

Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

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Changes in Costs and Outcomes Under Voluntary Medical Bundles in Medicare's Bundled Payments for Care Improvement Initiative: Supplemental Material

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Description of Analyses of Standardized Total Medicare-Allowed Payments and Multiple Comparisons Methodology

We first estimated adjusted mean outpatient/physician payments for each hospital using linear regression with patient-level outpatient/physician costs as the outcome, hospital fixed effects as primary predictors, and CCW comorbidities to adjust for patient characteristics. This model was run separately for pre-BPCI and post-BPCI data. Next, we estimated the adjusted mean “other” payments (all other categories) for each hospital from the hospital fixed effects in an analogous linear regression model using patient-level “other” payments from the 100% sample. Finally, to calculate the total adjusted mean Medicare- allowed payment for a hospital in each time period, we added the adjusted mean outpatient/physician payment and the adjusted mean “other” payment for each time period, and evaluated the resulting total adjusted mean Medicare-allowed payments in a linear regression model. Analyses were weighted by the number of patients in each hospital, in each time period.

To correct for multiple comparisons, we used the Benjamini-Hochberg method of stepped p-value multiple comparisons adjustment. For the purposes of this study, given our six analyses of total episode payments (combined group plus each of five conditions individually), our p value thresholds and actual findings are as follows:

Condition	Actual p value	rank	Corrected p threshold (rank/6)*0.05	Significant (actual p< corrected p threshold)?
Pneumonia	0.03	1	0.008	No
Chronic obstructive pulmonary disease	0.07	2	0.017	No
Congestive heart failure	0.43	3	0.025	No
Acute myocardial infarction	0.57	4	0.033	No
Combined conditions	0.79	5	0.042	No
Sepsis	0.97	6	0.050	No

Table S1: Baseline Payment Trends

Condition	Payment						
		BPCI		Matched Controls		Difference	
		Beta	P	Beta	P	Beta	P value
ALL	Total payment	\$85.32	0.21	\$50.15	0.60	\$35.17	0.77
	Index hospitalization	\$62.70	0.27	\$35.75	0.67	\$26.95	0.79
	Readmission	\$6.56	0.66	\$50.75	0.02	-\$44.19	0.09
	SNF	\$36.74	0.28	-\$75.69	0.10	\$112.44	0.05
	IRF	-\$8.09	0.83	\$82.24	0.10	-\$90.34	0.15
	HHA	\$9.88	0.42	\$1.30	0.93	\$8.58	0.67
	Physician Fee	-\$21.68	0.00	-\$15.48	0.13	-\$6.20	0.60
	Non-physician Part B	\$46.44	0.00	\$9.31	0.49	\$37.13	0.03
AMI	Total payment	\$6.19	0.26	\$4.87	0.53	\$1.33	0.89
	Index hospitalization	\$459.59	0.05	-\$83.63	0.76	\$543.22	0.14
	Readmission	\$328.15	0.10	-\$188.45	0.51	\$516.61	0.14
	SNF	-\$54.08	0.12	-\$58.22	0.21	\$4.15	0.94
	IRF	\$273.23	0.04	-\$93.95	0.52	\$367.18	0.06
	Physician Fee	\$159.64	0.22	\$66.38	0.69	\$93.26	0.66
	HHA	\$48.46	0.35	\$7.87	0.83	\$40.59	0.52
	Non-physician Part B	-\$49.66	0.04	\$0.41	0.99	-\$50.07	0.17
CHF	Total payment	\$59.23	0.05	-\$7.96	0.83	\$67.20	0.16
	Index hospitalization	\$35.69	0.33	-\$27.97	0.52	\$63.66	0.26
	Readmission	\$140.40	0.33	\$110.07	0.56	\$30.33	0.90
	SNF	\$64.62	0.62	\$35.66	0.82	\$28.96	0.89
	IRF	\$23.32	0.10	\$12.81	0.46	\$10.51	0.64
	HHA	\$41.92	0.57	-\$42.95	0.68	\$84.87	0.50
	Physician Fee	\$23.75	0.74	\$114.43	0.19	-\$90.67	0.42
	Non-physician Part B	\$24.76	0.28	\$33.83	0.18	-\$9.07	0.79
PNA	Total payment	-\$24.43	0.05	-\$7.32	0.72	-\$17.11	0.48
	Index hospitalization	\$55.73	0.00	\$19.35	0.41	\$36.38	0.23
	Readmission	-\$1.86	0.85	\$11.88	0.46	-\$13.74	0.47
	SNF	\$42.82	0.75	\$0.95	1.00	\$41.88	0.85
	IRF	\$46.52	0.67	-\$8.21	0.96	\$54.73	0.79
	HHA	\$6.46	0.76	\$32.04	0.17	-\$25.58	0.42
	Physician Fee	\$48.73	0.48	-\$115.31	0.16	\$164.03	0.13
	Non-physician Part B	-\$86.76	0.27	\$63.73	0.57	-\$150.49	0.27
SEPSIS	Total payment	-\$1.63	0.94	-\$44.95	0.21	\$43.31	0.31
	Index hospitalization	-\$28.98	0.02	-\$1.05	0.96	-\$27.92	0.23
	Readmission	\$61.02	0.00	\$29.55	0.26	\$31.46	0.33
	SNF	\$6.52	0.51	\$24.38	0.04	-\$17.86	0.25
	IRF	-\$340.27	0.05	-\$67.51	0.74	-\$272.76	0.31
	HHA	-\$339.67	0.01	\$16.66	0.91	-\$356.33	0.07

	Physician Fee	-\$163.50	0.00	-\$12.04	0.82	-\$151.46	0.03
	Non-physician Part B	-\$58.82	0.46	-\$24.28	0.79	-\$34.54	0.78
COPD	Total payment	-\$136.08	0.11	\$23.05	0.83	-\$159.12	0.24
	Index hospitalization	\$5.13	0.85	\$5.81	0.83	-\$0.68	0.99
	Readmission	-\$6.20	0.63	-\$15.39	0.34	\$9.19	0.65
	SNF	\$4.84	0.82	\$9.44	0.71	-\$4.60	0.89
	IRF	-\$0.52	0.95	\$6.45	0.58	-\$6.97	0.63
	HHA	\$239.68	0.08	-\$111.72	0.56	\$351.40	0.14
	Physician Fee	\$254.27	0.03	-\$156.26	0.35	\$410.53	0.04
	Non-physician Part B	\$19.82	0.06	\$28.45	0.04	-\$8.63	0.61

The pre-period cost analysis uses data from 15 months before starting date (including Burnout period) for each hospital. AMI=acute myocardial infarction; CHF=congestive heart failure; COPD=chronic obstructive pulmonary disease; HHA=home health agency; IRF=inpatient rehabilitation facility; PNA=pneumonia; SNF=skilled nursing facility.

Table S2a: Baseline Hospital and Market Characteristics, AMI and CHF Hospitals

	AMI					CHF				
	BPCI	Matched Non-BPCI	P value	All Non-BPCI	p value	BPCI	Matched Non-BPCI	P value	All Non-BPCI	p value
N of Hospital	73	150		2479		125	229		2844	
90 Day total cost (standardized)	\$24,904	\$23,758	0.45	\$26,054	0.51	\$22,939	\$22,625	0.72	\$21,702	0.13
Average discharges per hospital	59.3	61.5	0.76	39.7	<0.001	170.0	154.8	0.29	110.2	<0.001
Nonprofit	82.2%	83.3%	0.83	67.9%	0.01	76.0%	76.0%	1.00	63.7%	0.005
Public	1.4%	2.0%	0.74	13.5%	0.002	3.2%	4.8%	0.47	16.3%	<0.001
For Profit	16.4%	14.7%	0.73	18.6%	0.65	20.8%	19.2%	0.72	20.0%	0.83
Urban Location	100.0%	100.0%	1.00	93.9%	0.03	100.0%	100.0%	1.00	90.2%	<0.001
Teaching Hospital	52.1%	56.7%	0.52	34.8%	0.002	46.4%	48.5%	0.71	31.3%	<0.001
DSH percent	28.6%	28.7%	0.99	28.8%	0.93	29.1%	29.5%	0.87	29.3%	0.90
Total Beds, Mean	341	342	0.97	248	<0.001	333	319	0.62	222.23	<0.001
Northeast	35.6%	34.0%	0.81	17.6%	<0.001	29.6%	32.3%	0.60	0.15	<0.001
Midwest	19.2%	27.3%	0.18	24.4%	0.30	16.8%	15.3%	0.71	0.24	0.08
South	23.3%	16.0%	0.19	40.1%	0.004	28.0%	27.9%	0.99	0.43	0.001
West	21.9%	22.7%	0.90	17.9%	0.38	25.6%	24.5%	0.81	0.18	0.03
Market Characteristics:										
Median Household Income	\$56,019	\$57,437	0.50	\$51,779	0.01	\$54,887	\$55,172	0.85	\$50,888	0.001
% Medicare Advantage	30.2	30.3	0.99	26.8	0.04	29.8	30.1	0.86	26.3	0.01
SNF Beds	5,138	6,410	0.30	3,786	0.11	6,204	5,329	0.34	3,548	<0.001
Hospital Market Share	0.35	0.34	0.83	0.49	0.003	0.33	0.33	0.99	0.51	<0.001
HHI index	0.14	0.13	0.71	0.13	0.65	0.14	0.15	0.47	0.13	0.23

All characteristics from 2013. DSH=disproportionate share hospital; HHI= Herfindahl-Hirschman index (defined as the sum of the squares of each provider's market share, such that a perfectly competitive market has an HHI near zero, and a completely concentrated market has an HHI of one); SNF=skilled nursing facility.

Table S2b: Baseline Hospital and Market Characteristics, Pneumonia and Sepsis Hospitals

	Pneumonia					SEPSIS				
	BPCI	Matched Non-BPCI	P value	All Non-BPCI	p value	BPCI	Matched Non-BPCI	P value	All Non-BPCI	p value
N of Hospital	105	194		2954		88	147		2830	
90 Day total cost (standardized)	\$21,851	\$21,978	0.90	\$20,091	0.02	\$29,454	\$28,152	0.30	26401	0.01
Average discharges per hospital	172.9	172.9	1.00	123.4	<0.001	208.3	209.8	0.95	135.1	<0.001
Nonprofit	75.2%	76.8%	0.76	63.6%	0.01	69.3%	73.5%	0.49	65.6%	0.47
Public	1.0%	0.5%	0.66	16.6%	<0.001	2.3%	5.4%	0.24	15.6%	0.001
For Profit	23.8%	22.7%	0.82	19.8%	0.31	28.4%	21.1%	0.20	18.8%	0.02
Urban Location	100.0%	100.0%	1.00	90.0%	0.001	100.0%	100.0%	1.00	91.4%	0.004
Teaching Hospital	41.9%	40.2%	0.78	31.3%	0.02	48.9%	49.0%	0.99	32.7%	0.001
DSH percent	28.0%	28.8%	0.69	29.4%	0.40	29.7%	28.6%	0.62	29.2%	0.78
Total Beds, Mean	292.21	285.16	0.79	222.80	0.001	317	302	0.57	232.11	<0.001
Northeast	0.26	0.27	0.76	0.15	0.004	22.7%	25.2%	0.67	0.16	0.09
Midwest	0.13	0.13	0.99	0.23	0.02	13.6%	18.4%	0.34	0.24	0.03
South	0.31	0.29	0.64	0.43	0.02	26.1%	23.8%	0.69	0.42	0.003
West	0.30	0.30	0.87	0.18	0.003	37.5%	32.7%	0.45	0.19	<0.001
Market Characteristics:										
Median Household Income	\$57,518	\$58,501	0.58	\$50,843	<0.001	\$56,282	\$57,918	0.39	\$51,357	0.001
% Medicare Advantage	29.2	27.2	0.19	26.3	0.04	30.8	29.5	0.47	26.7	0.01
SNF Beds	5,379	5,593	0.83	3,605	0.01	5,980	5,384	0.57	3,727	0.004
Hospital Market Share	0.34	0.35	0.75	0.51	<0.001	0.26	0.29	0.55	0.50	<0.001
HHI index	0.14	0.13	0.61	0.13	0.59	0.13	0.14	0.81	0.13	0.77

All characteristics from 2013. DSH=disproportionate share hospital; HHI= Herfindahl-Hirschman index (defined as the sum of the squares of each provider's market share, such that a perfectly competitive market has an HHI near zero, and a completely concentrated market has an HHI of one); SNF=skilled nursing facility.

Table S2c: Baseline Hospital and Market Characteristics, COPD Hospitals

	COPD				
	BPCI	Matched Non-BPCI	P value	All Non-BPCI	p value
N of Hospital	101	178		2902	
90 Day total cost (standardized)	\$18,055	\$18,010	0.96	\$16,369	0.01
Average discharges per hospital	132.5	124.6	0.58	94.3	<0.001
Nonprofit	71.3%	73.6%	0.68	64.0%	0.13
Public	4.0%	5.1%	0.68	16.4%	0.001
For Profit	24.8%	21.3%	0.51	19.6%	0.20
Urban Location	100.0%	100.0%	1.00	90.1%	0.001
Teaching Hospital	48.5%	51.1%	0.68	31.2%	<0.001
DSH percent	30.3%	32.7%	0.31	29.4%	0.60
Total Beds, Mean	329.70	331.50	0.96	224.31	<0.001
Northeast	0.32	0.31	0.97	0.15	<0.001
Midwest	0.11	0.12	0.72	0.24	0.003
South	0.26	0.25	0.93	0.44	<0.001
West	0.32	0.31	0.89	0.18	<0.001
Market Characteristics:					
Median Household Income	\$56,386	\$56,598	0.90	\$50,808	<0.001
% Medicare Advantage	28.7	28.6	0.93	26.2	0.08
SNF Beds	6,653	7,284	0.61	3,549	<0.001
Hospital Market Share	0.28	0.28	0.94	0.51	<0.001
HHI index	0.13	0.14	0.71	0.13	0.74

All characteristics from 2013. DSH=disproportionate share hospital; COPD=chronic obstructive pulmonary disease; HHI= Herfindahl-Hirschman index (defined as the sum of the squares of each provider's market share, such that a perfectly competitive market has an HHI near zero, and a completely concentrated market has an HHI of one); SNF=skilled nursing facility.

Table S3a: Changes in Payments, AMI Only

	AMI Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$24,115	\$23,233	-\$882	0.23	\$23,816	\$22,432	-\$1,383	0.004	\$502	0.57
Index hospitalization	\$8,614	\$8,344	-\$270	0.12	\$8,169	\$8,038	-\$131	0.25	-\$139	0.51
Readmissions	\$5,509	\$4,768	-\$741	0.02	\$5,416	\$4,739	-\$677	0.002	-\$64	0.87
Skilled Nursing	\$4,860	\$4,765	-\$95	0.78	\$4,704	\$4,606	-\$97	0.67	\$2	1.00
Inpatient Rehabilitation	\$367	\$450	\$83	0.55	\$528	\$450	-\$78	0.39	\$162	0.33
Long-term Care Hospital	\$398	\$169	-\$229	0.20	\$231	\$62	-\$169	0.14	-\$60	0.78
Home health agency	\$1,102	\$934	-\$168	0.01	\$1,096	\$968	-\$128	0.003	-\$40	0.61
Physician fees	\$2,332	\$2,639	\$307	0.05	\$2,596	\$2,526	-\$70	0.49	\$377	0.04
Non-physician outpatient fees	\$933	\$1,163	\$231	0.14	\$1,075	\$1,042	-\$32	0.75	\$263	0.16

AMI=acute myocardial infarction.

Table S3b: Changes in Payments, CHF Only

	CHF Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$23,257	\$23,141	-\$116	0.77	\$23,512	\$23,004	-\$508	0.09	\$393	0.43
Index hospitalization	\$6,504	\$6,487	-\$17	0.70	\$6,524	\$6,510	-\$14	0.67	-\$3	0.96
Readmissions	\$6,116	\$6,024	-\$93	0.65	\$6,435	\$5,947	-\$489	0.002	\$396	0.13
Skilled Nursing	\$4,618	\$4,781	\$163	0.36	\$4,630	\$4,597	-\$33	0.80	\$196	0.38
Inpatient Rehabilitation	\$484	\$395	-\$90	0.24	\$393	\$451	\$58	0.32	-\$148	0.12
Long-term Care Hospital	\$397	\$312	-\$85	0.39	\$459	\$327	-\$132	0.08	\$47	0.70
Home health agency	\$1,399	\$1,287	-\$112	0.01	\$1,368	\$1,274	-\$94	0.003	-\$18	0.73
Physician fees	\$2,976	\$2,990	\$14	0.89	\$2,925	\$2,975	\$51	0.48	-\$37	0.75
Non-physician outpatient fees	\$761	\$866	\$105	0.06	\$778	\$922	\$145	0.001	-\$40	0.57

CHF=congestive heart failure

Table S3c: Changes in Payments, Pneumonia Only

	Pneumonia Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$22,778	\$21,284	-\$1,495	0.001	\$22,251	\$21,973	-\$278	0.38	-\$1,216	0.03
Index hospitalization	\$7,050	\$6,992	-\$58	0.43	\$7,167	\$7,026	-\$141	0.01	\$83	0.36
Readmissions	\$4,680	\$4,124	-\$556	0.002	\$4,602	\$4,339	-\$262	0.04	-\$294	0.18
Skilled Nursing	\$5,636	\$5,138	-\$498	0.02	\$5,277	\$5,213	-\$63	0.68	-\$434	0.11
Inpatient Rehabilitation	\$439	\$338	-\$101	0.23	\$370	\$389	\$19	0.75	-\$120	0.25
Long-term Care Hospital	\$530	\$263	-\$268	0.03	\$513	\$451	-\$62	0.48	-\$206	0.17
Home health agency	\$1,173	\$996	-\$177	<0.001	\$1,139	\$1,066	-\$73	0.02	-\$104	0.06
Physician fees	\$2,562	\$2,598	\$35	0.72	\$2,500	\$2,669	\$168	0.02	-\$133	0.27
Non-physician outpatient fees	\$707	\$836	\$128	0.02	\$684	\$820	\$136	0.001	-\$8	0.91

Table S3d: Changes in Payments, Sepsis Only

	Sepsis Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$29,775	\$29,300	-\$475	0.51	\$29,178	\$28,742	-\$436	0.42	-\$39	0.97
Index hospitalization	\$10,696	\$10,542	-\$154	0.51	\$10,645	\$10,443	-\$202	0.25	\$48	0.87
Readmissions	\$5,653	\$5,362	-\$291	0.24	\$5,668	\$5,301	-\$368	0.05	\$76	0.81
Skilled Nursing	\$7,179	\$7,337	\$159	0.52	\$6,967	\$6,912	-\$56	0.77	\$214	0.49
Inpatient Rehabilitation	\$432	\$434	\$2	0.99	\$474	\$517	\$43	0.58	-\$42	0.75
Long-term Care Hospital	\$1,137	\$667	-\$470	0.02	\$783	\$719	-\$64	0.68	-\$406	0.12
Home health agency	\$1,075	\$1,027	-\$48	0.28	\$1,130	\$1,003	-\$127	<0.001	\$79	0.16
Physician fees	\$2,908	\$3,144	\$236	0.05	\$2,833	\$2,985	\$152	0.09	\$85	0.57
Non-physician outpatient fees	\$694	\$786	\$92	0.12	\$677	\$862	\$186	<0.001	-\$94	0.21

Table S3e: Changes in Payments, COPD Only

	COPD Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$19,460	\$19,693	\$233	0.56	\$19,558	\$18,884	-\$674	0.02	\$907	0.07
Index hospitalization	\$5,449	\$5,461	\$13	0.68	\$5,521	\$5,487	-\$34	0.15	\$47	0.23
Readmissions	\$4,979	\$4,944	-\$34	0.85	\$5,104	\$4,692	-\$412	0.003	\$378	0.11
Skilled Nursing	\$3,662	\$3,668	\$6	0.98	\$3,523	\$3,343	-\$181	0.23	\$187	0.45
Inpatient Rehabilitation	\$412	\$387	-\$25	0.74	\$302	\$291	-\$12	0.84	-\$13	0.89
Long-term Care Hospital	\$451	\$505	\$54	0.67	\$549	\$409	-\$140	0.15	\$194	0.23
Home health agency	\$1,181	\$1,021	-\$160	0.002	\$1,181	\$1,052	-\$129	0.001	-\$31	0.63
Physician fees	\$2,623	\$2,942	\$319	0.002	\$2,604	\$2,811	\$207	0.01	\$111	0.39
Non-physician outpatient fees	\$704	\$764	\$61	0.30	\$773	\$800	\$26	0.55	\$34	0.64

COPD=chronic obstructive pulmonary disease

Table S4a: Changes in Volume and Case Mix, AMI Only

	AMI Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Discharges/hospital/quarter	19.9	20.4	0.5	0.83	27.7	27.8	0.1	0.96	-0.4	0.88
Age 64 and under	7.0%	6.9%	-0.1%	0.94	7.1%	7.2%	0.1%	0.85	-0.2%	0.87
Age 65-79	38.2%	37.2%	-1.0%	0.48	35.7%	36.8%	1.0%	0.28	-2.0%	0.23
Age 80+	54.9%	55.9%	1.0%	0.45	57.2%	56.0%	-1.2%	0.23	2.2%	0.19
Female	56.0%	55.5%	-0.5%	0.74	55.2%	54.8%	-0.4%	0.72	-0.1%	0.96
Medicaid	25.4%	23.7%	-1.8%	0.26	19.8%	19.8%	0.1%	0.94	-1.8%	0.31
Disabled	19.8%	19.7%	-0.1%	0.96	18.6%	19.5%	0.9%	0.27	-1.0%	0.54
Race										
White	82.3%	83.8%	1.5%	0.19	85.3%	86.6%	1.3%	0.11	0.3%	0.85
Black	10.9%	10.7%	-0.2%	0.84	9.7%	8.8%	-0.9%	0.22	0.7%	0.56
Hispanic	2.8%	2.3%	-0.5%	0.22	1.2%	1.2%	0.0%	0.92	-0.5%	0.26
Unknown/other	4.0%	3.1%	-0.8%	0.17	3.8%	3.4%	-0.4%	0.27	-0.4%	0.57
CCW mean	9.3	9.6	0.3	<0.001	9.3	9.4	0.1	0.09	0.2	0.05
Level of complexity										
DRG with MCC	47.7%	45.6%	-0.021	0.22	45.9%	45.3%	-0.53%	0.65	-1.61%	0.44
DRG with CC	35.2%	36.6%	0.014	0.40	36.8%	36.3%	-0.49%	0.64	1.90%	0.33
DRG without CC	17.1%	17.8%	0.7%	0.53	17.3%	18.3%	1.0%	0.19	-0.3%	0.84

AMI=acute myocardial infarction; CCW=chronic conditions warehouse, a Medicare-supplied comorbidity measure; DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S4b: Changes in Volume and Case Mix, CHF Only

	CHF Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Discharges/hospital/quarter	67.6	65.4	-2.2	0.59	68.8	69.9	1.1	0.72	3.3	0.52
Age 64 and under	8.1%	8.8%	0.7%	0.16	8.9%	9.1%	0.1%	0.76	0.6%	0.33
Age 65-79	34.8%	33.6%	-1.2%	0.09	34.4%	33.8%	-0.6%	0.26	-0.6%	0.48
Age 80+	57.1%	57.6%	0.5%	0.51	56.7%	57.2%	0.5%	0.38	0.0%	0.96
Female	55.5%	55.6%	0.0%	0.96	54.5%	54.7%	0.3%	0.61	-0.2%	0.80
Medicaid	24.5%	24.7%	0.2%	0.83	24.5%	24.2%	-0.3%	0.62	0.5%	0.63
Disabled	21.2%	22.1%	0.9%	0.23	22.5%	22.4%	-0.2%	0.73	1.1%	0.23
Race										
White	79.7%	79.1%	-0.7%	0.48	79.3%	79.1%	-0.3%	0.74	-0.4%	0.75
Black	15.1%	15.5%	0.5%	0.57	15.2%	15.7%	0.4%	0.55	0.0%	0.97
Hispanic	2.5%	2.3%	-0.2%	0.39	2.1%	1.9%	-0.2%	0.16	0.0%	0.97
Unknown/other	2.8%	3.1%	0.4%	0.17	3.3%	3.4%	0.0%	0.87	0.3%	0.35
CCW mean	9.5	9.7	0.2	<0.001	9.5	9.7	0.2	<0.001	0.1	0.32
Level of complexity										
DRG with MCC	37.3%	39.7%	2.4%	0.01	38.3%	41.3%	3.0%	<0.001	-0.6%	0.60
DRG with CC	48.1%	46.3%	-1.8%	0.05	46.5%	44.8%	-1.8%	0.01	0.0%	0.98
DRG without CC	14.6%	14.0%	-0.6%	0.25	15.2%	14.0%	-1.2%	0.01	0.6%	0.43

CCW=chronic conditions warehouse, a Medicare-supplied comorbidity measure; CHF=congestive heart failure; DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S4c: Changes in Volume and Case Mix, Pneumonia only

	Pneumonia Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Discharges/hospital/quarter	59.4	53.7	-5.7	0.10	71.6	78.5	6.8	0.36	12.6	0.13
Age 64 and under	10.3%	11.3%	1.0%	0.09	11.6%	11.2%	-0.4%	0.42	1.4%	0.07
Age 65-79	35.9%	36.6%	0.7%	0.45	36.5%	36.4%	-0.1%	0.85	0.8%	0.46
Age 80+	53.8%	52.2%	-1.6%	0.13	51.9%	52.4%	0.5%	0.47	-2.2%	0.10
Female	54.4%	54.1%	-0.3%	0.71	53.0%	53.0%	-0.1%	0.93	-0.2%	0.81
Medicaid	26.9%	27.1%	0.2%	0.79	26.3%	26.8%	0.6%	0.44	-0.3%	0.78
Disabled	22.9%	24.1%	1.2%	0.20	25.4%	24.8%	-0.5%	0.41	1.8%	0.13
Race										
White	87.5%	86.3%	-1.2%	0.11	87.1%	86.4%	-0.7%	0.24	-0.5%	0.58
Black	6.9%	7.2%	0.4%	0.53	7.2%	7.5%	0.3%	0.46	0.1%	0.93
Hispanic	2.2%	2.6%	0.4%	0.18	1.9%	2.0%	0.0%	0.82	0.3%	0.33
Unknown/other	3.4%	3.9%	0.5%	0.17	3.8%	4.1%	0.3%	0.25	0.1%	0.76
CCW mean	8.1	8.4	0.2	<0.001	8.2	8.3	0.2	0.001	0.1	0.45
Level of complexity										
DRG with MCC	39.0%	40.1%	1.1%	0.33	40.9%	42.2%	1.20%	0.25	-0.12%	0.94
DRG with CC	45.2%	44.1%	-1.1%	0.30	44.0%	43.4%	-0.65%	0.45	-0.48%	0.73
DRG without CC	15.7%	15.8%	0.0%	0.94	15.0%	14.5%	-0.5%	0.30	0.6%	0.48

CCW=chronic conditions warehouse, a Medicare-supplied comorbidity measure; DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S4d: Changes in Volume and Case Mix, Sepsis only

	Sepsis Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Discharges/hospital/quarter	170.3	188.8	18.5	0.44	187.1	247.2	60.1	0.002	41.6	0.18
Age 64 and under	14.7%	13.7%	-0.9%	0.14	14.2%	13.8%	-0.5%	0.21	-0.5%	0.53
Age 65-79	38.2%	40.1%	2.0%	0.02	39.3%	39.6%	0.2%	0.72	1.7%	0.10
Age 80+	47.2%	46.1%	-1.0%	0.29	46.4%	46.7%	0.2%	0.75	-1.3%	0.29
Female	54.8%	54.8%	0.0%	0.99	54.7%	55.1%	0.3%	0.57	-0.3%	0.74
Medicaid	36.0%	34.6%	-1.4%	0.20	32.5%	32.0%	-0.5%	0.51	-0.9%	0.52
Disabled	28.9%	28.5%	-0.4%	0.65	28.0%	27.6%	-0.3%	0.58	-0.1%	0.94
Race										
White	81.0%	79.7%	-1.3%	0.12	79.8%	79.8%	0.0%	0.97	-1.4%	0.26
Black	9.5%	11.0%	1.5%	0.02	12.7%	12.7%	0.0%	0.99	1.5%	0.09
Hispanic	3.8%	3.6%	-0.2%	0.53	2.6%	2.5%	-0.1%	0.80	-0.1%	0.72
Unknown/other	5.7%	5.8%	0.0%	0.95	4.9%	4.9%	0.0%	0.95	0.0%	0.99
CCW mean	8.3	8.5	0.1	0.03	8.4	8.4	0.0	0.27	0.1	0.22
Level of complexity										
DRG with MCC	4.5%	5.0%	0.5%	0.10	3.9%	4.0%	0.12%	0.62	0.41%	0.31
DRG with CC	68.7%	69.1%	0.4%	0.59	68.2%	69.1%	0.96%	0.11	-0.53%	0.60
DRG without CC	26.9%	25.9%	-1.0%	0.24	27.9%	26.9%	-1.1%	0.08	0.1%	0.91

CCW=chronic conditions warehouse, a Medicare-supplied comorbidity measure; DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S4e: Changes in Volume and Case Mix, COPD only

	COPD Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Discharges/hospital/quarter	55.8	44.3	-11.5	0.03	64.3	57.7	-6.6	0.26	5.0	0.53
Age 64 and under	17.2%	17.6%	0.4%	0.63	17.6%	16.8%	-0.8%	0.18	1.3%	0.25
Age 65-79	47.2%	47.7%	0.5%	0.62	47.0%	47.2%	0.2%	0.77	0.3%	0.82
Age 80+	35.6%	34.7%	-0.9%	0.47	35.4%	36.0%	0.6%	0.45	-1.6%	0.31
Female	62.7%	63.6%	0.9%	0.37	62.5%	62.4%	-0.1%	0.84	1.0%	0.41
Medicaid	34.1%	33.6%	-0.5%	0.70	32.9%	32.2%	-0.8%	0.48	0.3%	0.85
Disabled	34.1%	35.6%	1.5%	0.15	34.3%	34.3%	0.0%	0.96	1.4%	0.27
Race										
White	81.9%	80.9%	-0.9%	0.46	80.8%	82.3%	1.5%	0.24	-2.4%	0.18
Black	12.6%	13.2%	0.6%	0.55	12.5%	11.0%	-1.5%	0.20	2.1%	0.17
Hispanic	2.7%	3.3%	0.6%	0.20	2.6%	2.6%	0.0%	0.92	0.5%	0.28
Unknown/other	2.8%	2.6%	-0.2%	0.55	4.0%	4.1%	0.0%	0.96	-0.2%	0.64
CCW mean	8.4	8.8	0.4	<0.001	8.3	8.5	0.2	<0.001	0.2	0.09
Level of complexity										
DRG with MCC	43.6%	46.1%	2.5%	0.01	45.7%	47.9%	2.13%	0.02	0.37%	0.77
DRG with CC	37.5%	36.0%	-1.5%	0.10	35.5%	35.0%	-0.56%	0.44	-0.95%	0.42
DRG without CC	18.9%	17.9%	-1.0%	0.23	18.7%	17.2%	-1.6%	0.01	0.6%	0.57

CCW=chronic conditions warehouse, a Medicare-supplied comorbidity measure; DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S5a: Changes in Length of Stay, ED Use, Readmissions, and Mortality, AMI Only

	AMI Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	5.5	5.2	-0.3	0.04	5.3	5.1	-0.2	0.08	-0.1	0.62
ED Use										
30-day	13.2%	10.4%	-2.8%	0.22	13.4%	11.2%	-2.2%	0.14	-0.6%	0.82
90-day	22.2%	20.8%	-1.4%	0.64	23.5%	18.4%	-5.1%	0.01	3.8%	0.29
Readmission										
30-day	18.0%	15.2%	-2.8%	0.02	17.3%	16.6%	-0.7%	0.43	-2.1%	0.16
90-day	31.8%	28.3%	-3.5%	0.01	30.1%	28.5%	-1.6%	0.10	-1.9%	0.26
Mortality										
30-day	9.8%	8.9%	-0.9%	0.39	8.1%	9.3%	1.3%	0.04	-2.2%	0.07
90-day	16.1%	15.8%	-0.3%	0.81	14.8%	17.9%	3.1%	<0.001	-3.4%	0.03

AMI=acute myocardial infarction; ED=emergency department.

Table S5b: Changes in Length of Stay, ED Use, Readmissions, and Mortality, CHF Only

	CHF Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	5.3	5.3	0.0	0.91	5.3	5.2	0.0	0.54	0.0	0.68
ED Use										
30-day	9.6%	10.3%	0.6%	0.46	11.5%	10.9%	-0.6%	0.43	1.2%	0.28
90-day	20.5%	17.3%	-3.2%	0.01	21.3%	19.8%	-1.5%	0.14	-1.7%	0.30
Readmission										
30-day	20.1%	19.6%	-0.4%	0.42	20.4%	20.2%	-0.2%	0.67	-0.2%	0.76
90-day	37.8%	37.0%	-0.8%	0.21	38.8%	36.7%	-2.1%	<0.001	1.3%	0.14
Mortality										
30-day	7.3%	7.8%	0.5%	0.17	6.9%	7.6%	0.7%	0.003	-0.2%	0.65
90-day	15.6%	18.4%	2.8%	<0.001	14.9%	17.8%	2.8%	<0.001	0.0%	0.95

CHF=congestive heart failure; ED=emergency department.

Table S5c: Changes in Length of Stay, ED Use, Readmissions, and Mortality, Pneumonia Only

	Pneumonia Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	5.8	5.7	-0.1	0.22	5.8	5.7	-0.1	0.21	0.0	0.80
ED Use										
30-day	9.9%	10.4%	0.6%	0.63	10.0%	9.5%	-0.5%	0.57	1.0%	0.47
90-day	17.7%	18.3%	0.5%	0.73	19.8%	16.9%	-2.9%	0.01	3.4%	0.07
Readmission										
30-day	14.6%	14.1%	-0.4%	0.49	14.9%	14.4%	-0.6%	0.15	0.2%	0.80
90-day	29.2%	26.3%	-2.8%	<0.001	28.2%	26.9%	-1.3%	0.02	-1.5%	0.09
Mortality										
30-day	7.8%	8.8%	1.0%	0.01	7.5%	8.2%	0.8%	0.01	0.3%	0.61
90-day	14.6%	17.8%	3.1%	<0.001	14.3%	16.1%	1.8%	<0.001	1.4%	0.10

ED=emergency department.

Table S5d: Changes in Length of Stay, ED Use, Readmissions, and Mortality, Sepsis Only

	Sepsis Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	8.0	8.0	0.0	0.92	7.7	7.7	0.0	0.69	0.1	0.75
ED Use										
30-day	6.1%	7.5%	1.4%	0.08	7.8%	8.1%	0.4%	0.58	1.1%	0.31
90-day	13.6%	13.0%	-0.6%	0.63	15.5%	13.3%	-2.1%	0.02	1.5%	0.34
Readmission										
30-day	16.9%	16.2%	-0.6%	0.15	16.5%	15.7%	-0.7%	0.06	0.1%	0.84
90-day	30.1%	29.0%	-1.1%	0.07	29.6%	28.6%	-1.0%	0.07	-0.1%	0.92
Mortality										
30-day	11.6%	11.5%	-0.1%	0.85	10.8%	11.8%	1.0%	0.02	-1.1%	0.11
90-day	19.3%	21.4%	2.2%	<0.001	18.4%	21.3%	2.9%	<0.001	-0.7%	0.37

ED=emergency department.

Table S5e: Changes in Length of Stay, ED Use, Readmissions, and Mortality, COPD Only

	COPD Participants				Matched Non-Participants					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	4.6	4.5	-0.1	0.21	4.5	4.4	-0.2	0.01	0.1	0.44
ED Use										
30-day	11.1%	11.9%	0.8%	0.63	12.2%	10.9%	-1.3%	0.22	2.1%	0.29
90-day	24.0%	20.9%	-3.1%	0.12	25.0%	20.6%	-4.4%	0.01	1.4%	0.59
Readmission										
30-day	17.0%	18.5%	1.5%	0.05	18.3%	17.2%	-1.1%	0.05	2.7%	0.01
90-day	34.2%	34.3%	0.1%	0.94	35.3%	33.3%	-2.1%	0.01	2.2%	0.07
Mortality										
30-day	2.5%	3.6%	1.1%	<0.001	2.5%	2.9%	0.4%	0.06	0.6%	0.08
90-day	6.3%	9.5%	3.2%	<0.001	6.4%	7.7%	1.2%	0.003	2.0%	0.002

COPD=chronic obstructive pulmonary disease; ED=emergency department.

Table S6: Changes in Volume and Case Mix, Sensitivity analysis only including hospitals that remained in the program

	BPCI				Matched Controls				Comparison	
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in differences	P value
Discharges per hospital per quarter	56.8	48.3	-8.5	0.002	72.1	75.7	3.6	0.10	-12.1	<0.001
Age 64 and under	8.8%	9.5%	0.7%	0.13	9.5%	9.3%	-0.2%	0.60	0.9%	0.13
Age 65-79	35.8%	36.2%	0.4%	0.68	35.5%	35.4%	-0.1%	0.84	0.5%	0.65
Age 80+	55.4%	54.3%	-1.1%	0.30	55.0%	55.3%	0.3%	0.62	-1.4%	0.25
Female	55.3%	54.7%	-0.6%	0.45	54.0%	54.0%	0.0%	0.96	-0.6%	0.52
Medicaid	25.4%	26.0%	0.6%	0.51	23.7%	23.9%	0.2%	0.66	0.3%	0.75
Disabled without ESRD	21.1%	22.7%	1.5%	0.03	22.7%	22.6%	-0.2%	0.72	1.7%	0.04
Race										
White	84.5%	84.3%	-0.3%	0.78	83.9%	84.1%	0.2%	0.69	-0.5%	0.66
Black	10.2%	9.8%	-0.4%	0.60	10.7%	10.8%	0.0%	0.95	-0.4%	0.65
Hispanic	2.2%	2.2%	0.0%	0.98	2.0%	1.7%	-0.3%	0.04	0.3%	0.35
Unknown/other	3.1%	3.8%	0.6%	0.07	3.4%	3.4%	0.0%	1.00	0.6%	0.11
CCW mean	8.9	9.2	0.3	<0.001	8.9	9.1	0.2	<0.001	0.0	0.52
Level of complexity										
DRG with MCC	41.0%	42.3%	1.3%	0.22	40.5%	42.4%	2.0%	0.01	-0.63%	0.64
DRG with CC	43.0%	42.6%	-0.5%	0.63	43.7%	42.8%	-1.0%	0.11	0.54%	0.64
DRG without CC	16.0%	15.1%	-0.9%	0.13	15.8%	14.8%	-1.0%	0.02	0.1%	0.90

AMI=acute myocardial infarction; CHF=congestive heart failure; DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S7: Changes in Payments, Sensitivity analysis only including hospitals that remained in the program

	BPCI				Matched Controls					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$24,266	\$23,834	-\$432	0.35	\$23,939	\$23,562	-\$377	0.16	-\$54	0.92
Index hospitalization	\$7,656	\$7,769	\$113	0.47	\$7,560	\$7,584	\$25	0.79	\$88	0.62
Readmissions	\$5,475	\$5,268	-\$207	0.21	\$5,516	\$5,078	-\$438	<0.001	\$231	0.22
Skilled Nursing	\$5,217	\$5,006	-\$211	0.23	\$5,223	\$5,161	-\$63	0.54	-\$149	0.47
Inpatient Rehabilitation	\$473	\$453	-\$19	0.80	\$444	\$427	-\$17	0.69	-\$2	0.98
Long-term Care Hospital	\$743	\$488	-\$255	0.01	\$551	\$460	-\$90	0.13	-\$165	0.17
Home health agency	\$1,241	\$1,064	-\$177	<0.001	\$1,210	\$1,116	-\$94	<0.001	-\$83	0.05
Physician fees	\$2,751	\$2,934	\$183	0.02	\$2,703	\$2,863	\$159	0.001	\$24	0.80
Non-physician outpatient fees	\$711	\$852	\$141	0.002	\$732	\$873	\$141	<0.001	\$0	1.00

AMI=acute myocardial infarction; CHF=congestive heart failure.

Table S8: Changes in Length of Stay, ED Use, Readmissions, and Mortality, Sensitivity analysis only including hospitals that remained in the program

	BPCI				Matched Controls					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	5.6	5.6	-0.1	0.46	5.5	5.5	-0.1	0.32	0.0	0.95
ED Use										
30-day	10.5%	12.7%	-2.2%	0.005	11.3%	11.8%	-0.5%	0.36	-1.7%	0.06
90-day	20.4%	23.0%	-2.7%	0.01	21.9%	23.0%	-1.1%	0.09	-1.5%	0.20
Readmission										
30-day	16.6%	16.3%	-0.4%	0.53	16.9%	16.6%	-0.3%	0.48	-0.1%	0.88
90-day	32.5%	30.6%	-1.9%	0.004	32.3%	30.5%	-1.8%	<0.001	-0.1%	0.92
Mortality										
30-day	8.0%	9.0%	1.0%	0.01	7.3%	8.2%	1.0%	<0.001	0.0%	0.99
90-day	15.0%	18.8%	3.8%	<0.001	14.3%	17.0%	2.7%	<0.001	1.1%	0.09

ED=emergency department.

Table S9: Changes in Volume and Case Mix, Sensitivity analysis using only data for early joiners (mean 16 months follow-up)

	BPCI				Matched Controls				Comparison	
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in differences	P value
Discharges per hospital per quarter	51.4	49.7	-1.7	0.71	66.5	67.5	1.0	0.82	-2.7	0.68
Age 64 and under	8.3%	8.3%	0.1%	0.87	10.0%	9.0%	-0.9%	0.23	1.0%	0.34
Age 65-79	34.9%	34.5%	-0.3%	0.84	34.9%	36.6%	1.9%	0.11	-2.2%	0.28
Age 80+	56.8%	57.1%	0.2%	0.93	55.1%	54.4%	-0.9%	0.45	1.1%	0.65
Female	54.0%	54.7%	0.7%	0.68	55.6%	55.2%	-0.5%	0.68	1.2%	0.56
Medicaid	20.3%	20.7%	0.4%	0.80	23.2%	22.1%	-1.0%	0.31	1.5%	0.46
Disabled without ESRD	21.6%	21.1%	-0.5%	0.65	23.2%	21.8%	-1.3%	0.08	0.8%	0.50
Race										
White	88.0%	86.1%	-1.8%	0.19	82.7%	82.6%	0.0%	0.96	-1.8%	0.26
Black	9.0%	10.5%	1.4%	0.20	11.8%	11.8%	-0.1%	0.83	1.5%	0.22
Hispanic	1.3%	1.1%	-0.1%	0.62	1.4%	1.4%	0.1%	0.73	-0.2%	0.56
Unknown/other	1.8%	2.3%	0.5%	0.24	4.2%	4.2%	0.1%	0.87	0.5%	0.46
CCW mean	8.9	9.0	0.0	0.68	8.9	9.0	0.1	0.06	-0.1	0.50
Level of complexity										
DRG with MCC	32.5%	37.4%	4.9%	0.001	39.9%	43.2%	3.3%	0.04	1.62%	0.46
DRG with CC	50.1%	46.8%	-3.4%	0.02	44.0%	41.1%	-3.1%	0.02	-0.35%	0.86
DRG without CC	17.4%	15.8%	-1.5%	0.16	16.0%	15.7%	-0.2%	0.77	-1.3%	0.32

DRG=diagnosis-related group (DRG without CC is a given diagnosis without complication or comorbidity; DRG with CC is a given diagnosis with complication or comorbidity; and DRG with MCC is a given diagnosis with major complication or comorbidity).

Table S10: Changes in Payments, Sensitivity analysis using only using only data for early joiners (mean 16 months follow-up)

	BPCI				Matched Controls					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Total 90-day Medicare payments, \$	\$24,648	\$23,860	-\$788	0.04	\$24,261	\$23,596	-\$666	0.003	\$122	0.78
Index hospitalization	\$7,764	\$7,462	-\$303	<0.001	\$7,652	\$7,499	-\$153	0.07	\$150	0.20
Readmissions	\$5,639	\$5,317	-\$322	0.01	\$5,611	\$5,249	-\$362	0.000	-\$40	0.78
Skilled Nursing	\$5,340	\$5,494	\$154	0.39	\$5,251	\$5,171	-\$80	0.37	-\$234	0.24
Inpatient Rehabilitation	\$457	\$322	-\$135	0.001	\$418	\$458	\$40	0.27	\$175	0.002
Long-term Care Hospital	\$685	\$402	-\$283	0.004	\$563	\$467	-\$96	0.04	\$187	0.08
Home health agency	\$1,174	\$1,076	-\$98	0.005	\$1,234	\$1,098	-\$136	0.000	-\$38	0.32
Physician fees	\$2,827	\$2,949	\$123	0.11	\$2,785	\$2,820	\$36	0.39	-\$87	0.32
Non-physician outpatient fees	\$762	\$838	\$76	0.02	\$748	\$834	\$86	0.000	\$10	0.81

Table S11: Changes in Length of Stay, ED Use, Readmissions, and Mortality, Sensitivity analysis using only data for early joiners (mean 16 months follow-up)

	BPCI				Matched Controls					
	Baseline	Post-Period	Difference	P value	Baseline	Post-Period	Difference	P value	Difference in Differences	P value
Length of Stay	5.1	5.0	-0.1	0.370	5.6	5.5	-0.1	0.677	0.0	0.861
ED Use										
30-day	11.2%	10.4%	-1.0%	0.432	12.6%	10.1%	-2.6%	0.082	1.6%	0.435
90-day	22.8%	20.0%	-2.6%	0.175	23.4%	19.7%	-3.4%	0.094	0.8%	0.779
Readmission										
30-day	19.2%	16.8%	-2.4%	0.046	18.6%	17.4%	-1.3%	0.248	-1.1%	0.489
90-day	33.4%	31.9%	-1.6%	0.083	33.3%	32.7%	-0.7%	0.541	-0.9%	0.524
Mortality										
30-day	10.9%	11.1%	0.3%	0.714	11.1%	12.4%	1.4%	0.045	-1.1%	0.343
90-day	20.3%	19.9%	-0.5%	0.744	20.0%	20.8%	0.8%	0.473	-1.2%	0.484

ED=emergency department.