Referee report for "Care specialization in home health care and implications for dementia populations"

This paper provides an interesting look into the relationship between home health agencies' specialization in dementia care and dementia patients' outcomes. Using Medicare claims data and differential distance as an instrument, the paper suggests that receiving care from home health agencies that are more specialized in dementia care (proxied by the agency's share of patients with dementia) reduces dementia patients' use of long-term nursing home care and mortality, although the effects on hospitalization and skilled nursing facility (SNF) use are limited.

The paper studies an interesting question, and I hope that the comments below are useful.

1. **Conditional independence**
   a. Based on Table 2, quite many patient characteristics predictive of health risks are unbalanced across the instrument. The paper argues that these balance-test coefficients, though statistically significant, are small in magnitude. Yet the first-stage estimate is also small in magnitude, and the unbalanced patient potential outcomes could significantly affect the IV estimate. Though the paper can control for observables, it is difficult to rule out the effects of unobservables.

   b. In testing the balance in patient characteristics across the instrument, the paper includes many other patient characteristics as controls. It would better support the validity of the instrument if patient characteristics are balanced across the instrument when conditioning on only the baseline controls (e.g., county fixed effects and year fixed effects), rather than further conditioning on many other patient characteristics.

   c. It would be useful to show figures that plot patient predicted outcomes and actual outcomes vs. the instrument. E.g., for mortality, the paper can generate patient predicted mortality based on their characteristics and show binned scatter plots of patient predicted and actual mortality vs. the instrument in one figure.

2. **Exclusion restriction**
   a. The paper uses the insignificant effects of specialized home health agencies on non-dementia patients to support the argument that the improved outcomes among dementia patients are likely driven by agencies' specialization in dementia, rather than by other quality differences between specialized and non-specialized agencies. But this argument may not be convincing. Agencies specialized in dementia could be less specialized in other care than agencies not specialized in dementia. If there are no other quality differences between agencies specialized and not specialized in dementia, we may expect non-dementia patients to have worse outcomes when they receive care from agencies specialized in dementia. The similar outcomes for non-dementia patients when they stay in dementia-specialized and non-specialized agencies could suggest that dementia-specialized agencies have better quality in dimensions beyond dementia specialization.

   b. Section II describes that patients with different differential distances to agencies specialized vs. not specialized in dementia don't seem to use SNFs or hospitals of different

quality in the prior year. But as shown in Table 2, patients with different differential distances have different likelihoods of prior SNF uses, which means that the sample the paper uses for the SNF quality analysis could be an unbalanced set across the values of the instrument.

3. **SNF vs. long-term care nursing home use**
   It would be useful to describe more clearly how the paper measures SNF use and long-term care nursing home use. Based on the paper's description on page 11, it seems that the paper used MedPAR to identify SNF use and MDS to identify long-term nursing home use. But MDS includes short-term nursing home stays, MedPAR includes long-term stays, and there is a large overlap in nursing home stays between MedPAR and MDS.

4. **Dementia diagnoses**
   The paper identifies dementia patients by diagnoses in the Chronic Conditions Warehouse (CCW). If the CCW includes diagnoses from home health agencies, then rather than reflecting the extent of specialization, the share of patients with dementia diagnoses which the paper uses as the measure for specialization may just reflect the agency's tendency to diagnose dementia. It would be useful to clarify whether the CCW includes diagnoses from home health agencies, and if yes, it would be better to construct dementia diagnoses based on inpatient and outpatient claims rather than directly using the diagnoses from the CCW.

5. **Additional comments**
   a. For a more comprehensive set of outcomes, it could be useful to add emergency department visits and total medical spending in an episode since the start of the home health agency use as outcomes.

   b. Rather than using separate county fixed effects and year fixed effects, it could be better to use county-by-year fixed effects.

   c. It would be useful to show the distribution of the agency's specialization in dementia care, e.g., show a histogram of the share of dementia patients in each agency.

   d. To support the monotonicity assumption of the instrument, the paper can report results from the split-sample approach as in, e.g., Bhuller et al. (2020), though the reverse-sample approach may not work in this paper's setting.

   e. Panel C of Table 5 examines whether receiving care from dementia-specialized agencies affects non-dementia patients' outcomes using the IV approach. It would be useful to show whether identification assumptions for the IV approach hold for this new sample.

   f. It would be useful to add a note explaining why the paper uses only two years of Medicare claims data, e.g., data availability or other reasons.

Reference

Bhuller, Manudeep, Gordon B. Dahl, Katrine V. Løken, and Magne Mogstad. "Incarceration, recidivism, and employment." Journal of Political Economy 128, no. 4 (2020): 1269-1324.