

Is the hub-and-spoke model of care delivery a possible answer to geographical variation in liver transplant outcomes?

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To the Editor:

We read with interest the United Kingdom (UK) transplant registry analysis article by Webb et al on the proximity to transplant center and outcome among Liver Transplant (LT) patients (1). The negative correlation between travel time to the LT center and subsequent access to organs and mortality is of great concern. We highlight that recent advances in the delivery of LT care via a “Hub-and-spoke” mechanism which may have in-part already addressed this inequity. (2)

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The Royal Free Hospital (RFH) has delivered LT care via a “Hub-and-spoke” network model since 2011 and has eight dedicated spoke centers (2). In addition, Kings College Hospital have similar networks based in South West England and Northern Ireland (3). Spoke centers are chosen by need based on patient population, geographical remoteness and in conjunction with local and central enthusiasm and receive outreach services from the hub. (Figure 1) Webb et al report from a registry dating as far back as 1995 and given the recent incorporation of this model of LT care delivery within the UK the impact of such network collaborations may well have been overlooked in the study.

Since setting up formal hub-and-spoke networks, data from the UK NHS blood and transplant report a 54% increase in LT activity at the RFH hub centres whereas numbers assessed and transplanted from geographies local to the RFH have remained static indicating that this model has improved LT access to patients distant to our center (2). Moreover no differences in mortality on the waiting list, waiting time to LT, access to DBD organs, one and three-year graft and patient survival were noted between hub and spoke centres

If travel time between patient and transplant center exceed 60 minutes, Webb et al. suggest that waiting list mortality could increase by as much as a third, with a reduced likelihood of transplantation and suggest Bristol as a location for an additional LT center. (1) Our data describes outcomes of network arrangements for patients referred to Bristol Royal Infirmary (BRI). All 40 patients (23 listed) assessed from Bristol were managed as spoke patients with a median travel time of 151 minutes (IQR 150 – 156) from the RFH. Waitlist mortality, waiting time to LT, access to DBD organs and graft and patient survival was equivalent to patients local to the RFH hub (2). This suggests that inferior geographical

outcomes reported by Webb et may in fact be due to less accessed and specialized pre-transplant care as opposed to geographical remoteness.

It is therefore our opinion that before considering an additional LT center, a more detailed, and less historic review of service delivery within each LT hub to its geographical remote areas should be undertaken. Development of strategically placed “spoke” centres with transplant outreach expertise may help to deliver LT care equitably whilst avoiding the need for additional new transplant centers.

Disclosure

The authors of this manuscript have no conflicts of interest to disclose as described by the *American Journal of Transplantation*.

Figure Legend

Figure 1: Flow chart highlighting LT patient pathway for hub-and-spoke patients

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