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Appropriateness of Long-Term Acute Care Hospital Transfer: A Multicenter Study of Medicare ACO Beneficiaries

3 ABSTRACT

4 **Objectives:** There is wide variation in long-term acute care hospital (LTACH) use nationwide—
5 the most intensive and expensive post-acute care setting—though appropriateness of use is
6 uncertain. Therefore, we examined the appropriateness and reasons for transfer in a high-use
7 region, and how Medicare criteria for LTACH payment identifies appropriate transfers.

8

9 **Design:** Multi-center retrospective observational cohort

10

11 **Setting and Participants:** Consecutive hospitalized Medicare beneficiaries transferred to an
12 LTACH from 2017-2018 from an accountable care organization in Texas.

13

14 **Methods:** The primary outcome was clinical appropriateness of transfer ascertained by two
15 physician reviewers. We abstracted patients' characteristics and primary reasons for transfer. We
16 examined the positive predictive value (PPV) of meeting Medicare criteria for full LTACH
17 payment (preceding intensive care unit (ICU) stay ≥ 3 days or prolonged mechanical ventilation)
18 for identifying appropriate transfers, and how this differed if Medicare adopted an 8-day
19 minimum ICU stay criterion recommended by the Medicare Payment Advisory Commission
20 (MedPAC).

21

22 **Results:** Of 105 LTACH transfers, 33 (31.4%) were clinically appropriate. The most common
23 reason among appropriate transfers was respiratory care (58%), but 42% had other indications.
24 Inappropriate transfers most commonly were for wound care (28%), intravenous medication

25 infusions (28%), or patient (17%) and physician preference (26%). The PPV for meeting
26 Medicare LTACH payment criteria was 55%. The PPV improved to 77% if Medicare adopted
27 the 8-day minimum ICU stay criterion, with only a modest absolute increase in appropriate
28 transfers not meeting the more stringent criteria (12% to 17%).

29

30 **Conclusions and Implications:** Two-thirds of LTACH transfers in a high LTACH-use region
31 are clinically inappropriate, and are most commonly transferred for wound care, intravenous
32 infusions, or patient and physician preference. Medicare payment criteria modestly distinguished
33 between appropriate and inappropriate transfers. Adoption of MedPAC's recommended 8-day
34 minimum ICU stay criterion could safely reduce inappropriate transfers. Though generalizability
35 to low LTACH-use regions is uncertain.

36 INTRODUCTION:

37 Every year, over a hundred thousand hospitalized Medicare beneficiaries are transferred
38 to a long-term acute care hospital (LTACH) to recover.¹ LTACHs are unevenly distributed
39 across the US, with considerable variation in use.²⁻⁴ However, studies on LTACH variation lack
40 sufficient information to assess appropriateness of transfers. Understanding the reasons and
41 appropriateness of LTACH transfer is important because LTACHs are the most expensive post-
42 acute care setting, and is needed to better align the intensity of care with patients' needs.

43 Given concerns about inappropriate LTACH use, the Centers for Medicare and Medicaid
44 Services (CMS) implemented payment criteria to disincentivize use by less ill patients.⁵ It is
45 unclear to what extent these criteria distinguish between appropriate versus inappropriate
46 LTACH transfers.

47 Therefore, we conducted a comprehensive review of patients transferred to LTACHs
48 within an accountable care organization (ACO) in a high-LTACH-use region to examine the
49 reasons and appropriateness for transfer, and whether Medicare payment criteria differentiated
50 between appropriate and inappropriate transfers.

51

52 METHODS

53 Study Design, Setting, and Data Sources

54 We conducted a retrospective cohort study of consecutive hospitalizations by Medicare
55 beneficiaries who were discharged to one of 17 regional LTACHs from January 2017 to May
56 2018 from one the largest Next Generation ACOs.⁶ The ACO includes 29 hospitals located in
57 Texas, consisting of a partnership between an academic medical center and a community hospital

system, and manages the care for nearly 78,000 Medicare beneficiaries. The study was part of a quality improvement project to optimize post-acute care use.

We identified eligible patients transferred to an LTACH using the discharge destination field in Medicare claims data. Two physician investigators (R.C.S., A.N.M.) independently performed a structured EHR chart review of the index hospitalization preceding transfer. This included a detailed review of documentation by physicians, social workers, case managers, therapists, nutritionists, and nurses, as well as intensive care unit (ICU) summary data, medications, and time-stamped orders and vital signs.

Clinical Appropriateness for LTACH Transfer

The primary outcome was clinical appropriateness of the LTACH transfer, which we defined as ‘possibly appropriate’ or ‘appropriate’ on a 3-level Likert scale. After independently rating each transfer, two physicians (R.C.S., A.N.M.) discussed each case to achieve consensus.

There are no validated criteria to define an appropriate LTACH transfer. Therefore, we considered a transfer to be clinically appropriate if the patient needed daily clinical management by a physician-led team that could not theoretically be provided in an alternative care setting, including a skilled nursing facility (SNF). Our framework is in accordance with screening criteria previously endorsed by the National Association of Long Term Hospitals, and was based on prior literature^{2,3,7} and our team’s multidisciplinary expertise. Transfer for non-clinical reasons was not considered clinically appropriate, even if justified, including patient or physician preferences; denial from SNFs for financial reasons or lack of skilled care needs; or because clinical expertise was unavailable at the acute care hospital.

81 Study Measures

82 We abstracted information on patients' sociodemographic characteristics, selected events
83 during the hospitalization, clinical status and needs upon transfer, and primary reasons for
84 transfer. For a given hospitalization, a patient could have multiple primary reasons for transfer.
85 We also abstracted whether a SNF referral was made prior to LTACH transfer, the status of the
86 referral at time of transfer (denied, pending, or accepted), and the reason for denial, if applicable.

87

88 Medicare Payment Criteria

89 Medicare stipulates reduced LTACH payment if patients either do not have a preceding
90 ICU stay for ≥ 3 days or do not receive mechanical ventilation for ≥ 96 hours during the
91 LTACH stay.⁸ Although Congress adopted a 3-day minimum ICU stay, the Medicare Advisory
92 Payment Commission (MedPAC) originally recommended (and continues to recommend) an 8-
93 day minimum ICU stay criterion to better define LTACH-appropriate patients.¹

94

95 Statistical Analyses

96 We used descriptive statistics to compare characteristics between clinically appropriate
97 and inappropriate LTACH transfers. We used chi-square tests to compare the proportion of
98 clinically appropriate transfers which met versus did not meet payment criteria. We repeated this
99 comparison if applied an 8-day minimum ICU stay criterion.¹

100

101 RESULTS

102 Of 136 hospitalized Medicare beneficiaries transferred to an LTACH we excluded 31
103 because the patient was either admitted from an LTACH (n=14), not discharged to an LTACH

104 upon further review (n=9), or because the patient's chart (n=4) or index hospitalization (n=4)
105 were not identified within the EHR.

106 Of the 105 included LTACH transfers, 33 (31.4%) were considered clinically appropriate
107 (10 possibly appropriate and 23 appropriate).

108

109 **Sociodemographic and Clinical Characteristics Prior to Transfer**

110 Compared to clinically inappropriate LTACH transfers, patients appropriately transferred
111 had similar age, prevalence of dementia, and functional impairment, but had considerably longer
112 length-of-stays, greater use of mechanical ventilation and tracheostomy, and had diagnoses of
113 much greater complexity and severity (**Appendix Table 1**).

114

115 **Clinical Status and Needs upon Transfer**

116 Over 40% of appropriately transferred patients were transferred to an LTACH directly
117 from the hospital's ICU versus just 4.2% of inappropriate transfers (**Table 1**). Appropriately
118 transferred patients were more likely to require weaning from mechanical ventilation (39.4% vs.
119 1.4%), high-flow nasal cannula (12.1% vs. 1.4%), and frequent oropharyngeal suctioning (15.2%
120 vs 0%). Appropriately transferred patients were also more likely to be bedbound (51.5% vs
121 9.7%), cognitively impaired (45.5% vs. 18.1%), receive enteral nutrition via a temporary (18.2%
122 vs. 2.8%) or a permanent feeding tube (39.4% vs. 9.7%), and had an indwelling urinary catheter
123 (42.4% vs. 15.3%). Appropriately transferred patients had numerically greater central venous
124 catheter use, but this difference was not statistically significant (72.7% vs. 59.7%, p=0.20).

Appropriately transferred patients otherwise had similar prevalence of severe decubitus ulcers, and use of negative pressure wound therapy (NPWT), dialysis, and intravenous therapy.

Blood product transfusions (n=1) and use of a patient-controlled analgesia infusion pump (n=1), thoracostomy tube (n=2), or left ventricular assist device (n=1) were rare. Four of these 5 patients were considered appropriately transferred. No patients required total parenteral nutrition or vasopressors upon transfer.

Reasons for Transfer

The most common reason for LTACH transfer among appropriately transferred patients was respiratory care (57.6%), with 39.4% for mechanical ventilation, which was significantly greater than patients inappropriately transferred (**Table 2**). Six inappropriately transferred patients (8.3%) were transferred for inpatient pulmonary rehabilitation on only supplemental oxygen. Appropriately transferred patients were also more likely to be transferred for management of cognitive impairment (12.1% vs. 1.4%).

Transfer for wound care was similar between groups (24.2% vs 27.8%, p=0.70). However, 19.4% of inappropriately transferred patients were transferred for an air-fluidized mattress to offload pressure ulcers post-operatively, contact ultrasound debridement, or hyperbaric oxygen therapy, versus 3.0% of appropriately transferred patients.

Patient and physician preference were commonly documented reasons for transfer only among inappropriately transferred patients (16.7% and 26.4%, respectively).

SNF referrals before LTACH transfer

Approximately one-quarter (26.7%) of patients transferred had a documented SNF referral prior to LTACH transfer, and were evenly distributed among appropriate and inappropriate transfers (27.3% vs 26.4%). Of the 19 inappropriately transferred patients who had a SNF referral, 7 were accepted, 6 were pending upon transfer, and 6 were denied. The reasons for denial included being too sick (n=3), financial (n=2), and having no skilled care needs (n=1) (**Appendix Table 2** for case descriptions).

Relationship between Medicare Payment Criteria and Appropriateness of Transfer

Patients who met criteria for full payment were more likely to be appropriately transferred than patients who did not meet criteria (**Table 3**). The positive predictive value (PPV) of meeting criteria for appropriate transfers was 55.3%. However, 12.1% of transfers not meeting criteria were considered appropriately transferred (**Appendix Table 3** for case descriptions). When applying MedPAC's 8-day minimum ICU stay criterion, meeting criteria better identified appropriate transfers (PPV=76.9%) with only a slight absolute increase in patients not meeting criteria yet appropriate for transfer (16.5% from 12.1% under the current criteria; **Appendix Table 4** for descriptions of additional cases). Six transfers (23.1%) that met these more stringent criteria were still considered inappropriate for transfer (**Appendix Table 5**).

DISCUSSION

In this comprehensive structured review of consecutive LTACH transfers among hospitalized Medicare beneficiaries from one of the largest Next Generation ACOs in the US, about two-thirds of transfers in this high-LTACH-use region were considered clinically

169 inappropriate. Meeting Medicare criteria for full payment modestly distinguished between
170 appropriate and inappropriate transfers. However, adopting an 8-day minimum ICU stay
171 criterion as recommended by MedPAC would better identify hospitalized patients who are
172 appropriate for LTACH transfer.

173 Patients considered appropriate for LTACH transfer were sicker and more medically
174 complex than inappropriately transferred patients. However, fewer than half of appropriately
175 transferred patients required mechanical ventilation, but had other ongoing care needs that could
176 not be safely managed in less intensive post-acute care settings, such as delirium, advanced
177 dementia with behavioral disturbances, complex wound care, among other reasons. Thus,
178 LTACHs should be considered in the spectrum of post-acute care for more than just prolonged
179 mechanical ventilation.

180 We found two distinct patterns among patients who were inappropriately transferred.
181 First, many inappropriately transferred patients received therapies that could alternatively be
182 provided in less intensive post-acute care settings, especially given recent Medicare policy
183 overhauls that increased payment to SNFs and home health agencies for non-rehabilitation
184 therapy, including intravenous infusions and simple wound care, such as NPWT with thrice
185 weekly dressing changes.^{9,10} Nearly 1 in 5 inappropriately transferred patients were transferred
186 for specialized wound care (air-fluidized mattress, contact ultrasound, hyperbaric oxygen) which
187 could also be delivered in SNFs or in ambulatory settings should payers agree to reimburse these
188 therapies with uncertain effectiveness.¹¹⁻¹⁵ Second, patient and physician preference were
189 common reasons for inappropriate transfers. This was in part because of patients' poor
190 experience with SNFs, as well as physicians' desire to provide ongoing medical care in
191 LTACHs, as hospital-based physicians in this ACO did not care for patients in SNFs. To limit

unnecessary LTACH use, ACOs and health systems should develop preferred networks with high-quality SNFs with better continuity with subspecialty physicians for patients with complex illness.¹⁶

Our findings also have implications regarding Medicare payment policy. Nearly half of patients who met current Medicare payment criteria were still considered inappropriate for LTACHs. If the US Congress adopted an 8-day minimum ICU criterion as recommended by MedPAC,⁸ then fewer than one-quarter of patients who met the revised criteria would be considered inappropriate.

In the absence of validated objective criteria, we were conservative in ascertaining appropriateness in several ways. First, we considered potentially appropriate transfers as appropriate, which comprised about a third of all appropriate transfers in our cohort. Second, even if deemed clinically appropriate, an LTACH transfer may have been inappropriate if more intensive care was not aligned with patients' goals, which we were unable to assess in our review. Lastly, we considered LTACH transfers to be appropriate if patients required prolonged hospital-level care that could not be provided in an alternate post-acute care setting. However, these patients could also theoretically remain in the acute care hospital for the duration of their illness; although previous studies suggests that LTACHs are beneficial for patients requiring prolonged mechanical ventilation or have multi-organ failure.^{17,18}

Our study has certain limitations. Generalizability to regions with fewer LTACHs and non-ACO settings is unclear. Regions with fewer LTACHs may have a higher rate of appropriately transferred patients since LTACH patients in these areas are somewhat sicker.^{1,3} Since the study ACO did not have explicit criteria or oversight for post-acute care use during the study period, our findings are likely to be representative of non-ACO settings. As this study was

215 conducted retrospectively, we may not have ascertained all reasons for transfer. However, social
216 workers and case managers routinely documented evolving discharge plans.

217

218 **CONCLUSIONS AND IMPLICATIONS**

219 In this study of LTACH transfers among Medicare beneficiaries participating in a large
220 ACO in a high LTACH use region, one-third of transfers were considered clinically appropriate.
221 The most common reason among appropriate transfers was prolonged mechanical ventilation,
222 but over half of patients appropriately transferred to LTACHs had other indications.
223 Inappropriate transfers often were for wound care or intravenous medication infusions, which
224 could be provided in less intensive care settings, or were driven by patient or clinician
225 preference, in part due to poor experience in SNFs and desire for continuity of care in the
226 LTACH. Lastly, meeting Medicare payment criteria modestly distinguished between appropriate
227 and inappropriate transfers. A revised payment policy adopting MedPAC's recommended 8-day
228 minimum ICU criterion would better exclude patients inappropriately transferred, although
229 extrapolation to regions with fewer LTACHs is uncertain.

REFERENCES

1. Centers for M, Medicaid Services HHS. Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Proposed Policy Changes and Fiscal Year 2020 Rates; Proposed Quality Reporting Requirements for Specific Providers; Medicare and Medicaid Promoting Interoperability Programs Proposed Requirements for Eligible Hospitals and Critical Access Hospitals. In: Regist F, ed: MEDPAC; 2019:281-300.
2. Makam AN, Nguyen OK, Xuan L, Miller ME, Goodwin JS, Halm EA. Factors Associated With Variation in Long-term Acute Care Hospital vs Skilled Nursing Facility Use Among Hospitalized Older Adults. *JAMA Intern Med.* 2018;178(3):399-405.
3. Makam AN, Nguyen OK, Xuan L, Miller ME, Halm EA. Long-Term Acute Care Hospital Use of Non-Mechanically Ventilated Hospitalized Older Adults. *J Am Geriatr Soc.* 2018;66(11):2112-2119.
4. (MEDPAC) MPAC. *June 2019 Report to the Congress: Medicare and the Health Care Delivery System.* 2019.
5. Centers for M, Medicaid Services HHS. Medicare Program; Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities (SNF) Final Rule for FY 2019, SNF Value-Based Purchasing Program, and SNF Quality Reporting Program. Final rule. *Fed Regist.* 2018;83(153):39162-39290.
6. (CMS) CfMaMS. Next Gen ACO Financial and Quality Results. 2018; <https://innovation.cms.gov/initiatives/Next-Generation-ACO-Model/>. Accessed 2-25-2020, 2020.
7. Determining Medical Necessity and Appropriateness of Care for Medicare Long Term Care Hospitals. 2011; <https://www.cms.gov/About-CMS/Legislative-Affairs/OfficeofLegislation/downloads/RTC-Long-Term-Care-Hospitals-Final.pdf>.
8. Centers for Medicare and Medicaid Services (CMS) HHS. Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2017 Rates; Quality Reporting Requirements for Specific Providers; Graduate Medical Education; Hospital Notification Procedures Applicable to Beneficiaries Receiving Observation Services; Technical Changes Relating to Costs to Organizations and Medicare Cost Reports; Finalization of Interim Final Rules With Comment Period on LTCH PPS Payments for Severe Wounds, Modifications of Limitations on Redesignation by the Medicare Geographic Classification Review Board, and Extensions of Payments to MDHs and Low-Volume Hospitals. Final rule. *Fed Regist.* 2016;81(162):56761-57345.

- 274 9. (CMS) CfMaMS. Patient Driven Payment Model. 2018;
 275 <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNF>
 276 [PPS/PDPM](https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNF).
- 277 10. (CMS) CfMaMS. Home Health Patient-Driven Groupings Model. 2020.
- 278 11. Chuang LH, Soares MO, Watson JM, et al. Economic evaluation of a
 279 randomized controlled trial of ultrasound therapy for hard-to-heal
 280 venous leg ulcers. *Br J Surg*. 2011;98(8):1099-1106.
- 281 12. Kranke P, Bennett MH, Martyn-St James M, Schnabel A, Debus SE,
 282 Weibel S. Hyperbaric oxygen therapy for chronic wounds. *Cochrane*
 283 *Database Syst Rev*. 2015(6):CD004123.
- 284 13. McInnes E, Jammali-Blasi A, Bell-Syer SE, Leung V. Support surfaces for
 285 treating pressure ulcers. *Cochrane Database Syst Rev*.
 286 2018;10:CD009490.
- 287 14. (CMS) CfMaMS. Decision Memo for Air-Fluidized Beds for Pressure
 288 Ulcers (CAG-00017R). In:2002.
- 289 15. (CMS) CfMaMS. Decision Memo for Hyperbaric Oxygen (HBO) Therapy
 290 (Section C, Topical Oxygen) (CAG-00060R). In:2017.
- 291 16. Britton MC, Ouellet GM, Minges KE, Gawel M, Hodshon B, Chaudhry SI.
 292 Care Transitions Between Hospitals and Skilled Nursing Facilities:
 293 Perspectives of Sending and Receiving Providers. *Jt Comm J Qual*
 294 *Patient Saf*. 2017;43(11):565-572.
- 295 17. Kahn JM, Werner RM, David G, Ten Have TR, Benson NM, Asch DA.
 296 Effectiveness of long-term acute care hospitalization in elderly patients
 297 with chronic critical illness. *Medical care*. 2013;51(1):4-10.
- 298 18. Koenig L, Demiralp B, Saavoss J, Zhang Q. The Role of Long-term Acute
 299 Care Hospitals in Treating the Critically Ill and Medically Complex: An
 300 Analysis of Nonventilator Patients. *Medical care*. 2015;53(7):582-590.

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Table 1. Clinical Status and Needs upon LTACH Transfer			
	Clinical Appropriateness of Transfer		
	Appropriate (n=33)	Inappropriate (n=72)	P-value
Transferred from the ICU, n (%)	14 (42.4)	3 (4.2)	<0.001
Respiratory			
Mechanically ventilated, n (%)	13 (39.4)	1 (1.4) ^a	<0.001
Noninvasive positive pressure ventilation, n (%)	0	1 (1.4) ^b	0.50
Supplemental oxygen, n (%)	8 (24.2)	18 (25.0)	0.93
High flow nasal cannula, n (%)	4 (12.1)	1 (1.4)	0.02
Mobility			<0.001
Bed bound, n (%)	17 (51.5)	7 (9.7)	
Mobile with use of DME, n (%)	15 (45.5)	58 (80.6)	
Walker, n (%)	8 (24.2)	37 (51.4)	
Wheelchair, n (%)	4 (12.1)	19 (26.4)	
Independent	1 (3.03)	7 (9.7)	
Cognitive impairment, n (%) ^c	15 (45.5)	13 (18.1)	0.003
Nutrition			
Temporary feeding tube (NGT/NJT), n (%)	6 (18.2)	2 (2.8)	0.006
Permanent feeding tube (PEG), n (%)	13 (39.4)	7 (9.7)	<0.001
Catheters			
Urinary catheter, n (%)	14 (42.4)	11 (15.3)	0.002
Central venous catheter, n (%)	24 (72.7)	43 (59.7)	0.20
Wound Care			
Decubitus ulcer, stage 3 or 4, n (%)	5 (15.2)	6 (8.3)	0.29
Negative pressure wound therapy, n (%)	7 (21.2)	15 (20.8)	0.97
Air fluidized mattress to offload, n(%)	0	4 (5.6)	0.17
Contact ultrasound, n (%)	1 (3.0)	6 (8.3)	0.31
Hyperbaric oxygen, n (%)	0	4 (5.6)	0.17
Nursing			
Frequent suctioning of secretions, n (%)	5 (15.2)	0	0.001
Treatments			
Dialysis, n (%)	3 (9.1)	8 (11.1)	0.75
Intravenous therapy, any, n (%)	18 (54.6)	48 (66.7)	0.23
Intravenous antibiotics, n (%)	15 (45.5)	46 (63.9)	0.08
Abbreviations: LTACH, long-term acute care hospital; ICU, intensive care unit; DME, durable medical use; DHT, dobhoff tube; NGT, nasogastric tube; NJT, nasojejunal tube; PEG, percutaneous endoscopic gastrostomy			
^a Transferred to an LTACH from a small rural hospital for higher level of care for mechanical ventilation management and weaning after being intubated for 4 days for acute respiratory failure due to COPD exacerbation from influenza, without any attempts for spontaneous breathing trials, nor an evaluation by an intensivist physician.			
^b Transferred to LTACH for noninvasive positive pressure ventilation teaching for chronic respiratory failure due to amyotrophic lateral sclerosis			
^c Defined as dementia, delirium, sedation, or coma			

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Table 2. Primary Reasons for LTACH Transfer ^a			
	Appropriateness of Transfer		
	Appropriate (n=33)	Inappropriate (n=72)	P- value
Respiratory care	19 (57.6)	11 (15.3)	<0.001
Weaning from mechanical ventilation	13 (39.4)	1 (1.4)	<0.001
Pulmonary rehabilitation	0	6 (8.3)	0.09
Rehabilitation therapy	4 (12.1)	5 (6.9)	0.38
Intravenous infusions	7 (21.2)	20 (27.8)	0.48
Wound care	8 (24.2)	20 (27.8)	0.70
Air fluidized mattress for offloading, contact US debridement, or HBO	1 (3.0)	14 (19.4)	0.03
Cognitive impairment ^b	4 (12.1)	1 (1.4)	0.02
Patient preference	0	12 (16.7)	0.01
Unsatisfactory prior experience at SNF	0	3 (4.2)	0.23
Physician preference	0	19 (26.4)	0.001
Financial (insufficient Medicare days for SNF; delay in SNF authorization)	0	3 (4.2)	0.23
Other reason	6 (18.2) ^c	6 (8.3) ^d	0.14
Abbreviations: LTACH, long-term acute care hospital; ACO, accountable care organization			
^a Transfer may have included multiple primary reasons documented in the chart			
^b Included delirium with agitation requiring supervision and management, as well as chronic dementia with behavioral disturbances hindering other active care needs (i.e. removal of catheters necessary for intravenous infusion)			
^c Other reasons included: general clinical instability (n=1), high ostomy output (n=1), needing 24-hour total care with frequent suctioning of oropharyngeal secretions (n=1), nasogastric tube management (n=1), percutaneous nephrostomy tube management (n=1), and close monitoring for recurrent gastrointestinal bleeding (n=1).			
^d Other reasons included: post-pacemaker monitoring (n=1), administering peritoneal dialysis with patient's 24-hour private caregiver present (n=1), 4-6 weeks of hemodialysis for acute ESRD (n=1), no caregiver at home (n=1), monitoring renal function while receiving gentamycin (n=1).			

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Table 3. Relationship between Appropriateness of LTACH Transfer and Medicare Payment Criteria			
	Appropriateness of Transfer		
	Appropriate	Inappropriate	P-value
Overall	33 (31.4%)	72 (68.6%)	-
Medicare payment criteria status ^a			<0.001
Does not meet criteria for full reimbursement	7 (12.1%)	51 (87.9%)	
Meets criteria for full reimbursement	26 (55.3%)	21 (44.7%)	
Revised Medicare payment criteria using ICU length of stay $\geq$ 8 days			<0.001
Does not meets criteria for full reimbursement	13 (16.5%)	66 (83.5%)	
Meets criteria for full reimbursement	20 (76.9%)	6 (23.1%)	
Abbreviations: LTACH, long-term acute care hospital; ICU, intensive care unit			
^a Site-neutral payment policy stipulates substantially reduced reimbursement if LTACH patients do not meet criteria of either receiving prolonged mechanical ventilation ($\geq$ 96 hours) in the LTACH or spending 3 or more days in an intensive care unit during the hospital stay immediately preceding transfer, and were not transferred to an LTACH for a psychiatric or rehabilitation diagnosis.			

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