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to show a statistically significant reduction, drug-related hospitalizations did not. We interpret this as a matter of power; the hazard ratio point estimate for extended vs basic intervention was 0.77 for the main end point compared to 0.80 and 0.65 for drug-related hospitalization within 180 and 30 days, respectively. These figures are obviously of the same magnitude, but because there were fewer of the drug-related outcomes, they did not reach statistical significance. There are 2 counterexamples mentioned: Gillespie et al² and Pellegrin et al.³ The trial by Gillespie et al² was considerably smaller than ours, and the apparent strong benefit for drug-related admissions (relative risk, 0.20) was offset by other admissions, so that overall readmission rates were identical in the 2 groups. The study by Pellegrin et al³ is not randomized, but is instead a macroanalysis using interrupted time series. As we pointed out in our discussion,¹ it is conceivable that our intervention could have an effect on non-drug-related admission, as well as on drug-related admission. For example, a patient who is hospitalized because of nonadherence would manifest as someone hospitalized because of a disease exacerbation and not necessarily because of a drug problem. If our intervention improved adherence, such hospitalization could possibly be prevented. We fully agree that it would have been desirable to present data on adherence, and we had planned to do so. Unfortunately, our adherence data were not of sufficient quality to allow for it.

Van der Linden et al correctly point out that we had powered our study according to a perceived risk of drug-related admissions, not general admissions as was our main outcome. We do not believe, however, this has much bearing on the interpretation of the results. Given that the estimates and their confidence intervals are known by now, little, if anything, in terms of interpretation is added by considering the presumed power at the planning stage.⁴ Finally, it is suggested that we should have adjusted for multiple comparisons in our exploratory analyses for subgroup effects. It is, however, not customary to adjust for multiple comparisons under such circumstances, and doing so would in our opinion defy its purpose. While such adjustments do lower the occurrence of false positives, they also lower the occurrence of true positives (because the significance threshold is now lower), essentially leaving the researchers unable to identify the patterns they are looking for.

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Conflict of Interest Disclosures: None reported.

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Shortcomings of Research Regarding Long-term Acute Care Hospitals and Skilled Nursing Facilities

To the Editor In an Original Investigation published in a recent issue of *JAMA Internal Medicine*, Makam and coauthors¹ used Medicare claims data to assess factors associated with variation in the use of long-term acute care hospitals (LTACs) and skilled nursing facilities (SNFs). The authors¹ concluded that only half of the variation in LTAC vs SNF utilization is associated with differences in patient severity and complexity, and the remaining variation is associated with regional and hospital differences.

Their study¹ has several shortcomings that limit the applicability and relevance of their work. First, there are widely recognized limitations of using Medicare claims data to fully capture the clinical conditions of patients. Studies by Kahn et al² and Koenig et al³ note the importance of unobserved (to the researcher) clinical severity in explaining LTAC placement decisions and outcomes. As a result, the findings of the study by Makam and coauthors¹ may significantly understate the role of patient severity in the discharge placement decision. Second, Medicare began phasing in patient criteria for LTACs on October 1, 2015, that have resulted in a significant shift toward patients who spend 3 or more days in an intensive care unit or require prolonged mechanical ventilation. The findings of the study by Makam and coauthors¹ are based on 2012 data and, therefore, an LTAC patient population that is different from the current LTAC patient population. This limits the relevance of their findings to the current policy questions surrounding LTAC and SNF utilization. Third, LTACs are certified as acute care hospitals, while SNFs are not. As hospitals, LTACs provide a level of care not available from SNFs, a point Makam and coauthors¹ fail to mention. This distinction limits the ability of SNFs, even adequately staffed, high-quality ones, to serve as a suitable alternative to LTACs for severely ill and medically complex patients who require a hospital level of care. Finally, the study¹ does not assess outcome differences between similar patients treated at LTACs and SNF. Discussions on the optimal use of LTACs and SNFs from the perspective of hospitals and payers require an understanding of outcome differences between the two settings. While Makam and coauthors¹ note this and its importance for drawing policy conclusions, it is worth emphasizing.

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Conflict of Interest Disclosures: Dr Koenig serves as the Director of Policy and Research for the National Association of Long Term Hospitals (NALTH); Dr Votto serves on the board of NALTH and is chair of the NALTH Research and Quality Committee. No other conflicts are reported.

1. 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.
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To the Editor The Original Investigation by Makam et al¹ that was published in a recent issue of *JAMA Internal Medicine* was presented without proper context, which makes several of its conclusions misleading and outdated.

The study by Makam et al¹ is based entirely on Medicare data from 2012 and is framed in light of policy and practices then in place. This ignores the fact that the long-term acute care hospital (LTAC) sector has been undergoing transformational change since the adoption of new admissions criteria for Medicare patients in 2013. For a hospital to receive reimbursement under the LTAC prospective payment system, the 2013 criteria require that admitted patients must have experienced prolonged care in an intensive care unit during an immediately prior acute hospital stay or have been on mechanical ventilation for at least 96 hours. The effect of these policy changes has been significant in both clinical and economic terms, with both average patient acuity levels of admitted patients and LTAC closures on the rise. This asynchronistic limitation is most glaring when Makam et al¹ cite a 2014 MedPAC report to assert that LTACs are the fastest growing segment in the postacute care sector. This statement is no longer accurate. Since 2013, LTAC spending growth has been negative while skilled nursing facility (SNF) cost growth has been accelerating. Based on the latest available MedPAC data,² LTAC spending now accounts for less than 8% of Medicare's postacute care and less than 1% of total program costs.

We would also highlight (as the Makam et al¹ note) that the regulatory requirements, staffing resources and corresponding capabilities, and operating costs of LTACs differ significantly from SNFs. Thus, to the extent that SNFs are seen as a future, lower-cost care alternative to LTACs, the purported cost savings will be less than forecast, particularly for higher-acuity patients in need of the complex nursing and more intensive interdisciplinary care inherent to the delivery of long-term critical care services.

Lastly, it is important to note that comparative cost studies such as this one by Makam et al¹ are greatly limited by the lack of robust clinical data in the primary data set. For example, the data set lacks information on the severity of secondary diagnoses, little comparable patient function data, and no comparable base clinical vitals or diagnostic data. This important data limitation makes the presupposition in this study¹ that the LTAC and SNF patient cohorts are similar open to challenge. More importantly, while the Makam et al¹ suggest that SNFs may be an acceptable alternative care venue for patients in their identified cohorts, the study makes no attempt to study

the comparative outcomes of patients who were treated in SNFs as opposed to LTACs. What is known is that in the case of each LTAC admission, a physician certified that the higher-intensity care offered by LTACs was medically necessary.

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Conflict of Interest Disclosures: None reported.

1. 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.
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In Reply Carey and Moawad, as well as Koenig and Votto, raise concerns regarding similar themes: context and policy relevance of our findings,¹ residual confounding, and whether skilled nursing facilities (SNFs) are suitable alternatives to long-term acute care hospitals (LTACs). First, we agree the use of LTACs has slightly declined in recent years partly owing to the Pathway for SGR (Sustainable Growth Rate) Reform Act of 2013² stipulating reduced site-neutral payment (SNP) for less sick individuals. However, SNP will not be fully implemented until 2020.³ In the interim, LTACs will be reimbursed at a blended rate halfway between LTAC and inpatient prospective payer system rates,³ thus making many SNP admissions still profitable. As such, the most recent data shows that LTACs still account for over 130 000 annual admissions and \$5.3 billion in annual Medicare spending, which is 18% of the spending on SNFs.⁴ Furthermore, the modest decline in LTAC use among fee-for-service beneficiaries may also reflect increasing enrollment in Medicare Advantage. Release of Medicare Advantage data would greatly strengthen our understanding of postacute care.⁵

Second, our findings¹ are applicable beyond 2020 when SNP will be fully implemented. We conducted another sensitivity analysis focused exclusively on the 19 539 patients who had either a prolonged intensive care unit stay or prolonged mechanical ventilation, and thus would be exempt from SNP. After adjusting for case-mix, nearly half of the variation in LTAC transfer (vs SNF) was still unrelated to patient illness severity (variation partition coefficients [VPC] for patient, hospital, and region were 54.6%, 12.4%, and 33.0%, respectively; data available on request).

Third, we acknowledged in our study¹ that claims data may not fully capture differences in illness severity between patients. Thus, we have likely omitted important patient-level predictors of LTAC transfer. However, our findings of large hospital and geographic variation in LTAC use are robust to this limitation. The case-mix VPC represents the residual variation in the LTAC vs SNF transfer decision explained by unobserved differences between patients after adjusting for patient-level

predictors in our model.⁶ Although unobserved in our data, the case-mix VPC does in fact capture differences in cognitive status and frailty, among other severity of illness domains.

Lastly, commenters questioned whether SNFs are realistic alternatives to LTACs. For the chronically critically ill requiring mechanical ventilation, the answer is mostly no. However, our study¹ shows that SNFs do substitute for LTACs for patients who are less critically ill, including many who would be exempt from SNP. While our study¹ did not attempt to distinguish appropriate vs inappropriate LTAC use, clearly what is certain is that physicians in many hospitals and regions appear comfortable using SNFs for postacute care for many patients who are similarly ill. We support the need for more research to identify which patients benefit from higher-intensity LTAC care. We hypothesize that there are patients who will be less likely to be sent to LTACs owing to SNP but nonetheless benefit from LTAC care (ie, patients with complex wounds), and vice versa, patients who are exempt from SNP but will not benefit from transfer because the 3-day minimum intensive care unit stay under SNP is an imperfect surrogate for LTAC need.

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Conflict of Interest Disclosures: None reported.

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Further Considerations Concerning Advance Care Planning in Medical Practice

To the Editor We read with great interest the Research Letter by Lee et al¹ published in a recent issue of *JAMA Internal Medicine*. The authors note that the assistance of a qualified chaplain to conduct advance care planning is a feasible way to address and complete advance directives.

Of interest is that these conversations were initiated in the physician's office. Various studies²⁻⁴ have noted that the setting in which this important discussion occurs may affect the outcome. For example, Bern-Klug and Byram² noted that a higher percentage of individuals had discussed their end-of-life

wishes with a lawyer in comparison to a physician. This interesting finding may be owing to a number of factors including the association of advance directives and living wills with legal documents. However, it may also be that a lawyer's office feels more private instead of a physician's office, which may have many patients in the waiting room.

Ethnic background also appears to play a large role. For example, among South Koreans, conversations about death can be considered an attack on a person's well-being.³ In African Americans, distrust of the health care system may influence choices about end-of-life care.⁴ In addition, several studies have noted that ethnic minorities prefer to make end-of-life choices as a whole family whereas white patients generally accept an individualistic decision-making style.⁴ These studies show that conversations regarding advance directives can be most beneficial when personalized according to the patient's needs and background.

The benefits of having an advance directive is not just limited to the patient and the patient's family. It is also an important step in improving the patient-physician relationship and providing person-centered care. Although it may not be feasible to control for these numerous variables in an outpatient setting, the person's background (ethnic, religious, etc) must be taken into account to enhance the discussion. Whether it is through the assistance of a chaplain, lawyer, or any other individual important to the patient, there must be increased focus on expanding our understanding about providing end-of-life care to individuals from different backgrounds.

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Editorial Note: This letter was shown to the corresponding author of the original article, who declined to reply on behalf of the authors.

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Ridesharing and Text Messaging for Patients With Medicaid—Further Information

To the Editor The Original Investigation by Chaiyachati et al¹ published in a recent issue of *JAMA Internal Medicine* examined whether medical transportation via Lyft could be a valuable tool in reducing missed appointments among Medicaid patients in a low-income area of West Philadelphia. As the authors¹ point out, transportation is a significant barrier to accessing