

Supplementary Table 1. Definitions of Variables

Variable	Definition
Admission from home	Includes non-medical residences (home, group homes, assisted living facilities, and homeless shelters)
Infusion Center	Includes centers where receive chemotherapy, intravenous fluids, intravenous immunomodulators, and blood products.
Presence of invasive device	Includes pacemaker, implantable cardioverter defibrillator (ICD), left ventricular assist device (LVAD), vascular access (excluding peripheral IV), orthopedic hardware, nephrostomy, suprapubic catheter, ileal conduit, foley catheter, arteriovenous graft placement (AVG), percutaneous endoscopic gastrostomy (PEG) tube, or ostomy.
Invasive Procedures	Includes any invasive procedures or surgery occurring within one month prior to first positive blood culture for MRSA, excluding electroencephalogram (EEG), electrocardiogram (EKG), and transthoracic echocardiogram (TTE).
Wound Present	Chronic skin wound (i.e. overlying sacrum, limb, abdomen, or other body part).
History of MRSA Colonization	Any positive culture from urine, sputum, tissue, or nares with MRSA prior to positive MRSA blood culture or a documented history of prior MRSA infection or colonization.
Recurrence of MRSA bacteremia	Positive MRSA blood culture over 30 days after the last positive MRSA blood culture.
Intubation	Excluding patients who were perioperative that are intubated less than 4 days.
HIV	Positive HIV antibody test
Comorbidities in the CCI	Refer to standard definitions for CCI. ¹⁸ Note that for CCI AIDS we used CD4+ T cell count < 200 cells/mm ³ on index admission.
History of Transplant	Includes solid organ and bone marrow transplant
Metastatic infection	Evidence of bacterial seeding to other body sites after initial blood stream infection (i.e. endocarditis, spinal infection, septic pulmonary emboli).

Supplementary Table 2. REDCap ID Number and Clone of Patients

REDCap ID	Clonal Complex	MLST	Spa Type	PVL
1	CC5	105	t002	-/-
2	CC5	105	t002	-/-
3	CC5	105	t002	-/-
4	CC5	105	t002	-/-
5	CC5	105	t002	-/-
6	CC5	105	t002	-/-
7	CC5	105	t002	-/-
8	CC5	105	t002	-/-
9	CC5	105	t002	-/-
10	CC5	105	t002	-/-
11	CC5	5	t002	-/-
12	CC8	8	t008	+/+
13	CC5	105	t002	-/-
14	CC5	5	t002	-/-
15	CC5	105	t002	-/-
16	CC5	105	t002	-/-
17	CC5	105	t002	-/-
18	CC8	8	t064	-/-
19	CC5	105	t002	-/-
20	CC5	105	t002	-/-
21	CC8	8	t2658	-/-
22	CC8	8	t064	-/-
23	CC5	5	t002	-/-
25	CC8	8	t008	-/-
26	CC5	5	t002	-/-
27	CC8	8	t008	+/+
28	CC5	105	t002	-/-
29	CC8	8	t008	+/+
30	CC5	105	t002	-/-
32	CC5	105	t002	-/-
33	CC5	105	t002	-/-
34	CC5	5	t002	-/-
35	CC8	8	t064	-/-
36	CC5	105	t002	-/-
37	CC5	105	t088	-/-
38	CC5	105	t002	-/-
39	CC5	105	t002	-/-
40	CC8	8	t008	+/+
41	CC8	8	t008	+/+
42	CC5	5	t002	-/-
43	CC5	105	t002	-/-
44	CC5	5	t002	-/-
45	CC8	8	t13119	-/-
47	CC5	496	t002	-/-
48	CC5	496	t002	-/-

REDCap ID	Clonal Complex	MLST	Spa Type	PVL
49	CC5	105	t002	-/-
50	CC8	8	t008	-/+
51	CC5	105	t002	-/-
52	CC5	105	t002	-/-
53	CC8	8	t008	+/+
54	CC8	8	t304	+/+
56	CC8	8	t008	-/-
57	CC8	8	t008	+/+
58	CC5	5	t002	-/-
59	CC8	8	t008	+/+
60	CC5	5	t062	-/-
61	CC5	5	t002	-/-
63	CC8	8	t121	+/+
64	CC8	8	t008	+/+
65	CC8	8	t008	+/+
66	CC8	8	t064	-/-
67	CC8	8	t211	+/+
68	CC5	105	t105	-/-
69	CC8	8	t211	+/+
70	CC8	8	t008	+/+
71	CC8	8	t068	+/+
73	CC8	8	t008	+/+
74	CC5	105	t002	-/-
75	CC5	5	t002	-/-
76	CC8	8	t008	+/+
77	CC8	8	t008	+/+
79	CC8	8	t008	+/+
80	CC8	8	t008	+/+
81	CC5	5	t062	-/-
83	CC5	5	t002	-/-
84	CC5	105	t002	-/-
85	CC5	5	t002	-/-
86	CC5	5	t002	-/-
87	CC8	8	t064	-/-
88	CC5	225	t668	-/-
89	CC8	8	t064	-/-
90	CC8	8	t008	+/+
91	CC5	105	t002	-/-
92	CC8	8	t197	+/+
94	CC5	5	t002	-/-
95	CC8	8	t008	+/+
96	CC5	105	t4535	-/-
97	CC8	8	t008	+/+
98	CC8	8	t008	+/+
99	CC8	8	t12135	+/+
100	CC5	105	t002	-/-
101	CC8	8	t008	+/+

REDCap ID	Clonal Complex	MLST	Spa Type	PVL
102	CC5	105	t002	-/-
103	CC8	8	t008	+/+
104	CC8	8	t008	+/+
105	CC8	8	t064	-/-
107	CC5	5	t002	-/-
108	CC8	8	t008	+/+
109	CC8	8	t008	-/+
110	CC5	105	t002	-/-
111	CC8	8	t008	+/+
112	CC8	8	t064	-/-
113	CC5	5	t002	+/+
114	CC8	8	t008	+/+
115	CC8	8	t064	-/-
116	CC5	105	t002	-/-
117	CC8	8	t008	+/+
119	CC5	5	t002	-/-
120	CC5	5	t242	-/-
121	CC8	8	t008	+/-
122	CC5	5	t002	-/-
123	CC5	3390	t002	-/-
124	CC5	231	t002	-/-
125	CC8	8	t008	-/-
127	CC8	8	t008	+/+
128	CC8	8	t064	-/-
129	CC8	8	t064	-/-
130	CC5	105	t002	-/-
131	CC8	8	t008	+/+
132	CC8	8	t008	-/-
134	CC5	5	t002	-/-
135	CC5	105	t002	-/-
136	CC8	8	t1767	+/+
137	CC5	5	t002	-/-
138	CC8	8	t1882	+/+
139	CC8	8	t051	+/-
140	CC8	8	t008	+/+
141	CC8	8	t064	-/-
142	CC5	5	t002	-/-
143	CC8	8	t955	-/-
144	CC5	5	t002	-/-
145	CC8	8	t064	-/-
146	CC5	5	t002	-/-
147	CC8	8	t064	-/-
148	CC5	5	t3979	-/-
149	CC8	8	t008	+/+
150	CC8	8	t6238	+/+
152	CC5	5	t4371	-/-
154	CC5	5	t002	-/-

REDCap ID	Clonal Complex	MLST	Spa Type	PVL
155	CC8	8	t051	+/-
156	CC5	105	t002	-/-
157	CC8	8	t008	+/+
159	CC5	105	t002	-/-
160	CC8	8	t1578	+/+
161	CC5	105	t4417	-/-
162	CC5	5	t045	-/-
163	CC5	105	t105	-/-
164	CC8	8	t064	-/-
165	CC5	231	t002	-/-
166	CC8	8	t064	-/-
168	CC8	8	t008	+/+
169	CC8	8	t008	+/+
170	CC8	6	t304	-/-
171	CC5	5	t002	-/-
172	CC5	5	t002	-/-
173	CC5	5	t002	-/-
175	CC8	8	t008	+/+
176	CC8	8	t681	+/+
179	CC8	8	t064	-/-
180	CC5	105	t002	-/-
181	CC8	8	t064	-/-
182	CC8	8	t008	+/+
183	CC5	5	t1683	-/-
184	CC5	5	t062	-/-
185	CC5	5	t002	-/-
188	CC8	8	t211	+/+
189	CC8	8	t068	+/+
190	CC5	5	t002	-/-
191	CC8	8	t008	-/-
192	CC8	8	t008	+/+
193	CC8	8	t211	+/+
194	CC5	105	t002	-/-
195	CC5	5	t002	-/-
196	CC5	105	t002	-/-
197	CC8	8	t008	+/+
198	CC8	8	t064	-/-
199	CC8	8	t008	+/+
200	CC5	3390	t010	-/-
201	CC5	5	t002	-/-
202	CC8	8	t008	+/+
203	CC8	8	t008	-/-
205	CC8	8	t008	-/-
206	CC5	5	t002	-/-
207	CC8	8	t008	+/+
208	CC8	8	t064	-/-
209	CC8	8	t2658	-/-

REDCap ID	Clonal Complex	MLST	Spa Type	PVL
211	CC5	105	t045	-/-
212	CC8	6	t304	-/-
213	CC8	8	t008	+/-
214	CC5	105	t002	-/-
215	CC8	8	t008	+/+
216	CC5	105	t4417	-/-
217	CC5	5	t548	-/-
218	CC8	8	t008	+/+
219	CC5	105	t002	-/-
220	CC5	105	t002	-/-
221	CC5	105	t002	-/-
222	CC5	5	t002	-/-
223	CC5	5	t002	-/-
224	CC5	5	t002	-/-
225	CC8	8	t064	-/-
226	CC8	8	t064	-/-
227	CC8	8	t008	+/+
228	CC5	105	t002	-/-
229	CC8	8	t008	+/+
230	CC5	5	t111	-/-
231	CC5	105	t002	-/-
232	CC5	5	t062	-/-
233	CC8	8	t064	-/-
234	CC8	8	t008	+/+
235	CC8	8	t008	+/+
236	CC5	105	t002	-/-
237	CC5	105	t002	-/-
238	CC5	5	t002	-/-
239	CC5	105	t002	-/-
240	CC8	8	t064	-/-
241	CC5	105	t002	-/-
242	CC8	8	t008	+/+
243	CC5	105	t002	-/-
244	CC5	5	t002	-/-
246	CC5	105	t002	-/-
247	CC8	8	t008	-/-
248	CC8	8	t008	+/+
250	CC5	5	t002	-/-
252	CC8	8	t008	+/+
393	CC5	105	t002	-/-
395	CC8	8	t008	+/+

Supplementary Table 3. Demographic and Clinical Characteristics of MRSA BSIs in Patients Stratified by Spa Type with the Odds of Being USA500 vs USA300

Factor	USA500 N = 27 (%)	USA300 N = 83 (%)	Univariate Analysis		Multivariate Analysis	
			OR (95% CI)	p value	OR (95% CI)	p value
Male	16 (59)	57 (69)	0.66 (0.27-1.63)	0.37		
<i>Race/Ethnicity</i>						
Non-Hispanic White	5 (19)	26 (31)	Reference		Reference	
Non-Hispanic Black	11 (41)	30 (36)	1.89 (0.52-7.89)	0.43	1.11 (0.27-4.67)	0.88
Hispanic/Latino	9 (33)	18 (22)	2.56 (0.64-11.44)	0.22	2.62 (0.57-12.06)	0.22
Asian	2 (7)	2 (2)	4.87 (0.29-82.71)	0.34	3.26 (0.31-34.31)	0.33
Unknown	0 (0)	7 (8)	0.60 (0.00-3.74)	0.34	<0.001 (<0.001->999.99)	0.97
<i>Age at Time of Infection</i>						
18-54 Years	12 (44)	38 (46)	Reference			
55-69 Years	11 (41)	26 (31)	1.34 (0.46-3.89)	0.72		
≥70 Years	4 (15)	19 (23)	0.67 (0.14-2.62)	0.76		
<i>History of Injection Drug Use</i>						
HIV	4 (15)	12 (14)	1.03 (0.22-3.85)	1.00	0.75 (0.14-4.03)	0.73
	8 (30)	10 (12)	3.07 (1.07-8.85)	0.04	4.91 (1.00-24.36)	0.05
<i>Admission Source</i>						
Home	18 (67)	60 (72)	Reference			
NH/Rehab/LTACH	8 (30)	15 (18)	1.77 (0.56-5.35)	0.39		
Outside Hospital	1 (4)	8 (10)	0.42 (0.01-3.51)	0.74		
Prior Hospital Admission (90 Days)	23 (85)	47 (57)	4.40 (1.40-13.86)	0.01	3.54 (0.97-12.90)	0.06
<i>Length of Hospital Stay Prior to BSI</i>						
≤3 Days	16 (59)	58 (70)	0.63 (0.26-1.54)	0.31		
>3 Days	11 (41)	25 (30)	Reference		Reference	
<i>Frequent Healthcare Interaction</i>						
Hemodialysis	8 (30)	14 (17)	2.51 (0.87-7.21)	0.09	1.30 (0.33-5.14)	0.70
Infusion Center	6 (22)	12 (14)	2.19 (0.69-6.93)	0.18	1.56 (0.40-6.15)	0.52
None	13 (48)	57 (69)	Reference		Reference	
^a Presence of Invasive Device	23 (85)	54 (65)	3.09 (0.97-9.79)	0.06	1.69 (0.40-7.20)	0.48
^b Invasive Procedures	10 (37)	34 (41)	0.85 (0.35-2.08)	0.72		
Wound Present	9 (33)	37 (45)	0.62 (0.25-1.54)	0.31		
<i>Charlson Comorbidity Index (CCI)</i>						
0-3	5 (19)	31 (37)	Reference		Reference	
4-5	8 (30)	14 (17)	3.54 (0.98-12.78)	0.05	4.13 (0.96-17.69)	0.06
6-8	6 (22)	26 (31)	1.43 (0.39-5.23)	0.59	1.24 (0.27-5.68)	0.78
>8	8 (30)	12 (14)	4.13 (1.13-15.18)	0.03	1.24 (0.20-7.62)	0.82
History of Transplant	4 (15)	10 (12)	1.27 (0.27-4.94)	0.93		
History of MRSA Colonization	11 (41)	36 (43)	0.90 (0.37-2.17)	0.81		
<i>Presumed Source of MRSA BSI</i>						
Peripheral Intravenous Catheter	2 (7)	9 (11)	0.66 (0.07-3.51)	0.93		
Skin & Soft Tissue Infection	3 (11)	15 (18)	0.57 (0.10-2.27)	0.60		
Pneumonia	3 (11)	9 (11)	1.03 (0.17-4.57)	1.00		
Diabetic Foot Infection	2 (7)	6 (7)	1.03 (0.10-6.23)	1.00		
Vascular Access	10 (37)	25 (30)	1.37 (0.55-3.39)	0.50		
Septic Arthritis	0 (0)	1 (1)	--	--		
Urinary Source	0 (0)	1 (1)	--	--		
Sacral Wound	3 (11)	3 (4)	3.29 (0.41-26.20)	0.31		
Other/Unknown	3 (11)	9 (11)	1.03 (0.17-4.57)	1.00		
ICU Admission Prior to BSI	5 (19)	11 (13)	1.48 (0.36-5.27)	0.69		

Bold = significant at ≤ 0.05

Abbreviations: MRSA, Methicillin-resistant *Staphylococcus aureus*; BSI, bloodstream infection; NH, nursing home; rehab, rehabilitation facility; LTACH, long-term acute care hospital; BSI, bloodstream infection; HIV, human immunodeficiency virus; AIDS, acquired immune deficiency syndrome; ICU, intensive care unit.

^a Includes devices such as pacemaker, any vascular access, orthopedic hardware, foley catheter, arteriovenous graft placement, percutaneous endoscopic gastronomy (PEG), ostomy, or any type of urinary collection at the time of first positive bloodstream infection.

^b Includes invasive procedures or surgery within the month prior to first positive bloodstream infection, excluding electroencephalogram (EEG), electrocardiogram (EKG), or transthoracic echocardiogram (TTE).

Supplementary Table 4. Demographics and Clinical Characteristics of MRSA BSIs in Patients Stratified by CC5/ST5 and CC5/ST105 with the Odds of Being CC5/ST5 vs CC5/ST105

Factor	CC5/ST5 N = 49 (%)	CC5/ST105 N = 61 (%)	Univariate Analysis		Multivariate Analysis	
			OR (95% CI)	p value	OR (95% CI)	p value
Male	34 (69)	41 (67)	1.11 (0.49-2.48)	0.81		
<i>Race/Ethnicity</i>						
Non-Hispanic White	33 (67)	30 (49)	Reference		Reference	
Non-Hispanic Black	2 (4)	18 (30)	0.10 (0.01-0.49)	0.001	0.09 (0.02-0.49)	0.005
Hispanic/Latino	11 (22)	7 (11)	1.42 (0.44-4.93)	0.70	2.22 (0.54-9.07)	0.27
Asian	1 (2)	3 (5)	0.31 (0.01-4.08)	0.59	0.18 (0.01-2.51)	0.20
Unknown	2 (4)	3 (5)	0.61 (0.05-5.71)	0.94	0.77 (0.08-7.05)	0.82
<i>Age at Time of Infection</i>						
18-54 Years	10 (20)	19 (31)	Reference		Reference	
55-69 Years	12 (24)	18 (30)	1.27 (0.44-3.65)	0.66	1.06 (0.26-4.22)	0.94
≥70 Years	27 (55)	24 (39)	2.14 (0.83-5.49)	0.11	2.13 (0.43-10.53)	0.36
History of Injection Drug Use	5 (8)	2 (4)	0.48 (0.04-3.10)	0.64	0.31 (0.03-3.45)	0.34
HIV	4 (7)	0 (0)	--	--		
<i>Admission Source</i>						
Home	20 (41)	29 (48)	Reference			
NH/Rehab/LTACH	19 (39)	17 (28)	1.62 (0.68-3.86)	0.28		
Other Hospital	10 (20)	15 (25)	0.97 (0.36-2.58)	0.95		
Prior Hospital Admission (90 Days)	44 (90)	45 (74)	3.13 (1.06-9.28)	0.04	3.24 (0.87-12.17)	0.08
<i>Length of Hospital Stay Prior to BSI</i>						
≤3 Days	24 (49)	30 (49)	0.99 (0.47-2.11)	0.98		
>3 Days	25 (51)	31 (51)	Reference			
<i>Frequent Healthcare Interaction</i>						
Hemodialysis	8 (16)	10 (16)	0.91 (0.28-2.89)	1.00		
Infusion Center	5 (10)	10 (16)	0.57 (0.14-2.05)	0.50		
None	36 (73)	41 (67)	Reference			
^a Presence of Invasive Device	43 (88)	52 (85)	1.24 (0.41-3.76)	0.70		
^b Invasive Procedures	27 (55)	34 (56)	0.98 (0.46-2.08)	0.95		
Wound Present	19 (39)	25 (41)	0.91 (0.42-1.97)	0.81		
<i>Charlson Comorbidity Index (CCI)</i>						
0-3	11 (22)	18 (30)	Reference		Reference	
4-5	10 (20)	10 (16)	1.64 (0.52-5.19)	0.40	0.98 (0.22-4.46)	0.98
6-8	20 (41)	13 (21)	2.52 (0.90-7.02)	0.08	1.51 (0.36-6.40)	0.58
>8	8 (16)	20 (33)	0.66 (0.22-1.99)	0.45	0.24 (0.04-1.43)	0.12
History of Transplant	7 (14)	11 (18)	0.76 (0.27-2.13)	0.60		
History of MRSA Colonization	17 (35)	26 (43)	0.72 (0.33-1.56)	0.40		
<i>Presumed Source of MRSA BSI</i>						
Peripheral Intravenous Catheter	3 (6)	2 (3)	1.91 (0.21-23.78)	0.79		
Skin & Soft Tissue Infection	2 (4)	5 (8)	0.48 (0.04-3.10)	0.64		
Pneumonia	2 (4)	8 (13)	0.29 (0.03-1.53)	0.19	0.19 (0.03-1.23)	0.08
Diabetic Foot Infection	5 (10)	4 (7)	1.61 (0.33-8.63)	0.73		
Vascular Access	14 (29)	27 (44)	0.50 (0.23-1.12)	0.09	0.51 (0.18-1.50)	0.22
Septic Arthritis	2 (4)	0 (0)	--	--		
Urinary Source	2 (4)	1 (2)	2.53 (0.13-153.09)	0.84		
Sacral Wound	5 (10)	0 (0)	--	--		
Other/Unknown	6 (12)	8 (13)	0.93 (0.24-3.31)	1.00		
ICU Admission Prior to BSI	11 (22)	13 (21)	1.07 (0.43-2.65)	0.89		

Bold = significant at ≤ 0.05

Abbreviations: MRSA, Methicillin-resistant *Staphylococcus aureus*; BSI, bloodstream infection; NH, nursing home; rehab, rehabilitation facility; LTACH, long-term acute care hospital; BSI, bloodstream infection; HIV, human immunodeficiency virus; AIDS, acquired immune deficiency syndrome; ICU, intensive care unit.

^aIncludes devices such as pacemaker, any vascular access, orthopedic hardware, foley catheter, arteriovenous graft placement, percutaneous endoscopic gastrostomy (PEG), ostomy, or any type of urinary collection at the time of first positive bloodstream infection.

^bIncludes invasive procedures or surgery within the month prior to first positive bloodstream infection, excluding electroencephalogram (EEG), electrocardiogram (EKG), or transthoracic echocardiogram (TTE).

Supplementary Table 5. Demographics and Clinical Characteristics of MRSA BSIs in the HO-MRSA Stratum with the Odds of being CC8 vs CC5

Factor			Univariate Analysis		Multivariate Analysis	
	CC8 N = 36 (%)	CC5 N = 59 (%)	OR (95% CI)	p value	OR (95% CI)	p value
Male	23 (64)	38 (64)	0.98 (0.41-2.32)	0.96		
<i>Race/Ethnicity</i>						
Non-Hispanic White	10 (28)	38 (64)	Reference		Reference	
Non-Hispanic Black	13 (36)	10 (17)	4.81 (1.48-16.68)	0.007	5.49 (1.34-26.66)	0.01
Hispanic/Latino	9 (25)	7 (12)	4.74 (1.24-19.42)	0.02	4.40 (0.83-26.09)	0.09
Asian	2 (6)	0 (0)	8.21 (0.95-Infinity)	0.05	6.86 (0.80-Infinity)	0.07
Unknown	2 (6)	4 (7)	1.87 (0.15-15.43)	0.80	2.49 (0.18-24.70)	0.64
<i>Age at Time of Infection</i>						
18-54 Years	16 (44)	20 (34)	Reference			
55-69 Years	9 (25)	15 (25)	0.75 (0.26-2.16)	0.59		
≥ 70 Years	11 (31)	24 (41)	0.57 (0.22-1.51)	0.26		
History of Injection Drug Use	3 (8)	3 (5)	1.69 (0.21-13.34)	0.82	1.43 (0.15-13.53)	0.76
HIV	5 (14)	4 (7)	2.20 (0.44-11.94)	0.43		
<i>Admission Source</i>						
Home	24 (67)	28 (47)	Reference		Reference	
NH/Rehab/LTACH	8 (22)	12 (20)	0.78 (0.23-2.49)	0.84	0.88 (0.19-4.02)	0.87
Other Hospital	4 (11)	19 (32)	0.25 (0.05-0.90)	0.03	0.34 (0.07-1.59)	0.17
Prior Hospital Admission (90 Days)	26 (72)	45 (76)	0.81 (0.32-2.08)	0.66		
<i>Frequent Healthcare Interaction</i>						
Hemodialysis	3 (8)	4 (7)	1.56 (0.21-10.16)	0.86	0.49 (0.06-3.93)	0.50
Infusion Center	12 (33)	11 (19)	2.26 (0.77-6.74)	0.15	1.72 (0.39-7.68)	0.48
None	21 (58)	44 (75)	Reference		Reference	
^a Presence of Invasive Device	31 (86)	54 (92)	0.57 (0.15-2.14)	0.41		
^b Invasive Procedures	28 (78)	44 (75)	1.19 (0.45-3.18)	0.72		
Wound Present	10 (28)	26 (44)	0.49 (0.20-1.19)	0.12	0.41 (0.11-1.51)	0.18
<i>Charlson Comorbidity Index (CCI)</i>						
0-3	13 (36)	20 (34)	Reference			
4-5	11 (31)	13 (22)	1.30 (0.45-3.77)	0.63		
6-8	9 (25)	17 (29)	0.81 (0.28-2.37)	0.71		
>8	3 (8)	9 (15)	0.51 (0.12-2.26)	0.38		
History of Transplant	7 (19)	12 (20)	0.95 (0.28-2.97)	1.00		
History of MRSA Colonization	14 (39)	22 (37)	1.07 (0.46-2.51)	0.88		
<i>Presumed Source of MRSA Infection</i>						
Peripheral Intravenous Catheter	6 (17)	4 (7)	2.75 (0.72-10.51)	0.14	9.84 (1.46-66.50)	0.02
Skin & Soft Tissue Infection	4 (11)	4 (7)	1.71 (0.30-9.85)	0.71		
Pneumonia	4 (11)	6 (10)	1.10 (0.21-5.07)	1.00		
Diabetic Foot Infection	0 (0)	2 (3)	--	--		
Vascular Access	19 (53)	23 (39)	1.75 (0.76-4.04)	0.19	3.15 (0.84-11.86)	0.09
Septic Arthritis	0 (0)	2 (3)	--	--		
Urinary Source	0 (0)	1 (2)	--	--		
Sacral Wound	0 (0)	2 (3)	--	--		
Other/Unknown	2 (6)	10 (17)	0.29 (0.03-1.50)	0.19	0.81 (0.09-6.96)	0.85
ICU Admission Prior to BSI	12 (33)	25 (42)	0.68 (0.29-1.61)	0.38		

Bold = significant at ≤ 0.05

Abbreviations: MRSA, Methicillin-resistant *Staphylococcus aureus*; BSI, bloodstream infection; HO, hospital-onset; NH, nursing home; rehab, rehabilitation facility; LTACH, long-term acute care hospital; BSI, bloodstream infection; HIV, human immunodeficiency virus; AIDS, acquired immune deficiency syndrome; ICU, intensive care unit.

^a Includes devices such as pacemaker, any vascular access, orthopedic hardware, foley catheter, arteriovenous graft placement, percutaneous endoscopic gastronomy (PEG), ostomy, or any type of urinary collection at the time of first positive bloodstream infection.

^b Includes invasive procedures or surgery within the month prior to first positive bloodstream infection, excluding electroencephalogram (EEG), electrocardiogram (EKG), or transthoracic echocardiogram (TTE).

Supplementary Table 6. Demographics and Clinical Characteristics of MRSA BSIs in the CO-MRSA Stratum with the Odds of being CC8 vs CC5

Factor	CC8		CC5		Univariate Analysis		Multivariate Analysis	
	N = 74 (%)	N = 58 (%)	OR (95% CI)	p value	OR (95% CI)	p value		
Male	50 (68)	40 (69)	0.94 (0.45-1.96)	0.86				
<i>Race/Ethnicity</i>								
Non-Hispanic White	21 (28)	29 (50)	Reference		Reference			
Non-Hispanic Black	28 (38)	12 (21)	3.18 (1.23-8.58)	0.01	3.04 (1.02-9.05)	0.05		
Hispanic/Latino	18 (24)	12 (21)	2.05 (0.75-5.79)	0.18	2.19 (0.68-7.08)	0.19		
Asian	2 (3)	4 (7)	0.70 (0.06-5.38)	1.00	0.63 (0.07-5.63)	0.67		
Unknown	5 (7)	1 (2)	6.69 (0.68-337.57)	0.14	3.52 (0.29-43.16)	0.33		
<i>Age at Time of Infection</i>								
18-54 Years	32 (43)	8 (14)	Reference		Reference			
55-69 Years	27 (36)	14 (24)	0.52 (0.20-1.31)	0.16	0.38 (0.11-1.34)	0.13		
≥ 70 Years	15 (20)	36 (62)	0.11 (0.04-0.29)	<0.001	0.10 (0.02-0.44)	0.002		
History of Injection Drug Use	13 (18)	5 (9)	2.86 (0.82-12.75)	0.12	1.13 (0.24-5.26)	0.88		
HIV	13 (18)	0 (0)	--	--				
<i>Admission Source</i>								
Home	54 (73)	26 (45)	Reference		Reference			
NH/Rehab/LTACH	15 (20)	24 (41)	0.29 (0.12-0.69)	0.003	0.56 (0.18-1.73)	0.32		
Other Hospital	5 (7)	8 (14)	0.35 (0.08-1.41)	0.16	1.82 (0.33-10.03)	0.49		
Prior Hospital Admission (90 Days)	44 (59)	47 (81)	0.34 (0.15-0.77)	0.009	0.48 (0.14-1.70)	0.25		
<i>Frequent Healthcare Interaction</i>								
Hemodialysis	19 (26)	15 (26)	1.08 (0.45-2.65)	1.00				
Infusion Center	6 (8)	5 (9)	0.96 (0.22-4.27)	1.00				
None	49 (66)	38 (66)	Reference					
^a Presence of Invasive Device	46 (62)	49 (84)	0.34 (0.15-0.78)	0.01	0.80 (0.26-2.46)	0.69		
^b Invasive Procedures	16 (22)	21 (36)	0.49 (0.23-1.05)	0.07	0.56 (0.20-1.62)	0.29		
Wound Present	36 (49)	23 (40)	1.55 (0.77-3.12)	0.22				
<i>Charlson Comorbidity Index (CCI)</i>								
0-3	26 (35)	12 (21)	Reference		Reference			
4-5	15 (20)	9 (16)	0.77 (0.26-2.25)	0.63	1.59 (0.36-7.04)	0.54		
6-8	21 (28)	18 (31)	0.54 (0.21-1.36)	0.19	2.25 (0.58-8.72)	0.24		
>8	12 (16)	19 (33)	0.29 (0.11-0.79)	0.02	1.73 (0.36-8.33)	0.49		
History of Transplant	7 (9)	6 (10)	0.91 (0.24-3.48)	1.00				
History of MRSA Colonization	33 (45)	25 (43)	1.06 (0.53-2.12)	0.86				
<i>Presumed Source of MRSA Infection</i>								
Peripheral Intravenous Catheter	5 (7)	1 (2)	4.13 (0.47-36.37)	0.20	6.38 (0.44-92.90)	0.18		
Skin & Soft Tissue Infection	11 (15)	2 (3)	3.13 (0.91-13.84)	0.08	1.60 (0.35-7.38)	0.55		
Pneumonia	10 (14)	5 (9)	1.05 (0.30-3.92)	1.00				
Diabetic Foot Infection	7 (9)	7 (12)	0.88 (0.26-3.07)	1.00				
Vascular Access	17 (23)	20 (34)	0.52 (0.24-1.14)	0.10	0.80 (0.27-2.37)	0.68		
Septic Arthritis	1 (1)	0 (0)	--	--				
Urinary Source	1 (1)	3 (5)	0.39 (0.01-7.60)	0.82				
Sacral Wound	6 (8)	3 (5)	1.61 (0.33-10.41)	0.76				
Other/Unknown	5 (7)	3 (5)	1.35 (0.41-4.84)	0.78				
ICU Admission Prior to BSI	4 (5)	1 (2)	3.23 (0.31-163.17)	0.54				

Bold = significant at ≤ 0.05

Abbreviations: MRSA, Methicillin-resistant *Staphylococcus aureus*; BSI, bloodstream infection; CO, community-onset; NH, nursing home; rehab, rehabilitation facility; LTACH, long-term acute care hospital; BSI, bloodstream infection; HIV, human immunodeficiency virus; AIDS, acquired immune deficiency syndrome; ICU, intensive care unit.

^a Includes devices such as pacemaker, any vascular access, orthopedic hardware, foley catheter, arteriovenous graft placement, percutaneous endoscopic gastronomy (PEG), ostomy, or any type of urinary collection at the time of first positive bloodstream infection.

^b Includes invasive procedures or surgery within the month prior to first positive bloodstream infection, excluding electroencephalogram (EEG), electrocardiogram (EKG), or transthoracic echocardiogram (TTE).

Supplementary Table 7. Univariate and multivariate analysis of comorbidities

A. CC8 vs CC5

Factor	CC8	CC5	Univariate Analysis		Multivariate Analysis	
	N = 110 (%)	N = 117 (%)	OR (95% CI)	p value	OR (95% CI)	p value
<i>Comorbidities</i>						
Myocardial Infarction	9 (8)	14 (12)	0.66 (0.27-1.58)	0.35	1.02 (0.38-2.73)	0.97
Congestive Heart Failure	21 (19)	33 (28)	0.60 (0.32-1.12)	0.11	0.65 (0.32-1.32)	0.23
Peripheral Vascular Disease	12 (11)	25 (21)	0.45 (0.21-0.95)	0.04	0.42 (0.16-1.09)	0.08
Cerebrovascular Disease	6 (5)	14 (12)	0.43 (0.13-1.24)	0.13	0.50 (0.17-1.46)	0.21
Dementia	9 (8)	20 (17)	0.43 (0.19-1.00)	0.05	0.43 (0.17-1.08)	0.07
Chronic Pulmonary Disease	11 (10)	19 (16)	0.57 (0.26-1.27)	0.17	0.60 (0.25-1.45)	0.26
Connective Tissue Disease	2 (2)	3 (3)	0.71 (0.06-6.28)	1.00	0.60 (0.09-4.13)	0.61
Peptic Ulcer Disease	2 (2)	6 (5)	0.34 (0.03-1.98)	0.32	0.39 (0.07-2.20)	0.28
Mild Liver Disease	0 (0)	2 (2)	--	--	--	--
Diabetes (no complications)	17 (15)	20 (17)	0.89 (0.44-1.80)	0.74	0.71 (0.33-1.53)	0.38
Diabetes with Organ Damage	23 (21)	28 (24)	0.84 (0.45-1.57)	0.59	1.22 (0.48-3.08)	0.68
Para or Hemiplegia	7 (6)	10 (9)	0.73 (0.27-1.98)	0.53	0.71 (0.24-2.08)	0.53
Moderate/Severe Renal Disease	27 (25)	28 (24)	1.03 (0.56-1.90)	0.91	1.14 (0.53-2.46)	0.73
Solid Tumor	8 (7)	15 (13)	0.53 (0.22-1.31)	0.17	0.58 (0.22-1.52)	0.27
Leukemia	6 (5)	7 (6)	0.91 (0.30-2.79)	0.86	0.79 (0.24-2.58)	0.70
Lymphoma/Multiple Myeloma	13 (12)	13 (11)	1.07 (0.47-2.43)	0.87	0.74 (0.31-1.80)	0.51
Moderate/Severe Liver Disease	11 (10)	6 (5)	2.06 (0.73-5.76)	0.17	1.77 (0.57-5.47)	0.32
Metastatic Solid Tumor	5 (5)	9 (8)	0.57 (0.15-1.98)	0.48	0.48 (0.14-1.62)	0.24

B. CO-MRSA vs HO-MRSA

Factor	CO-MRSA	HO-MRSA	Univariate Analysis		Multivariate Analysis	
	N = 132 (%)	N = 95 (%)	OR (95% CI)	p value	OR (95% CI)	p value
<i>Comorbidities</i>						
Myocardial Infarction	9 (7)	14 (15)	0.43 (0.15-1.11)	0.09	0.26 (0.09-0.75)	0.01
Congestive Heart Failure	34 (26)	20 (21)	1.30 (0.69-2.44)	0.41	1.24 (0.58-2.66)	0.57
Peripheral Vascular Disease	29 (22)	8 (8)	3.06 (1.33-7.04)	0.009	2.41 (0.86-6.73)	0.09
Cerebrovascular Disease	10 (8)	10 (11)	0.70 (0.28-1.75)	0.44	0.43 (0.15-1.28)	0.13
Dementia	20 (15)	9 (9)	1.71 (0.74-3.93)	0.21	1.66 (0.63-4.39)	0.31
Chronic Pulmonary Disease	15 (11)	15 (16)	0.68 (0.32-1.48)	0.33	0.70 (0.28-1.81)	0.47
Connective Tissue Disease	4 (3)	1 (1)	2.93 (0.28-146.18)	0.61	1.90 (0.18-19.84)	0.59
Peptic Ulcer Disease	6 (5)	2 (2)	2.21 (0.38-22.84)	0.55	1.76 (0.29-10.82)	0.54
Mild Liver Disease	1 (1)	1 (1)	0.72 (0.01-56.92)	1.00	0.40 (0.01-11.31)	0.59
Diabetes (no complications)	19 (14)	18 (19)	0.72 (0.36-1.46)	0.36	0.92 (0.41-2.04)	0.83
Diabetes with Organ Damage	39 (30)	12 (13)	2.90 (1.42-5.91)	0.003	1.28 (0.48-3.40)	0.62
Para or Hemiplegia	11 (8)	6 (6)	1.35 (0.44-4.61)	0.76	1.17 (0.37-3.64)	0.79
Moderate/Severe Renal Disease	42 (32)	13 (14)	2.94 (1.48-5.87)	0.002	2.11 (0.92-4.87)	0.08
Solid Tumor	10 (8)	13 (14)	0.52 (0.22-1.24)	0.14	0.45 (0.17-1.23)	0.12
Leukemia	4 (3)	9 (9)	0.30 (0.07-1.12)	0.08	0.37 (0.10-1.32)	0.13
Lymphoma/Multiple Myeloma	7 (5)	19 (20)	0.23 (0.08-0.59)	0.001	0.29 (0.11-0.78)	0.01
Moderate/Severe Liver Disease	11 (8)	6 (6)	1.35 (0.48-3.78)	0.57	1.02 (0.34-3.13)	0.97
Metastatic Solid Tumor	9 (7)	5 (5)	1.32 (0.38-5.17)	0.85	1.26 (0.36-4.38)	0.72

C. CC8 vs CC5 in the HO-MRSA Stratum

Factor	CC8	CC5	Univariate Analysis		Multivariate Analysis	
	N = 36 (%)	N = 59 (%)	OR (95% CI)	p value	OR (95% CI)	p value
<i>Comorbidities</i>						
*Myocardial Infarction	6 (17)	8 (14)	1.28 (0.40-4.03)	0.68	2.72 (0.64-11.63)	0.18
*Congestive Heart Failure	5 (14)	15 (25)	0.48 (0.12-1.57)	0.28	0.71 (0.19-2.69)	0.62
*Peripheral Vascular Disease	2 (6)	6 (10)	0.52 (0.05-3.15)	0.71	1.16 (0.13-10.76)	0.90
*Cerebrovascular Disease	3 (8)	7 (12)	0.68 (0.11-3.23)	0.86	0.65 (0.13-3.15)	0.59
*Dementia	1 (3)	8 (14)	0.19 (0.004-1.48)	0.16	0.15 (0.01-1.81)	0.13
*Chronic Pulmonary Disease	5 (14)	10 (17)	0.79 (0.19-2.84)	0.93	0.70 (0.17-2.82)	0.61
*Connective Tissue Disease	0 (0)	1 (2)	--	--	--	--
Peptic Ulcer Disease	0 (0)	2 (3)	--	--	--	--
Mild Liver Disease	0 (0)	1 (2)	--	--	--	--
*Diabetes (no complications)	5 (14)	13 (22)	0.57 (0.15-1.94)	0.48	0.38 (0.10-1.44)	0.16
*Diabetes with Organ Damage	5 (14)	7 (12)	1.20 (0.27-4.82)	1.00	2.38 (0.42-13.40)	0.32
*Para or Hemiplegia	1 (3)	5 (8)	0.31 (0.01-2.96)	0.52	0.48 (0.04-5.15)	0.54
*Moderate/Severe Renal Disease	5 (14)	8 (14)	1.03 (0.24-3.95)	1.00	0.68 (0.15-3.12)	0.62
*Solid Tumor	6 (17)	7 (12)	1.49 (0.46-4.83)	0.51	1.79 (0.47-6.83)	0.39
*Leukemia	3 (8)	6 (10)	0.81 (0.12-4.08)	1.00	1.22 (0.24-6.17)	0.81
Lymphoma/Multiple Myeloma	11 (31)	8 (14)	2.81 (1.003-7.85)	0.05	2.75 (0.85-8.90)	0.09
*Moderate/Severe Liver Disease	4 (11)	2 (3)	3.51 (0.47-40.85)	0.29	5.04 (0.68-37.27)	0.11
*Metastatic Solid Tumor	1 (3)	4 (7)	0.40 (0.01-4.22)	0.74	0.47 (0.04-5.79)	0.55

D. CC8 vs CC5 in the CO-MRSA Stratum

Factor	CC8	CC5	Univariate Analysis		Multivariate Analysis	
	N = 74 (%)	N = 58 (%)	OR (95% CI)	p value	OR (95% CI)	p value
Comorbidities						
Myocardial Infarction	3 (4)	6 (10)	0.37 (0.06-1.82)	0.28	0.71 (0.13-3.84)	0.69
Congestive Heart Failure	16 (22)	18 (31)	0.61 (0.28-1.34)	0.22	0.46 (0.17-1.24)	0.13
Peripheral Vascular Disease	10 (14)	19 (33)	0.32 (0.14-0.76)	0.01	0.29 (0.08-0.99)	0.05
Cerebrovascular Disease	3 (4)	7 (12)	0.31 (0.05-1.44)	0.16	0.37 (0.08-1.75)	0.21
Dementia	8 (11)	12 (21)	0.47 (0.18-1.23)	0.12	0.45 (0.14-1.45)	0.18
Chronic Pulmonary Disease	6 (8)	10 (17)	0.48 (0.16-1.44)	0.19	0.53 (0.14-1.98)	0.34
Connective Tissue Disease	2 (3)	2 (3)	0.78 (0.06-11.06)	1.00	0.40 (0.05-3.37)	0.40
Peptic Ulcer Disease	2 (3)	4 (7)	0.38 (0.03-2.75)	0.47	0.44 (0.06-3.42)	0.43
Mild Liver Disease	0 (0)	1 (2)	--	--	--	--
Diabetes (no complications)	12 (16)	7 (12)	1.41 (0.52-3.85)	0.50	0.81 (0.25-2.68)	0.73
Diabetes with Organ Damage	18 (24)	22 (38)	0.57 (0.27-1.20)	0.14	1.16 (0.33-4.12)	0.81
Para or Hemiplegia	6 (8)	5 (9)	0.94 (0.22-4.10)	1.00	0.70 (0.17-2.90)	0.62
Moderate/Severe Renal Disease	22 (30)	21 (36)	0.80 (0.39-1.68)	0.56	0.93 (0.34-2.57)	0.89
Solid Tumor	2 (3)	8 (14)	0.18 (0.02-0.93)	0.04	0.20 (0.03-1.14)	0.07
Leukemia	3 (4)	1 (2)	2.39 (0.19-128.62)	0.81	10.16 (0.38-271.84)	0.17
Lymphoma/Multiple Myeloma	2 (3)	5 (9)	0.30 (0.03-1.90)	0.27	0.06 (0.01-0.54)	0.01
Moderate/Severe Liver Disease	7 (9)	4 (7)	1.41 (0.34-6.91)	0.84	1.06 (0.23-4.83)	0.94
Metastatic Solid Tumor	4 (5)	5 (9)	0.61 (0.12-2.98)	0.70	0.30 (0.06-1.43)	0.13

Supplementary Table 8. Univariate analysis of outcomes

(A) CC8 vs CC5

Outcome	CC8	CC5	Univariate Analysis	
	N = 110 (%)	N = 117 (%)	OR (95% CI)	p value
Overall 90 Day Mortality	23 (21)	38 (32)	0.55 (0.30-1.00)	0.05
90 Day Mortality Related to MRSA BSI	20 (17)	13 (12)	0.65 (0.31-1.38)	0.26
ICU Admission Related to MRSA BSI (Missing=139)	27 (60)	17 (40)	2.29 (0.98-5.39)	0.06
Mechanical Ventilation Related to MRSA BSI (Missing=154)	23 (66)	17 (45)	2.37 (0.92-6.10)	0.07
Metastatic Infection (Missing=1)	24 (22)	22 (19)	1.19 (0.62-2.28)	0.59

(B) CO-MRSA vs HO-MRSA

Outcome	CO-MRSA	HO-MRSA	Univariate Analysis	
	N = 132 (%)	N = 95 (%)	OR (95% CI)	p value
Overall 90 Day Mortality	30 (23)	31 (33)	0.61 (0.34-1.10)	0.10
90 Day Mortality Related to MRSA BSI	20 (15)	13 (14)	1.13 (0.53-2.39)	0.76
ICU Admission Related to MRSA BSI (Missing=139)	31 (79)	13 (27)	10.73 (3.94-29.26)	<0.001
Mechanical Ventilation Related to MRSA BSI (Missing=154)	24 (71)	16 (41)	3.45 (1.30-9.15)	0.01
Metastatic Infection (Missing=1)	33 (25)	13 (14)	2.08 (1.03-4.21)	0.04

(C) CC8 vs CC5 in the HO-MRSA Stratum

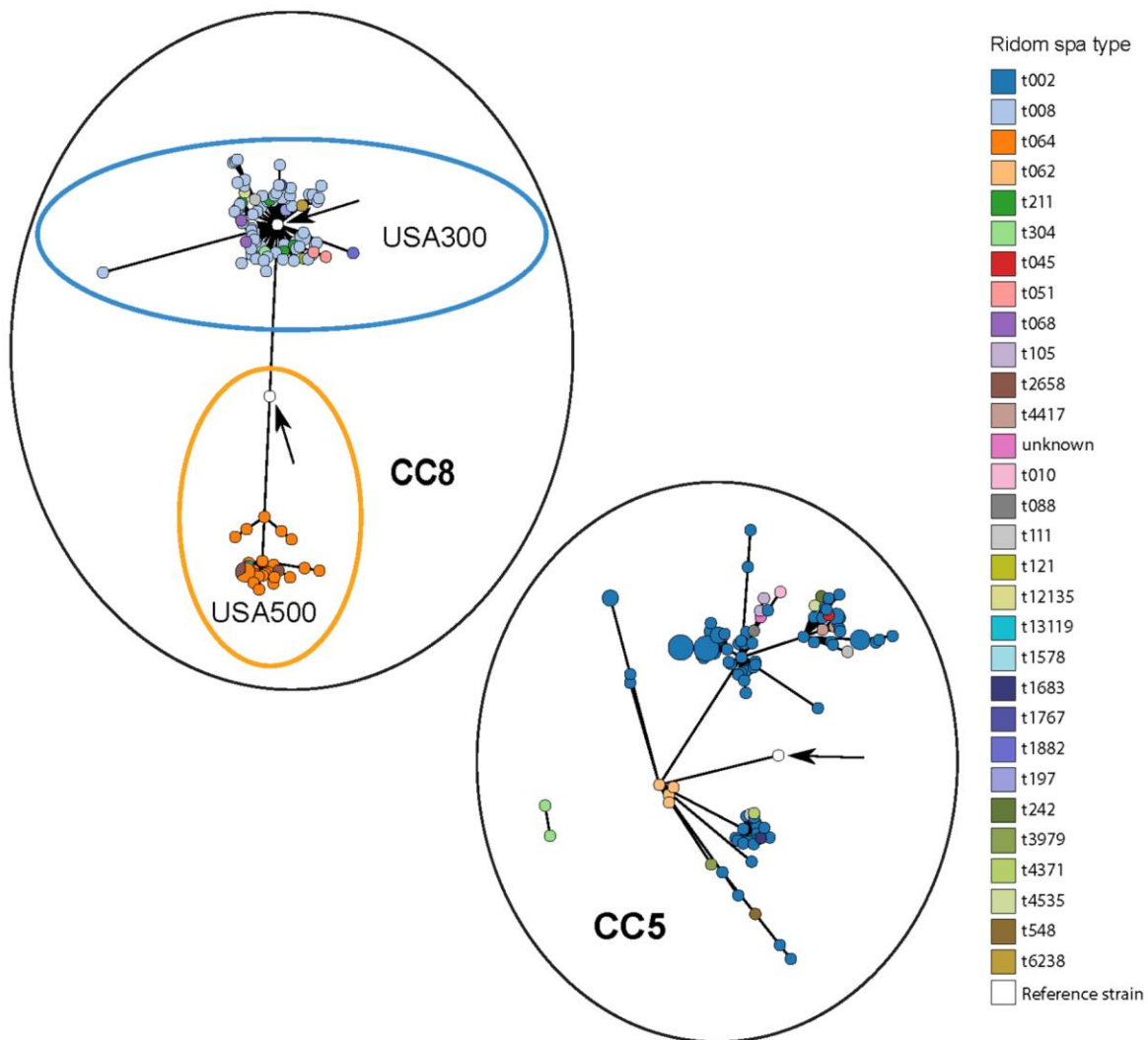
Outcome	CC8	CC5	Univariate Analysis	
	N = 36 (%)	N = 59 (%)	OR (95% CI)	p value
Overall 90 Day Mortality	11 (31)	20 (34)	0.86 (0.35-2.09)	0.74
90 Day Mortality Related to MRSA BSI	5 (14)	8 (14)	1.03 (0.31-3.43)	0.96
ICU Admission Related to MRSA BSI (Missing=46)	3 (18)	10 (31)	0.47 (0.11-2.02)	0.31
Mechanical Ventilation Related to MRSA BSI (Missing=56)	6 (46)	10 (38)	1.37 (0.36-5.27)	0.65
Metastatic Infection (Missing=1)	5 (14)	8 (14)	1.01 (0.30-3.36)	0.99

(D) CC8 vs CC5 in the CO-MRSA Stratum

Outcome	CC8	CC5	Univariate Analysis	
	N = 74 (%)	N = 58 (%)	OR (95% CI)	p value
Overall 90 Day Mortality	12 (16)	18 (31)	0.43 (0.19-0.99)	0.05
90 Day Mortality Related to MRSA BSI	8 (11)	12 (21)	0.47 (0.18-1.23)	0.12
ICU Admission Related to MRSA BSI (Missing=93)	24 (86)	7 (64)	3.43 (0.68-17.35)	0.14
Mechanical Ventilation Related to MRSA BSI (Missing=98)	17 (77)	7 (58)	2.43 (0.53-11.11)	0.25
Metastatic Infection	19 (26)	14 (24)	1.09 (0.49-2.41)	0.84

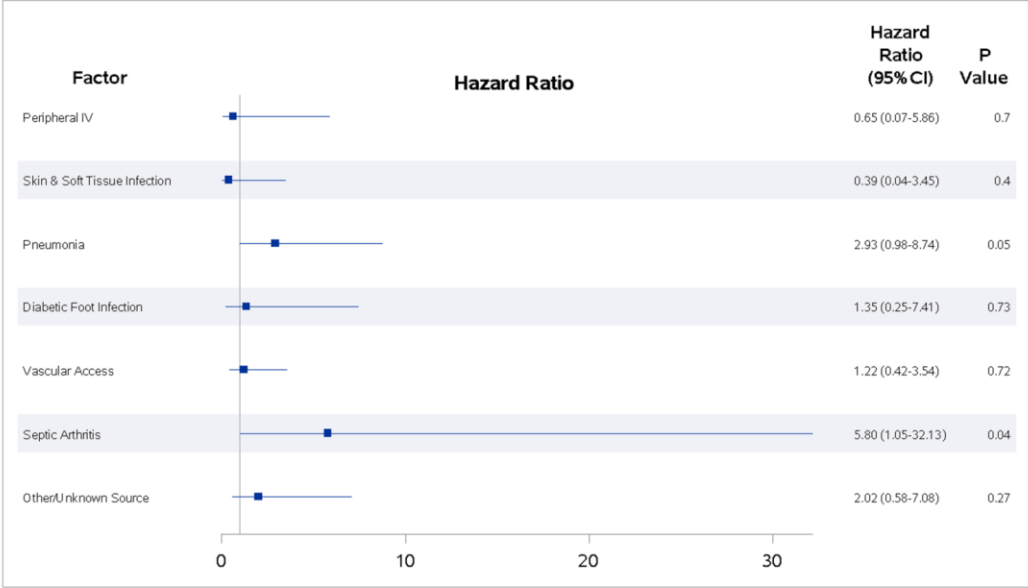
Abbreviations: MRSA, methicillin-resistant *Staphylococcus aureus*; ICU, intensive care unit.

Supplementary Figure 1. Core-genome MLST based tree of MRSA isolates.



Clustering of isolates into CC5 and CC8, as well as USA300 and USA500 based on cgMLST data. Ridom *spa* types are listed on right. The arrows point to the published NCBI reference genomes for each grouping. “Unknown” refers to a *spa* type not listed in Ridom database.

Supplementary Figure 2. Multivariate Analysis of Death Related to MRSA BSI within 90 Days from Different Sources.



Forest plot of a multivariate Cox regression for all documented sources of MRSA BSI. The square represents the hazard ratio (HR), and the lines reflect the 95% confidence interval.