Reviewer's report

Title: The relationship between access to primary care and hospitalisations: Evidence from linked clinic and hospital data for remote Indigenous Australians

Version: 1 Date: 22 February 2013

Reviewer: Ann Larson

Reviewer's report:

This study is an important one using a unique data set that links primary care visits with hospitalisations for Aboriginal residents of remote communities. Primary care and hospitalisations have a complex relationship and although primary health care advocates would love to demonstrate that primary care reduces hospitalisations, the reality is that the relationship is inconclusive. This paper is one attempt to decompose the complexity, by demonstrating that the relationships between hospitalisations and primary care visits are not linear.

The explanation of the data and methodologies are fairly clear, but more details would give greater confidence in the findings.

The conclusions, as tentative as they are, have important policy implications. More primary care may lead to more hospitalisations, but so does too little.

Discretionary revisions

I take exception to the equation of access and utilization. This study does not measure access to primary care, only numbers of visits.

It does seem strange that 37% of the people in the study had zero clinic visits per year over four years. I think that this demonstrates less about the lack of access to care or even lack of utilization but rather a failure to match patients’ primary care and hospitalisation experience. Even if zero visits includes everyone with less an average number of visits of less than one a year (for example, 3 visits in four years), it does seem a very high figure and suggests a problem with linking patients to communities and the clinics that serve them. People living in remote communities are very mobile and do not always stay, or get care from those 52 clinics under the same name. It may be difficult to accurately match their experience in the primary care system with their hospitalisations. If many of the hospital patients were not matched to primary care visits then there would certainly be a U-shaped relationship because those with very few visits would be disproportionately made up of people who had missing visits but who had been hospitalised. Only new analysis with this data set and others will be able to confirm if my hypothesis is true but it should be raised as a potential methodological limitation.

The discussion of limitations touches on many important points. But would like to see more detailed discussion on how the study’s design may have influenced the results. In particular, I would like to see:

• A more detailed discussion of the extent of matching errors and the potential
biases this could introduce.

- Advantages and disadvantages of using an average over four years rather than four separate observations per person of average number of visits in each year.
- Use of length of stay (number of days hospitalised per year) rather than number of hospital admissions/discharges as an indicator. (I suspect that good primary care may reduce LOS through earlier admission and earlier discharge to competent primary care.)

Major Compulsory Revisions

Table 3 presents the estimates of clinic visits associated with the lowest rates of hospitalisations. There is a very large difference in the figures for the first categories (total, female, older adults and potentially avoidable hospitalisations) for the ‘spline’ and ‘simple’ equations. The differences are also fairly large for child health conditions, but much closer for adults with specific diseases. If the spline quadratic model produce a better estimate, I would like an explanation of why that model was not used for the models graphed in Figure 2.

In addition, I would like to have some measure of the statistical significance of the differences in the curves for the different groups and a measure of the goodness of fit. The authors demonstrate in Figure 1 that there is increasing heterogeneity in the association between primary care visits and hospitalisations as the average number of primary care visits increase. The authors haven’t given me enough information to determine if the curves in Figure 2 represent real differences.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests