6 (1.3–1.8)	<0.001	0.7 (0.6–0.9)	<0.001	1.1 (1.0–1.3)	0.11
Lipid disorders	1.9 (1.7–2.1)	<0.001	0.5 (0.4–0.6)	<0.001	1.2 (1.1–1.3)	<0.001	0.9 (0.8–1.1)	0.22	0.7 (0.6–0.8)	<0.001	1.2 (1.1–1.4)	0.002
<b>Skin and soft tissue</b>												
Carbuncle/furuncle <sup>d</sup>	5.9 (4.0–8.8)	<0.001	10.1 (7.0–14.6)	<0.001	3.8 (2.6–5.6)	<0.001	4.7 (3.1–7.0)	<0.001	6.8 (4.7–10.0)	<0.001	2.5 (2.1–3.0)	<0.001
Cellulitis/abscess <sup>d</sup>	5.6 (4.6–6.8)	<0.001	3.4 (2.8–4.2)	<0.001	3.1 (2.6–3.8)	<0.001	3.5 (2.8–4.3)	<0.001	3.0 (2.4–3.7)	<0.001	2.7 (1.8–3.9)	<0.001
Chronic ulcer of skin	37.1 (23.9–57)	<0.001	3.8 (2.3–6.4)	<0.001	2.9 (1.7–4.9)	<0.001	23.6 (15.1–36.9)	<0.001	5.7 (3.4–9.8)	<0.001	2.1 (1.3–3.7)	0.01
Chronic kidney disease	6.3 (4.9–8.0)	<0.001	0.3 (0.2–0.5)	<0.001	1.6 (1.3–2.1)	<0.001	4.1 (3.1–5.3)	<0.001	0.5 (0.3–0.8)	0.01	1.5 (1.1–1.9)	0.01
Diabetes	3.9 (3.4–4.6)	<0.001	0.6 (0.5–0.8)	<0.001	1.6 (1.4–1.9)	<0.001	2.6 (2.2–3.1)	<0.001	1.0 (0.8–1.3)	0.72	1.5 (1.3–1.8)	<0.001

CA-MRSA; community-associated methicillin-resistant *S. aureus*; COPD, chronic obstructive pulmonary disease; CI, confidence interval; HA-MRSA; healthcare-associated MRSA; OR, odds ratio; SSTI, skin and soft tissue infection.

<sup>a</sup> SSTI cases and controls were frequency-matched to MRSA cases on age, sex, and year of diagnosis or outpatient encounter.

<sup>b</sup> Models the association between the condition identified in inpatient, outpatient, or emergency department encounters, or on problem list or in medications table (excluding antibiotic prescriptions) in the two years preceding diagnosis or visit and case status.

<sup>c</sup> Adjusted for age category (<7, 7 to <19, 19 to <45, 46 to <62 [REF], 62 to <75 and 75 and older), sex, race/ethnicity, ever-smoking status, and any antibiotic order in the prior two years.

<sup>d</sup> The 30 days prior to infection or visit was excluded for carbuncle, furuncle, cellulitis or abscess to avoid protopathic bias.

Table 4. Adjusted associations of antibiotic orders for acute and chronic conditions in the two years preceding MRSA and skin and soft tissue infection, compared to controls, in multinomial and binomial logistic regression models, respectively

Condition	HA-MRSA		CA-MRSA		SSTI	
	Adjusted OR <sup>a</sup> (95% CI)	<i>P</i>	Adjusted OR (95% CI)	<i>P</i>	Adjusted OR (95% CI)	<i>P</i>
<b>Respiratory tract</b>						
Acute						
Bronchitis	1.3 (1.1–1.6)	0.003	1.3 (1.1–1.6)	0.004	1.3 (1.1–1.5)	<0.001
Otitis media	1.4 (1.0–2.0)	0.03	1.4 (1.1–1.8)	0.003	1.3 (1.0–1.6)	0.06
Pharyngitis	1.2 (0.8–1.7)	0.29	1.0 (0.7–1.3)	0.90	1.0 (0.8–1.3)	0.71
Rhinosinusitis	1.0 (0.8–1.1)	0.58	1.3 (1.1–1.5)	<0.001	1.4 (1.2–1.5)	<0.001
Streptococcal sore throat	1.0 (0.6–1.8)	0.91	1.2 (0.9–1.7)	0.23	1.5 (1.1–2.0)	0.01
Upper respiratory infection	1.7 (1.2–2.4)	0.003	1.1 (0.8–1.6)	0.48	1.4 (1.0–1.8)	0.01
Chronic						
Asthma	4.3 (2.2–8.1)	<0.001	1.4 (0.6–3.1)	0.41	2.1 (1.2–4.0)	0.01
COPD	3.1 (2.2–4.5)	<0.001	1.7 (1.2–2.6)	0.01	1.5 (1.1–2.2)	0.01
Lung diseases	2.7 (1.6–4.5)	<0.001	1.8 (0.9–3.7)	0.10	1.1 (0.6–1.9)	0.18
Rhinosinusitis	1.5 (0.9–2.7)	0.14	1.1 (0.6–2.0)	0.69	1.1 (0.6–1.7)	0.63
<b>Skin and soft tissue</b>						
Carbuncle/furuncle <sup>b</sup>	9.0 (5.8–14.0)	<0.001	18.0 (12.0–27)	<0.001	4.7 (3.0–7.2)	<0.001
Cellulitis/abscess <sup>b</sup>	5.2 (4.2–6.6)	<0.001	6.7 (5.4–8.3)	<0.001	4.2 (3.4–5.2)	<0.001
Chronic ulcer of skin	16.5 (7.1–38.4)	<0.001	7.0 (2.6–18.5)	<0.001	3.4 (1.4–8.4)	0.003

CA-MRSA; community-associated methicillin-resistant *S. aureus*; COPD, chronic obstructive pulmonary disease; CI, confidence interval; HA-MRSA; healthcare-associated MRSA; OR, odds ratio; SSTI, skin and soft tissue infection.

<sup>a</sup> Models the association between any antibiotic order for the condition in the 2 years preceding diagnosis or visit and case status; adjusted for age category (<7, 7 to <19, 19 to <45, 46 to <62 (ref.), 62 to <75 and ≥75 years), sex, race/ethnicity, ever-smoking status.

<sup>b</sup> The 30 days preceding infection or visit were excluded for carbuncle, furuncle, cellulitis or abscess to avoid protopathic bias.