

Supplemental Digital Content 2. Tables containing regression results of all variables

sTable 5. Adjusted Effect on Process of Care Adherence

sTable 6. Adjusted Effect on Readmission Rates

sTable 7. Adjusted Effect on Patient Satisfaction

sTable 5. Adjusted Effect on Process of Care Adherence

	Surgical Patients:						Outpatients		
	Received Preventative Antibiotics One Hour Before Incision	Received the Appropriate Preventative Antibiotic(s) for Their Surgery	Preventative Antibiotic(s) are Stopped Within 24 hours After Surgery	Doctors Ordered Treatments to Prevent Blood Clots For Certain Surgeries	Treatment To Prevent Blood Clots Within 24 Hr Before or After Selected to Prevent Blood Clots	Taking beta blockers before coming to hospital & kept on before & after surgery	Chest pain or possible heart attack treated with aspirin within 24 hours of arrival	Having surgery and got antibiotic at the right time within 1 hour before surgery	Having surgery and got the right kind of antibiotic
Market Concentration									
HHI	-6.75E-06 [-0.0000176, 0.00000408]	-4.23E-06 [-0.0000125, 0.00000408]	-0.0000136 [-0.0000302, 0.00000294]	-5.01E-06 [-0.0000278, 0.0000178]	-4.12E-06 [-0.0000246, 0.0000164]	0.00000978* [-0.0000187, 0.0000382]	-2.01E-06 [-0.0000106, 0.0000066]	2.26E-06 [-0.00000689, 0.0000114]	-2.75E-06 [-0.00000988, 0.00000439]
Integration level									
Independent	0.00369	0.000878	-0.000786	-0.0296*	-0.0338*	-0.0496	-0.000877	0.009	-0.00281
Physician Assoc. Open Physician	[-0.00550, 0.0129]	[-0.0136, 0.0153]	[-0.0214, 0.0198]	[-0.0578, -0.00133]	[-0.0647, -0.00297]	[-0.0993, 0.000156]	[-0.0152, 0.0134]	[-0.00375, 0.0218]	[-0.0104, 0.00474]
Hospital Org. Closed Physician	0.00114	0.00623	0.00606	-0.00197	-0.00103	0.0204*	0.00808	-0.00342	-0.00292
Hospital Org. Fully Integrated	[-0.00959, 0.0119]	[-0.00179, 0.0142]	[-0.00646, 0.0186]	[-0.0188, 0.0149]	[-0.0144, 0.0124]	[0.000365, 0.0405]	[-0.00137, 0.0175]	[-0.0129, 0.00604]	[-0.00976, 0.00392]
Hospital Org. Fully Integrated	-0.00663	0.00473	0.0000342	-0.00424	-0.00468	0.0108	0.00937*	0.00872*	0.0011
Hospital Org. Fully Integrated	[-0.0190, 0.00579]	[-0.00260, 0.0120]	[-0.0121, 0.0121]	[-0.02460, 0.0161]	[-0.0219, 0.0125]	[-0.00649, 0.0280]	[0.00119, 0.0175]	[0.00165, 0.0158]	[-0.00524, 0.00744]
Hospital Org. Fully Integrated	-0.00126	0.000619	0.00653	0.00645	0.00375	0.0138**†	0.00528*	0.00341	-0.00284
Hospital Org. Fully Integrated	[-0.00705, 0.00454]	[-0.00409, 0.00533]	[-0.00170, 0.0148]	[-0.00414, 0.0170]	[-0.00486, 0.0123]	[0.00415, 0.0234]	[0.000372, 0.0102]	[-0.00220, 0.00903]	[-0.00730, 0.00162]
Admissions									
Quartile 2	0.00134	0.00303	0.00406	-0.00257	-0.000668	0.00349	-0.00115	0.00102	-0.000411
Quartile 2	[-0.00697, 0.00965]	[-0.00230, 0.00837]	[-0.00446, 0.0126]	[-0.0151, 0.00992]	[-0.0101, 0.00880]	[-0.00978, 0.0168]	[-0.00907, 0.00677]	[-0.00658, 0.00862]	[-0.00785, 0.00702]
Quartile 3	0.000201	0.00136	0.00286	-0.00221	-0.00376	0.00297	0.00342	0.00079	0.00235
Quartile 3	[-0.0114, 0.0118]	[-0.00705, 0.00978]	[-0.00921, 0.0149]	[-0.0190, 0.0146]	[-0.0168, 0.00934]	[-0.0168, 0.0227]	[-0.00678, 0.0136]	[-0.00871, 0.0103]	[-0.00635, 0.0110]
Quartile 4	-0.0104	-0.0029	0.000985	-0.00338	-0.014	-0.00364	0.00715	-0.00374	0.00314
Quartile 4	[-0.0258, 0.00510]	[-0.0138, 0.00804]	[-0.0146, 0.0165]	[-0.0245, 0.0177]	[-0.0320, 0.00393]	[-0.0289, 0.0216]	[-0.00493, 0.0192]	[-0.0150, 0.00757]	[-0.00709, 0.0134]
Nurse-to-patient ratio	0.000305	0.000679	-0.00150**†	0.0000418	0.000513	0.00638	-0.000491	-0.00131	-0.00135
Nurse-to-patient ratio	[-0.000927, 0.00154]	[-0.00136, 0.00272]	[-0.00245, -0.000539]	[-0.00263, 0.00271]	[-0.00151, 0.00253]	[-0.00943, 0.0222]	[-0.00127, 0.000292]	[-0.00384, 0.00121]	[-0.00298, 0.000278]
CT Scanner									
CT Scanner	0.00662	-0.00266	-0.00293	-0.0125	-0.0132	0.00702	0.00569	-0.00486	0.00187
CT Scanner	[-0.00482, 0.0180]	[-0.0108, 0.00554]	[-0.0157, 0.00990]	[-0.0305, 0.00560]	[-0.0284, 0.00202]	[-0.0196, 0.0336]	[-0.00260, 0.0140]	[-0.0148, 0.00514]	[-0.00875, 0.0125]
EBCT†									
EBCT†	0.00394	0.00353	0.00249	-0.0126	-0.00714	0.00154	0.00643	0.000997	-0.000115
EBCT†	[-0.00533, 0.0132]	[-0.00141, 0.00848]	[-0.00628, 0.0113]	[-0.0277, 0.00260]	[-0.0189, 0.00460]	[-0.0102, 0.0133]	[-0.00166, 0.0145]	[-0.00422, 0.00621]	[-0.00469, 0.00446]
MRI†									
MRI†	-0.00849	-0.00244	-0.000855	0.00634	0.00532	-0.00748	-0.00516	0.00285	0.00149
MRI†	[-0.0180, 0.000966]	[-0.00952, 0.00464]	[-0.0116, 0.00992]	[-0.00907, 0.0218]	[-0.00806, 0.0187]	[-0.0280, 0.0131]	[-0.0112, 0.000865]	[-0.00590, 0.0116]	[-0.00618, 0.00916]
MSCT†									
MSCT†	-0.000878	0.00163	-0.00102	-0.00033	0.00198	0.000284	-0.000218	0.00047	-0.000729
MSCT†	[-0.00615, 0.00439]	[-0.00239, 0.00566]	[-0.00726, 0.00522]	[-0.00806, 0.00740]	[-0.00478, 0.00875]	[-0.00890, 0.00947]	[-0.00424, 0.00381]	[-0.00466, 0.00560]	[-0.00472, 0.00326]
PET†									
PET†	0.00347	-0.00000345	-0.00282	-0.00683	-0.00519	0.000716	-0.00243	0.00128	0.000685
PET†	[-0.00268, 0.00962]	[-0.00427, 0.00426]	[-0.00959, 0.00394]	[-0.0172, 0.00358]	[-0.0136, 0.00327]	[-0.00947, 0.0109]	[-0.00864, 0.00377]	[-0.00324, 0.00582]	[-0.00286, 0.00423]

Year and hospital fixed effects also included in regression

95% CI in brackets; *** p<0.001, ** p<0.01, * p<0.05; † Bonferroni Correction statistically significant

‡Electron beam computed tomography (EBCT), magnetic resonance imaging (MRI), multi-slice spiral computed tomography (MSCT), positron emission tomography (PET)

sTable 5. Adjusted Effect on Process of Care Adherence (cont.)

	Heart Attack (AMI) Patients:		Heart Failure Patients:			Pneumonia Patients:	
	Given Aspirin at Discharge	Given PCI Within 90 Minutes Of Arrival	Given Discharge Instructions	Given an Evaluation of Left Ventricular Systolic Function	Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction	Initial Emergency Room Blood Culture Performed Prior To First Hospital Dose Of Antibiotics	Given Most Appropriate Initial Antibiotic(s)
Market Concentration							
HHI	1.86E-06 [-0.00000239, 0.00000611]	-0.0000105 [-0.0000262, 0.00000527]	-5.33E-06 [-0.0000213, 0.0000107]	6.04E-07 [-0.00000646, 0.00000767]	2.71E-06 [-0.00000788, 0.0000133]	-3.53E-06 [-0.0000104, 0.00000338]	-1.56E-06 [-0.0000106, 0.00000749]
Integration level							
Independent Physician Assoc.	-0.00277 [-0.00869, 0.00314]	0.00376 [-0.0211, 0.0287]	0.000328 [-0.0211, 0.0218]	-0.00485 [-0.0127, 0.00304]	-0.000922 [-0.0117, 0.00984]	-0.00831 [-0.0176, 0.000974]	-0.00895 [-0.0194, 0.00152]
Open Physician Hospital Org.	-0.0032 [-0.00864, 0.00224]	0.00268 [-0.0157, 0.0210]	-0.00494 [-0.0207, 0.0108]	-0.00477 [-0.0128, 0.00322]	-0.00255 [-0.0125, 0.00738]	-0.00623 [-0.0132, 0.000697]	0.00201 [-0.00605, 0.0101]
Closed Physician Hospital Org.	-0.00201 [-0.00617, 0.00216]	0.00731 [-0.0104, 0.0250]	0.00872 [-0.00430, 0.0217]	-0.000573 [-0.00704, 0.00589]	0.00306* [-0.00583, 0.0120]	-0.00102 [-0.00733, 0.00529]	0.00486 [-0.00218, 0.0119]
Fully Integrated Org.	-0.000698 [-0.00327, 0.00188]	-0.00529 [-0.0173, 0.00677]	-0.000056 [-0.00931, 0.00920]	-0.00295 [-0.00675, 0.000856]	0.00158 [-0.00401, 0.00716]	-0.0000537 [-0.00395, 0.00384]	-0.000507 [-0.00549, 0.00448]
Admissions							
Quartile 2	0.00104 [-0.00338, 0.00546]	0.00406 [-0.00932, 0.0174]	0.00381 [-0.0143, 0.0220]	0.00394 [-0.00156, 0.00944]	-0.00107 [-0.00859, 0.00644]	0.00229 [-0.00414, 0.00872]	0.00503 [-0.00226, 0.0123]
Quartile 3	0.00329 [-.00176, .00835]	0.00327 [-0.0155, 0.0221]	0.0092 [-0.0127, 0.0311]	0.00349 [-0.00431, 0.0113]	-0.00184 [-0.0122, 0.00851]	0.000986 [-0.00783, 0.00980]	-0.00786 [-0.0177, 0.00194]
Quartile 4	0.00512 [-.000540, .0108]	0.00429 [-0.0184, 0.0270]	0.0132 [-0.0124, 0.0389]	0.00133 [-0.00904, 0.0117]	-0.00466 [-0.0182, 0.00893]	0.00258 [-0.00842, 0.0136]	-0.00694 [-0.0191, 0.00525]
Nurse-to-patient ratio	-0.000545 [-.00334, .00225]	0.00139 [-0.00903, 0.0118]	-0.00215 [-0.00950, 0.00520]	0.00000407 [-0.00231, 0.00231]	-0.00202 [-0.00832, 0.00428]	-0.00202 [-0.00540, 0.00135]	-0.00408*** [-0.00734, -0.000827]
CT Scanner	-0.00242 [-0.00831, 0.00346]	-0.00401 [-0.0283, 0.0203]	0.0106 [-0.00600, 0.0272]	0.00307 [-0.00469, 0.0108]	0.00436 [-0.00798, 0.0167]	0.00425 [-0.00373, 0.0122]	0.00273 [-0.00600, 0.0115]
EBCT†	0.0000924 [-0.00323, 0.00341]	-0.00999 [-0.0210, 0.00100]	-0.0107 [-0.0223, 0.000988]	-0.00114 [-0.00756, 0.00528]	-0.000741 [-0.00820, 0.00672]	0.00144 [-0.00424, 0.00712]	-0.00136 [-0.00785, 0.00514]
MRI†	0.00610*** [.00152, .0107]	0.0134 [-0.00296, 0.0297]	0.00293 [-0.0116, 0.0174]	-0.00328 [-0.00827, 0.00171]	0.000299 [-0.00771, 0.00831]	-0.00387 [-0.00912, 0.00136]	-0.00297 [-0.00951, 0.00357]
MSCT†	-0.00211 [-0.00484, 0.000616]	-0.00237 [-0.0162, 0.0114]	-0.00226 [-0.0102, 0.00570]	-0.00304 [-0.00625, 0.000163]	-0.00535 [-0.0107, 0.000023]	-0.000824 [-0.00397, 0.00232]	0.000168 [-0.00397, 0.00430]
PET†	-0.00259* [-0.00493, -0.000252]	-0.00372 [-0.0126, 0.00514]	-0.00028 [-0.00834, 0.00778]	0.00177 [-0.00222, 0.00576]	-0.000856 [-0.00610, 0.00439]	0.000493 [-0.00356, 0.00455]	-0.00141 [-0.00588, 0.00306]

Year and hospital fixed effects also included in regression

95% CI in brackets; *** p<0.001, ** p<0.01, * p<0.05; † Bonferroni Correction statistically significant

‡Electron beam computed tomography (EBCT), magnetic resonance imaging (MRI), multi-slicespiral computed tomography (MSCT), positron emission tomography (PET)

sTable 6. Adjusted Effect on Readmission Rates

	Heart Attack (AMI)	Heart Failure	Pneumonia
Market Concentration			
HHI	-1.41E-07 [-0.00000212, 0.00000183]	-3.36E-07 [-0.00000189, 0.00000122]	4.76E-07 [-0.000000725, 0.00000168]
Integration level			
Independent Physician Assoc.	0.000717 [-0.00127, 0.00270]	-0.00167 [-0.00382, 0.000489]	-0.000311 [-0.00196, 0.00133]
Open Physician Hospital Org.	-0.000889 [-0.00269, 0.000909]	0.00115 [-0.000929, 0.00322]	-0.000601 [-0.00222, 0.00102]
Closed Physician Hospital Org.	-0.000642 [-0.00220, 0.000913]	0.00117 [-0.000642, 0.00298]	-0.00191*† [-0.00336, -0.000453]
Fully Integrated Org.	-0.000838 [-0.00182, 0.000142]	0.000215 [-0.000841, 0.00127]	-0.00118**† [-0.00203, -0.000321]
Admissions			
Quartile 2	-0.000603 [-0.00183, 0.000624]	0.00146 [-0.000284, 0.00320]	0.00146* [0.000142, 0.00279]
Quartile 3	-0.000234 [-0.00222, 0.00175]	0.00176 [-0.000801, 0.00432]	0.00301** [0.000938, 0.00508]
Quartile 4	0.00172 [-0.000910, 0.00435]	0.00533** [0.00213, 0.00852]	0.00428** [0.00176, 0.00681]
Nurse-to-patient ratio	-0.00044 [-0.00138, 0.000492]	-0.0000348 [-0.000183, 0.000114]	0.0000305** [0.00000904, 0.0000521]
CT Scanner	-0.000686 [-0.00248, 0.00110]	-0.000364 [-0.00190, 0.00118]	0.00110 [-0.0000943, 0.00230]
EBCT†	-0.000734 [-0.00199, 0.000521]	0.000686 [-0.000716, 0.00209]	0.000345 [-0.000832, 0.00152]
MRI†	0.000423 [-0.00112, 0.00197]	-0.000626 [-0.00190, 0.000648]	-0.000293 [-0.00136, 0.000779]
MSCT†	0.0000238 [-0.000815, 0.000863]	0.000869* [0.00000117, 0.00174]	-0.000444 [-0.00111, 0.000226]
PET†	0.00105* [0.0000635, 0.00204]	-0.000620 [-0.00171, 0.000466]	-0.000471 [-0.00133, 0.000389]

Year and hospital fixed effects also included in regression

95% CI in brackets; *** p<0.001, ** p<0.01, * p<0.05; † Bonferroni Correction statistically significant

†Electron beam computed tomography (EBCT), magnetic resonance imaging (MRI), multi-slice spiral computed tomography (MSCT), positron emission tomography (PET)

sTable 7. Adjusted Effect on Patient Satisfaction

	Hospital Clean	Nurse Communicated Well	Doctor Communicated Well	Patient Received Help as Soon as Wanted	Pain Well Controlled	Staff Explained Medicines	Hospital Quiet at Night	Staff Provided Home Care Instructions (Y/N)	Probably/ Definitely Recommend Hospital (Y/N)	Hospital Rating 7-10
Market Concentration										
HHI	-3.91E-06* [-0.0000069, -0.00000922]	-2.81E-06***† [-0.00000454, -0.00000109]	-1.77E-06* [-0.0000033, -0.00000232]	-8.01E-06***† [-0.000011, -0.00000499]	-4.49E-06***† [-0.00000657, -0.0000024]	-6.27E-06***† [-0.00000998, -0.00000257]	-3.53E-06* [-0.00000682, -0.00000238]	-3.48E-06* [-0.00000659, -0.00000372]	-4.02E-06***† [-0.00000594, -0.00000209]	-4.57E-06***† [-0.00000748, -0.00000167]
Integration level										
Independent	0.00105	0.000296	-0.000139	0.00100	0.00142	0.00436	0.00174	0.00139	0.000640	0.000451
Physician Assoc.	[-0.00209, 0.00419]	[-0.00161, 0.00221]	[-0.00188, 0.00160]	[-0.00257, 0.00457]	[-0.00121, 0.00404]	[-0.000186, 0.00890]	[-0.00186, 0.00535]	[-0.00290, 0.00568]	[-0.00169, 0.00297]	[-0.00300, 0.00390]
Open Physician Hospital Org.	-0.000812 [-0.00377, 0.00214]	-0.000495 [-0.00209, 0.00110]	-0.000710 [-0.00222, 0.000797]	-0.00219 [-0.00499, 0.000606]	-0.000726 [-0.00267, 0.00122]	-0.000239 [-0.00348, 0.00300]	-0.000202 [-0.00350, 0.00309]	-0.00288 [-0.00601, 0.000254]	-0.000401 [-0.00234, 0.00154]	-0.00128 [-0.00405, 0.00148]
Closed Physician Hospital Org.	0.00132 [-0.00110, 0.00374]	-0.00130 [-0.00289, 0.000281]	-0.00112 [-0.00261, 0.000371]	-0.00175 [-0.00437, 0.000871]	-0.000401 [-0.00232, 0.00152]	-0.000273 [-0.00352, 0.00297]	-0.000769 [-0.00370, 0.00216]	-0.00378* [-0.00704, -0.000527]	-0.000922 [-0.00274, 0.000892]	-0.00351* [-0.00617, -0.000851]
Fully Integrated Org.	-0.000303 [-0.00195, 0.00134]	-0.000335 [-0.00100, 0.000935]	-0.000877 [-0.000976, 0.000800]	-0.000388 [-0.00206, 0.00128]	-0.000397 [-0.00161, 0.000815]	0.000639 [-0.00147, 0.00275]	0.000193 [-0.00163, 0.00202]	-0.000277 [-0.00216, 0.00160]	-0.000879 [-0.00124, 0.00106]	-0.00110 [-0.00277, 0.000564]
Admissions										
Quartile 2	-0.000987 [-0.00436, 0.00239]	-0.000858 [-0.00278, 0.00107]	0.0000304 [-0.00183, 0.00189]	0.000541 [-0.00298, 0.00406]	-0.000534 [-0.00290, 0.00183]	-0.000685 [-0.00506, 0.00369]	-0.00340* [-0.00674, -0.0000578]	-0.00108 [-0.00482, .00266]	0.00104 [-0.00130, 0.00339]	0.001 [-0.00222, 0.00422]
Quartile 3	-0.000678 [-0.00509, 0.00374]	0.000790 [-0.00163, 0.00321]	0.000224 [-0.00205, 0.00250]	0.00207 [-0.00228, 0.00642]	0.000131 [-0.00290, 0.00317]	0.00029 [-0.00522, 0.00580]	-0.00247 [-0.00692, 0.00199]	-0.00194 [-0.00670, 0.00282]	0.00310* [0.000202, 0.00601]	0.00345 [-0.000633, 0.00754]
Quartile 4	-0.00155 [-0.00666, 0.00356]	0.00134 [-0.00147, 0.00414]	0.000292 [-0.00225, 0.00283]	0.00406 [-0.00102, 0.00913]	-0.0000116 [-0.00343, 0.00341]	0.00184 [-0.00461, 0.00829]	-0.00295 [-0.00823, 0.00233]	-0.00278 [-0.00836, 0.00280]	0.00537** [0.00200, 0.00875]	0.00566* [0.000843, 0.0105]
Nurse-to-patient ratio	0.000481 [-0.000203, 0.00116]	0.000458 [-0.0000175, 0.000935]	-0.000423 [-0.000875, 0.0000294]	0.000791 [-0.000372, 0.00195]	-0.0000718 [-0.000449, 0.000305]	0.000309 [-0.00118, 0.00180]	0.00128** [0.000333, 0.00223]	0.000744 [-0.000634, 0.00212]	0.000119 [-0.000311, 0.000550]	0.000167 [-0.000540, 0.000873]
CT Scanner	0.000377 [-0.00276, 0.00351]	0.00122 [-0.000544, 0.00298]	0.00158 [-0.000155, 0.00332]	0.00240 [-0.000772, 0.00558]	0.00104 [-0.00138, 0.00346]	0.000216 [-0.00408, 0.00452]	-0.000749 [-0.00386, 0.00236]	-0.00089 [-0.00447, 0.00269]	0.00132 [-0.000833, 0.00347]	0.000192 [-0.00282, 0.00321]
EBCT†	0.000794	-0.000145	0.000270	-0.000559	0.000466	-0.000482	-0.000615	0.00162	-0.000364	-0.000611

	[-0.00118, 0.00276]	[-0.00138, 0.00109]	[-0.000790, 0.00133]	[-0.00263, 0.00151]	[-0.000920, 0.00185]	[-0.00301, 0.00205]	[-0.00297, 0.00174]	[-0.000517, 0.00377]	[-0.0018, 0.00107]	[-0.00270, 0.00148]
MRI†	-0.000644	-0.00133	-0.00102	-0.00258	-0.00118	-0.00278	-0.00102	-0.0015	-0.00128	-0.000942
	[-0.00302, 0.00173]	[-0.00268, 0.0000237]	[-0.00242, 0.000382]	[-0.00530, 0.000141]	[-0.00311, 0.000739]	[-0.00613, 0.000560]	[-0.00353, 0.00150]	[-0.00420, 0.00120]	[-0.00298, 0.000412]	[-0.00331, 0.00142]
MSCT†	0.000191	0.000375	-0.000243	0.000482	-0.000632	0.000942	-0.00106	0.000448	0.00026	0.000382
	[-0.00133, 0.00171]	[-0.000477, 0.00123]	[-0.00104, 0.000560]	[-0.00105, 0.00201]	[-0.00172, 0.000453]	[-0.000986, 0.00287]	[-0.00274, 0.000622]	[-0.00126, 0.00215]	[-0.000796, 0.00132]	[-0.00113, 0.00189]
PET†	-0.000333	-0.000905*	-0.00101*	-0.00133	-0.00031	-0.00104	-0.000641	0.000228	-0.001	-0.00103
	[-0.00188, 0.00122]	[-0.00177, -0.000042]	[-0.00181, -0.000211]	[-0.00288, 0.000226]	[-0.00140, 0.000779]	[-0.00293, 0.000843]	[-0.00243, 0.00114]	[-0.00152, 0.00198]	[-0.00206, 0.0000545]	[-0.00252, 0.000457]

Year and hospital fixed effects also included in regression

95% CI in brackets; *** p<0.001, ** p<0.01, * p<0.05; † Bonferroni Correction statistically significant

†Electron beam computed tomography (EBCT), magnetic resonance imaging (MRI), multi-slice spiral computed tomography (MSCT), positron emission tomography (PET)