



ACUMEN

**Medicare Spending Per Beneficiary –
Post-Acute Care Measures**

Public Comment Summary Report:
Supplementary Materials

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1 INTRODUCTION

This document presents statistical analyses in response to the public comments addressed in the Medicare Spending Per Beneficiary – Post-Acute Care (MSPB-PAC) Measures Public Comment Summary Report¹. The Centers for Medicare & Medicaid Services (CMS) have contracted with Acumen, LLC to develop the MSPB-PAC measures under the *Calculating Episode-Based Costs from the Medicare Episode Grouper for Physician Feedback* contract (HHSM-500-2011-000121, Task Order HHSM-500-T0008). The measures apply to skilled nursing facilities (SNFs), home health agencies (HHAs), long-term care hospitals (LTCHs), and inpatient rehabilitation facilities (IRFs). As part of its measure development process, CMS has requested interested parties to submit comments on the candidate or concept measures that may be suitable for this project. The Call for Public Comment originally ran from January 13 to 27, 2016 and was extended twice to January 29 and February 5, 2016. A total of 45 responses were received regarding the MSPB-PAC measures. In several instances, commenters requested the results of empirical analyses to support specific aspects of the measures’ design. Table 1, below, provides a mapping of each section in this document to the relevant Summary Comment ID in which a particular issue was raised.

Table 1. Mapping to Public Comment Summary Report Summary Comments

Public Comment Supplementary Materials	Public Comment Summary Report	
	Summary Comment ID	Page Number(s)
Section 2.1: Collapsing Adjacent Stays	17	14-15
Section 2.2: Clean Period	25	19-21
Section 2.3: Service-Level Exclusions	26	21-22
Section 3.1: Risk Adjustment Results	36, 37, 38, 39, 41	26-29
Section 3.2: Lookback Period	43	29
Section 3.3: Clinical Case Mix Hierarchy	40	28

¹ CMS, “CMS Quality Measures Public Comment Page” <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/CallforPublicComment.html#11>

2 EPISODE CONSTRUCTION

This section presents the results of empirical analyses related to episode construction issues raised through public comment. Section 2.1 discusses the rationale for treating adjacent stays in the MSPB-PAC LTCH, IRF, and SNF measures as one treatment period by collapsing adjacent stays. Section 2.2 details analyses related to imposing a clean period requirement, such that MSPB-PAC episodes may only be triggered if preceded by a prior period during which no PAC claims are observed. Section 2.3 discusses the effect of service-level exclusions employed in the MSPB-PAC measures on provider scores and the reliability calculation relative to corresponding all-cost measures.

2.1 Collapsing Adjacent Stays

Some commenters expressed an interest in the supporting analyses for treating adjacent stays in the institutional PAC settings (i.e., IRF, LTCH, and SNF) as part of the same treatment period where there is a readmission of the same beneficiary to the same provider within 7 or fewer days. A readmission after 8 or more days triggers a new MSPB-PAC episode. This section presents our analyses of the following:

- percentage of episodes that would be affected by collapsing stays at a given length; and
- median number of days between adjacent stays (gap length)

2.1.1 *Percentage of Episodes Affected by Collapsing Stays*

This section outlines the results of analyses on the percentage of MSPB-PAC episodes that would be affected by collapsing stays at various gap lengths. In the LTCH and IRF settings, collapsing stays has only a minor effect on the number of resultant episodes. Figure 1, Figure 2, and Figure 3 show this effect for LTCH Site Neutral, LTCH Standard, and IRF episodes, respectively. Each data point in the figures shows the number of episodes (as a percentage of the original total number of stays) that would result if all stays within a given number of days were collapsed into one treatment period. The figures show that even when stays within ten days of each other are collapsed into one episode, the total number of episodes falls less than 1 percentage point for LTCH and only 3 percentage points for IRF. The numbers are even smaller at a gap length of seven days. These figures reflect the fact that closely adjacent stays are very infrequent. We also examined the distribution of the length of stay for each of the MSPB-PAC LTCH and IRF episodes, and found that there was very little difference between the distribution before and after collapsing stays based on gap lengths of both 7 and 10 days.

Figure 1. MSPB-PAC LTCH Site Neutral Episodes as Percentage of All LTCH Site Neutral Stays

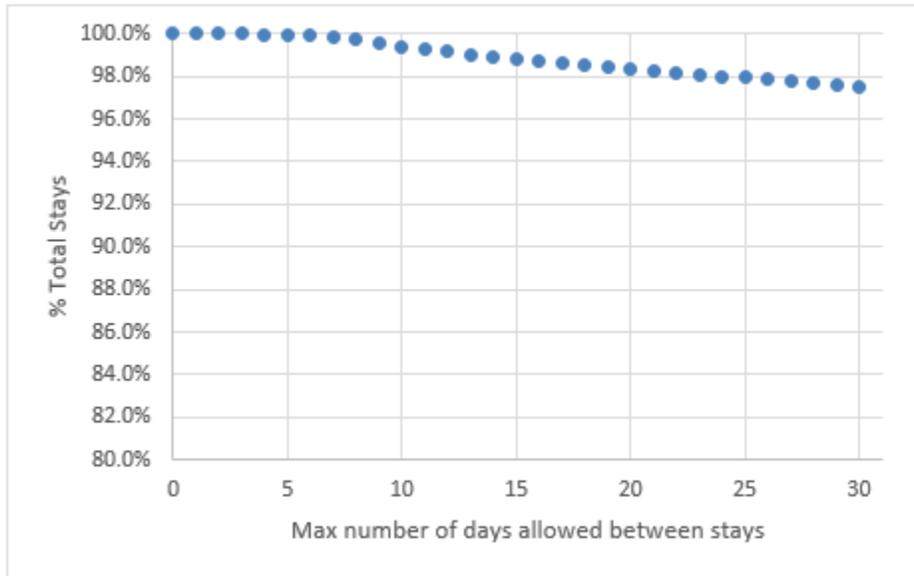


Figure 2. MSPB-PAC LTCH Standard Episodes as Percentage of All LTCH Standard Rate Stays

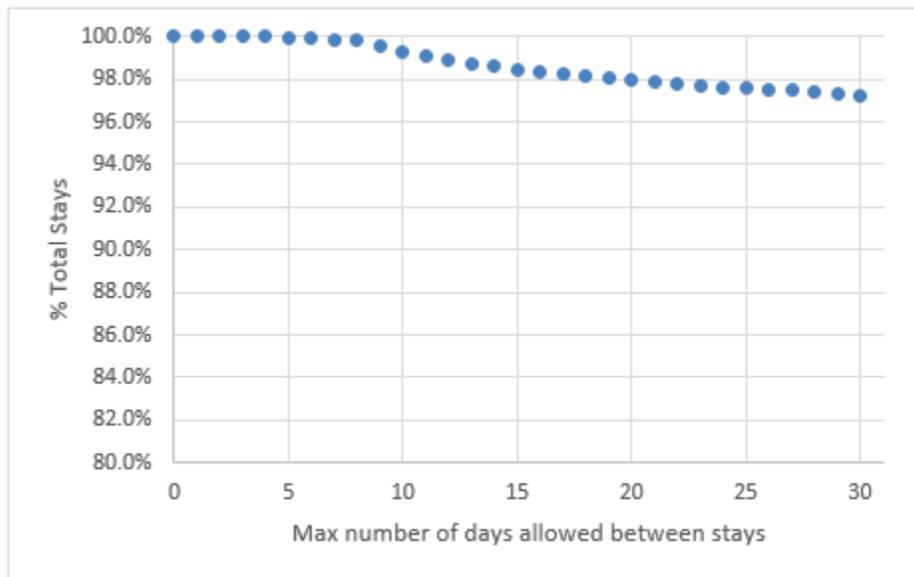
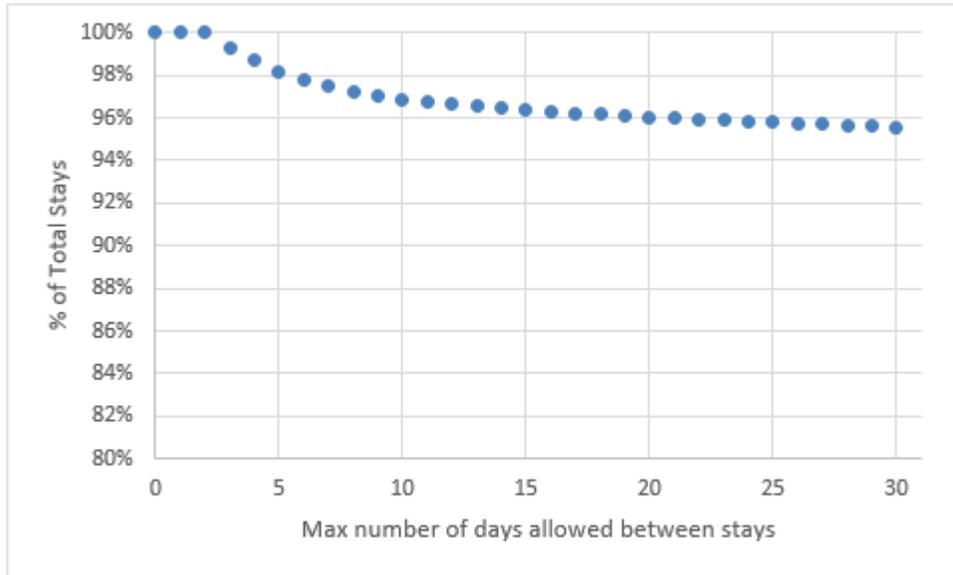


Figure 3. MSPB-PAC IRF Episodes as Percentage of All IRF Stays



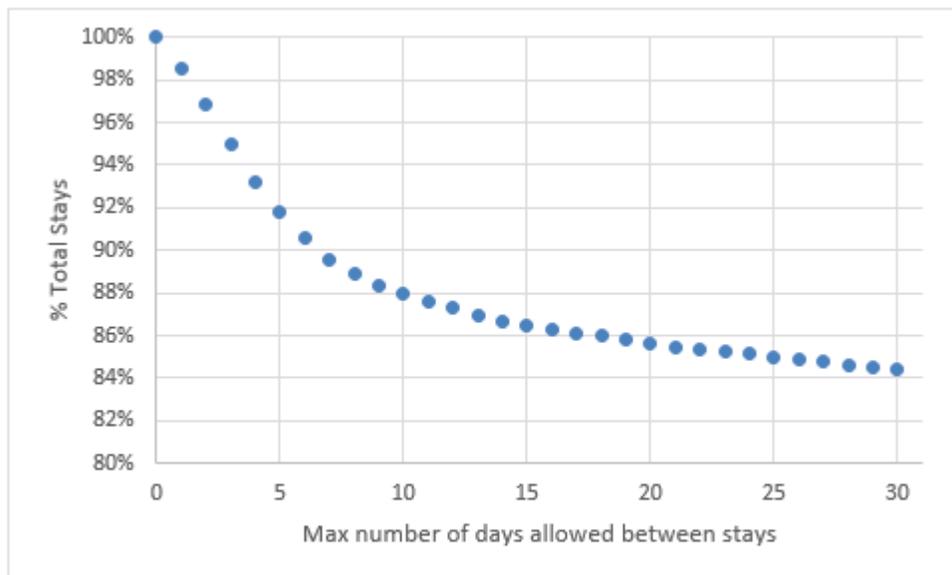
The effect of collapsing stays is more pronounced for MSPB-PAC SNF episodes, as shown below in Table 2. Applying a 7-day gap threshold decreases the number of MSPB-PAC SNF episodes by 10.4 percentage points. Moving from a 7- to 10-day gap further decreases the number of episodes by only 1.7 percentage points. The length of stay distribution of an MSPB-PAC SNF episode is similar with gap lengths at either 7 or 10 days.

Table 2. Number of MSPB-PAC SNF Episodes after Combining Stays

No. of Days Between Stays	No. of Episodes	% of Episodes
0	1,748,762	100.0%
1	1,723,324	98.5%
2	1,693,375	96.8%
3	1,660,308	94.9%
4	1,629,897	93.2%
5	1,604,635	91.8%
6	1,583,640	90.6%
7	1,566,093	89.6%
8	1,554,261	88.9%
9	1,545,406	88.4%
10	1,537,897	87.9%
11	1,531,519	87.6%
12	1,526,121	87.3%
13	1,521,022	87.0%
14	1,516,197	86.7%

The rate at which the number of episodes is affected by increasing the allowed number of days between collapsed stays is also shown below in Figure 4. This figure shows that the rate of decrease in the number of MSPB-PAC SNF episodes slows after approximately 7 days. In fact, as is clear in Table 2, with each unit increment in the gap threshold from 0 to 7, there is more than a one percentage point change in the number of episodes; for every unit increment from 7 onwards, there is less than one percentage point change in the number of episodes. In making this comparison of the change in slope, it is important to note that we are working with the full population of SNF stays here, rather than a small random sample. Consequently, we considered that a threshold of 7 could be indicative of a reasonable demarcation point for treating adjacent SNF stays as part of one MSPB-PAC SNF episode.

Figure 4. MSPB-PAC SNF Episodes as Percentage of All SNF Stays



2.1.2 Median Gap Length between Adjacent PAC Stays

We also analyzed the distribution of gap length for each PAC setting and across all PAC settings. As above, gaps between all SNF stay pairs for the same beneficiary and provider, all IRF stay pairs for the same beneficiary and provider, LTCH Standard stay pairs for the same beneficiary and provider, and LTCH Site Neutral stay pairs for the same beneficiary and provider were used as the basis of these calculations.

Table 3 shows the distribution of the number of days between adjacent stays for the institutional PAC settings. The candidate gap threshold for SNF suggested by the analysis above, seven days, is in fact the median gap length among SNF stay pairs. When taking the distribution of gap lengths across all of the pairs described in the previous paragraph (shown in the bottom row of the table), there is a mean gap of 35.1 days between stays, and the median gap length is 8 days.

Table 3. Number of Days between Adjacent PAC Stays by PAC Setting

PAC Setting	No. of Gaps	Mean	Min	Percentiles								Max
				1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	
LTCH Site Neutral	3,503	76.96	1	6	9	12	25	52	105	167	210	329
LTCH Standard Rate	2,287	55.07	3	6	9	10	14	33	78	142	191	348
IRF	26,460	58.86	3	3	3	4	6	25	91	168	216	352
SNF	364,520	32.85	0	1	1	2	4	7	31	111	161	362
ALL	396,770	35.10	0	1	1	2	4	8	37	117	168	362

We considered these analyses, along with the input of stakeholders with clinical expertise in each of the PAC settings, to determine that collapsing adjacent PAC stays based on a gap of 7 days is appropriate. The Technical Expert Panel (TEP), CMS clinicians, and the measure developer’s clinicians favored a consistent rule across settings. The analyses above show that collapsing stays less than 8 days apart is a natural demarcation point for SNF, and using this same threshold for the other settings can ensure consistency while having very little impact on the total number of LTCH and IRF episodes.

2.2 Clean Period

Some commenters expressed concern that episodes beginning during the associated services period of another episode would result in double-counting Medicare spending. The approach to remove this overlap of episodes is to require a “clean period” of a certain length before triggering an episode. With this approach, the episode trigger would be defined as an admission to a PAC provider preceded by 30 days during which there are no other PAC claims for that beneficiary. As a result, an MSPB-PAC episode would never begin during another provider’s MSPB-PAC episode.

However, our analysis shows that such a requirement would exclude a large percentage of MSPB-PAC episodes. Table 4, below, shows the number and percentage of MSPB-PAC episodes that would not meet a 30-day clean period requirement. These are presented in the “All PAC” row, separately for each setting indicated in the columns. The remaining rows indicate the type of PAC claim appearing in the clean period. The exclusion of a large percentage of MSPB-PAC episodes is most pronounced in the HHA setting, where this requirement would exclude 59.3 percent of episodes. The institutional PAC settings also would have a large percentage of episodes excluded if a 30-day clean period were required: 35.7 percent for LTCH, 28.6 percent for SNF, and 17.2 percent for IRF.

Table 4. MSPB-PAC Episodes with Prior PAC Claims in 30-Day Clean Period

Most Recent PAC Claim in Clean Period	Episode Frequency							
	HHA		IRF		LTCH		SNF	
	No.	%	No.	%	No.	%	No.	%
None	2,233,803	40.7%	518,035	82.8%	117,069	64.3%	1,117,820	71.4%
All PAC	3,255,389	59.3%	107,565	17.2%	65,111	35.7%	448,273	28.6%
HHA	2,465,889	44.9%	56,282	9.0%	28,048	15.4%	156,194	10.0%
IRF	144,183	2.6%	13,634	2.2%	3,875	2.1%	62,848	4.0%
LTCH	19,525	0.4%	12,476	2.0%	6,442	3.5%	34,832	2.2%
SNF	625,792	11.4%	25,173	4.0%	26,746	14.7%	194,399	12.4%

Furthermore, using a longer clean period of 60 days would exclude a higher percentage of episodes in each setting, as shown below in Table 5. A longer clean period for HHA would exclude 62.8 percent, followed by LTCH, which would exclude 46.4 percent of episodes. For SNF and IRF, this would exclude 34.8 and 23.4 percent of episodes, respectively.

Table 5. MSPB-PAC Episodes with Prior PAC Claims in 60-Day Clean Period

Most Recent PAC Claim in Clean Period	Episode Frequency							
	HHA		IRF		LTCH		SNF	
	No.	%	No.	%	No.	%	No.	%
None	2,044,216	37.2%	479,259	76.6%	97,680	53.6%	1,021,362	65.2%
All PAC	3,444,976	62.8%	146,341	23.4%	84,500	46.4%	544,731	34.8%
HHA	2,635,473	48.0%	85,927	13.7%	40,313	22.1%	220,527	14.1%
IRF	146,122	2.7%	17,828	2.8%	4,483	2.5%	64,854	4.1%
LTCH	20,061	0.4%	12,747	2.0%	8,302	4.6%	35,454	2.3%
SNF	643,320	11.7%	29,839	4.8%	31,402	17.2%	223,896	14.3%

Given these results, we do not consider it appropriate to require a clean period to trigger an MSPB-PAC episode. The high percentage of episodes that would be excluded from PAC providers' measures does not align with CMS' goal of capturing a large share of Medicare PAC spending in the MSPB-PAC resource use measures. Furthermore, allowing the MSPB-PAC episodes to overlap ensures that all PAC providers share the same incentives to deliver quality care and engage in patient-focused care planning and coordination.

2.3 Service-level Exclusions

Some commenters requested additional information on how the MSPB-PAC measures as proposed compare to a measure in which all Medicare Part A and Part B services are included (an "all-cost" measure). In contrast to all-cost measures, MSPB-PAC measures have a limited set of service-level exclusions (e.g., for clinically unrelated services) occurring during the episode window. These service-level exclusions are designed to ensure that facilities do not have disincentives to treat patients with certain conditions or complex care needs. Commenters

were specifically interested in comparisons of provider score performance and reliability for the MSPB-PAC measures versus corresponding all-cost measures.

2.3.1 Effect on Provider Score

To compare the MSPB-PAC measures and their corresponding all-cost measures, our group analyzed the differences in the distribution of provider scores for each type of measure. An MSPB-PAC measure of less than 1 indicates that a given PAC provider's Medicare spending is less than that of the national median PAC provider of the same type during a performance period. Therefore, a reduction in the MSPB-PAC score means that the PAC provider is improving relative to the national median.

There is only a small difference in provider scores between the MSPB-PAC measures and all-cost measures, but there are important impacts on a significant minority of providers, as shown below in Table 6. The average Medicare spending for an episode is between \$633 and \$1,338 less for the MSPB-PAC measures overall. There is little change in average provider score for any setting, but this masks increases in provider score among some providers and decreases among others. Provider scores at the 5th and 95th percentiles have a greater change than the average provider score in each PAC setting. At the 5th percentile, provider scores for the MSPB-PAC measures range from 0.009 to 0.046 less than their all-cost measure equivalent, while at the 95th percentile provider scores for the MSPB-PAC measures range from 0.008 to 0.041 more than their all-cost measure equivalent. Taken in comparison to the median score in each setting, the magnitudes of these numbers illustrate that an important minority of providers have their scores affected in a meaningful way.

Table 6. MSPB-PAC Provider Score Distribution for All-Cost Measure and Service-Excluded Measure

PAC		Overall Statistics				Distribution in Percentiles									
Setting	Measure	Mean Provider Cost	Episode-Weighted Median*	Mean	Std. Dev.	Min	1 st	5 th	20 th	50 th	80 th	95 th	99 th	Max	
HHA	All-Cost Measure	\$10,895	\$11,211	0.97	0.15	0.39	0.63	0.73	0.85	0.97	1.09	1.21	1.35	2.03	
HHA	Service-Excluded Measure	\$10,046	\$10,314	0.97	0.15	0.46	0.63	0.73	0.86	0.97	1.09	1.22	1.36	1.95	
HHA	MSPB-PAC Amount	\$10,046	\$10,314	\$10,046	\$1,532	\$4,708	\$6,533	\$7,531	\$8,822	\$10,039	\$11,212	\$12,555	\$14,031	\$20,113	
HHA	Provider Episode Counts	.	.	496	906	20	23	35	92	250	655	1,751	3,825	45,787	
HHA	Score Difference	-\$851	.	0.002	0.031	-0.407	-0.103	-0.046	-0.014	0.005	0.021	0.041	0.069	0.297	
IRF	All-Cost Measure	\$30,530	\$30,993	0.99	0.09	0.73	0.79	0.85	0.92	0.98	1.05	1.12	1.23	1.46	
IRF	Service-Excluded Measure	\$29,896	\$30,390	0.98	0.09	0.73	0.79	0.85	0.91	0.98	1.05	1.12	1.24	1.44	
IRF	MSPB-PAC Amount	\$29,896	\$30,390	\$29,896	\$2,624	\$22,171	\$23,903	\$25,704	\$27,789	\$29,863	\$31,832	\$34,143	\$37,581	\$43,836	
IRF	Provider Episode Counts	.	.	531	556	20	35	75	163	336	817	1,643	2,460	7,126	
IRF	Score Difference	-\$633	.	-0.001	0.007	-0.061	-0.024	-0.013	-0.006	-0.001	0.004	0.008	0.014	0.027	
LTCH	All-Cost Measure	\$68,384	\$68,627	1.00	0.06	0.54	0.87	0.91	0.95	0.99	1.04	1.09	1.19	1.39	
LTCH	Service-Excluded Measure	\$67,046	\$67,282	1.00	0.06	0.53	0.88	0.91	0.95	0.99	1.04	1.09	1.19	1.36	
LTCH	MSPB-PAC Amount	\$67,046	\$67,282	\$67,046	\$4,308	\$35,799	\$59,289	\$61,374	\$63,879	\$66,932	\$69,955	\$73,341	\$80,282	\$91,419	
LTCH	Provider Episode Counts	.	.	416	324	28	42	117	206	338	531	939	1,945	2,561	
LTCH	Score Difference	-\$1,338	.	0.000	0.006	-0.035	-0.018	-0.009	-0.004	0.001	0.004	0.008	0.010	0.012	
SNF	All-Cost Measure	\$27,756	\$27,058	1.03	0.25	0.22	0.48	0.62	0.83	1.02	1.22	1.45	1.65	2.07	
SNF	Service-Excluded Measure	\$26,830	\$26,133	1.03	0.25	0.22	0.48	0.62	0.82	1.02	1.22	1.46	1.66	2.08	
SNF	MSPB-PAC Amount	\$26,830	\$26,133	\$26,830	\$6,505	\$5,715	\$12,431	\$16,155	\$21,538	\$26,604	\$31,919	\$38,100	\$43,305	\$54,290	
SNF	Provider Episode Counts	.	.	110	100	20	21	25	40	79	160	304	502	1,470	
SNF	Score Difference	-\$926	.	0.001	0.018	-0.166	-0.058	-0.029	-0.010	0.003	0.013	0.024	0.045	0.129	

*An example of an episode-weighted median is the following: if there are 2 PAC providers and one provider had a measure score of 1.5 and another had one of 0.5, but the first had 4 episodes and the second only 1, then the episode-weighted median would be 1.5 (i.e., 0.5, 1.5, **1.5**, 1.5, 1.5).

2.3.2 Effect on Reliability Calculation

To compare MSPB-PAC measures and their corresponding all-cost measures, our group also analyzed the differences in reliability. Reliability refers to the extent to which a measure reflects true variation in a provider’s episode spending relative to the national average. The reliability calculation captures how much of the variance in measure scores is due to differences in episode payments between providers rather than differences in episode payments within a provider’s set of episodes. Statistics on the percentage of providers achieving reliability greater than 0.4 (indicating moderate or high reliability)² are useful in determining case minimums for reporting.

Reliability is similar for the service-excluded measure and the all-cost measure, as shown below in Table 7. Mean reliability across providers is equal across the two types of measures for all PAC settings. The percentage of providers with reliability greater than 0.4 was slightly higher for the MSPB-PAC IRF measure, in comparison to an all-cost IRF measure. The percentage of providers with moderate or high reliability was slightly lower for the MSPB-PAC LTCH and MSPB-PAC HHA measures than if they were all-cost measures. There was no difference in percentage of providers with a reliability over 0.4 for the MSPB-PAC SNF measure. Given the exclusion of episodes with especially large or small residuals after risk adjustment, it is possible for the number of included providers to differ in the all-cost measure and the service-excluded measure. While there are 4 fewer providers included in the MSPB-PAC SNF measure than an all-cost SNF measure, there was no difference in provider counts for HHA, IRF, or LTCH.

Table 7. MSPB-PAC Reliability Comparison of All-Cost and Service-Excluded Measure

PAC		Overall Statistics			Reliability	
Setting	Measure	Case Minimum	Provider Count	% of All Providers	Mean Reliability	% Greater than 0.4
HHA	All-Cost Measure	20	10,821	91.5%	0.77	94.49%
HHA	Service Excluded Measure	20	10,821	91.5%	0.77	94.27%
IRF	All-Cost Measure	20	1,154	98.7%	0.90	99.65%
IRF	Service-Excluded Measure	20	1,154	98.7%	0.90	99.74%
LTCH	All-Cost Measure	20	429	97.7%	0.87	99.53%
LTCH	Service-Excluded Measure	20	429	97.7%	0.87	98.83%
SNF	All-Cost Measure	20	13,715	88.8%	0.90	100.00%
SNF	Service-Excluded Measure	20	13,711	88.8%	0.90	100.00%

² A reliability of at least 0.4 is considered moderate or high reliability. Previous work by Yale University proposed that this reliability threshold of 0.4 is the lower limit of “moderate” reliability. See Mathematica, Inc. memorandum: http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/hospital-value-based-purchasing/Downloads/HVBP_Measure_Reliability-.pdf

3 MEASURE CALCULATION

This section discusses issues related to measure calculation as raised during the public comment period. Section 3.1 outlines the results for each of the MSPB-PAC risk adjustment models. Section 3.2 discusses a recommendation from stakeholders that we consider moving from a 90- to 180-day lookback period in risk adjustment and section 3.3 documents the clinical case mix order of priority where there are competing claims with the same end date.

3.1 Risk Adjustment Results

Some commenters were interested in seeing the risk adjustment results for the MSPB-PAC models. A complete list of the coefficients for each MSPB-PAC risk adjustment model is contained at Appendix A.

As noted in the Public Comment Summary, our group tested feedback provided through public comment and is proposing to include several additional covariates in the risk adjustment model as a result. Through this process, we also re-examined how clinical case mix categories are incorporated in each MSPB-PAC risk adjustment model. We are proposing to incorporate clinical case mix categories as dummy variables in each model, rather than running the model separately within each category. The latter approach did not yield enough improvement in the R-Squared or measure reliability to justify using it over the former. Moreover, this choice helps mitigate concerns about sample size expressed by some public commenters. Furthermore, as a result of comments received about prior HHA patients being significantly different from those coming from other PAC settings -- as well as our empirical tests suggesting that prior HHA beneficiaries have lower average episode spending than beneficiaries from other PAC settings³ - we include two separate clinical case mix category dummy variables, “Prior PAC - Institutional” and “Prior PAC - HHA”, instead of one “Prior PAC” dummy in the risk adjustment models.

While many of the coefficients in each model are statistically significant, occasionally certain coefficients may not be statistically significant within a given setting and some covariates have small cell sizes. However, for the purposes of maintaining consistency across the MSPB-PAC risk adjustment models and with the hospital MSPB risk adjustment model, we maintained common lists of covariates to the greatest extent possible. When including MS-LTC-DRG dummy variables in the LTCH model, we included only those MS-LTC-DRGs for which there were at least 30 episodes; we included Major Diagnostic Category (MDC) dummies to help

³ See discussion in the MSPB-PAC Public Comment Summary Report, Section 2, Summary Comment ID-41.

capture differences among episodes that were in the rarer MS-LTC-DRGs that did not meet this threshold.

Table 8, below, shows the overall fit of the proposed risk adjustment models, with the Adjusted-R² value indicating how well the models predict expected spending. In the HHA setting, the MSPB-PAC HHA Standard, LUPA, and PEP models use the same set of variables but risk adjustment is run separately within each episode type to reflect payment policy and beneficiaries’ underlying health characteristics. In the LTCH setting, there are some differences in variables between the MSPB-PAC LTCH Standard and Site Neutral models due to the requirement discussed above that each MS-LTC-DRG has at least 30 episodes and the omission of non-IP clinical case mix categories for LTCH Standard episodes to reflect the definition of LTCH standard payment rate cases under the LTCH prospective payment system (PPS).

Table 8. MSPB-PAC Models

MSPB-PAC Episode Type	No. of Episodes	No. of Parameters	Adjusted R-Squared
HHA Standard	4,948,114	113	0.088
HHA LUPA	377,457	113	0.094
HHA PEP ⁴	163,621	113	0.072
IRF	625,599	134	0.132
LTCH Site Neutral	90,893	335	0.308
LTCH Standard	91,287	285	0.490
SNF	1,566,093	113	0.097

Table 9, below, shows the distribution of MSPB-PAC episode costs as observed and as predicted through the relevant risk adjustment model. It also includes the ratio of observed/expected Medicare spending, which directly enters the calculation of the measures.

⁴ Home health claims that are subject to both a low utilization payment adjustment (LUPA) and partial episode payment (PEP) adjustment are treated as MSPB-PAC HHA PEP episodes.

Table 9. Distribution of MSPB-PAC Episode Costs: Observed, Expected, and Observed/Expected

MSPB-PAC Episode Type	Distribution	Mean	Std. Dev.	Percentiles									
				0.5 th	1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th
HHA Standard	Obser.	\$10,997	\$13,811	\$1,957	\$2,125	\$2,701	\$3,178	\$4,322	\$6,283	\$11,341	\$24,336	\$37,322	\$66,521
HHA Standard	Exp.	\$10,997	\$4,108	\$5,103	\$5,147	\$6,853	\$7,077	\$8,070	\$9,847	\$12,708	\$16,582	\$19,388	\$25,126
HHA Standard	Obser./Exp.	1.00	1.16	0.17	0.19	0.26	0.31	0.44	0.65	1.06	2.00	3.11	5.88
HHA LUPA	Obser.	\$12,252	\$22,915	\$241	\$319	\$529	\$682	\$1,128	\$2,790	\$11,988	\$39,774	\$57,759	\$100,340
HHA LUPA	Exp.	\$12,252	\$7,025	\$2,373	\$2,895	\$4,840	\$5,432	\$7,076	\$10,263	\$15,501	\$21,801	\$26,404	\$35,739
HHA LUPA	Obser./Exp.	1.01	2.01	0.02	0.03	0.05	0.07	0.12	0.29	0.90	2.84	4.65	9.30
HHA PEP	Obser.	\$13,213	\$13,254	\$384	\$529	\$1,402	\$2,639	\$4,659	\$8,731	\$17,820	\$29,298	\$38,095	\$60,987
HHA PEP	Exp.	\$13,213	\$3,572	\$7,819	\$7,858	\$8,862	\$9,365	\$10,488	\$12,483	\$15,200	\$18,104	\$20,102	\$24,076
HHA PEP	Obser./Exp.	1.00	0.98	0.03	0.04	0.12	0.21	0.39	0.69	1.30	2.18	2.86	4.52
IRF	Obser.	\$31,050	\$19,122	\$5,078	\$9,531	\$13,478	\$15,426	\$19,679	\$26,553	\$38,213	\$52,119	\$61,941	\$89,628
IRF	Exp.	\$31,050	\$6,953	\$16,451	\$16,989	\$19,345	\$22,795	\$26,786	\$30,484	\$34,923	\$39,882	\$43,387	\$50,775
IRF	Obser./Exp.	1.00	0.52	0.18	0.32	0.47	0.55	0.69	0.89	1.19	1.59	1.88	2.69
LTCH Site Neutral	Obser.	\$56,497	\$30,537	\$6,287	\$8,473	\$18,062	\$25,164	\$37,528	\$51,521	\$68,868	\$91,919	\$110,882	\$163,438
LTCH Site Neutral	Exp.	\$56,497	\$17,014	\$23,273	\$24,662	\$32,867	\$37,677	\$45,497	\$54,704	\$63,935	\$78,079	\$88,970	\$111,336
LTCH Site Neutral	Obser./Exp.	1.00	0.45	0.15	0.20	0.37	0.54	0.76	0.93	1.17	1.49	1.76	2.55
LTCH Standard	Obser.	\$81,106	\$48,241	\$9,979	\$12,662	\$25,257	\$34,807	\$48,092	\$67,885	\$105,637	\$142,229	\$173,440	\$246,303
LTCH Standard	Exp.	\$81,106	\$33,835	\$32,391	\$35,392	\$43,824	\$48,727	\$57,084	\$68,035	\$111,506	\$130,786	\$139,522	\$176,800
LTCH Standard	Obser./Exp.	1.00	0.44	0.18	0.22	0.40	0.58	0.76	0.94	1.16	1.48	1.76	2.52
SNF	Obser.	\$27,119	\$20,978	\$1,586	\$2,226	\$5,297	\$7,562	\$12,662	\$21,818	\$36,682	\$53,938	\$63,994	\$91,811
SNF	Exp.	\$27,119	\$6,535	\$16,252	\$16,642	\$18,094	\$19,951	\$22,745	\$26,024	\$30,257	\$35,425	\$39,355	\$48,599
SNF	Obser./Exp.	1.00	0.71	0.06	0.09	0.21	0.31	0.50	0.82	1.32	1.92	2.32	3.23

Note: these costs are prior to Winsorization (i.e., “bottom-coding”).

Table 10, below, shows the distribution of MSPB-PAC provider scores. An MSPB-PAC measure that is less than 1 indicates that a given PAC provider’s Medicare spending is less than that of the national median provider in the same PAC setting during a performance period.

Table 10. Distribution of MSPB-PAC Provider Scores

PAC Setting	Mean	Std. Dev.	Percentiles								
			1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th
HHA	0.97	0.20	0.47	0.67	0.75	0.87	0.97	1.06	1.16	1.24	1.48
IRF	0.99	0.10	0.78	0.84	0.88	0.93	0.98	1.04	1.09	1.13	1.24
LTCH	1.00	0.08	0.85	0.90	0.93	0.96	0.99	1.03	1.07	1.09	1.23
SNF	1.01	0.27	0.38	0.56	0.66	0.84	1.01	1.18	1.35	1.47	1.69

3.2 Lookback Period

A commenter was concerned that a 90-day lookback period in the MSPB-PAC risk adjustment models is insufficient to capture complex patients with comorbidities and chronic conditions, and proposed a 180-day lookback period instead. The length of the lookback period was also raised as a concern by the TEP. The risk adjustment models examine beneficiaries’ Part A and Part B claims during the lookback period for information that is then used to predict expected episode spending. A longer lookback period would allow additional information to be used in predicting expected spending, which might better capture long-lasting conditions.

Furthermore, incorporating a 180-day lookback period would require the extension of the analogous lookback period used in the episode-level exclusion for beneficiaries who are not continuously enrolled in Medicare Part A and Part B for the lookback plus the entire episode window. Moving from a 90- to 180-day lookback period would decrease the number of episodes by between 1.5 and 2.7 percent across the MSPB-PAC settings, as shown below in Table 11.

The impact of moving to a 180-day lookback period on the risk adjustment models for each setting is inconsistent. Table 11 below presents the number of episodes and the adjusted R² for each of the separate risk adjustment models for the MSPB-PAC measures for a 90- and 180-day lookback period. The adjusted R² value increases for LTCH Standard and each of the HHA risk adjustment models by 0.2 to 3.1 percent. The adjusted R² however decreases for the LTCH Site Neutral, IRF, and SNF risk adjustment models by 0.8 to 3.8 percent.

Table 11. Comparison of 90- and 180-Day Lookback Period

MSPB-PAC Risk Adjustment Model	90-Day Lookback		180-Day Lookback Period		% Difference in Episode Counts	
	No. of Episodes	Adjusted R-Squared	No. of Episodes	Adjusted R-Squared	No. of Episodes	Adjusted R-Squared
HHA Standard	4,948,114	0.088	4,871,491	0.092	-1.5%	3.7%
HHA LUPA	377,457	0.094	371,457	0.097	-1.6%	3.8%
HHA PEP	163,621	0.072	160,809	0.073	-1.7%	1.0%
IRF	625,599	0.132	614,146	0.130	-1.8%	-1.3%
LTCH Site Neutral	90,893	0.308	88,687	0.305	-2.4%	-0.8%
LTCH Standard	91,287	0.490	88,856	0.491	-2.7%	0.2%
SNF	1,566,093	0.097	1,542,464	0.093	-1.5%	-4.3%

Given that there is not a substantial or consistent increase in the explanatory power of the risk adjustment models with a 180-day lookback period, we conclude that it is not beneficial to move from a 90- to 180-day lookback period. In addition, excluding additional episodes does not align with CMS’ goal of capturing a large share of Medicare PAC spending in the MSPB-PAC resource use measures.

3.3 Clinical Case Mix Hierarchy for Episodes with Multiple Prior Claims Sharing Same End Date

Some commenters were interested in additional information regarding the hierarchy that is applied in assigning clinical case mix categories when there are multiple prior claims with the same end date. This section discusses the methodology that is employed, and provides analysis on the frequency with which the hierarchy is used to determine an episode’s clinical Case Mix category.

A beneficiary is assigned to a clinical case mix category using the following methodology. Using the most recent institutional claim (by end date) in the 60 days prior to the start of a PAC episode, the episode is assigned to one of the mutually exclusive and exhaustive case mix categories. The vast majority of MSPB-PAC episodes are assigned to a clinical case mix category using the most recent institutional claim end date. In the event that there are multiple prior claims with the same end date in the 60 days prior to the start of a PAC episode, additional logic is employed to determine the episodes’ clinical case mix category. As shown in Table 12 below, the incidence of this circumstance is rare, ranging from 0.07 to 0.53 percent of episodes within each type of MSPB-PAC episode.

Table 12. Number and Percentage of MSPB-PAC Episodes with Multiple Prior Claims Sharing the Same End Date

MSPB-PAC Episode Type	Total episodes	Episodes with Prior Claims with Same End Date	
	Number	Number	%
HHA Standard	4,948,114	5,995	0.12%
HHA LUPA	377,457	277	0.07%
HHA PEP	163,621	300	0.18%
IRF	625,599	1,161	0.19%
LTCH Site Neutral	90,893	480	0.53%
LTCH Standard	91,287	458	0.50%
SNF	1,566,093	5,007	0.32%

The same logic is used to handle multiple prior claims with the same end date across all types of MSPB-PAC episodes except for LTCH Standard. For conflicts occurring between two IP claims, the clinical case mix category corresponding to the claim with the longest length of stay (LOS) is assigned. For all other types of conflicts including those where the LOS is the same between two IP claims, the clinical case mix category is assigned using the following hierarchy:

- (1) Prior Acute Surgical IP – Orthopedic – beneficiaries who have most recently undergone orthopedic surgery in an acute inpatient hospital
- (2) Prior Acute Surgical IP – Non-Orthopedic – beneficiaries who have most recently undergone a non-orthopedic surgery in an acute inpatient hospital
- (3) Prior Acute Medical IP with ICU – beneficiaries who have most recently stayed in an acute inpatient hospital for non-surgical reasons and had a stay in the intensive care unit (ICU)
- (4) Prior Acute Medical IP without ICU – beneficiaries who have most recently stayed in an acute inpatient hospital for non-surgical reasons but did not have a stay in the ICU
- (5) Prior PAC - Institutional – beneficiaries who are continuing PAC from an institutional PAC setting (i.e., coming from an LTCH, IRF, or SNF)
- (6) Prior PAC - HHA - beneficiaries who are continuing PAC from a HHA
- (7) Community – all other beneficiaries

This hierarchy was created through the input of the measure development teams’ clinicians as well as empirical analyses on the relative frequency of the combinations of clinical case mix categories. The prioritization of the inpatient-related categories (1) – (4) above categories (5) – (7) reflects the extent to which the immediately preceding care is likely to affect the beneficiaries’ use of PAC services. Within categories (1)-(4), clinical case mix categories are also ranked according to the expected intensity of PAC services for patients within each group.

Different logic is used to handle LTCH Standard episodes with multiple prior claims sharing the same end date. Given that LTCH Standard episodes are defined by the presence of a prior acute IP stay between 0 and 1 days prior to the start of the LTCH Standard episode, only

information about this required prior hospitalization is used to assign the episode's clinical case mix category. Given the role of ICU days in determining eligibility for LTCH Standard payment rates, we assign the clinical case mix category based on the inpatient stay with the ICU days. In the event of a tie in the number of ICU days, we use the IP claim with the longer length of stay. Should a tie still persist, we take the most recent IP claim by discharge date. Finally, if the prior criteria do not result in a category assignment, we use the original hierarchy discussed above.

Table 13 and Table 14 show episodes assigned to each clinical case mix category across the types of MSPB-PAC episodes. For those episodes having multiple prior claims with the same end date, the table also illustrates the case mix category for the alternative prior claim option. This table shows that conflicts between different inpatient-related clinical case mix categories are very uncommon. Most often, conflicts occur between inpatient-related clinical case mix categories and either the "Prior PAC – HHA" or the "Prior PAC – Institutional" category. For instance, for MSPB-PAC SNF episodes assigned to the "Prior Medical w/o ICU" category, 0.4% of those episodes have multiple prior claims with the same end date. Of those episodes, 94.6% result from conflict between the inpatient claim and a HHA claim. In the small number of cases where an episode assigned to the "Prior Medical w/o ICU" category conflicts with another IP claim, it almost always is from the same "Prior Medical w/o ICU" category, meaning that there is no change in clinical case mix category.

Table 13. Clinical Case Mix Categories for MSPB-PAC Episodes with Multiple Prior Claims Sharing Same End Date, for HHA, IRF, LTCH-Site Neutral, and SNF

MSPB-PAC Episode Type	Assigned Clinical Case Mix Category	All Episodes		Episodes with Multiple Prior Claims w/Same End Date		Alternative Clinical Case Mix Category (From Prior Claim w/Same End Date)													
						Prior IP - Surgical Orthopedic		Prior IP - Surgical Non-Orthopedic		Prior IP - Medical w/o ICU		Prior IP - Medical w/ ICU		Prior PAC - Institutional		Prior PAC - HHA		Community	
						#	%	#	%	#	%	#	%	#	%	#	%	#	%
HHA	All	5,489,192	100.0%	6,572	0.1%	7	0.1%	38	0.6%	50	0.8%	16	0.2%	243	3.7%	6,218	94.6%	0	0.0%
HHA	Prior Surgical IP - Orthopedic	221,850	4.0%	252	0.1%	7	2.8%	2	0.8%	0	0.0%	0	0.0%	89	35.3%	154	61.1%	0	0.0%
HHA	Prior Surgical IP - Non-Orthopedic	218,725	4.0%	603	0.3%	0	0.0%	35	5.8%	4	0.7%	1	0.2%	26	4.3%	537	89.1%	0	0.0%
HHA	Prior Medical IP w/ ICU	195,801	3.6%	1,048	0.5%	0	0.0%	1	0.1%	5	0.5%	11	1.0%	37	3.5%	994	94.8%	0	0.0%
HHA	Prior Medical IP w/o ICU	509,796	9.3%	2,903	0.6%	0	0.0%	0	0.0%	41	1.4%	4	0.1%	69	2.4%	2,789	96.1%	0	0.0%
HHA	Prior PAC - Institutional	777,573	14.2%	1,721	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	22	1.3%	1,699	98.7%	0	0.0%
HHA	Prior PAC - HHA	2,497,194	45.5%	45	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	45	100.0%	0	0.0%
HHA	Community	1,068,253	19.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
IRF	All	625,599	100.0%	1,161	0.2%	21	1.8%	10	0.9%	30	2.6%	31	2.7%	37	3.2%	1,032	88.9%	0	0.0%
IRF	Prior Surgical IP - Orthopedic	183,547	29.3%	245	0.1%	21	8.6%	1	0.4%	2	0.8%	0	0.0%	16	6.5%	205	83.7%	0	0.0%
IRF	Prior Surgical IP - Non-Orthopedic	97,433	15.6%	157	0.2%	0	0.0%	9	5.7%	3	1.9%	3	1.9%	6	3.8%	136	86.6%	0	0.0%
IRF	Prior Medical IP w/ ICU	108,223	17.3%	247	0.2%	0	0.0%	0	0.0%	3	1.2%	27	10.9%	3	1.2%	214	86.6%	0	0.0%
IRF	Prior Medical IP w/o ICU	147,567	23.6%	450	0.3%	0	0.0%	0	0.0%	22	4.9%	1	0.2%	11	2.4%	416	92.4%	0	0.0%
IRF	Prior PAC - Institutional	24,016	3.8%	61	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	1.6%	60	98.4%	0	0.0%
IRF	Prior PAC - HHA	17,404	2.8%	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%
IRF	Community	47,409	7.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LTCH Site Neutral	All	90,893	100.0%	480	0.5%	1	0.2%	5	1.0%	14	2.9%	1	0.2%	21	4.4%	438	91.3%	0	0.0%
LTCH Site Neutral	Prior Surgical IP - Orthopedic	8,725	9.6%	43	0.5%	1	2.3%	0	0.0%	0	0.0%	0	0.0%	1	2.3%	41	95.3%	0	0.0%
LTCH Site Neutral	Prior Surgical IP - Non-Orthopedic	17,028	18.7%	110	0.6%	0	0.0%	5	4.5%	0	0.0%	0	0.0%	4	3.6%	101	91.8%	0	0.0%
LTCH Site Neutral	Prior Medical IP w/ ICU	6,737	7.4%	36	0.5%	0	0.0%	0	0.0%	1	2.8%	1	2.8%	4	11.1%	30	83.3%	0	0.0%
LTCH Site Neutral	Prior Medical IP w/o ICU	37,767	41.6%	256	0.7%	0	0.0%	0	0.0%	13	5.1%	0	0.0%	10	3.9%	233	91.0%	0	0.0%
LTCH Site Neutral	Prior PAC - Institutional	7,704	8.5%	35	0.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	5.7%	33	94.3%	0	0.0%
LTCH Site Neutral	Prior PAC - HHA	5,965	6.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LTCH Site Neutral	Community	6,967	7.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
SNF	All	1,566,093	100.0%	5,007	0.3%	27	0.5%	27	0.5%	104	2.1%	27	0.5%	123	2.5%	4,699	93.8%	0	0.0%
SNF	Prior Surgical IP - Orthopedic	307,219	19.6%	442	0.1%	26	5.9%	1	0.2%	4	0.9%	1	0.2%	16	3.6%	394	89.1%	0	0.0%
SNF	Prior Surgical IP - Non-Orthopedic	180,808	11.5%	456	0.3%	1	0.2%	25	5.5%	0	0.0%	2	0.4%	13	2.9%	415	91.0%	0	0.0%
SNF	Prior Medical IP w/ ICU	266,969	17.0%	955	0.4%	0	0.0%	1	0.1%	4	0.4%	22	2.3%	25	2.6%	903	94.6%	0	0.0%

MSPB-PAC Episode Type	Assigned Clinical Case Mix Category	All Episodes		Episodes with Multiple Prior Claims w/Same End Date		Alternative Clinical Case Mix Category (From Prior Claim w/Same End Date)													
						Prior IP - Surgical Orthopedic		Prior IP - Surgical Non-Orthopedic		Prior IP - Medical w/o ICU		Prior IP - Medical w/ ICU		Prior PAC - Institutional		Prior PAC - HHA		Community	
						#	%	#	%	#	%	#	%	#	%	#	%	#	%
SNF	Prior Medical IP w/o ICU	639,493	40.8%	2,657	0.4%	0	0.0%	0	0.0%	96	3.6%	2	0.1%	55	2.1%	2,504	94.2%	0	0.0%
SNF	Prior PAC - Institutional	160,912	10.3%	497	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	14	2.8%	483	97.2%	0	0.0%
SNF	Prior PAC - HHA	10,060	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
SNF	Community	632	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 14. Clinical Case Mix Categories for MSPB-PAC Episodes with Multiple Prior Claims Sharing Same End Date, for LTCH Standard

MSPB-PAC Episode Type	Assigned Clinical Case Mix Category	All Episodes		Episodes with Multiple Prior Claims w/Same End Date		Alternative Clinical Case Mix Category (From Prior Claim w/Same End Date)													
						Prior IP - Surgical Orthopedic		Prior IP - Surgical Non-Orthopedic		Prior IP - Medical w/o ICU		Prior IP - Medical w/ ICU		Prior PAC - Institutional		Prior PAC - HH		Community	
						#	%	#	%	#	%	#	%	#	%	#	%	#	%
LTCH Standard	All	91,287	100.00%	458	0.5%	1	0.2%	9	2.0%	13	2.8%	33	7.2%	99	21.6%	303	66.2%	0	0.0%
LTCH Standard	Prior Surgical IP - Orthopedic	3,408	3.73%	28	0.8%	1	3.6%	0	0.0%	0	0.0%	0	0.0%	8	28.6%	19	67.9%	0	0.0%
LTCH Standard	Prior Surgical IP - Non-Orthopedic	45,789	50.16%	178	0.4%	0	0.0%	8	4.5%	3	1.7%	9	5.1%	40	22.5%	118	66.3%	0	0.0%
LTCH Standard	Prior Medical IP w/ ICU	36,681	40.18%	224	0.6%	0	0.0%	1	0.4%	7	3.1%	24	10.7%	47	21.0%	145	64.7%	0	0.0%
LTCH Standard	Prior Medical IP w/o ICU	5,409	5.93%	28	0.5%	0	0.0%	0	0.0%	3	10.7%	0	0.0%	4	14.3%	21	75.0%	0	0.0%

APPENDIX A. RISK ADJUSTMENT COEFFICIENTS

This Appendix contains details of the risk adjustment models used in the MSPB-PAC measures:

- A.1. HHA Standard
- A.2. HHA LUPA
- A.3. HHA PEP
- A.4. IRF
- A.5. LTCH Site Neutral
- A.6. LTCH Standard
- A.7. SNF

Table A below explains the key for indicating statistical significance in the risk adjustment results tables this Appendix. A coefficient with a p-value less than or equal to 0.01 is shaded red and marked with three asterisks (“***”) in the column showing statistical significance, abbreviated as “Stat. Sig”. A coefficient with a p-value greater than 0.01 and less than or equal to 0.05 is shaded orange and marked with two asterisks (“**”) in the column showing statistical significance. A coefficient with a p-value greater than 0.05 and less than or equal to 0.1 is shaded in yellow and marked with one asterisk (“*”) in the column showing statistical significance.

Table A. Key for Statistical Significance

Significance of Estimate	Coefficient Cell Color	Stat. Sig. Column
$p \leq 0.01$	Red	***
$0.01 < p \leq 0.05$	Orange	**
$0.05 < p \leq 0.1$	Yellow	*

A.1 MSPB-PAC HHA Standard Risk Adjustment Model

MSPB-PAC HHA Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	4,948,114	\$5,883	0.000	***
HCC1: HIV/AIDS	16,049	\$325	0.002	***
HCC2: Septicemia/Shock	257,828	\$652	0.000	***
HCC5: Opportunistic Infections	23,287	\$1,641	0.000	***
HCC7: Metastatic Cancer and Acute Leukemia	108,307	\$3,332	0.000	***
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	74,433	\$1,786	0.000	***
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	96,852	\$1,734	0.000	***
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	265,859	\$517	0.000	***

MSPB-PAC HHA Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	385,688	\$1,385	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	400,905	\$1,068	0.000	***
HCC17: Diabetes with Acute Complications	12,061	\$287	0.018	**
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	74,311	\$721	0.000	***
HCC19: Diabetes without Complication	1,007,933	\$512	0.000	***
HCC21: Protein-Calorie Malnutrition	233,641	\$1,573	0.000	***
HCC25: End-Stage Liver Disease	32,084	\$3,179	0.000	***
HCC26: Cirrhosis of Liver	35,028	\$1,019	0.000	***
HCC27: Chronic Hepatitis	20,471	\$50	0.589	
HCC31: Intestinal Obstruction/Perforation	147,731	\$200	0.000	***
HCC32: Pancreatic Disease	76,084	\$1,937	0.000	***
HCC33: Inflammatory Bowel Disease	42,214	\$1,494	0.000	***
HCC37: Bone/Joint/Muscle Infections/Necrosis	141,588	\$2,627	0.000	***
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	300,982	\$900	0.000	***
HCC44: Severe Hematological Disorders	42,911	\$2,748	0.000	***
HCC45: Disorders of Immunity	89,919	\$1,691	0.000	***
HCC51: Drug/Alcohol Psychosis	43,123	-\$400	0.000	***
HCC52: Drug/Alcohol Dependence	77,367	\$767	0.000	***
HCC54: Schizophrenia	91,506	\$618	0.000	***
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	319,159	\$1,127	0.000	***
HCC67: Quadriplegia, Other Extensive Paralysis	42,453	\$3,440	0.000	***
HCC68: Paraplegia	41,730	\$3,434	0.000	***
HCC69: Spinal Cord Disorders/Injuries	43,761	\$1,120	0.000	***
HCC70: Muscular Dystrophy	4,860	\$743	0.000	***
HCC71: Polyneuropathy	598,142	\$835	0.000	***
HCC72: Multiple Sclerosis	57,492	\$1,211	0.000	***
HCC73: Parkinsons and Huntingtons Diseases	179,217	\$1,580	0.000	***
HCC74: Seizure Disorders and Convulsions	235,255	\$722	0.000	***
HCC75: Coma, Brain Compression/Anoxic Damage	22,431	\$785	0.000	***
HCC77: Respirator Dependence/Tracheostomy Status	32,790	\$2,895	0.000	***
HCC78: Respiratory Arrest	4,049	\$1,295	0.000	***
HCC79: Cardio-Respiratory Failure and Shock	551,827	\$781	0.000	***
HCC80: Congestive Heart Failure	1,344,146	\$980	0.000	***
HCC81: Acute Myocardial Infarction	113,528	\$462	0.000	***
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	119,728	\$348	0.000	***
HCC83: Angina Pectoris/Old Myocardial Infarction	322,777	\$628	0.000	***
HCC92: Specified Heart Arrhythmias	1,181,402	\$924	0.000	***
HCC95: Cerebral Hemorrhage	50,533	\$484	0.000	***
HCC96: Ischemic or Unspecified Stroke	314,123	\$595	0.000	***
HCC100: Hemiplegia/Hemiparesis	177,682	\$1,058	0.000	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	24,538	\$164	0.056	*
HCC104: Vascular Disease with Complications	228,495	\$2,382	0.000	***
HCC105: Vascular Disease	990,910	\$609	0.000	***

MSPB-PAC HHA Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC107: Cystic Fibrosis	1,014	\$1,025	0.118	
HCC108: Chronic Obstructive Pulmonary Disease	1,149,145	\$931	0.000	***
HCC111: Aspiration and Specified Bacterial Pneumonias	114,523	\$565	0.000	***
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	25,443	-\$554	0.000	***
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	41,389	\$210	0.002	***
HCC130: Dialysis Status	123,949	\$3,913	0.000	***
HCC131: Renal Failure	1,105,544	\$866	0.000	***
HCC132: Nephritis	9,675	\$286	0.034	**
HCC148: Decubitus Ulcer of Skin	289,250	\$3,345	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	237,774	\$2,124	0.000	***
HCC150: Extensive Third-Degree Burns	471	\$1,005	0.098	*
HCC154: Severe Head Injury	1,030	\$105	0.799	
HCC155: Major Head Injury	48,947	\$165	0.014	**
HCC157: Vertebral Fractures without Spinal Cord Injury	111,643	\$1,519	0.000	***
HCC158: Hip Fracture/Dislocation	195,941	-\$125	0.000	***
HCC161: Traumatic Amputation	15,792	\$2,420	0.000	***
HCC164: Major Complications of Medical Care and Trauma	319,169	\$1,370	0.000	***
HCC174: Major Organ Transplant Status	16,749	\$3,844	0.000	***
HCC176: Artificial Openings for Feeding or Elimination	127,337	\$2,837	0.000	***
HCC177: Amputation Status, Lower Limb/Amputation Complications	82,656	\$2,387	0.000	***
Interaction: Disabled * Opportunistic Infections	4,767	\$1,815	0.000	***
Interaction: Disabled * Severe Hematological Disorders	4,859	\$693	0.001	***
Interaction: Disabled * Drug/Alcohol Psychosis	10,582	\$735	0.000	***
Interaction: Disabled * Drug/Alcohol Dependence	32,406	\$704	0.000	***
Interaction: Disabled * Cystic Fibrosis	609	\$3,025	0.000	***
Interaction: Diabetes * Congestive Heart Failure	657,041	\$483	0.000	***
Interaction: Diabetes * Cardiovascular Disease	198,785	\$129	0.001	***
Interaction: Renal Failure * Congestive Heart Failure	531,242	\$204	0.000	***
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	533,384	\$707	0.000	***
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	302,995	\$525	0.000	***
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	25,254	\$424	0.000	***
Indicator: Originally Disabled	1,337,297	\$563	0.000	***
Indicator: ESRD	175,991	\$3,915	0.000	***
Indicator: Long-Term Care Institution	30,239	\$3,732	0.000	***
Indicator: Hospice Care	84,462	\$9,787	0.000	***
Age: 0-34 Years	26,771	\$721	0.000	***
Age: 35-44 Years	67,006	\$357	0.000	***
Age: 45-54 Years	198,387	-\$135	0.000	***
Age: 55-59 Years	186,800	-\$140	0.000	***
Age: 60-64 Years	229,472	-\$219	0.000	***
Age: 70-74 Years	650,860	-\$44	0.072	*
Age: 75-79 Years	744,346	-\$102	0.000	***
Age: 80-84 Years	837,827	-\$186	0.000	***
Age: 85-89 Years	815,653	-\$244	0.000	***

MSPB-PAC HHA Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Age: 90-94 Years	482,413	-\$388	0.000	***
Age: 95+ Years	151,363	-\$692	0.000	***
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	206,534	-\$736	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	171,327	\$2,369	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	443,345	\$1,761	0.000	***
Clinical Case Mix Category: Prior PAC - Institutional	714,649	\$1,567	0.000	***
Clinical Case Mix Category: Prior PAC - Home Health	2,256,923	\$1,239	0.000	***
Clinical Case Mix Category: Community	966,966	\$1,358	0.000	***
Prior ICU Stay Length: 1-2 Days	110,253	-\$627	0.000	***
Prior ICU Stay Length: 3 Days	44,104	-\$627	0.000	***
Prior ICU Stay Length: 4-6 Days	72,178	-\$419	0.000	***
Prior ICU Stay Length: 7-9 Days	27,038	-\$672	0.000	***
Prior ICU Stay Length: 10-13 Days	11,984	-\$933	0.000	***
Prior ICU Stay Length: 14-18 Days	4,891	\$167	0.403	
Prior ICU Stay Length: 19-24 Days	1,788	\$768	0.016	**
Prior ICU Stay Length: 25+ Days	1,276	\$3,379	0.000	***
Prior IP Stay Length: 8-11 Days	150,361	\$1,349	0.000	***
Prior IP Stay Length: 12-30 Days	83,969	\$2,513	0.000	***
Prior IP Stay Length: 31+ Days	5,492	\$5,583	0.000	***

A.2 MSPB-PAC HHA LUPA Risk Adjustment Model

MSPB-PAC HHA LUPA Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	377,457	\$1,654	0.000	***
HCC1: HIV/AIDS	1,521	\$2,508	0.000	***
HCC2: Septicemia/Shock	21,305	\$1,008	0.000	***
HCC5: Opportunistic Infections	2,174	\$2,964	0.000	***
HCC7: Metastatic Cancer and Acute Leukemia	12,207	\$2,936	0.000	***
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	7,066	\$1,344	0.000	***
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	8,500	\$1,716	0.000	***
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	23,776	-\$92	0.535	
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	24,662	\$2,677	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	25,301	\$2,304	0.000	***
HCC17: Diabetes with Acute Complications	1,007	\$232	0.738	
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	4,758	\$1,417	0.000	***
HCC19: Diabetes without Complication	71,022	\$1,123	0.000	***
HCC21: Protein-Calorie Malnutrition	16,695	\$3,548	0.000	***
HCC25: End-Stage Liver Disease	3,076	\$5,422	0.000	***
HCC26: Cirrhosis of Liver	3,015	\$1,630	0.000	***
HCC27: Chronic Hepatitis	1,893	\$740	0.146	
HCC31: Intestinal Obstruction/Perforation	12,454	\$849	0.000	***
HCC32: Pancreatic Disease	7,658	\$1,886	0.000	***
HCC33: Inflammatory Bowel Disease	3,694	\$1,830	0.000	***
HCC37: Bone/Joint/Muscle Infections/Necrosis	10,092	\$3,877	0.000	***
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	21,020	\$1,845	0.000	***
HCC44: Severe Hematological Disorders	3,748	\$4,152	0.000	***
HCC45: Disorders of Immunity	9,375	\$1,343	0.000	***
HCC51: Drug/Alcohol Psychosis	4,348	-\$976	0.017	**
HCC52: Drug/Alcohol Dependence	7,934	\$672	0.054	*
HCC54: Schizophrenia	9,850	\$2,498	0.000	***
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	24,469	\$2,343	0.000	***
HCC67: Quadriplegia, Other Extensive Paralysis	4,385	\$2,007	0.000	***
HCC68: Paraplegia	3,689	\$2,679	0.000	***
HCC69: Spinal Cord Disorders/Injuries	3,763	\$1,040	0.004	***
HCC70: Muscular Dystrophy	419	\$1,314	0.219	
HCC71: Polyneuropathy	39,369	\$1,906	0.000	***
HCC72: Multiple Sclerosis	7,233	-\$787	0.003	***
HCC73: Parkinsons and Huntingtons Diseases	10,665	\$2,909	0.000	***
HCC74: Seizure Disorders and Convulsions	18,919	\$1,980	0.000	***
HCC75: Coma, Brain Compression/Anoxic Damage	1,841	\$2,381	0.000	***
HCC77: Respirator Dependence/Tracheostomy Status	2,524	\$5,896	0.000	***
HCC78: Respiratory Arrest	291	\$1,672	0.193	
HCC79: Cardio-Respiratory Failure and Shock	41,189	\$765	0.000	***
HCC80: Congestive Heart Failure	89,636	\$2,143	0.000	***

MSPB-PAC HHA LUPA Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC81: Acute Myocardial Infarction	8,856	\$214	0.383	
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	9,481	\$153	0.511	
HCC83: Angina Pectoris/Old Myocardial Infarction	23,713	\$3	0.985	
HCC92: Specified Heart Arrhythmias	82,773	\$1,690	0.000	***
HCC95: Cerebral Hemorrhage	3,332	\$874	0.045	**
HCC96: Ischemic or Unspecified Stroke	19,551	\$891	0.000	***
HCC100: Hemiplegia/Hemiparesis	9,546	\$2,333	0.000	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	2,170	\$100	0.834	
HCC104: Vascular Disease with Complications	16,715	\$3,699	0.000	***
HCC105: Vascular Disease	67,948	\$1,208	0.000	***
HCC107: Cystic Fibrosis	385	\$2,157	0.553	
HCC108: Chronic Obstructive Pulmonary Disease	80,915	\$2,038	0.000	***
HCC111: Aspiration and Specified Bacterial Pneumonias	8,295	\$438	0.086	*
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	2,049	-\$2,193	0.000	***
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	2,711	-\$152	0.725	
HCC130: Dialysis Status	11,015	\$5,893	0.000	***
HCC131: Renal Failure	79,057	\$1,467	0.000	***
HCC132: Nephritis	760	-\$899	0.260	
HCC148: Decubitus Ulcer of Skin	16,625	\$7,144	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	15,617	\$3,758	0.000	***
HCC150: Extensive Third-Degree Burns	32	-\$1,934	0.616	
HCC154: Severe Head Injury	65	\$2,336	0.390	
HCC155: Major Head Injury	3,556	\$552	0.177	
HCC157: Vertebral Fractures without Spinal Cord Injury	7,313	\$3,958	0.000	***
HCC158: Hip Fracture/Dislocation	9,229	\$1,273	0.000	***
HCC161: Traumatic Amputation	993	\$3,513	0.000	***
HCC164: Major Complications of Medical Care and Trauma	27,703	\$815	0.000	***
HCC174: Major Organ Transplant Status	2,155	\$4,785	0.000	***
HCC176: Artificial Openings for Feeding or Elimination	12,719	\$1,711	0.000	***
HCC177: Amputation Status, Lower Limb/Amputation Complications	6,054	\$2,522	0.000	***
Interaction: Disabled * Opportunistic Infections	620	\$3,807	0.000	***
Interaction: Disabled * Severe Hematological Disorders	648	\$1,975	0.038	**
Interaction: Disabled * Drug/Alcohol Psychosis	1,452	\$1,772	0.013	**
Interaction: Disabled * Drug/Alcohol Dependence	3,876	\$1,373	0.006	***
Interaction: Disabled * Cystic Fibrosis	349	-\$343	0.929	
Interaction: Diabetes * Congestive Heart Failure	42,309	\$1,202	0.000	***
Interaction: Diabetes * Cardiovascular Disease	11,841	\$1,198	0.000	***
Interaction: Renal Failure * Congestive Heart Failure	35,048	\$477	0.050	**
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	35,085	\$1,509	0.000	***
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	19,365	\$384	0.207	
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	1,631	\$112	0.845	
Indicator: Originally Disabled	114,049	\$1,069	0.000	***
Indicator: ESRD	15,020	\$7,112	0.000	***

MSPB-PAC HHA LUPA Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Indicator: Long-Term Care Institution	1,616	\$10,285	0.000	***
Indicator: Hospice Care	14,487	\$9,933	0.000	***
Age: 0-34 Years	4,372	-\$507	0.162	
Age: 35-44 Years	8,397	-\$1,540	0.000	***
Age: 45-54 Years	19,917	-\$1,449	0.000	***
Age: 55-59 Years	16,279	-\$1,119	0.000	***
Age: 60-64 Years	18,829	-\$424	0.035	**
Age: 70-74 Years	49,616	\$337	0.018	**
Age: 75-79 Years	53,234	\$792	0.000	***
Age: 80-84 Years	57,648	\$863	0.000	***
Age: 85-89 Years	56,620	\$1,060	0.000	***
Age: 90-94 Years	35,109	\$822	0.000	***
Age: 95+ Years	12,048	-\$27	0.909	
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	10,628	\$719	0.011	**
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	15,861	\$4,885	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	44,178	\$3,845	0.000	***
Clinical Case Mix Category: Prior PAC - Institutional	34,272	\$5,760	0.000	***
Clinical Case Mix Category: Prior PAC - Home Health	182,290	\$2,849	0.000	***
Clinical Case Mix Category: Community	67,956	\$4,337	0.000	***
Prior ICU Stay Length: 1-2 Days	11,344	-\$976	0.002	***
Prior ICU Stay Length: 3 Days	4,309	-\$608	0.149	
Prior ICU Stay Length: 4-6 Days	6,613	-\$63	0.863	
Prior ICU Stay Length: 7-9 Days	2,372	-\$1,554	0.003	***
Prior ICU Stay Length: 10-13 Days	998	-\$2,132	0.005	***
Prior ICU Stay Length: 14-18 Days	376	\$5,447	0.000	***
Prior ICU Stay Length: 19-24 Days	147	\$7,436	0.000	***
Prior ICU Stay Length: 25+ Days	115	\$8,313	0.000	***
Prior IP Stay Length: 8-11 Days	14,020	\$2,973	0.000	***
Prior IP Stay Length: 12-30 Days	7,588	\$7,313	0.000	***
Prior IP Stay Length: 31+ Days	556	\$11,311	0.000	***

A.3 MSPB-PAC HHA PEP Risk Adjustment Model

MSPB-PAC HHA PEP Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	163,621	\$11,298	0.000	***
HCC1: HIV/AIDS	789	-\$112	0.810	
HCC2: Septicemia/Shock	12,676	\$465	0.000	***
HCC5: Opportunistic Infections	1,232	-\$60	0.887	
HCC7: Metastatic Cancer and Acute Leukemia	5,947	\$1,411	0.000	***
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	3,344	\$1,568	0.000	***
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	4,083	\$1,221	0.000	***
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	9,678	\$204	0.132	
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	15,505	\$1,020	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	14,306	\$731	0.000	***
HCC17: Diabetes with Acute Complications	446	\$1,273	0.037	**
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	2,276	\$306	0.272	
HCC19: Diabetes without Complication	32,349	\$449	0.000	***
HCC21: Protein-Calorie Malnutrition	10,988	\$1,197	0.000	***
HCC25: End-Stage Liver Disease	1,720	\$2,083	0.000	***
HCC26: Cirrhosis of Liver	1,523	\$1,621	0.000	***
HCC27: Chronic Hepatitis	940	\$298	0.480	
HCC31: Intestinal Obstruction/Perforation	6,438	\$717	0.000	***
HCC32: Pancreatic Disease	3,517	\$1,309	0.000	***
HCC33: Inflammatory Bowel Disease	1,870	\$1,739	0.000	***
HCC37: Bone/Joint/Muscle Infections/Necrosis	6,565	\$2,558	0.000	***
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	11,106	\$491	0.000	***
HCC44: Severe Hematological Disorders	2,075	\$1,596	0.000	***
HCC45: Disorders of Immunity	4,634	\$193	0.344	
HCC51: Drug/Alcohol Psychosis	1,901	-\$387	0.267	
HCC52: Drug/Alcohol Dependence	3,843	\$55	0.848	
HCC54: Schizophrenia	3,331	-\$568	0.014	**
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	13,604	\$211	0.072	*
HCC67: Quadriplegia, Other Extensive Paralysis	1,861	\$1,601	0.000	***
HCC68: Paraplegia	1,821	\$2,827	0.000	***
HCC69: Spinal Cord Disorders/Injuries	1,837	\$1,042	0.001	***
HCC70: Muscular Dystrophy	158	-\$683	0.502	
HCC71: Polyneuropathy	23,964	\$520	0.000	***
HCC72: Multiple Sclerosis	2,238	\$12	0.967	
HCC73: Parkinsons and Huntingtons Diseases	6,748	\$470	0.003	***
HCC74: Seizure Disorders and Convulsions	9,700	\$361	0.009	***
HCC75: Coma, Brain Compression/Anoxic Damage	1,139	\$42	0.915	
HCC77: Respirator Dependence/Tracheostomy Status	1,437	\$1,791	0.000	***
HCC78: Respiratory Arrest	198	-\$372	0.683	
HCC79: Cardio-Respiratory Failure and Shock	23,510	\$978	0.000	***
HCC80: Congestive Heart Failure	52,052	\$1,203	0.000	***

MSPB-PAC HHA PEP Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC81: Acute Myocardial Infarction	4,916	\$1,629	0.000	***
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	4,987	\$743	0.000	***
HCC83: Angina Pectoris/Old Myocardial Infarction	13,053	\$625	0.000	***
HCC92: Specified Heart Arrhythmias	46,094	\$860	0.000	***
HCC95: Cerebral Hemorrhage	2,147	\$364	0.260	
HCC96: Ischemic or Unspecified Stroke	12,302	\$183	0.229	
HCC100: Hemiplegia/Hemiparesis	6,851	\$597	0.001	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	875	-\$542	0.217	
HCC104: Vascular Disease with Complications	10,167	\$1,387	0.000	***
HCC105: Vascular Disease	38,499	\$258	0.001	***
HCC107: Cystic Fibrosis	82	-\$3,985	0.212	
HCC108: Chronic Obstructive Pulmonary Disease	43,727	\$583	0.000	***
HCC111: Aspiration and Specified Bacterial Pneumonias	5,516	\$591	0.002	***
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	965	\$628	0.131	
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	1,456	\$314	0.362	
HCC130: Dialysis Status	5,378	\$2,905	0.000	***
HCC131: Renal Failure	43,909	\$1,149	0.000	***
HCC132: Nephritis	377	\$344	0.604	
HCC148: Decubitus Ulcer of Skin	12,808	\$1,660	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	10,300	\$322	0.017	**
HCC150: Extensive Third-Degree Burns	27	\$5,813	0.018	**
HCC154: Severe Head Injury	41	\$1,941	0.333	
HCC155: Major Head Injury	1,992	\$1,447	0.000	***
HCC157: Vertebral Fractures without Spinal Cord Injury	4,851	\$1,472	0.000	***
HCC158: Hip Fracture/Dislocation	6,965	-\$77	0.636	
HCC161: Traumatic Amputation	738	\$519	0.283	
HCC164: Major Complications of Medical Care and Trauma	13,664	\$1,345	0.000	***
HCC174: Major Organ Transplant Status	906	\$3,065	0.000	***
HCC176: Artificial Openings for Feeding or Elimination	5,876	\$2,045	0.000	***
HCC177: Amputation Status, Lower Limb/Amputation Complications	3,787	\$429	0.057	*
Interaction: Disabled * Opportunistic Infections	298	\$2,783	0.001	***
Interaction: Disabled * Severe Hematological Disorders	237	\$79	0.929	
Interaction: Disabled * Drug/Alcohol Psychosis	528	\$1,640	0.013	**
Interaction: Disabled * Drug/Alcohol Dependence	1,766	\$608	0.152	
Interaction: Disabled * Cystic Fibrosis	66	\$4,616	0.196	
Interaction: Diabetes * Congestive Heart Failure	26,339	\$25	0.886	
Interaction: Diabetes * Cardiovascular Disease	7,941	\$385	0.054	*
Interaction: Renal Failure * Congestive Heart Failure	22,925	-\$47	0.807	
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	22,289	\$373	0.013	**
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	13,284	-\$192	0.405	
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	1,218	-\$191	0.627	
Indicator: Originally Disabled	46,613	-\$238	0.016	**
Indicator: ESRD	7,077	\$2,565	0.000	***

MSPB-PAC HHA PEP Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Indicator: Long-Term Care Institution	1,443	\$634	0.062	*
Indicator: Hospice Care	3,401	-\$3,575	0.000	***
Age: 0-34 Years	1,128	-\$687	0.090	*
Age: 35-44 Years	2,659	\$9	0.974	
Age: 45-54 Years	7,354	-\$282	0.137	
Age: 55-59 Years	6,617	-\$239	0.218	
Age: 60-64 Years	7,942	-\$266	0.145	
Age: 70-74 Years	19,671	-\$34	0.797	
Age: 75-79 Years	23,256	-\$370	0.005	***
Age: 80-84 Years	26,943	-\$727	0.000	***
Age: 85-89 Years	27,806	-\$1,297	0.000	***
Age: 90-94 Years	17,231	-\$1,858	0.000	***
Age: 95+ Years	5,437	-\$2,472	0.000	***
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	4,688	\$368	0.163	
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	8,613	\$1,259	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	22,273	\$358	0.091	*
Clinical Case Mix Category: Prior PAC - Institutional	28,652	-\$276	0.203	
Clinical Case Mix Category: Prior PAC - Home Health	57,980	-\$1,622	0.000	***
Clinical Case Mix Category: Community	33,332	-\$969	0.000	***
Prior ICU Stay Length: 1-2 Days	4,961	-\$560	0.061	*
Prior ICU Stay Length: 3 Days	2,128	\$428	0.253	
Prior ICU Stay Length: 4-6 Days	3,447	\$145	0.657	
Prior ICU Stay Length: 7-9 Days	1,285	\$935	0.034	**
Prior ICU Stay Length: 10-13 Days	609	\$502	0.390	
Prior ICU Stay Length: 14-18 Days	236	-\$365	0.678	
Prior ICU Stay Length: 19-24 Days	90	\$3,040	0.027	**
Prior ICU Stay Length: 25+ Days	101	\$1,273	0.367	
Prior IP Stay Length: 8-11 Days	7,261	\$786	0.000	***
Prior IP Stay Length: 12-30 Days	4,310	\$1,269	0.000	***
Prior IP Stay Length: 31+ Days	342	\$2,726	0.000	***

A.4 MSPB-PAC IRF Risk Adjustment Model

MSPB-PAC IRF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	625,599	\$27,262	0.000	***
HCC1: HIV/AIDS	1,683	\$5,750	0.000	***
HCC2: Septicemia/Shock	46,841	\$1,129	0.000	***
HCC5: Opportunistic Infections	4,033	\$1,471	0.000	***
HCC7: Metastatic Cancer and Acute Leukemia	15,303	\$1,100	0.000	***
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	9,857	\$301	0.101	
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	17,097	\$1,091	0.000	***
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	39,244	-\$67	0.479	
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	47,168	\$2,288	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	42,610	\$1,630	0.000	***
HCC17: Diabetes with Acute Complications	2,212	\$1,016	0.008	***
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	9,468	\$1,529	0.000	***
HCC19: Diabetes without Complication	127,089	\$1,131	0.000	***
HCC21: Protein-Calorie Malnutrition	35,256	\$2,456	0.000	***
HCC25: End-Stage Liver Disease	4,923	\$1,817	0.000	***
HCC26: Cirrhosis of Liver	4,703	\$877	0.001	***
HCC27: Chronic Hepatitis	2,231	\$2,268	0.000	***
HCC31: Intestinal Obstruction/Perforation	24,691	-\$75	0.541	
HCC32: Pancreatic Disease	9,795	-\$465	0.011	**
HCC33: Inflammatory Bowel Disease	5,741	-\$71	0.766	
HCC37: Bone/Joint/Muscle Infections/Necrosis	25,188	\$1,612	0.000	***
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	41,760	\$507	0.000	***
HCC44: Severe Hematological Disorders	6,417	\$1,329	0.000	***
HCC45: Disorders of Immunity	13,347	\$305	0.062	*
HCC51: Drug/Alcohol Psychosis	7,411	-\$1,206	0.000	***
HCC52: Drug/Alcohol Dependence	9,766	-\$550	0.019	**
HCC54: Schizophrenia	4,589	\$1,835	0.000	***
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	33,612	\$657	0.000	***
HCC67: Quadriplegia, Other Extensive Paralysis	5,145	\$8,502	0.000	***
HCC68: Paraplegia	5,636	\$6,324	0.000	***
HCC69: Spinal Cord Disorders/Injuries	15,005	\$2,011	0.000	***
HCC70: Muscular Dystrophy	549	\$2,386	0.002	***
HCC71: Polyneuropathy	80,766	\$446	0.000	***
HCC72: Multiple Sclerosis	7,945	\$3,149	0.000	***
HCC73: Parkinsons and Huntingtons Diseases	26,776	\$2,645	0.000	***
HCC74: Seizure Disorders and Convulsions	42,312	\$402	0.000	***
HCC75: Coma, Brain Compression/Anoxic Damage	13,501	\$2,221	0.000	***
HCC77: Respirator Dependence/Tracheostomy Status	10,919	\$4,360	0.000	***
HCC78: Respiratory Arrest	1,571	\$375	0.410	
HCC79: Cardio-Respiratory Failure and Shock	108,278	\$798	0.000	***
HCC80: Congestive Heart Failure	174,607	\$929	0.000	***

MSPB-PAC IRF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC81: Acute Myocardial Infarction	26,908	-\$296	0.014	**
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	24,521	-\$42	0.731	
HCC83: Angina Pectoris/Old Myocardial Infarction	38,673	-\$384	0.000	***
HCC92: Specified Heart Arrhythmias	190,158	\$734	0.000	***
HCC95: Cerebral Hemorrhage	37,899	\$1,971	0.000	***
HCC96: Ischemic or Unspecified Stroke	123,263	\$453	0.000	***
HCC100: Hemiplegia/Hemiparesis	53,285	\$4,141	0.000	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	4,122	\$3,411	0.000	***
HCC104: Vascular Disease with Complications	45,065	\$1,692	0.000	***
HCC105: Vascular Disease	114,321	\$623	0.000	***
HCC107: Cystic Fibrosis	71	-\$39	0.988	
HCC108: Chronic Obstructive Pulmonary Disease	130,463	\$335	0.000	***
HCC111: Aspiration and Specified Bacterial Pneumonias	23,382	\$2,080	0.000	***
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	4,433	-\$170	0.531	
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	5,192	\$622	0.015	**
HCC130: Dialysis Status	17,985	\$3,869	0.000	***
HCC131: Renal Failure	157,617	\$1,137	0.000	***
HCC132: Nephritis	1,199	-\$954	0.065	*
HCC148: Decubitus Ulcer of Skin	20,662	\$3,656	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	18,118	\$2,229	0.000	***
HCC150: Extensive Third-Degree Burns	180	\$208	0.897	
HCC154: Severe Head Injury	863	\$3,842	0.000	***
HCC155: Major Head Injury	25,083	\$6	0.971	
HCC157: Vertebral Fractures without Spinal Cord Injury	28,945	\$400	0.000	***
HCC158: Hip Fracture/Dislocation	95,317	\$2,138	0.000	***
HCC161: Traumatic Amputation	4,811	\$9	0.974	
HCC164: Major Complications of Medical Care and Trauma	56,840	\$1,132	0.000	***
HCC174: Major Organ Transplant Status	3,811	\$3,010	0.000	***
HCC176: Artificial Openings for Feeding or Elimination	10,623	\$3,075	0.000	***
HCC177: Amputation Status, Lower Limb/Amputation Complications	12,144	\$15	0.941	
Interaction: Disabled * Opportunistic Infections	712	\$801	0.280	
Interaction: Disabled * Severe Hematological Disorders	603	\$13,012	0.000	***
Interaction: Disabled * Drug/Alcohol Psychosis	1,873	-\$2,418	0.000	***
Interaction: Disabled * Drug/Alcohol Dependence	3,821	-\$1,219	0.001	***
Interaction: Disabled * Cystic Fibrosis	26	\$3,391	0.440	
Interaction: Diabetes * Congestive Heart Failure	84,024	\$218	0.091	*
Interaction: Diabetes * Cardiovascular Disease	66,823	-\$164	0.113	
Interaction: Renal Failure * Congestive Heart Failure	74,283	\$136	0.338	
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	61,896	\$310	0.008	***
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	42,203	-\$58	0.744	
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	6,998	-\$1,104	0.000	***
Indicator: Originally Disabled	138,663	\$946	0.000	***
Indicator: ESRD	26,924	\$6,823	0.000	***

MSPB-PAC IRF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Indicator: Long-Term Care Institution	3,347	\$5,998	0.000	***
Indicator: Hospice Care	7,320	\$3,283	0.000	***
Age: 0-34 Years	2,600	-\$3,843	0.000	***
Age: 35-44 Years	6,295	-\$2,838	0.000	***
Age: 45-54 Years	19,308	-\$2,070	0.000	***
Age: 55-59 Years	19,397	-\$1,519	0.000	***
Age: 60-64 Years	26,263	-\$631	0.000	***
Age: 70-74 Years	101,042	\$538	0.000	***
Age: 75-79 Years	111,412	\$1,273	0.000	***
Age: 80-84 Years	112,223	\$2,229	0.000	***
Age: 85-89 Years	91,450	\$2,960	0.000	***
Age: 90-94 Years	39,874	\$3,588	0.000	***
Age: 95+ Years	8,719	\$4,288	0.000	***
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	183,547	\$656	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	108,223	\$920	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	147,567	\$1,326	0.000	***
Clinical Case Mix Category: Prior PAC - Institutional	24,016	\$5,230	0.000	***
Clinical Case Mix Category: Prior PAC - Home Health	17,404	\$3,685	0.000	***
Clinical Case Mix Category: Community	47,409	\$1,987	0.000	***
Prior ICU Stay Length: 1-2 Days	63,124	\$31	0.762	
Prior ICU Stay Length: 3 Days	29,912	\$544	0.000	***
Prior ICU Stay Length: 4-6 Days	57,301	\$1,429	0.000	***
Prior ICU Stay Length: 7-9 Days	27,858	\$1,032	0.000	***
Prior ICU Stay Length: 10-13 Days	16,273	\$1,320	0.000	***
Prior ICU Stay Length: 14-18 Days	8,747	\$2,501	0.000	***
Prior ICU Stay Length: 19-24 Days	3,958	\$3,924	0.000	***
Prior ICU Stay Length: 25+ Days	3,166	\$6,018	0.000	***
Prior IP Stay Length: 8-11 Days	103,159	\$3,067	0.000	***
Prior IP Stay Length: 12-30 Days	77,381	\$5,462	0.000	***
Prior IP Stay Length: 31+ Days	5,660	\$10,182	0.000	***
RIC 02: Traumatic brain injury	19,053	-\$3,494	0.000	***
RIC 03: Nontraumatic brain injury	31,203	-\$4,279	0.000	***
RIC 04: Traumatic spinal cord injury	4,093	\$6,896	0.000	***
RIC 05: Nontraumatic spinal cord injury	24,293	-\$1,498	0.000	***
RIC 06: Neurological	77,332	-\$5,330	0.000	***
RIC 07: Fracture of lower extremity	79,419	-\$4,747	0.000	***
RIC 08: Replacement of lower extremity	57,274	-\$11,467	0.000	***
RIC 09: Other orthopedic	49,608	-\$6,222	0.000	***
RIC 10: Amputation, lower extremity	15,762	-\$4,895	0.000	***
RIC 11: Amputation, other	754	-\$5,179	0.000	***
RIC 12: Osteoarthritis	2,589	-\$6,879	0.000	***
RIC 13: Rheumatoid, other arthritis	3,255	-\$6,423	0.000	***
RIC 14: Cardiac	33,961	-\$9,508	0.000	***
RIC 15: Pulmonary	11,431	-\$7,143	0.000	***
RIC 16: Pain syndrome	4,853	-\$7,585	0.000	***
RIC 17: Major multiple trauma, no brain	8,760	-\$2,483	0.000	***
RIC 18: Major multiple trauma, with brain	1,734	\$1,346	0.003	***

MSPB-PAC IRF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
RIC 19: Guillian Barre	1,050	\$6,255	0.000	***
RIC 20: Miscellaneous	78,138	-\$7,632	0.000	***
RIC 21: Burns	380	-\$420	0.704	
RIC 50: Short Stay	31	-\$17,892	0.000	***

A.5 MSPB-PAC LTCH Site Neutral Risk Adjustment Model

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	90,893	\$83,876	0.000	***
HCC1: HIV/AIDS	732	-\$820	0.464	
HCC2: Septicemia/Shock	21,024	\$886	0.000	***
HCC5: Opportunistic Infections	1,457	\$1,102	0.183	
HCC7: Metastatic Cancer and Acute Leukemia	2,385	-\$146	0.793	
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	1,558	-\$914	0.168	
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	2,096	\$534	0.356	
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	4,147	\$81	0.844	
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	14,414	\$1,628	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	11,781	\$1,529	0.000	***
HCC17: Diabetes with Acute Complications	438	-\$122	0.921	
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	1,363	\$776	0.282	
HCC19: Diabetes without Complication	18,539	\$1,135	0.000	***
HCC21: Protein-Calorie Malnutrition	18,932	\$2,159	0.000	***
HCC25: End-Stage Liver Disease	1,458	\$447	0.526	
HCC26: Cirrhosis of Liver	1,343	\$1,277	0.072	*
HCC27: Chronic Hepatitis	919	-\$1,552	0.070	*
HCC31: Intestinal Obstruction/Perforation	8,127	\$1,790	0.000	***
HCC32: Pancreatic Disease	2,807	\$481	0.365	
HCC33: Inflammatory Bowel Disease	1,339	\$2,091	0.004	***
HCC37: Bone/Joint/Muscle Infections/Necrosis	20,625	\$1,162	0.000	***
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	5,937	\$518	0.135	
HCC44: Severe Hematological Disorders	1,179	\$279	0.761	
HCC45: Disorders of Immunity	3,140	-\$528	0.282	
HCC51: Drug/Alcohol Psychosis	1,680	-\$1,332	0.133	
HCC52: Drug/Alcohol Dependence	3,321	\$356	0.646	
HCC54: Schizophrenia	4,195	\$2,431	0.000	***
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	9,629	\$1,684	0.000	***
HCC67: Quadriplegia, Other Extensive Paralysis	2,980	-\$149	0.773	
HCC68: Paraplegia	4,718	\$1,504	0.001	***
HCC69: Spinal Cord Disorders/Injuries	1,215	\$2,167	0.004	***
HCC70: Muscular Dystrophy	136	-\$5,735	0.009	***
HCC71: Polyneuropathy	16,427	\$708	0.004	***
HCC72: Multiple Sclerosis	1,556	\$1,639	0.014	**
HCC73: Parkinsons and Huntingtons Diseases	2,793	\$1,229	0.013	**
HCC74: Seizure Disorders and Convulsions	7,747	\$525	0.097	*
HCC75: Coma, Brain Compression/Anoxic Damage	1,278	\$3,147	0.000	***
HCC77: Respirator Dependence/Tracheostomy Status	2,713	\$2,688	0.000	***
HCC78: Respiratory Arrest	204	\$528	0.768	
HCC79: Cardio-Respiratory Failure and Shock	19,754	\$1,231	0.000	***
HCC80: Congestive Heart Failure	32,350	\$684	0.071	*

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC81: Acute Myocardial Infarction	2,898	\$64	0.900	
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	2,927	-\$119	0.809	
HCC83: Angina Pectoris/Old Myocardial Infarction	6,240	-\$459	0.186	
HCC92: Specified Heart Arrhythmias	23,024	\$1,103	0.000	***
HCC95: Cerebral Hemorrhage	1,357	\$5,400	0.000	***
HCC96: Ischemic or Unspecified Stroke	7,545	\$2,818	0.000	***
HCC100: Hemiplegia/Hemiparesis	4,249	\$2,435	0.000	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	757	\$1,394	0.143	
HCC104: Vascular Disease with Complications	14,657	\$1,221	0.000	***
HCC105: Vascular Disease	21,390	\$652	0.003	***
HCC107: Cystic Fibrosis	44	-\$1,448	0.850	
HCC108: Chronic Obstructive Pulmonary Disease	28,100	-\$302	0.264	
HCC111: Aspiration and Specified Bacterial Pneumonias	7,350	\$913	0.009	***
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	1,096	-\$2,290	0.004	***
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	1,099	-\$1,813	0.022	**
HCC130: Dialysis Status	7,139	\$4,138	0.000	***
HCC131: Renal Failure	30,933	\$2,131	0.000	***
HCC132: Nephritis	227	-\$398	0.815	
HCC148: Decubitus Ulcer of Skin	24,119	\$2,384	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	8,320	\$167	0.619	
HCC150: Extensive Third-Degree Burns	34	\$1,539	0.728	
HCC154: Severe Head Injury	35	\$7,759	0.074	*
HCC155: Major Head Injury	1,155	\$1,491	0.068	*
HCC157: Vertebral Fractures without Spinal Cord Injury	1,908	\$1,499	0.012	**
HCC158: Hip Fracture/Dislocation	4,285	\$2,887	0.000	***
HCC161: Traumatic Amputation	1,459	-\$836	0.236	
HCC164: Major Complications of Medical Care and Trauma	17,257	\$1,551	0.000	***
HCC174: Major Organ Transplant Status	475	\$2,256	0.060	*
HCC176: Artificial Openings for Feeding or Elimination	8,709	\$176	0.589	
HCC177: Amputation Status, Lower Limb/Amputation Complications	5,719	-\$814	0.035	**
Interaction: Disabled * Opportunistic Infections	457	\$724	0.621	
Interaction: Disabled * Severe Hematological Disorders	367	\$1,763	0.278	
Interaction: Disabled * Drug/Alcohol Psychosis	832	\$650	0.613	
Interaction: Disabled * Drug/Alcohol Dependence	2,194	-\$2,021	0.036	**
Interaction: Disabled * Cystic Fibrosis	33	-\$5,496	0.536	
Interaction: Diabetes * Congestive Heart Failure	20,133	\$679	0.135	
Interaction: Diabetes * Cardiovascular Disease	6,410	-\$1,272	0.010	**
Interaction: Renal Failure * Congestive Heart Failure	15,233	\$43	0.936	
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	15,126	\$948	0.013	**
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	10,314	-\$175	0.770	
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	879	\$1,508	0.107	
Indicator: Originally Disabled	41,607	-\$49	0.840	
Indicator: ESRD	9,364	\$1,980	0.000	***

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Indicator: Long-Term Care Institution	11,941	\$2,174	0.000	***
Indicator: Hospice Care	3,161	-\$4,611	0.000	***
Age: 0-34 Years	1,938	-\$5,369	0.000	***
Age: 35-44 Years	4,041	-\$4,056	0.000	***
Age: 45-54 Years	9,179	-\$3,459	0.000	***
Age: 55-59 Years	6,975	-\$2,357	0.000	***
Age: 60-64 Years	7,532	-\$817	0.035	**
Age: 70-74 Years	12,541	-\$109	0.734	
Age: 75-79 Years	11,628	\$15	0.963	
Age: 80-84 Years	10,680	\$28	0.935	
Age: 85-89 Years	8,028	\$127	0.741	
Age: 90-94 Years	3,909	-\$115	0.815	
Age: 95+ Years	980	\$296	0.731	
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	8,725	\$697	0.064	*
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	6,737	-\$726	0.176	
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	37,767	-\$428	0.122	
Clinical Case Mix Category: Prior PAC - Institutional	7,704	\$1,822	0.000	***
Clinical Case Mix Category: Prior PAC - Home Health	5,965	-\$591	0.166	
Clinical Case Mix Category: Community	6,967	-\$180	0.670	
Prior ICU Stay Length: 1-2 Days	9,632	\$685	0.131	
Prior ICU Stay Length: 3 Days	204	-\$3,960	0.032	**
Prior ICU Stay Length: 4-6 Days	379	-\$975	0.489	
Prior ICU Stay Length: 7-9 Days	205	-\$2,469	0.185	
Prior ICU Stay Length: 10-13 Days	158	-\$1,377	0.514	
Prior ICU Stay Length: 14-18 Days	97	\$3,284	0.217	
Prior ICU Stay Length: 19-24 Days	66	\$3,617	0.257	
Prior ICU Stay Length: 25+ Days	48	\$332	0.930	
Prior IP Stay Length: 8-11 Days	19,461	\$1,388	0.000	***
Prior IP Stay Length: 12-30 Days	15,142	\$3,878	0.000	***
Prior IP Stay Length: 31+ Days	965	\$8,336	0.000	***
MS-DRG 004: Trach W Mv 96+ Hrs Or Pdx Exc Face, Mouth & Neck W/O Maj O.R.	58	\$85,411	0.000	***
MS-DRG 040: Periph/Cranial Nerve & Other Nerv Syst Proc W Mcc	125	\$24,951	0.000	***
MS-DRG 041: Periph/Cranial Nerve & Other Nerv Syst Proc W Cc Or Periph Neurostim	69	\$4,085	0.223	
MS-DRG 056: Degenerative Nervous System Disorders W Mcc	703	\$643	0.700	
MS-DRG 057: Degenerative Nervous System Disorders W/O Mcc	617	-\$10,176	0.000	***
MS-DRG 064: Intracranial Hemorrhage Or Cerebral Infarction W Mcc	66	\$4,205	0.218	
MS-DRG 065: Intracranial Hemorrhage Or Cerebral Infarction W Cc	32	-\$6,592	0.161	
MS-DRG 070: Nonspecific Cerebrovascular Disorders W Mcc	146	-\$1,441	0.566	
MS-DRG 071: Nonspecific Cerebrovascular Disorders W Cc	102	-\$8,315	0.004	***
MS-DRG 073: Cranial & Peripheral Nerve Disorders W Mcc	128	-\$1,080	0.682	
MS-DRG 074: Cranial & Peripheral Nerve Disorders W/O Mcc	151	-\$13,919	0.000	***
MS-DRG 091: Other Disorders Of Nervous System W Mcc	113	\$7,381	0.007	***

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 092: Other Disorders Of Nervous System W Cc	89	-\$11,371	0.000	***
MS-DRG 094: Bacterial & Tuberculous Infections Of Nervous System W Mcc	178	\$13,463	0.000	***
MS-DRG 095: Bacterial & Tuberculous Infections Of Nervous System W Cc	83	-\$670	0.829	
MS-DRG 097: Non-Bacterial Infect Of Nervous Sys Exc Viral Meningitis W Mcc	33	-\$2,595	0.575	
MS-DRG 152: Otitis Media & Uri W Mcc	33	-\$8,668	0.086	*
MS-DRG 154: Other Ear, Nose, Mouth & Throat Diagnoses W Mcc	37	\$2,857	0.555	
MS-DRG 157: Dental & Oral Diseases W Mcc	34	\$4,494	0.368	
MS-DRG 158: Dental & Oral Diseases W Cc	40	-\$16,215	0.001	***
MS-DRG 166: Other Resp System O.R. Procedures W Mcc	338	\$61,835	0.000	***
MS-DRG 167: Other Resp System O.R. Procedures W Cc	44	\$11,680	0.012	**
MS-DRG 175: Pulmonary Embolism W Mcc	71	-\$2,889	0.468	
MS-DRG 176: Pulmonary Embolism W/O Mcc	35	-\$16,214	0.001	***
MS-DRG 177: Respiratory Infections & Inflammations W Mcc	2,127	\$3,960	0.134	
MS-DRG 178: Respiratory Infections & Inflammations W Cc	820	-\$8,109	0.003	***
MS-DRG 179: Respiratory Infections & Inflammations W/O Cc/Mcc	83	-\$14,869	0.000	***
MS-DRG 180: Respiratory Neoplasms W Mcc	34	-\$938	0.854	
MS-DRG 181: Respiratory Neoplasms W Cc	30	\$3,590	0.500	
MS-DRG 186: Pleural Effusion W Mcc	68	\$3,455	0.390	
MS-DRG 189: Pulmonary Edema & Respiratory Failure	5,047	\$2,407	0.356	
MS-DRG 190: Chronic Obstructive Pulmonary Disease W Mcc	1,770	-\$4,328	0.103	
MS-DRG 191: Chronic Obstructive Pulmonary Disease W Cc	651	-\$12,828	0.000	***
MS-DRG 192: Chronic Obstructive Pulmonary Disease W/O Cc/Mcc	151	-\$19,908	0.000	***
MS-DRG 193: Simple Pneumonia & Pleurisy W Mcc	1,273	-\$4,072	0.129	
MS-DRG 194: Simple Pneumonia & Pleurisy W Cc	801	-\$11,109	0.000	***
MS-DRG 195: Simple Pneumonia & Pleurisy W/O Cc/Mcc	92	-\$20,852	0.000	***
MS-DRG 196: Interstitial Lung Disease W Mcc	59	\$1,377	0.743	
MS-DRG 202: Bronchitis & Asthma W Cc/Mcc	97	-\$13,008	0.000	***
MS-DRG 204: Respiratory Signs & Symptoms	39	-\$8,340	0.084	*
MS-DRG 205: Other Respiratory System Diagnoses W Mcc	111	\$2,801	0.429	
MS-DRG 206: Other Respiratory System Diagnoses W/O Mcc	51	-\$8,500	0.054	*
MS-DRG 207: Respiratory System Diagnosis W Ventilator Support 96+ Hours	606	\$56,742	0.000	***
MS-DRG 208: Respiratory System Diagnosis W Ventilator Support <96 Hours	241	\$15,840	0.000	***
MS-DRG 239: Amputation For Circ Sys Disorders Exc Upper Limb & Toe W Mcc	165	\$44,445	0.000	***
MS-DRG 240: Amputation For Circ Sys Disorders Exc Upper Limb & Toe W Cc	75	\$24,107	0.000	***
MS-DRG 252: Other Vascular Procedures W Mcc	148	\$33,309	0.000	***
MS-DRG 253: Other Vascular Procedures W Cc	106	\$21,924	0.000	***
MS-DRG 255: Upper Limb & Toe Amputation For Circ System Disorders W Mcc	60	\$26,411	0.000	***
MS-DRG 264: Other Circulatory System O.R. Procedures	782	\$11,609	0.000	***

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 280: Acute Myocardial Infarction, Discharged Alive W Mcc	79	\$2,782	0.384	
MS-DRG 288: Acute & Subacute Endocarditis W Mcc	343	\$12,247	0.000	***
MS-DRG 289: Acute & Subacute Endocarditis W Cc	138	-\$3,086	0.232	
MS-DRG 291: Heart Failure & Shock W Mcc	937	-\$1,145	0.484	
MS-DRG 292: Heart Failure & Shock W Cc	460	-\$14,701	0.000	***
MS-DRG 293: Heart Failure & Shock W/O Cc/Mcc	59	-\$20,890	0.000	***
MS-DRG 299: Peripheral Vascular Disorders W Mcc	863	\$1,602	0.332	
MS-DRG 300: Peripheral Vascular Disorders W Cc	1,072	-\$13,841	0.000	***
MS-DRG 308: Cardiac Arrhythmia & Conduction Disorders W Mcc	54	-\$7,477	0.045	**
MS-DRG 309: Cardiac Arrhythmia & Conduction Disorders W Cc	50	-\$17,276	0.000	***
MS-DRG 314: Other Circulatory System Diagnoses W Mcc	1,248	\$974	0.540	
MS-DRG 315: Other Circulatory System Diagnoses W Cc	213	-\$10,734	0.000	***
MS-DRG 356: Other Digestive System O.R. Procedures W Mcc	111	\$30,484	0.000	***
MS-DRG 371: Major Gastrointestinal Disorders & Peritoneal Infections W Mcc	780	\$2,973	0.096	*
MS-DRG 372: Major Gastrointestinal Disorders & Peritoneal Infections W Cc	282	-\$12,296	0.000	***
MS-DRG 374: Digestive Malignancy W Mcc	36	\$8,691	0.054	*
MS-DRG 377: G.I. Hemorrhage W Mcc	51	-\$1,297	0.738	
MS-DRG 380: Complicated Peptic Ulcer W Mcc	35	\$4,569	0.317	
MS-DRG 385: Inflammatory Bowel Disease W Mcc	42	\$10,021	0.018	**
MS-DRG 388: G.I. Obstruction W Mcc	167	\$6,208	0.013	**
MS-DRG 389: G.I. Obstruction W Cc	69	-\$4,812	0.160	
MS-DRG 391: Esophagitis, Gastroent & Misc Digest Disorders W Mcc	308	\$461	0.827	
MS-DRG 392: Esophagitis, Gastroent & Misc Digest Disorders W/O Mcc	208	-\$13,917	0.000	***
MS-DRG 393: Other Digestive System Diagnoses W Mcc	832	\$7,215	0.000	***
MS-DRG 394: Other Digestive System Diagnoses W Cc	352	-\$8,938	0.000	***
MS-DRG 432: Cirrhosis & Alcoholic Hepatitis W Mcc	38	-\$11,855	0.014	**
MS-DRG 438: Disorders Of Pancreas Except Malignancy W Mcc	223	\$719	0.810	
MS-DRG 439: Disorders Of Pancreas Except Malignancy W Cc	106	-\$14,418	0.000	***
MS-DRG 441: Disorders Of Liver Except Malig,cirr,alc Hepa W Mcc	127	-\$7,140	0.033	**
MS-DRG 442: Disorders Of Liver Except Malig,cirr,alc Hepa W Cc	55	-\$20,899	0.000	***
MS-DRG 444: Disorders Of The Biliary Tract W Mcc	113	-\$5,636	0.100	*
MS-DRG 445: Disorders Of The Biliary Tract W Cc	34	-\$16,226	0.001	***
MS-DRG 463: Wnd Debrid & Skn Grft Exc Hand, For Musculo-Conn Tiss Dis W Mcc	1,455	\$17,653	0.000	***
MS-DRG 464: Wnd Debrid & Skn Grft Exc Hand, For Musculo-Conn Tiss Dis W Cc	449	-\$327	0.845	
MS-DRG 465: Wnd Debrid & Skn Grft Exc Hand, For Musculo-Conn Tiss Dis W/O Cc/Mcc	30	-\$11,188	0.019	**
MS-DRG 474: Amputation For Musculoskeletal Sys & Conn Tissue Dis W Mcc	184	\$19,653	0.000	***
MS-DRG 475: Amputation For Musculoskeletal Sys & Conn Tissue Dis W Cc	67	\$3,152	0.343	

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 477: Biopsies Of Musculoskeletal System & Connective Tissue W Mcc	55	\$12,246	0.001	***
MS-DRG 495: Local Excision & Removal Int Fix Devices Exc Hip & Femur W Mcc	213	\$18,304	0.000	***
MS-DRG 496: Local Excision & Removal Int Fix Devices Exc Hip & Femur W Cc	36	\$7,197	0.101	
MS-DRG 500: Soft Tissue Procedures W Mcc	449	\$11,969	0.000	***
MS-DRG 501: Soft Tissue Procedures W Cc	122	-\$7,623	0.003	***
MS-DRG 503: Foot Procedures W Mcc	61	\$8,452	0.015	**
MS-DRG 504: Foot Procedures W Cc	44	-\$5,988	0.135	
MS-DRG 515: Other Musculoskelet Sys & Conn Tiss O.R. Proc W Mcc	96	\$20,663	0.000	***
MS-DRG 539: Osteomyelitis W Mcc	3,193	-\$1,911	0.129	
MS-DRG 540: Osteomyelitis W Cc	1,359	-\$16,524	0.000	***
MS-DRG 541: Osteomyelitis W/O Cc/Mcc	148	-\$21,100	0.000	***
MS-DRG 546: Connective Tissue Disorders W Cc	32	-\$14,227	0.002	***
MS-DRG 548: Septic Arthritis W Mcc	332	-\$8,730	0.000	***
MS-DRG 549: Septic Arthritis W Cc	278	-\$18,241	0.000	***
MS-DRG 550: Septic Arthritis W/O Cc/Mcc	49	-\$26,811	0.000	***
MS-DRG 551: Medical Back Problems W Mcc	187	-\$207	0.925	
MS-DRG 552: Medical Back Problems W/O Mcc	183	-\$21,503	0.000	***
MS-DRG 556: Signs & Symptoms Of Musculoskeletal System & Conn Tissue W/O Mcc	32	-\$33,233	0.000	***
MS-DRG 557: Tendonitis, Myositis & Bursitis W Mcc	112	-\$11,993	0.000	***
MS-DRG 558: Tendonitis, Myositis & Bursitis W/O Mcc	111	-\$26,139	0.000	***
MS-DRG 559: Aftercare, Musculoskeletal System & Connective Tissue W Mcc	1,990	-\$6,973	0.000	***
MS-DRG 560: Aftercare, Musculoskeletal System & Connective Tissue W Cc	1,927	-\$17,564	0.000	***
MS-DRG 561: Aftercare, Musculoskeletal System & Connective Tissue W/O Cc/Mcc	242	-\$24,116	0.000	***
MS-DRG 564: Other Musculoskeletal Sys & Connective Tissue Diagnoses W Mcc	440	-\$10,325	0.000	***
MS-DRG 565: Other Musculoskeletal Sys & Connective Tissue Diagnoses W Cc	327	-\$21,899	0.000	***
MS-DRG 570: Skin Debridement W Mcc	1,908	\$16,295	0.000	***
MS-DRG 571: Skin Debridement W Cc	342	-\$2,602	0.339	
MS-DRG 573: Skin Graft For Skin Ulcer Or Cellulitis W Mcc	816	\$33,287	0.000	***
MS-DRG 574: Skin Graft For Skin Ulcer Or Cellulitis W Cc	87	\$12,615	0.000	***
MS-DRG 579: Other Skin, Subcut Tiss & Breast Proc W Mcc	1,275	\$16,651	0.000	***
MS-DRG 580: Other Skin, Subcut Tiss & Breast Proc W Cc	159	-\$379	0.902	
MS-DRG 592: Skin Ulcers W Mcc	3,909	-\$2,016	0.399	
MS-DRG 593: Skin Ulcers W Cc	604	-\$14,173	0.000	***
MS-DRG 594: Skin Ulcers W/O Cc/Mcc	50	-\$14,278	0.001	***
MS-DRG 595: Major Skin Disorders W Mcc	45	-\$1,301	0.771	
MS-DRG 596: Major Skin Disorders W/O Mcc	38	-\$13,949	0.003	***
MS-DRG 600: Non-Malignant Breast Disorders W Cc/Mcc	43	\$3,142	0.488	
MS-DRG 602: Cellulitis W Mcc	1,516	-\$7,559	0.002	***
MS-DRG 603: Cellulitis W/O Mcc	1,976	-\$20,571	0.000	***

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 604: Trauma To The Skin, Subcut Tiss & Breast W Mcc	36	-\$9,583	0.048	**
MS-DRG 605: Trauma To The Skin, Subcut Tiss & Breast W/O Mcc	47	-\$14,740	0.001	***
MS-DRG 606: Minor Skin Disorders W Mcc	129	\$3,795	0.242	
MS-DRG 607: Minor Skin Disorders W/O Mcc	172	-\$17,659	0.000	***
MS-DRG 616: Amputat Of Lower Limb For Endocrine,nutrit,& Metabol Dis W Mcc	177	\$34,041	0.000	***
MS-DRG 617: Amputat Of Lower Limb For Endocrine,nutrit,& Metabol Dis W Cc	268	\$12,627	0.000	***
MS-DRG 622: Skin Grafts & Wound Debrid For Endoc, Nutrit & Metab Dis W Mcc	505	\$22,864	0.000	***
MS-DRG 623: Skin Grafts & Wound Debrid For Endoc, Nutrit & Metab Dis W Cc	859	\$8,639	0.007	***
MS-DRG 628: Other Endocrine, Nutrit & Metab O.R. Proc W Mcc	202	\$23,683	0.000	***
MS-DRG 629: Other Endocrine, Nutrit & Metab O.R. Proc W Cc	297	\$10,289	0.003	***
MS-DRG 637: Diabetes W Mcc	1,103	\$6,070	0.055	*
MS-DRG 638: Diabetes W Cc	2,245	-\$6,873	0.027	**
MS-DRG 639: Diabetes W/O Cc/Mcc	51	-\$14,351	0.002	***
MS-DRG 640: Misc Disorders Of Nutrition,metabolism,fluids/Electrolytes W Mcc	411	\$4,426	0.181	
MS-DRG 641: Misc Disorders Of Nutrition,metabolism,fluids/Electrolytes W/O Mcc	336	-\$5,618	0.095	*
MS-DRG 673: Other Kidney & Urinary Tract Procedures W Mcc	152	\$18,196	0.000	***
MS-DRG 682: Renal Failure W Mcc	1,090	\$2,315	0.280	
MS-DRG 683: Renal Failure W Cc	386	-\$13,209	0.000	***
MS-DRG 689: Kidney & Urinary Tract Infections W Mcc	1,187	-\$8,345	0.000	***
MS-DRG 690: Kidney & Urinary Tract Infections W/O Mcc	983	-\$18,744	0.000	***
MS-DRG 698: Other Kidney & Urinary Tract Diagnoses W Mcc	355	-\$2,341	0.332	
MS-DRG 699: Other Kidney & Urinary Tract Diagnoses W Cc	140	-\$14,204	0.000	***
MS-DRG 727: Inflammation Of The Male Reproductive System W Mcc	85	-\$6,938	0.107	
MS-DRG 728: Inflammation Of The Male Reproductive System W/O Mcc	67	-\$21,185	0.000	***
MS-DRG 729: Other Male Reproductive System Diagnoses W Cc/Mcc	71	-\$14,451	0.001	***
MS-DRG 757: Infections, Female Reproductive System W Mcc	89	-\$6,424	0.139	
MS-DRG 758: Infections, Female Reproductive System W Cc	63	-\$23,711	0.000	***
MS-DRG 811: Red Blood Cell Disorders W Mcc	54	-\$3,678	0.393	
MS-DRG 812: Red Blood Cell Disorders W/O Mcc	47	-\$18,409	0.000	***
MS-DRG 840: Lymphoma & Non-Acute Leukemia W Mcc	57	\$3,971	0.432	
MS-DRG 841: Lymphoma & Non-Acute Leukemia W Cc	31	-\$7,475	0.207	
MS-DRG 846: Chemotherapy W/O Acute Leukemia As Secondary Diagnosis W Mcc	47	\$22,086	0.000	***
MS-DRG 847: Chemotherapy W/O Acute Leukemia As Secondary Diagnosis W Cc	41	\$507	0.926	
MS-DRG 849: Radiotherapy	47	-\$2,657	0.615	
MS-DRG 853: Infectious & Parasitic Diseases W O.R. Procedure W Mcc	848	\$47,567	0.000	***
MS-DRG 854: Infectious & Parasitic Diseases W O.R. Procedure W Cc	81	\$10,456	0.021	**

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 856: Postoperative Or Post-Traumatic Infections W O.R. Proc W Mcc	337	\$37,413	0.000	***
MS-DRG 857: Postoperative Or Post-Traumatic Infections W O.R. Proc W Cc	181	\$16,363	0.000	***
MS-DRG 862: Postoperative & Post-Traumatic Infections W Mcc	1,283	\$11,972	0.001	***
MS-DRG 863: Postoperative & Post-Traumatic Infections W/O Mcc	983	-\$1,736	0.631	
MS-DRG 865: Viral Illness W Mcc	30	\$10,837	0.063	*
MS-DRG 867: Other Infectious & Parasitic Diseases Diagnoses W Mcc	250	\$19,983	0.000	***
MS-DRG 868: Other Infectious & Parasitic Diseases Diagnoses W Cc	35	\$1,758	0.752	
MS-DRG 870: Septicemia Or Severe Sepsis W Mv 96+ Hours	70	\$74,780	0.000	***
MS-DRG 871: Septicemia Or Severe Sepsis W/O Mv 96+ Hours W Mcc	4,695	\$11,284	0.001	***
MS-DRG 872: Septicemia Or Severe Sepsis W/O Mv 96+ Hours W/O Mcc	1,034	-\$3,554	0.326	
MS-DRG 884: Organic Disturbances & Mental Retardation	88	\$2,196	0.599	
MS-DRG 885: Psychoses	1,156	-\$1,470	0.653	
MS-DRG 894: Alcohol/Drug Abuse Or Dependence, Left Ama	53	-\$69,161	0.000	***
MS-DRG 895: Alcohol/Drug Abuse Or Dependence W Rehabilitation Therapy	618	-\$56,581	0.000	***
MS-DRG 897: Alcohol/Drug Abuse Or Dependence W/O Rehabilitation Therapy W/O Mcc	77	-\$71,230	0.000	***
MS-DRG 901: Wound Debridements For Injuries W Mcc	276	\$37,210	0.000	***
MS-DRG 902: Wound Debridements For Injuries W Cc	183	\$13,824	0.000	***
MS-DRG 904: Skin Grafts For Injuries W Cc/Mcc	131	\$30,981	0.000	***
MS-DRG 907: Other O.R. Procedures For Injuries W Mcc	184	\$48,627	0.000	***
MS-DRG 908: Other O.R. Procedures For Injuries W Cc	78	\$11,203	0.011	**
MS-DRG 913: Traumatic Injury W Mcc	60	\$11,858	0.012	**
MS-DRG 914: Traumatic Injury W/O Mcc	65	-\$4,701	0.308	
MS-DRG 919: Complications Of Treatment W Mcc	1,536	\$21,824	0.000	***
MS-DRG 920: Complications Of Treatment W Cc	867	\$5,342	0.125	
MS-DRG 921: Complications Of Treatment W/O Cc/Mcc	38	-\$5,000	0.348	
MS-DRG 934: Full Thickness Burn W/O Skin Grft Or Inhal Inj	42	-\$39,215	0.000	***
MS-DRG 935: Non-Extensive Burns	49	-\$45,975	0.000	***
MS-DRG 939: O.R. Proc W Diagnoses Of Other Contact W Health Services W Mcc	120	-\$13,753	0.000	***
MS-DRG 940: O.R. Proc W Diagnoses Of Other Contact W Health Services W Cc	59	-\$31,740	0.000	***
MS-DRG 945: Rehabilitation W Cc/Mcc	1,533	-\$46,457	0.000	***
MS-DRG 946: Rehabilitation W/O Cc/Mcc	298	-\$61,254	0.000	***
MS-DRG 947: Signs & Symptoms W Mcc	63	-\$35,740	0.000	***
MS-DRG 948: Signs & Symptoms W/O Mcc	81	-\$48,907	0.000	***
MS-DRG 949: Aftercare W Cc/Mcc	1,726	-\$45,781	0.000	***
MS-DRG 950: Aftercare W/O Cc/Mcc	75	-\$60,274	0.000	***
MS-DRG 974: Hiv W Major Related Condition W Mcc	142	-\$27,556	0.000	***
MS-DRG 975: Hiv W Major Related Condition W Cc	43	-\$52,298	0.000	***
MS-DRG 977: Hiv W Or W/O Other Related Condition	37	-\$48,045	0.000	***

MSPB-PAC LTCH Site Neutral Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 981: Extensive O.R. Procedure Unrelated To Principal Diagnosis W Mcc	677	\$14,180	0.000	***
MS-DRG 982: Extensive O.R. Procedure Unrelated To Principal Diagnosis W Cc	282	-\$25,429	0.000	***
MS-DRG 987: Non-Extensive O.R. Proc Unrelated To Principal Diagnosis W Mcc	489	-\$1,499	0.559	
MS-DRG 988: Non-Extensive O.R. Proc Unrelated To Principal Diagnosis W Cc	152	-\$29,092	0.000	***
MDC 01: Diseases & Disorders Of The Nervous System	2,987	-\$36,670	0.000	***
MDC 02: Diseases & Disorders Of The Eye	35	-\$43,825	0.000	***
MDC 03: Diseases & Disorders Of The Ear, Nose, Mouth & Throat	253	-\$37,872	0.000	***
MDC 04: Diseases & Disorders Of The Respiratory System	14,736	-\$37,419	0.000	***
MDC 05: Diseases & Disorders Of The Circulatory System	7,180	-\$37,397	0.000	***
MDC 06: Diseases & Disorders Of The Digestive System	3,549	-\$36,314	0.000	***
MDC 07: Diseases & Disorders Of The Hepatobiliary System & Pancreas	804	-\$28,748	0.000	***
MDC 08: Diseases & Disorders Of The Musculoskeletal System & Conn Tissue	14,682	-\$25,439	0.000	***
MDC 09: Diseases & Disorders Of The Skin, Subcutaneous Tissue & Breast	13,269	-\$33,130	0.000	***
MDC 10: Endocrine, Nutritional & Metabolic Diseases & Disorders	6,523	-\$38,211	0.000	***
MDC 11: Diseases & Disorders Of The Kidney & Urinary Tract	4,455	-\$35,104	0.000	***
MDC 12: Diseases & Disorders Of The Male Reproductive System	282	-\$32,591	0.000	***
MDC 13: Diseases & Disorders Of The Female Reproductive System	208	-\$26,952	0.000	***
MDC 16: Diseases & Disorders Of Blood, Blood Forming Organs, Immunolog Disord	200	-\$35,285	0.000	***
MDC 17: Myeloproliferative Diseases & Disorders, Poorly Differentiated Neoplasm	269	-\$34,291	0.000	***
MDC 18: Infectious & Parasitic Diseases, Systemic Or Unspecified Sites	9,879	-\$45,218	0.000	***
MDC 19: Mental Diseases & Disorders	1,308	-\$56,976	0.000	***
MDC 21: Injuries, Poisonings & Toxic Effects Of Drugs	3,475	-\$46,615	0.000	***

A.6 MSPB-PAC LTCH Standard Risk Adjustment Model

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	91,287	\$58,755	0.000	***
HCC1: HIV/AIDS	565	\$7,923	0.000	***
HCC2: Septicemia/Shock	39,682	\$955	0.000	***
HCC5: Opportunistic Infections	2,362	\$2,567	0.003	***
HCC7: Metastatic Cancer and Acute Leukemia	2,702	\$911	0.190	
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	2,543	-\$195	0.782	
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	2,662	\$1,739	0.012	**
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	5,048	\$1	0.999	
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	11,713	\$3,948	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	8,160	\$3,138	0.000	***
HCC17: Diabetes with Acute Complications	925	\$1,773	0.133	
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	1,776	\$2,576	0.004	***
HCC19: Diabetes without Complication	23,270	\$2,588	0.000	***
HCC21: Protein-Calorie Malnutrition	25,741	\$1,724	0.000	***
HCC25: End-Stage Liver Disease	2,043	\$999	0.214	
HCC26: Cirrhosis of Liver	1,554	\$1,241	0.165	
HCC27: Chronic Hepatitis	770	-\$436	0.729	
HCC31: Intestinal Obstruction/Perforation	14,645	\$561	0.107	
HCC32: Pancreatic Disease	3,878	\$1,452	0.016	**
HCC33: Inflammatory Bowel Disease	1,770	\$2,278	0.007	***
HCC37: Bone/Joint/Muscle Infections/Necrosis	9,024	\$417	0.378	
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	5,411	\$1,555	0.001	***
HCC44: Severe Hematological Disorders	1,484	\$534	0.610	
HCC45: Disorders of Immunity	4,031	-\$329	0.573	
HCC51: Drug/Alcohol Psychosis	2,128	-\$1,715	0.078	*
HCC52: Drug/Alcohol Dependence	2,734	-\$123	0.903	
HCC54: Schizophrenia	3,209	\$1,333	0.038	**
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	8,278	\$841	0.040	**
HCC67: Quadriplegia, Other Extensive Paralysis	3,113	\$2,381	0.000	***
HCC68: Paraplegia	1,871	\$3,040	0.000	***
HCC69: Spinal Cord Disorders/Injuries	1,285	\$2,554	0.009	***
HCC70: Muscular Dystrophy	311	\$4,932	0.013	**
HCC71: Polyneuropathy	13,317	\$852	0.015	**
HCC72: Multiple Sclerosis	1,098	\$553	0.603	
HCC73: Parkinsons and Huntingtons Diseases	2,603	\$1,660	0.017	**
HCC74: Seizure Disorders and Convulsions	12,484	\$421	0.236	
HCC75: Coma, Brain Compression/Anoxic Damage	5,528	\$3,550	0.000	***
HCC77: Respirator Dependence/Tracheostomy Status	17,393	\$2,570	0.000	***
HCC78: Respiratory Arrest	1,571	\$2,842	0.002	***
HCC79: Cardio-Respiratory Failure and Shock	49,597	\$1,751	0.000	***
HCC80: Congestive Heart Failure	48,112	\$637	0.187	

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC81: Acute Myocardial Infarction	8,722	-\$634	0.125	
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	6,148	\$241	0.608	
HCC83: Angina Pectoris/Old Myocardial Infarction	6,185	\$319	0.498	
HCC92: Specified Heart Arrhythmias	39,342	\$1,804	0.000	***
HCC95: Cerebral Hemorrhage	4,924	\$5,356	0.000	***
HCC96: Ischemic or Unspecified Stroke	11,661	\$3,660	0.000	***
HCC100: Hemiplegia/Hemiparesis	5,417	\$2,306	0.000	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	837	\$1,229	0.315	
HCC104: Vascular Disease with Complications	14,218	\$474	0.185	
HCC105: Vascular Disease	22,672	\$806	0.004	***
HCC107: Cystic Fibrosis	56	-\$19,380	0.007	***
HCC108: Chronic Obstructive Pulmonary Disease	39,636	-\$904	0.015	**
HCC111: Aspiration and Specified Bacterial Pneumonias	21,402	\$771	0.010	**
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	2,821	-\$2,952	0.000	***
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	928	\$1,850	0.112	
HCC130: Dialysis Status	7,556	\$4,716	0.000	***
HCC131: Renal Failure	44,415	\$2,373	0.000	***
HCC132: Nephritis	261	-\$157	0.942	
HCC148: Decubitus Ulcer of Skin	13,981	\$2,507	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	4,035	\$1,552	0.008	***
HCC150: Extensive Third-Degree Burns	84	\$6,691	0.084	*
HCC154: Severe Head Injury	235	\$7,249	0.002	***
HCC155: Major Head Injury	2,964	\$32	0.966	
HCC157: Vertebral Fractures without Spinal Cord Injury	1,921	\$2,155	0.008	***
HCC158: Hip Fracture/Dislocation	3,089	\$3,024	0.000	***
HCC161: Traumatic Amputation	823	-\$1,276	0.307	
HCC164: Major Complications of Medical Care and Trauma	17,001	\$600	0.059	*
HCC174: Major Organ Transplant Status	1,016	\$4,573	0.000	***
HCC176: Artificial Openings for Feeding or Elimination	10,918	-\$214	0.585	
HCC177: Amputation Status, Lower Limb/Amputation Complications	2,975	-\$503	0.467	
Interaction: Disabled * Opportunistic Infections	669	-\$819	0.610	
Interaction: Disabled * Severe Hematological Disorders	345	\$3,305	0.122	
Interaction: Disabled * Drug/Alcohol Psychosis	834	-\$2,710	0.082	*
Interaction: Disabled * Drug/Alcohol Dependence	1,521	-\$2,746	0.043	**
Interaction: Disabled * Cystic Fibrosis	33	\$40,310	0.000	***
Interaction: Diabetes * Congestive Heart Failure	27,843	-\$1,042	0.076	*
Interaction: Diabetes * Cardiovascular Disease	9,738	-\$488	0.379	
Interaction: Renal Failure * Congestive Heart Failure	26,749	\$426	0.473	
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	25,341	\$1,505	0.002	***
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	16,771	\$1,154	0.078	*
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	1,966	-\$271	0.758	
Indicator: Originally Disabled	37,783	-\$105	0.744	
Indicator: ESRD	10,069	\$4,522	0.000	***

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Indicator: Long-Term Care Institution	10,528	\$1,608	0.000	***
Age: 0-34 Years	1,217	-\$5,426	0.000	***
Age: 35-44 Years	2,803	-\$5,510	0.000	***
Age: 45-54 Years	7,519	-\$3,756	0.000	***
Age: 55-59 Years	6,706	-\$1,480	0.006	***
Age: 60-64 Years	7,491	-\$826	0.110	
Age: 70-74 Years	15,315	\$1,149	0.003	***
Age: 75-79 Years	13,507	\$1,709	0.000	***
Age: 80-84 Years	10,492	\$2,608	0.000	***
Age: 85-89 Years	6,745	\$3,046	0.000	***
Age: 90-94 Years	2,539	\$2,636	0.001	***
Age: 95+ Years	524	\$4,861	0.002	***
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	3,408	\$122	0.863	
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	36,687	-\$3,648	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	5,409	-\$3,972	0.000	***
Prior ICU Stay Length: 1-2 Days	2,277	-\$155	0.864	
Prior ICU Stay Length: 3 Days	6,633	-\$1,470	0.037	**
Prior ICU Stay Length: 4-6 Days	18,257	-\$156	0.801	
Prior ICU Stay Length: 7-9 Days	14,143	\$157	0.802	
Prior ICU Stay Length: 10-13 Days	13,071	\$585	0.340	
Prior ICU Stay Length: 14-18 Days	11,079	\$3,680	0.000	***
Prior ICU Stay Length: 19-24 Days	7,825	\$4,751	0.000	***
Prior ICU Stay Length: 25+ Days	8,046	\$7,971	0.000	***
Prior IP Stay Length: 8-11 Days	20,039	\$468	0.276	
Prior IP Stay Length: 12-30 Days	46,750	\$3,370	0.000	***
Prior IP Stay Length: 31+ Days	9,186	\$8,098	0.000	***
Indicator: Hospice Care	2,494	-\$7,212	0.000	***
MS-DRG 003: Ecmo Or Trach W Mv 96+ Hrs Or Pdx Exc Face, Mouth & Neck W Maj O.R.	297	\$155,728	0.000	***
MS-DRG 004: Trach W Mv 96+ Hrs Or Pdx Exc Face, Mouth & Neck W/O Maj O.R.	1,741	\$105,328	0.000	***
MS-DRG 040: Periph/Cranial Nerve & Other Nerv Syst Proc W Mcc	86	\$25,172	0.000	***
MS-DRG 052: Spinal Disorders & Injuries W Cc/Mcc	37	\$29,792	0.000	***
MS-DRG 056: Degenerative Nervous System Disorders W Mcc	644	\$1,852	0.524	
MS-DRG 057: Degenerative Nervous System Disorders W/O Mcc	352	-\$11,936	0.000	***
MS-DRG 064: Intracranial Hemorrhage Or Cerebral Infarction W Mcc	99	\$6,040	0.161	
MS-DRG 070: Nonspecific Cerebrovascular Disorders W Mcc	122	\$2,299	0.569	
MS-DRG 071: Nonspecific Cerebrovascular Disorders W Cc	32	-\$16,027	0.015	**
MS-DRG 073: Cranial & Peripheral Nerve Disorders W Mcc	71	-\$3,181	0.511	
MS-DRG 074: Cranial & Peripheral Nerve Disorders W/O Mcc	30	-\$14,926	0.028	**
MS-DRG 085: Traumatic Stupor & Coma, Coma <1 Hr W Mcc	87	\$1,209	0.789	
MS-DRG 086: Traumatic Stupor & Coma, Coma <1 Hr W Cc	40	-\$12,357	0.041	**
MS-DRG 091: Other Disorders Of Nervous System W Mcc	266	\$3,684	0.268	
MS-DRG 092: Other Disorders Of Nervous System W Cc	69	-\$7,972	0.102	

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 094: Bacterial & Tuberculous Infections Of Nervous System W Mcc	262	\$14,580	0.000	***
MS-DRG 095: Bacterial & Tuberculous Infections Of Nervous System W Cc	63	-\$580	0.908	
MS-DRG 097: Non-Bacterial Infect Of Nervous Sys Exc Viral Meningitis W Mcc	60	\$2,971	0.563	
MS-DRG 100: Seizures W Mcc	46	-\$1,505	0.792	
MS-DRG 146: Ear, Nose, Mouth & Throat Malignancy W Mcc	31	\$53,367	0.000	***
MS-DRG 163: Major Chest Procedures W Mcc	36	\$73,731	0.000	***
MS-DRG 166: Other Resp System O.R. Procedures W Mcc	1,736	\$86,606	0.000	***
MS-DRG 167: Other Resp System O.R. Procedures W Cc	115	\$35,673	0.000	***
MS-DRG 175: Pulmonary Embolism W Mcc	133	\$6,433	0.132	
MS-DRG 176: Pulmonary Embolism W/O Mcc	43	-\$14,908	0.014	**
MS-DRG 177: Respiratory Infections & Inflammations W Mcc	3,004	\$12,059	0.000	***
MS-DRG 178: Respiratory Infections & Inflammations W Cc	756	\$1,199	0.716	
MS-DRG 179: Respiratory Infections & Inflammations W/O Cc/Mcc	36	-\$9,847	0.130	
MS-DRG 186: Pleural Effusion W Mcc	111	\$6,042	0.176	
MS-DRG 189: Pulmonary Edema & Respiratory Failure	14,032	\$12,680	0.000	***
MS-DRG 190: Chronic Obstructive Pulmonary Disease W Mcc	1,385	\$5,615	0.077	*
MS-DRG 191: Chronic Obstructive Pulmonary Disease W Cc	424	-\$2,507	0.470	
MS-DRG 192: Chronic Obstructive Pulmonary Disease W/O Cc/Mcc	74	-\$13,767	0.006	***
MS-DRG 193: Simple Pneumonia & Pleurisy W Mcc	1,253	\$5,583	0.080	*
MS-DRG 194: Simple Pneumonia & Pleurisy W Cc	543	-\$5,274	0.119	
MS-DRG 195: Simple Pneumonia & Pleurisy W/O Cc/Mcc	49	-\$8,139	0.159	
MS-DRG 196: Interstitial Lung Disease W Mcc	68	\$4,333	0.402	
MS-DRG 199: Pneumothorax W Mcc	75	\$1,344	0.788	
MS-DRG 202: Bronchitis & Asthma W Cc/Mcc	49	-\$7,112	0.219	
MS-DRG 204: Respiratory Signs & Symptoms	81	\$4,489	0.359	
MS-DRG 205: Other Respiratory System Diagnoses W Mcc	289	\$8,212	0.025	**
MS-DRG 206: Other Respiratory System Diagnoses W/O Mcc	67	\$2,633	0.612	
MS-DRG 207: Respiratory System Diagnosis W Ventilator Support 96+ Hours	16,386	\$68,596	0.000	***
MS-DRG 208: Respiratory System Diagnosis W Ventilator Support <96 Hours	2,563	\$27,544	0.000	***
MS-DRG 239: Amputation For Circ Sys Disorders Exc Upper Limb & Toe W Mcc	65	\$38,089	0.000	***
MS-DRG 252: Other Vascular Procedures W Mcc	104	\$31,902	0.000	***
MS-DRG 264: Other Circulatory System O.R. Procedures	301	\$12,517	0.000	***
MS-DRG 280: Acute Myocardial Infarction, Discharged Alive W Mcc	269	-\$4,481	0.147	
MS-DRG 281: Acute Myocardial Infarction, Discharged Alive W Cc	68	-\$18,378	0.000	***
MS-DRG 288: Acute & Subacute Endocarditis W Mcc	552	\$10,459	0.000	***
MS-DRG 289: Acute & Subacute Endocarditis W Cc	129	-\$6,986	0.065	*
MS-DRG 291: Heart Failure & Shock W Mcc	1,095	-\$3,952	0.112	
MS-DRG 292: Heart Failure & Shock W Cc	414	-\$16,611	0.000	***
MS-DRG 299: Peripheral Vascular Disorders W Mcc	333	-\$2,915	0.322	

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 300: Peripheral Vascular Disorders W Cc	151	-\$17,240	0.000	***
MS-DRG 302: Atherosclerosis W Mcc	45	\$3,759	0.503	
MS-DRG 306: Cardiac Congenital & Valvular Disorders W Mcc	45	-\$410	0.942	
MS-DRG 308: Cardiac Arrhythmia & Conduction Disorders W Mcc	79	-\$12,291	0.006	***
MS-DRG 309: Cardiac Arrhythmia & Conduction Disorders W Cc	34	-\$22,555	0.000	***
MS-DRG 314: Other Circulatory System Diagnoses W Mcc	1,553	\$650	0.789	
MS-DRG 315: Other Circulatory System Diagnoses W Cc	193	-\$13,953	0.000	***
MS-DRG 356: Other Digestive System O.R. Procedures W Mcc	168	\$23,329	0.000	***
MS-DRG 371: Major Gastrointestinal Disorders & Peritoneal Infections W Mcc	941	\$2,601	0.355	
MS-DRG 372: Major Gastrointestinal Disorders & Peritoneal Infections W Cc	208	-\$11,012	0.002	***
MS-DRG 374: Digestive Malignancy W Mcc	32	-\$7,018	0.289	
MS-DRG 377: G.I. Hemorrhage W Mcc	82	-\$4,342	0.345	
MS-DRG 388: G.I. Obstruction W Mcc	157	\$6,616	0.079	*
MS-DRG 389: G.I. Obstruction W Cc	37	-\$15,501	0.013	**
MS-DRG 391: Esophagitis, Gastroent & Misc Digest Disorders W Mcc	270	\$1,071	0.747	
MS-DRG 392: Esophagitis, Gastroent & Misc Digest Disorders W/O Mcc	83	-\$12,637	0.006	***
MS-DRG 393: Other Digestive System Diagnoses W Mcc	755	\$9,043	0.002	***
MS-DRG 394: Other Digestive System Diagnoses W Cc	176	-\$9,353	0.011	**
MS-DRG 432: Cirrhosis & Alcoholic Hepatitis W Mcc	52	-\$12,174	0.048	**
MS-DRG 438: Disorders Of Pancreas Except Malignancy W Mcc	276	-\$598	0.891	
MS-DRG 439: Disorders Of Pancreas Except Malignancy W Cc	62	-\$16,988	0.004	***
MS-DRG 441: Disorders Of Liver Except Malig,cirr,alc Hepa W Mcc	148	-\$7,848	0.101	
MS-DRG 442: Disorders Of Liver Except Malig,cirr,alc Hepa W Cc	34	-\$22,609	0.001	***
MS-DRG 444: Disorders Of The Biliary Tract W Mcc	127	-\$8,163	0.096	*
MS-DRG 445: Disorders Of The Biliary Tract W Cc	30	-\$21,137	0.004	***
MS-DRG 463: Wnd Debrid & Skn Grft Exc Hand, For Musculo-Conn Tiss Dis W Mcc	443	\$23,211	0.000	***
MS-DRG 464: Wnd Debrid & Skn Grft Exc Hand, For Musculo-Conn Tiss Dis W Cc	109	\$7,382	0.065	*
MS-DRG 474: Amputation For Musculoskeletal Sys & Conn Tissue Dis W Mcc	61	\$29,409	0.000	***
MS-DRG 495: Local Excision & Removal Int Fix Devices Exc Hip & Femur W Mcc	54	\$40,227	0.000	***
MS-DRG 500: Soft Tissue Procedures W Mcc	140	\$21,792	0.000	***
MS-DRG 515: Other Musculoskelet Sys & Conn Tiss O.R. Proc W Mcc	39	\$20,504	0.001	***
MS-DRG 539: Osteomyelitis W Mcc	1,038	\$2,592	0.300	
MS-DRG 540: Osteomyelitis W Cc	248	-\$11,580	0.000	***
MS-DRG 545: Connective Tissue Disorders W Mcc	38	\$1,073	0.859	
MS-DRG 548: Septic Arthritis W Mcc	158	-\$116	0.974	
MS-DRG 549: Septic Arthritis W Cc	70	-\$10,225	0.030	**
MS-DRG 551: Medical Back Problems W Mcc	96	\$1,130	0.787	
MS-DRG 557: Tendonitis, Myositis & Bursitis W Mcc	147	-\$2,038	0.575	

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 558: Tendonitis, Myositis & Bursitis W/O Mcc	87	-\$15,596	0.000	***
MS-DRG 559: Aftercare, Musculoskeletal System & Connective Tissue W Mcc	954	-\$3,139	0.213	
MS-DRG 560: Aftercare, Musculoskeletal System & Connective Tissue W Cc	383	-\$11,589	0.000	***
MS-DRG 564: Other Musculoskeletal Sys & Connective Tissue Diagnoses W Mcc	203	-\$1,428	0.668	
MS-DRG 565: Other Musculoskeletal Sys & Connective Tissue Diagnoses W Cc	53	-\$16,510	0.002	***
MS-DRG 570: Skin Debridement W Mcc	420	\$22,520	0.000	***
MS-DRG 571: Skin Debridement W Cc	50	-\$2,005	0.726	
MS-DRG 573: Skin Graft For Skin Ulcer Or Cellulitis W Mcc	116	\$49,030	0.000	***
MS-DRG 579: Other Skin, Subcut Tiss & Breast Proc W Mcc	235	\$25,185	0.000	***
MS-DRG 592: Skin Ulcers W Mcc	1,057	\$5,587	0.080	*
MS-DRG 593: Skin Ulcers W Cc	96	-\$8,213	0.076	*
MS-DRG 602: Cellulitis W Mcc	538	-\$924	0.782	
MS-DRG 603: Cellulitis W/O Mcc	310	-\$14,492	0.000	***
MS-DRG 606: Minor Skin Disorders W Mcc	43	\$3,213	0.596	
MS-DRG 616: Amputat Of Lower Limb For Endocrine,nutrit,& Metabol Dis W Mcc	34	\$28,787	0.000	***
MS-DRG 622: Skin Grafts & Wound Debrid For Endoc, Nutrit & Metab Dis W Mcc	140	\$15,987	0.003	***
MS-DRG 623: Skin Grafts & Wound Debrid For Endoc, Nutrit & Metab Dis W Cc	114	\$1,149	0.836	
MS-DRG 628: Other Endocrine, Nutrit & Metab O.R. Proc W Mcc	52	\$23,400	0.000	***
MS-DRG 629: Other Endocrine, Nutrit & Metab O.R. Proc W Cc	34	\$8,418	0.258	
MS-DRG 637: Diabetes W Mcc	409	\$1,396	0.773	
MS-DRG 638: Diabetes W Cc	363	-\$14,777	0.002	***
MS-DRG 640: Misc Disorders Of Nutrition,metabolism,fluids/Electrolytes W Mcc	349	-\$2,827	0.564	
MS-DRG 641: Misc Disorders Of Nutrition,metabolism,fluids/Electrolytes W/O Mcc	128	-\$20,891	0.000	***
MS-DRG 673: Other Kidney & Urinary Tract Procedures W Mcc	193	\$27,778	0.000	***
MS-DRG 674: Other Kidney & Urinary Tract Procedures W Cc	33	\$7,776	0.267	
MS-DRG 682: Renal Failure W Mcc	1,837	\$3,753	0.311	
MS-DRG 683: Renal Failure W Cc	517	-\$10,438	0.008	***
MS-DRG 689: Kidney & Urinary Tract Infections W Mcc	569	-\$2,685	0.491	
MS-DRG 690: Kidney & Urinary Tract Infections W/O Mcc	237	-\$13,842	0.001	***
MS-DRG 698: Other Kidney & Urinary Tract Diagnoses W Mcc	339	\$3,598	0.377	
MS-DRG 699: Other Kidney & Urinary Tract Diagnoses W Cc	77	-\$10,307	0.053	*
MS-DRG 727: Inflammation Of The Male Reproductive System W Mcc	33	-\$3,367	0.661	
MS-DRG 729: Other Male Reproductive System Diagnoses W Cc/Mcc	75	-\$515	0.934	
MS-DRG 757: Infections, Female Reproductive System W Mcc	81	\$6,918	0.321	
MS-DRG 808: Major Hematom/Immun Diag Exc Sickl Cell Crisis & Coagul W Mcc	30	\$5,156	0.498	
MS-DRG 811: Red Blood Cell Disorders W Mcc	32	\$5,480	0.461	
MS-DRG 840: Lymphoma & Non-Acute Leukemia W Mcc	32	\$1,390	0.857	

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MS-DRG 853: Infectious & Parasitic Diseases W O.R. Procedure W Mcc	1,120	\$52,053	0.000	***
MS-DRG 854: Infectious & Parasitic Diseases W O.R. Procedure W Cc	38	\$8,122	0.293	
MS-DRG 856: Postoperative Or Post-Traumatic Infections W O.R. Proc W Mcc	305	\$31,683	0.000	***
MS-DRG 857: Postoperative Or Post-Traumatic Infections W O.R. Proc W Cc	64	\$4,240	0.536	
MS-DRG 862: Postoperative & Post-Traumatic Infections W Mcc	1,560	\$8,126	0.132	
MS-DRG 863: Postoperative & Post-Traumatic Infections W/O Mcc	363	-\$9,566	0.089	*
MS-DRG 865: Viral Illness W Mcc	45	\$3,401	0.646	
MS-DRG 867: Other Infectious & Parasitic Diseases Diagnoses W Mcc	319	\$11,442	0.043	**
MS-DRG 870: Septicemia Or Severe Sepsis W Mv 96+ Hours	1,649	\$71,001	0.000	***
MS-DRG 871: Septicemia Or Severe Sepsis W/O Mv 96+ Hours W Mcc	6,138	\$5,787	0.278	
MS-DRG 872: Septicemia Or Severe Sepsis W/O Mv 96+ Hours W/O Mcc	614	-\$11,483	0.037	**
MS-DRG 901: Wound Debridements For Injuries W Mcc	255	\$22,607	0.000	***
MS-DRG 902: Wound Debridements For Injuries W Cc	47	\$4,575	0.454	
MS-DRG 904: Skin Grafts For Injuries W Cc/Mcc	56	\$19,596	0.001	***
MS-DRG 907: Other O.R. Procedures For Injuries W Mcc	139	\$37,190	0.000	***
MS-DRG 919: Complications Of Treatment W Mcc	1,592	\$14,347	0.000	***
MS-DRG 920: Complications Of Treatment W Cc	439	-\$5,190	0.176	
MS-DRG 939: O.R. Proc W Diagnoses Of Other Contact W Health Services W Mcc	207	\$3,609	0.513	
MS-DRG 940: O.R. Proc W Diagnoses Of Other Contact W Health Services W Cc	48	-\$14,061	0.046	**
MS-DRG 947: Signs & Symptoms W Mcc	35	-\$18,815	0.014	**
MS-DRG 949: Aftercare W Cc/Mcc	2,748	-\$25,617	0.000	***
MS-DRG 950: Aftercare W/O Cc/Mcc	71	-\$47,515	0.000	***
MS-DRG 974: Hiv W Major Related Condition W Mcc	135	\$10,239	0.069	*
MS-DRG 981: Extensive O.R. Procedure Unrelated To Principal Diagnosis W Mcc	1,131	\$54,838	0.000	***
MS-DRG 982: Extensive O.R. Procedure Unrelated To Principal Diagnosis W Cc	81	\$4,490	0.508	
MS-DRG 987: Non-Extensive O.R. Proc Unrelated To Principal Diagnosis W Mcc	360	\$33,535	0.000	***
MS-DRG 988: Non-Extensive O.R. Proc Unrelated To Principal Diagnosis W Cc	58	\$3,159	0.661	
MDC 01: Diseases & Disorders Of The Nervous System	2,547	-\$7,445	0.226	
MDC 03: Diseases & Disorders Of The Ear, Nose, Mouth & Throat	147	-\$18,270	0.005	***
MDC 04: Diseases & Disorders Of The Respiratory System	43,437	-\$19,807	0.002	***
MDC 05: Diseases & Disorders Of The Circulatory System	5,664	-\$7,912	0.190	
MDC 06: Diseases & Disorders Of The Digestive System	3,088	-\$9,148	0.138	
MDC 07: Diseases & Disorders Of The Hepatobiliary System & Pancreas	810	-\$975	0.886	
MDC 08: Diseases & Disorders Of The Musculoskeletal System & Conn Tissue	4,556	-\$4,525	0.453	

MSPB-PAC LTCH Standard Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
MDC 09: Diseases & Disorders Of The Skin, Subcutaneous Tissue & Breast	2,997	-\$11,649	0.067	*
MDC 10: Endocrine, Nutritional & Metabolic Diseases & Disorders	1,681	-\$6,361	0.377	
MDC 11: Diseases & Disorders Of The Kidney & Urinary Tract	3,893	-\$12,910	0.053	*
MDC 12: Diseases & Disorders Of The Male Reproductive System	160	-\$5,898	0.423	
MDC 13: Diseases & Disorders Of The Female Reproductive System	116	-\$18,504	0.022	**
MDC 16: Diseases & Disorders Of Blood, Blood Forming Organs, Immunolog Disord	128	-\$18,038	0.010	**
MDC 17: Myeloproliferative Diseases & Disorders, Poorly Differentiated Neoplasm	85	-\$3,297	0.653	
MDC 18: Infectious & Parasitic Diseases, Systemic Or Unspecified Sites	12,257	-\$12,414	0.108	
MDC 21: Injuries, Poisonings & Toxic Effects Of Drugs	2,627	-\$11,814	0.073	*
MDC 22: Burns	44	-\$20,293	0.009	***
MDC 23: Factors Influencing Hlth Stat & Othr Contacts With Hlth Servcs	3,157	\$4,266	0.569	
MDC 25: Human Immunodeficiency Virus Infections	187	-\$11,740	0.120	

A.7 MSPB-PAC SNF Risk Adjustment Model

MSPB-PAC SNF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Constant	1,566,093	\$15,970	0.000	***
HCC1: HIV/AIDS	4,939	\$19,067	0.000	***
HCC2: Septicemia/Shock	202,733	\$916	0.000	***
HCC5: Opportunistic Infections	11,603	\$1,627	0.000	***
HCC7: Metastatic Cancer and Acute Leukemia	37,513	-\$281	0.009	***
HCC8: Lung, Upper Digestive Tract, and Other Severe Cancers	27,210	-\$453	0.000	***
HCC9: Lymphatic, Head and Neck, Brain, and Other Major Cancers	35,683	\$275	0.011	**
HCC10: Breast, Prostate, Colorectal and Other Cancers and Tumors	91,468	-\$395	0.000	***
HCC15: Diabetes with Renal or Peripheral Circulatory Manifestation	126,353	\$2,383	0.000	***
HCC16: Diabetes with Neurologic or Other Specified Manifestation	111,464	\$1,980	0.000	***
HCC17: Diabetes with Acute Complications	7,301	\$1,889	0.000	***
HCC18: Diabetes with Ophthalmologic or Unspecified Manifestation	21,802	\$2,352	0.000	***
HCC19: Diabetes without Complication	320,101	\$1,388	0.000	***
HCC21: Protein-Calorie Malnutrition	131,857	\$3,021	0.000	***
HCC25: End-Stage Liver Disease	17,737	\$1,605	0.000	***
HCC26: Cirrhosis of Liver	14,976	\$902	0.000	***
HCC27: Chronic Hepatitis	6,729	\$653	0.008	***
HCC31: Intestinal Obstruction/Perforation	86,602	-\$70	0.336	
HCC32: Pancreatic Disease	34,106	-\$799	0.000	***
HCC33: Inflammatory Bowel Disease	17,806	-\$410	0.007	***
HCC37: Bone/Joint/Muscle Infections/Necrosis	70,397	\$2,555	0.000	***
HCC38: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	92,404	\$40	0.560	
HCC44: Severe Hematological Disorders	17,381	\$804	0.000	***
HCC45: Disorders of Immunity	37,289	-\$332	0.002	***
HCC51: Drug/Alcohol Psychosis	27,971	-\$2,014	0.000	***
HCC52: Drug/Alcohol Dependence	31,693	-\$924	0.000	***
HCC54: Schizophrenia	48,334	\$1,973	0.000	***
HCC55: Major Depressive, Bipolar, and Paranoid Disorders	138,963	\$658	0.000	***
HCC67: Quadriplegia, Other Extensive Paralysis	12,137	\$5,179	0.000	***
HCC68: Paraplegia	11,305	\$4,616	0.000	***
HCC69: Spinal Cord Disorders/Injuries	19,564	\$2,809	0.000	***
HCC70: Muscular Dystrophy	1,241	\$4,412	0.000	***
HCC71: Polyneuropathy	169,636	\$777	0.000	***
HCC72: Multiple Sclerosis	13,827	\$1,745	0.000	***
HCC73: Parkinsons and Huntingtons Diseases	67,223	\$3,025	0.000	***
HCC74: Seizure Disorders and Convulsions	116,711	\$713	0.000	***
HCC75: Coma, Brain Compression/Anoxic Damage	18,978	\$4,510	0.000	***
HCC77: Respirator Dependence/Tracheostomy Status	24,489	\$9,968	0.000	***
HCC78: Respiratory Arrest	3,457	\$2,616	0.000	***
HCC79: Cardio-Respiratory Failure and Shock	323,058	\$123	0.007	***
HCC80: Congestive Heart Failure	546,193	\$805	0.000	***

MSPB-PAC SNF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
HCC81: Acute Myocardial Infarction	71,765	-\$170	0.033	**
HCC82: Unstable Angina and Other Acute Ischemic Heart Disease	61,766	-\$239	0.004	***
HCC83: Angina Pectoris/Old Myocardial Infarction	98,139	-\$649	0.000	***
HCC92: Specified Heart Arrhythmias	519,570	\$429	0.000	***
HCC95: Cerebral Hemorrhage	41,231	\$4,522	0.000	***
HCC96: Ischemic or Unspecified Stroke	165,527	\$3,315	0.000	***
HCC100: Hemiplegia/Hemiparesis	75,800	\$4,649	0.000	***
HCC101: Cerebral Palsy and Other Paralytic Syndromes	8,032	\$2,862	0.000	***
HCC104: Vascular Disease with Complications	109,545	\$2,600	0.000	***
HCC105: Vascular Disease	354,069	\$592	0.000	***
HCC107: Cystic Fibrosis	215	-\$1,223	0.462	
HCC108: Chronic Obstructive Pulmonary Disease	409,935	\$186	0.000	***
HCC111: Aspiration and Specified Bacterial Pneumonias	90,385	\$1,766	0.000	***
HCC112: Pneumococcal Pneumonia, Empyema, Lung Abscess	14,440	-\$588	0.000	***
HCC119: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	9,852	\$604	0.003	***
HCC130: Dialysis Status	45,793	\$2,584	0.000	***
HCC131: Renal Failure	505,210	\$1,175	0.000	***
HCC132: Nephritis	2,773	\$351	0.356	
HCC148: Decubitus Ulcer of Skin	103,406	\$4,561	0.000	***
HCC149: Chronic Ulcer of Skin, Except Decubitus	62,581	\$2,363	0.000	***
HCC150: Extensive Third-Degree Burns	237	\$3,091	0.017	**
HCC154: Severe Head Injury	854	\$1,626	0.018	**
HCC155: Major Head Injury	35,715	-\$411	0.001	***
HCC157: Vertebral Fractures without Spinal Cord Injury	65,880	\$1,659	0.000	***
HCC158: Hip Fracture/Dislocation	192,319	\$6,713	0.000	***
HCC161: Traumatic Amputation	6,812	\$3,319	0.000	***
HCC164: Major Complications of Medical Care and Trauma	138,519	\$754	0.000	***
HCC174: Major Organ Transplant Status	4,079	-\$213	0.499	
HCC176: Artificial Openings for Feeding or Elimination	45,356	\$2,116	0.000	***
HCC177: Amputation Status, Lower Limb/Amputation Complications	26,988	\$1,650	0.000	***
Interaction: Disabled * Opportunistic Infections	2,007	-\$1,649	0.001	***
Interaction: Disabled * Severe Hematological Disorders	1,545	\$4,933	0.000	***
Interaction: Disabled * Drug/Alcohol Psychosis	7,434	-\$1,739	0.000	***
Interaction: Disabled * Drug/Alcohol Dependence	11,672	-\$862	0.000	***
Interaction: Disabled * Cystic Fibrosis	71	-\$1,828	0.528	
Interaction: Diabetes * Congestive Heart Failure	256,856	\$296	0.001	***
Interaction: Diabetes * Cardiovascular Disease	100,133	-\$503	0.000	***
Interaction: Renal Failure * Congestive Heart Failure	254,432	-\$273	0.002	***
Interaction: Congestive Heart Failure * Chronic Obstructive Pulmonary Disease	216,555	\$312	0.000	***
Interaction: Renal Failure * Congestive Heart Failure * Diabetes	138,555	\$175	0.115	
Interaction: Chronic Obstructive Pulmonary Disease * Cardiovascular Disease * Coronary Artery Disease	14,077	-\$557	0.002	***
Indicator: Originally Disabled	355,069	\$1,207	0.000	***
Indicator: ESRD	63,897	\$6,726	0.000	***

MSPB-PAC SNF Covariate	No. of Episodes	Coefficient	P-value	Stat. Sig.
Indicator: Long-Term Care Institution	183,618	\$459	0.000	***
Indicator: Hospice Care	57,352	\$738	0.000	***
Age: 0-34 Years	3,294	-\$1,572	0.000	***
Age: 35-44 Years	10,218	-\$1,502	0.000	***
Age: 45-54 Years	40,418	-\$826	0.000	***
Age: 55-59 Years	44,970	-\$303	0.007	***
Age: 60-64 Years	61,546	\$8	0.933	
Age: 70-74 Years	198,029	\$390	0.000	***
Age: 75-79 Years	243,398	\$885	0.000	***
Age: 80-84 Years	287,809	\$1,552	0.000	***
Age: 85-89 Years	290,901	\$2,238	0.000	***
Age: 90-94 Years	174,445	\$2,302	0.000	***
Age: 95+ Years	53,725	\$1,776	0.000	***
Clinical Case Mix Category: Prior Acute IP - Surgical - Orthopedic	307,219	\$282	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/ ICU	266,969	\$1,620	0.000	***
Clinical Case Mix Category: Prior Acute IP - Medical w/o ICU	639,493	\$3,057	0.000	***
Clinical Case Mix Category: Prior PAC - Institutional	160,912	\$6,807	0.000	***
Clinical Case Mix Category: Prior PAC - Home Health	10,060	\$5,099	0.000	***
Clinical Case Mix Category: Community	632	\$3,186	0.000	***
Prior ICU Stay Length: 1-2 Days	112,164	\$1,178	0.000	***
Prior ICU Stay Length: 3 Days	67,820	\$1,650	0.000	***
Prior ICU Stay Length: 4-6 Days	116,127	\$2,089	0.000	***
Prior ICU Stay Length: 7-9 Days	53,930	\$2,126	0.000	***
Prior ICU Stay Length: 10-13 Days	29,273	\$2,683	0.000	***
Prior ICU Stay Length: 14-18 Days	13,739	\$4,243	0.000	***
Prior ICU Stay Length: 19-24 Days	5,945	\$7,091	0.000	***
Prior ICU Stay Length: 25+ Days	4,129	\$8,612	0.000	***
Prior IP Stay Length: 8-11 Days	292,541	\$2,443	0.000	***
Prior IP Stay Length: 12-30 Days	207,020	\$4,765	0.000	***
Prior IP Stay Length: 31+ Days	15,437	\$8,417	0.000	***