

**COMMONWEALTH OF MASSACHUSETTS
HEALTH POLICY COMMISSION**



**TECHNICAL APPENDIX B4
MAXIMIZING VALUE IN POST-ACUTE CARE**

ADDENDUM TO 2014 COST TRENDS REPORT

Table of Contents

1 Comparing PAC use in Massachusetts versus the U.S.....	1
2 Comparing risk-adjusted PAC use within Massachusetts by hospital.....	1
3 Comparing PAC use within Massachusetts by hospital type.....	2
4 Medicare spending data for Massachusetts.....	2
5 Medicare savings estimates.....	2

1 Comparing PAC use in Massachusetts versus the U.S.

We used Healthcare Cost and Utilization Project's (HCUP) 2011 National Inpatient Sample for the analysis. HCUP uses the following discharge destinations: "against medical advice," "died," "discharge alive- destination unknown," "home health care," "routine," "transfer other: includes skilled nursing facilities (SNF), intermediate care facility (ICF), another type of facility," "transfer to short-term hospital," and "not recorded (blank)" We grouped these into the following categories:

1. Routine: ("routine")
2. Home health care: ("home health care")
3. Institutional: ("transfer other: includes skilled nursing facilities (SNF), intermediate care facility (ICF), another type of facility" / "transfer to short-term hospital")
4. Other: ("against medical advice" / "died" / "discharge alive- destination unknown" / "not recorded")

We evaluated the distribution of discharges by total discharges and also grouped results by payer: Medicaid, Medicare, and Commercial. We evaluated results for all Diagnostic Related Groups (DRGs) and also for two specific DRGs: DRG 470 (major joint replacement or reattachment of lower extremity without major comorbidity or complication) and DRG 236 (coronary bypass without cardiac catheter without major comorbidity or complication). We chose to present "actual" results, rather than a risk-adjusted comparison.

2 Comparing risk-adjusted PAC use within Massachusetts by hospital

We used 2012 Massachusetts Health Data Consortium (MHDC) inpatient discharge data to compare risk-adjusted rates of PAC discharge by hospital. We limited our sample to patients that were at least 18 years of age with the following discharge destinations in MHDC: routine, long-term care hospital, inpatient rehabilitation facility, skilled nursing facility, and home health care. Based on input from providers, we assumed that discharges to "skilled nursing facility" versus "inpatient rehabilitation facility" versus "long-term care hospital" were not coded accurately enough to ensure meaningful results by this level of provider type. Therefore, we grouped MHDC discharges into the following categories:

1. Routine: ("routine")
2. Home health care: ("home health care")
3. Institutional: ("long-term care hospital" / "inpatient rehabilitation facility" / "skilled nursing facility")

We evaluated risk-adjusted results across all DRGs and for DRG 470. For the "all DRG" analysis, we evaluated (1) the probability of discharge to any PAC setting (institutional or home health) versus a routine discharge, and (2) for patients discharged to any PAC setting, the probability of discharge to an institutional setting versus to home health (that is, the numerator

would be “discharges to an institutional setting”; the denominator would be “discharges to an institutional setting” + “discharges to home health”).

Hospital effects were calculated using a logistic regression that included the following covariates: age, sex, payer group, income, admit source of the patient, length of stay, and DRG. For all “all DRG” analysis, specialty hospitals were excluded from the display table and in calculating the Adjusted State Rate. For the DRG 470 analysis, the specialty hospital New England Baptist Hospital was included, given its unique specialization in orthopedic surgery, and the treatment of musculoskeletal diseases and disorders. For both, the “average of all hospitals” is a simple average of hospital rates (not weighted by patient volume).

3 Comparing PAC use within Massachusetts by hospital type

Using 2012 MHDC inpatient discharge data, we evaluated the distribution of discharge destination by hospital type for DRG 470 and DRG 236, using the patient sample and discharge categories described in the section above. For our definition of AMCs vs MTHs vs Community hospitals please see the technical appendix chapter on hospital cohorts. We also evaluated length of stay by hospital type, using the length of stay variable for each discharge record. We used a weighted average by hospital to determine a value for hospital type. For both distribution of discharge destination and length of stay, we chose to present “actual” results, rather than a risk-adjusted comparison.

4 Medicare spending data for Massachusetts

We contracted with Oliver Wyman Actuarial Consulting to work with the 2012 Standard Analytic Files of claims data for a 5% sample of Medicare beneficiaries. Total PAC spending estimates in the chapter include spending per fee-for-service (FFS) beneficiary on home health, skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and long-term care facilities (LTCHs) in Massachusetts. For consistency with categories used elsewhere in the chapter, we presented results on spending per discharge for categories of (1) home health, and (2) institutional (SNF, IRF, and LTCH). To estimate spending per institutional PAC discharge, we averaged spending per SNF discharge, IRF discharge, and LTCH discharge in Massachusetts, weighted by the distribution of discharges to each setting in Massachusetts from the Medicare claims data.

5 Medicare savings estimates

We estimated Medicare savings if Massachusetts had the same PAC use patterns in the U.S. overall, across all PAC discharges and for joint replacements (DRG 470). We used Medicare spending data per discharge as described in the section 4 above. For the distribution of discharge patterns (routine / home health care / institutional / other), we used the HCUP distribution, as described in section 1 above. To estimate the total impact of savings, we factored the total number of Medicare cases discharged from hospitals in Massachusetts using MHDC data—we

used MHDC rather than HCUP because we believed it was a more accurate estimate of total cases than the HCUP sample. We used a simplifying assumption that the average payment per discharge to a certain PAC setting would remain constant if Massachusetts' PAC use had the same distribution as that of the U.S.