

## Appendix 1

Supplemental Table 1: Fixed-Effect Preoperative Variables Included in Each Risk-Adjusted Model Without and With Wound Classification

30-d postoperative outcomes	Model without wound classification	Model with wound classification
<b>Surgical site infection (SSI)</b>	wound infection (PATOS), BMI, ASA class, sepsis, smoker, age, alk phos, race, albumin, WBC, functional status, steroid use, diabetes, sex, dyspnea, alcohol use, disseminated cancer, total bilirubin, COPD, neurologic deficit, CHF, emergent case.	wound infection (PATOS), BMI, ASA class, smoker, age, race, alk phos, functional status, diabetes, dyspnea, steroid use, albumin, sex, WBC, disseminated cancer, neurologic deficit, alcohol use, COPD, emergent case, sepsis, bleeding disorder, HTN.
<b>Superficial incisional SSI</b>	BMI, wound infection (PATOS), ASA class, race, smoker, functional status, diabetes, alcohol use, age, COPD, PVD, alk phos.	BMI, wound infection (PATOS), ASA class, race, smoker, functional status, diabetes, alcohol use, age, COPD, PVD, alk phos.
<b>Deep incisional SSI</b>	BMI, wound infection (PATOS), ASA class, smoker, sepsis, diabetes, WBC, alk phos, steroid use, race, COPD, hematocrit, PVD, age, HTN, ascites, functional status.	BMI, wound infection (PATOS), ASA class, smoker, diabetes, hematocrit, alk phos, COPD, race, steroid use, age, HTN, ascites, functional status, WBC.
<b>Organ space SSI</b>	sepsis, wound infection (PATOS), albumin, age, ASA class, WBC, sex, total bilirubin, disseminated cancer, PVD, steroid use, CHF, emergent case, alk phos, dyspnea, COPD.	wound infection (PATOS), albumin, ASA class, age, sex, sepsis, disseminated cancer, steroid use, alk phos, CHF, WBC, total bilirubin, dyspnea, emergent case, COPD, smoker.
<b>Sepsis or septic shock</b>	ASA class, sepsis, albumin, functional status, COPD, creatinine, steroid use, wound infection (PATOS), SGOT, bleeding disorder, weight loss, platelet, ascites, race, WBC, BMI, sex, neurologic deficit, alk phos, hematocrit, age, dyspnea, total bilirubin, smoker, emergent case.	ASA class, sepsis, albumin, functional status, COPD, creatinine, steroid use, wound infection (PATOS), SGOT, bleeding disorder, weight loss, platelet, ascites, race, WBC, BMI, sex, neurologic deficit, alk phos, hematocrit, age, dyspnea, disseminated cancer, total bilirubin, smoker.
<b>Wound disruption</b>	ASA class, BMI, smoker, steroid use, dyspnea, wound infection (PATOS), WBC, sex, SGOT, albumin, CHF, COPD.	ASA class, BMI, smoker, steroid use, dyspnea, wound infection (PATOS), WBC, sex, SGOT, albumin, CHF, COPD.
<b>Cardiac event*</b>	ASA class, age, creatinine, sepsis, dyspnea, bleeding disorder, diabetes, emergent case, renal failure, cardiac event, BMI, HTN, CHF, platelet, total bilirubin, functional status, weight loss, WBC, sex, ascites, COPD.	ASA class, age, creatinine, sepsis, dyspnea, bleeding disorder, diabetes, emergent case, renal failure, cardiac event, BMI, HTN, CHF, platelet, total bilirubin, functional status, weight loss, WBC, sex, ascites, COPD.
<b>Venous thromboembolism</b>	ASA class, albumin, sepsis, age, BMI, steroid use, dyspnea, disseminated cancer, hematocrit, race, sex, WBC, diabetes, neurologic deficit, cardiac event, functional status, smoker, weight loss, platelet, bleeding disorder.	ASA class, albumin, sepsis, age, BMI, steroid use, dyspnea, disseminated cancer, hematocrit, race, sex, WBC, diabetes, neurologic deficit, cardiac event, functional status, smoker, weight loss, platelet, bleeding disorder.
<b>Pneumonia</b>	ASA class, neurologic deficit, COPD, cardiac event, sepsis, functional status, alcohol use, creatinine, race, PVD, age, chemo/radiation therapy, emergent case, smoker, WBC, platelet, alk phos, dyspnea, sex, BMI, SGOT, weight loss, hematocrit.	ASA class, neurologic deficit, COPD, cardiac event, sepsis, functional status, alcohol use, creatinine, race, PVD, age, chemo/radiation therapy, emergent case, smoker, WBC, platelet, alk phos, dyspnea, sex, BMI, SGOT, weight loss, hematocrit.

<b>Reintubation</b>	ASA class, COPD, creatinine, age, albumin, sepsis, functional status, BMI, dyspnea, platelet, HTN, smoker, CHF, WBC, diabetes, alk phos, emergent case, sex, neurologic deficit, weight loss, steroid use, SGOT, hematocrit, alcohol use, race.	ASA class, COPD, creatinine, age, albumin, sepsis, functional status, BMI, dyspnea, platelet, HTN, smoker, CHF, WBC, diabetes, alk phos, emergent case, sex, neurologic deficit, weight loss, steroid use, SGOT, hematocrit, alcohol use, race.
<b>Prolong ventilation (&gt;= 48 hours)</b>	ASA class, sepsis, creatinine, emergent case, COPD, functional status, albumin, age, BMI, dyspnea, smoker, SGOT, sex, alk phos, neurologic deficit, HTN, diabetes, race, weight loss, platelet, renal failure.	ASA class, sepsis, creatinine, emergent case, COPD, functional status, albumin, age, BMI, dyspnea, smoker, SGOT, sex, alk phos, neurologic deficit, HTN, diabetes, race, weight loss, platelet, renal failure.
<b>Urinary tract infection</b>	age, functional status, ASA class, sex, race, albumin, sepsis, hematocrit, neurologic deficit, diabetes, platelet, steroid use, creatinine, wound infection (PATOS), renal failure, bleeding disorder, BMI, smoker, weight loss.	age, functional status, ASA class, sex, race, albumin, sepsis, hematocrit, neurologic deficit, diabetes, platelet, steroid use, creatinine, wound infection (PATOS), renal failure, bleeding disorder, emergent case, BMI, alk phos.
<b>Renal failure</b>	ASA class, creatinine, renal failure, sepsis, HTN, platelet, BMI, albumin, dyspnea, sex, diabetes, SGOT, race, hematocrit, emergent case, PVD, CHF, age, WBC, COPD, weight loss, alcohol use, alk phos, disseminated cancer, bleeding disorder.	ASA class, creatinine, renal failure, sepsis, HTN, platelet, BMI, albumin, dyspnea, sex, diabetes, SGOT, race, hematocrit, emergent case, PVD, CHF, age, WBC, COPD, weight loss, alcohol use, alk phos, disseminated cancer, bleeding disorder.
<b>Reoperation</b>	ASA class, wound infection (PATOS), sepsis, bleeding disorder, hematocrit, emergent case, smoker, albumin, renal failure, WBC, steroid use, SGOT, COPD, BMI, sex, functional status, PVD, race, age, creatinine, dyspnea, alk phos, HTN, platelet, neurologic deficit, CHF.	ASA class, wound infection (PATOS), sepsis, bleeding disorder, hematocrit, emergent case, smoker, albumin, renal failure, WBC, steroid use, SGOT, COPD, BMI, sex, functional status, PVD, race, age, creatinine, dyspnea, alk phos, HTN, platelet, neurologic deficit.
<b>Mortality</b>	ASA class, age, albumin, functional status, disseminated cancer, emergent case, creatinine, platelet, WBC, dyspnea, weight loss, sepsis, SGOT, BMI, COPD, ascites, renal failure, alk phos, neurologic deficit, total bilirubin, bleeding disorder, steroid use, sex, CHF, smoker, hematocrit, chemo/radiation therapy, race, HTN.	ASA class, age, albumin, functional status, disseminated cancer, emergent case, creatinine, platelet, WBC, dyspnea, weight loss, sepsis, SGOT, BMI, COPD, ascites, renal failure, alk phos, neurologic deficit, total bilirubin, bleeding disorder, steroid use, sex, CHF, smoker, chemo/radiation therapy, hematocrit, race, wound infection (PATOS), HTN.

\*Cardiac event includes cardiac arrest requiring cardiopulmonary resuscitation and myocardial infarction.

ASA, American Society of Anesthesiology; COPD, chronic obstructive pulmonary disease; alk phos, alkaline phosphatase; SGOT,, serum glutamic-oxaloacetic transaminase; BMI, body mass index; WBC, white blood count; HTN, hypertension; CHF, congestive heart failure; PVD, peripheral vascular disease.



Cardiac event**	21,361	4.8%	13,622	5.7%	5,393	3.6%	1,016	3.4%	1,330	5.4%
Congestive heart failure	3,848	0.9%	2,151	0.9%	846	0.6%	304	1.0%	547	2.2%
Hypertension	206,591	46.7%	119,817	50.6%	64,783	42.8%	10,564	35.8%	11,427	46.8%
Peripheral vascular disease	9,637	2.2%	7,159	3.0%	958	0.6%	484	1.6%	1,036	4.2%
Pulmonary										
COPD	21,150	4.8%	11,979	5.1%	6,229	4.1%	1,257	4.3%	1,685	6.9%
Dyspnea ***	36,812	8.3%	19,669	8.3%	12,521	8.3%	1,915	6.5%	2,707	11.1%
Smoker	83,005	18.8%	44,641	18.8%	25,939	17.2%	6,077	20.6%	6,348	26.0%
Diabetes										
Non-insulin	41,342	9.4%	22,832	9.6%	14,213	9.4%	2,014	6.8%	2,283	9.3%
Insulin	26,223	5.9%	13,871	5.9%	7,615	5.0%	1,725	5.8%	3,012	12.3%
Renal failure	8,424	1.9%	4,608	1.9%	1,519	1.0%	710	2.4%	1,587	6.5%
Ascites	2,511	0.6%	606	0.3%	1,013	0.7%	347	1.2%	545	2.2%
Bleeding disorder	22,962	5.2%	14,106	6.0%	4,599	3.0%	1,688	5.7%	2,569	10.5%
Chemo/radiation therapy	5,067	1.1%	1,931	0.8%	2,576	1.7%	236	0.8%	324	1.3%
Disseminated cancer	9,350	2.1%	2,960	1.2%	5,088	3.4%	599	2.0%	703	2.9%
Neurologic deficit	16,014	3.6%	10,170	4.3%	3,607	2.4%	849	2.9%	1,388	5.7%
Sepsis	28,512	6.4%	5,187	2.2%	5,685	3.8%	6,576	22.3%	11,064	45.3%
Steroid use	14,014	3.2%	6,968	2.9%	4,335	2.9%	1,192	4.0%	1,519	6.2%
Weight loss (>10%)	7,023	1.6%	1,789	0.8%	3,669	2.4%	759	2.6%	806	3.3%
Wound infection ****	19,663	4.4%	8,301	3.5%	2,923	1.9%	2,614	8.9%	5,825	23.8%
Emergent case	48,425	11.0%	11,660	4.9%	12,005	7.9%	12,781	43.3%	11,979	49.0%

\*\* Cardiac event includes history of myocardial infarction, percutaneous or surgical coronary interventions, or unstable angina.

\*\*\* Dyspnea at rest or with moderate exertion.

\*\*\*\* Wound infection present at time of surgery (PATOS).

IQR, interquartile range; ASA, American Society of Anesthesiologists; BMI, body mass index; NA, none available.

Supplemental Figure 1. Proportion of Surgical Cases and Rate of Surgical Site Infection per Wound Classification in NSQIP (2011)

