Appendix (Online Only)

Appendix Table 1. Study 1, patient characteristics, methicillin-resistant *Staphylococcus aureus* (MRSA), controls not infected with *S. aureus* and controls with methicillin-susceptible *S. aureus* (MSSA) surgical site infections, bivariable analyses

Variable	Cases, MRSA (%) (n = 121)	Controls, uninfected patients (%) (n = 193)	p value, (MRSA vs. uninfected controls)	Controls, MSSA (%) (n = 165)	p value (MRSA vs. MSSA)
Age, mean ± SD, y	63.9 ± 15.4	57.3 ± 18.3	0.001	55.1 ± 17.4	<0.001
Male sex	55 (45.5)	92 (42.7)	0.73	90 (54.6)	0.15
Coexisting conditions					
Diabetes mellitus	59 (48.8)	66 (34.2)	0.01	57 (34.6)	0.02
Hematologic disorder	1 (0.8)	1 (0.5)	1.00	2 (1.2)	1.00
HIV infection	0 (0.0)	1 (0.5)	1.00	0	1.00
Hypertension	64 (52.9)	75 (38.9)	0.02	80 (48.5)	0.48
Liver disease	4 (3.3)	1 (0.5)	0.07	2 (1.2)	0.25
Malignancy	15 (12.4)	14 (7.3)	0.16	13 (7.9)	0.23
Obesity	10 (8.3)	12 (6.2)	0.50	18 (10.9)	0.55
Peripheral vascular disease	12 (9.9)	3 (1.6)	0.002	9 (5.5)	0.17
Pulmonary disease	21 (17.4)	23 (11.9)	0.19	32 (19.4)	0.76
Renal disease	19 (15.7)	9 (4.7)	0.002	13 (7.9)	0.06
Transplant	1 (0.8)	0	0.39	0	0.42
Tobacco use	16 (13.2)	20 (10.4)	0.47	24 (14.6)	0.86
Alcohol abuse	4 (3.3)	2 (1.0)	0.21	6 (3.6)	1.00
Hospital-related risk factors					
Treatment at the academic tertiary care hospital	94 (77.8)	125 (64.8)	0.02	109 (66.1)	0.04
LOS before surgery, median, IQR	1, 0–4	0, 0–3	0.02	0, 0–2	0.01
LOS before culture, median, IQR	8, 5–14	NA	NA	5, 3–10	<0.001
Proportion of patients with an ICU stay before surgery	11 (9.1)	13 (7.9)	0.83	18 (9.3)	1.0
ASA score, median,	3, 3–4	3, 2–4	0.03	3, 2–4	0.15

IQR					
Duration of surgery (min), median, IQR	240, 166–305	194, 113–276	0.004	202, 116–285	0.01
Wound class, median, IQR	1, 1–1	1, 1–1	0.82	1, 1–1	0.36
NNIS Risk Index, median, IQR	1, 1–2	1, 1–1	0.002	1, 1–2	0.06

[a]LOS, length of stay; IQR, interquartile range; ASA, American Society of Anesthesiologists-Physical Status score; NNIS, National Nosocomial Infections Surveillance System.

Appendix Table 2. Study 1: Adjusted outcomes models for methicillin-resistant *Staphylococcus aureus* (MRSA) surgical site infection (SSI) compared to uninfected control patients[a]

Variable	Deaths OR (95% CI)	Length of stay[b] OR[d] (95% CI)	Cost[c] OR (95% CI)
MRSA	11.4 (2.8 to 34.9)	3.2 (2.7 to 3.7)	2.2 (2.0 to 2.6)
ASA score[e,f]		1.3 (1.2 to 1.5)	ASA score = 4 3.7 (1.5 to 8.9) ASA score = 2 2.0 (1.4 to 2.9) ASA score = 3 3.0 (2.1 to 4.3) ASA Score = 4 4.1 (2.8 to 6.0)
>73 y of age	4.8 (2.0 to 11.6)		
Operative duration (min)[g]			
211–400		(0.9 to 1.3)	1.4 (1.2 to 1.7)
401–590		1.7 (1.2 to 2.4)	2.2 (1.6 to 3.1)
>590		1.8 (1.1 to 2.9)	2.6 (1.6 to 4.0)
Length of stay before surgery[h]			
7–13 d		1.6 (1.1 to 2.1)	1.7 (1.3 to 2.3)
14–20 d		3.6 (1.4 to 9.6)	5.6 (2.3 to 13.4)
>20 d		0.7 (0.2 to 2.6)	1.2 (0.3 to 4.3)
Intensive care unit stay before surgery			1.5 (1.2 to 2.0)
Tertiary care hospital			1.5 (1.2 to 1.7)

[a]OR, odds ratio; CI, confidence interval; ASA, American Society of Anesthesiologists -Physical Status.

[b]Model includes the following confounding variables: admission to the tertiary care hospital, diabetes, and renal disease.

[c]Model includes the following confounding variable: renal disease.

[d]

For length of hospital stay and cost, OR represents multiplicative effect

[e]Length of stay increases by 1.3-fold for each point increase in ASA score.

[f]For cost, reference category is ASA score = 1.

[g]Reference category is operative duration < 211 min.

[h]Reference category is length of stay before surgery < 7 d.

Appendix Table 3. Study 1, adjusted outcomes models for methicillin-resistant *Staphylococcus. aureus* (MRSA) surgical site infections (SSI) compared to patients with methicillin-resistant *S. aureus* (MSSA) SSI[a]

	Deaths[b]	Length of Stay[c]	Cost[d]
Variable	OR (95% CI)	OR (95% CI)[e]	OR[e] (95% CI)
MRSA	3.4 (1.5 to 7.7)	1.2 (1.0 to 1.5)	1.2 (1.0 to 1.4)
ASA score[f]	ASA score = 4	ASA score = 2	ASA score = 2
	5.1 (2.1 to12.5)	0.9 (0.5 to 1.7)	1.0 (0.7 to 1.5)
		ASA score = 3	ASA score = 3
		1.6 (0.9 to 2.9)	1.4 (1.0 to 2.1)
		Asa score = 4	ASA score = 4
		1.8 (1.0 to 3.5)	2.1 (1.4 to 3.2)
Age > 61 years	3.0 (1.2 to 7.3)		
Operative duration, min[g]			
206–381		1.3 (1.0 to 1.6)	1.4 (1.1 to 1.6)
382–557		1.3 (0.8 to 2.1)	1.8 (1.3 to 2.5)
>557		1.1 (0.5 to 2.6)	1.6 (0.9 to 2.8)
Length (d) of stay before infection[h]			
11–20		1.4 (1.0 to 1.8)	1.6 (1.3 to 2.0)
21–30		1.6 (1.0 to 2.7)	1.7 (1.2 to 2.5)
>30		1.3 (0.5 to 3.1)	1.8 (0.9 to 3.8)
Renal disease		1.5 (1.0 to 2.2)	
Length (d) of intensive care unit stay before infection[i]			
8–14			1.8 (1.1, 2.8)
15–21			2.1 (1.1, 8.8)
>21			1.9 (0.4, 8.0)
Tertiary care hospital			1.3 (1.1, 1.6)

[a]OR, odds ratio; CI, confidence interval; ASA, American Society of Anesthesiologists -Physical Status.

[b]Model includes the following confounding variable: operative duration >222 min.

[c]Model includes the following confounding variables: admission to tertiary care hospital and diabetes.

[d]Model includes the following confounding variables: diabetes and renal disease.

[e]For length of hospital stay and cost, OR represents multiplicative effect.

[f]For deaths, reference category is ASA score < 1; for length of stay and cost, reference category is ASA score = 1.

[g]Reference category is operative duration < 206 min.

[h]Reference category is length of stay prior to infection < 11 d.

[i]Reference category is intensive care unit length of stay prior to infection < 8 d.

Appendix Table 4. Study 2, patient characteristics, vancomycin-resistant enterococci (VRE) wound infections, controls not infected with enterococci, and controls with vancomycin-susceptible enterococci (VSE) wound infections, bivariate analyses

Variable	Cases, VRE wound (%) (n = 99)	Controls, not infected (%) (n = 280)	P Value (VRE vs. controls not infected)	Controls, VSE (%) (n = 213)	p value (VRE vs. VSE)
Age, mean (y)	60.3	63.6	0.09	59.1	0.51
Sex (female)	46 (46)	124 (44.3)	0.7	127 (59.6)	0.03
Main diagnosis					
Orthopedic condition	11 (11)	30 (10.7)		18 (8.4)	
Cardiovascular condition	25 (25)	117 (41)		61 (28.6)	
Endocrine disorder	3 (3)	6 (2.1)		4 (1.9)	
Gastrointestinal disorder	25 (25)	60 (21.4)		62 (29.1)	
Genitourinary disorder	6 (6)	12 (4.2)		9 (4.3)	
Infectious disease	16 (16)	6 (2.1)		20 (9.4)	
Hematologic disease	0 (0)	2 (.7)		0	
Neurologic disease	11 (11)	32 (11.4)		34 (16)	
Pulmonary disease	2 (2)	14 (5)		5 (2.4)	
Coexisting conditions					
Cardiovascular disease	73 (74)	204 (72.9)	0.86	150 (70.4)	0.55
Lung disease	11 (11)	33 (11.7)	0.9	26 (12.2)	0.78
Diabetes mellitus	67 (67.7)	139 (49.6)	0.002	127 (59.6)	0.17
Organ transplant recipient	14 (14)	21 (7.5)	0.08	18 (8.4)	0.12
Renal disease	18 (18.2)	39 (14)	0.7	28 (13.2)	0.24
Malignancy	7 (7.1)	27 (9.6)	0.5	32 (15)	0.05
AIDS	2 (2)	2 (0.7)	0.27	0	0.1
Hepatobiliary disease	16 (16.6)	40 (14.3)	0.8	31 (14.5)	0.71
Charlson comorbidity score, mean	3.17	2.66	0.07		
Hospital-related risk factors					

Transfer from another institution	34 (34.3)	102 (36.4)	0.5	34 (16)	<0.001
Surgery	29 (29.3)	94 (33.6)	0.08	90 (42.3)	0.03
Admission to ICU	26 (26.2)	58 (20.7)	0.9	53 (33.3)	0.8

Appendix Table 5. Study 2, adjusted outcomes models for vancomycin-resistant enterococcus (VRE) wound infection compared to uninfected control patients[a]

	Deaths[b]		Length of Stay[c]		Cost[d]
Variable	OR (95% CI)	Variable	OR[e] (95% CI)	Variable	OR[e] (95% CI)
VRE infection	2.0 (0.8 to 5.2)	VRE infection	1.8 (1.3 to 2.4)	VRE infection	1.5 (1.3, 1.8)
		Transfer from another hospital	1.5 (1.2 to 1.9)	Surgery[e]	1.4 (1.1, 1.8)
		Renal disease	2.0 (1.5 to 2.7)		
		Malignancy	0.7 (0.5 to 0.9)		
		Intensive care unit stay[f]	2.3 (1.6 to 3.3)		

[a]OR, odds ratio; CI, confidence interval.

[b]Model includes the following confounding variables: intensive care unit (ICU) stay and number of coexisting conditions.

[c]Model includes the following confounding variable: propensity score (i.e., likelihood of being a VRE case).

[d]Model includes the following confounding variables: propensity score [i.e., likelihood of being a VRE case (Appendix)] and length of stay before infection (index date for controls).

[e]For length of hospital stay and cost, OR represents multiplicative effect.

[f]Before infection for cases and before index date for controls.

Appendix Table 6. Study 2, adjusted outcomes models for vancomycin-resistant enterococcus (VRE) wound infection compared to control patients with wound infection due to vancomycin-susceptible enterococcus (VSE)[a]

	Deaths[b]		Length of Stay[c]		Cost[d]
Variable	Odds Ratio (OR) (95% Confidence Interval [CI])	Variable	OR[e] (95% CI)	Variable	OR[e] (95% CI)
VRE	2.5 (1.1, 6.1)	VRE	1.1 (0.9, 1.4)	VRE	1.4 (1.2, 1.6)
Intensive care unit stay (ICU)[f]	9.0 (3.0, 27.4)	ICU stay[f]	1.8 (1.3, 2.5)	Surgery[f]	1.2 (1.1, 1.3)

[a]OR, odds ratio; CI, confidence interval; ICU, intensive care unit.

[b]

Model includes the following confounding variables: gender and surgery before infection.

[c]Model includes the following confounding variable: malignancy and length of stay before infection.

[d]Model includes the following confounding variables: length of stay before cohort inclusion.

[e]For length of hospital stay and cost, OR represents multiplicative effect.

[f]Before infection for cases and before index date for controls.