The study by Maeda et al. presents an analysis on the regional differences in rates of bone marrow transplantation, care use and outcomes for individuals with adult T-cell leukemia in Japan. The authors identify significant differences in rates of BMT, resource use and outcomes across the different regions of Japan, with better outcomes in areas where technical and human resources were more prevalent. The study could be strengthened by addressing the following concerns:

**Major compulsory Revisions**

**Introduction:**
1) It may be helpful to describe modes of communication and highlight the high mortality rate after diagnosis. This could help place the extent of disease and challenge of treatment into context.

**Methods (my main concerns):**
2) Please provide a brief description of the Japanese healthcare system for readers who are not familiar. Who is the primary payer of insurance? How is care typically delivered? This could also go in the introduction. This will help us understand whether the data set actually provides a comprehensive overview of the study population of interest that the authors would like to make an inference about, or whether it may provide a biased sample.

3) Please provide additional information regarding the data source. It seems like the total N is quite small. Who is included in the DPC/PDPS? Is it a 100% sample of hospitals in Japan or only select facilities? How could this affect the representativeness of the study? In this respect, what percentage of all ATL diagnoses during the study period do you think are captured by this dataset?

4) I’m also confused by the statement “This study represented the secondary use of DPC/PDPS survey data collected from June 1st to December 31st 2010, conducted by MHLW”. My reading of the study design was that you used hospital administrative data to obtain the information, not survey data. Please clarify.

5) Using claims data alone to study patterns of cancer care and treatment has been demonstrated to be quite challenging as the claims were not designed to provide information on many critical cancer characteristics such as date of diagnosis and other factors that might influence treatment (grade, stage, histology- not all of which apply to ATL of course). What information does the
database contain regarding cancer characteristics besides ICD-10 codes? How do you know that these truly are diagnoses and not potentially a code where patients were being tested for the presence of the disease and later found to not have it? This has been a problem with using claims data only and has typically been addressed by linking cancer registry data to claims for care.

6) In this same respect, how do you know on page 5 that patients were admitted for chemotherapy? What codes did you use to determine this? During what time periods?

7) How did you determine someone had a BMT in the data? It is not described. As this is a critical variable in the analysis, it is important to describe the codes and time periods used to identify BMT.

Results

8) In the discussion of results, it would be helpful to put the reference group into the text when describing the AOR.

9) For the results of logLOS and IHM, it would be helpful to describe the results in terms a direction of the relationship (higher IHM in X vs. Y, etc.)

Conclusion:

10) It’s difficult to figure out what to take away as the main message of the paper. It would be helpful if you could reframe the discussion more into how you could use the information on regional differences in care and outcomes for ATL to plan programs, create interventions, etc. Right now, it seems more descriptive and less like a focus on what to take away to implement quality improvement initiatives.

11) Additionally, the main title of the paper suggests that you are looking at regional differences, but this doesn’t seem to be the highlight of the discussion. What does it mean when there are regional differences? How can this aid in future resource, care planning. Are there lessons some regions may learn from others? All would be helpful to highlight and tie together the discussion with the study purpose inferred from the title.

12) Also, are there other examples of cancer studies that you could compare to rather than stroke. It doesn’t seem quite comparable when describing regional variation, but maybe I’m missing the link.

Minor Essential Revisions

Tables:

Table 2: should state goodness of fit

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests.