Reviewer's report

Title: The availability, spatial accessibility, service utilisation and retrieval cost of paediatric intensive care services for children in rural, regional and remote Queensland: study protocol.

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Reviewer: Hans Flaatten

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This short paper describes a forthcoming study regarding the Heath service for critically ill children in Queensland, Australia. The Authors plan to retrieve clinical as well as organisational and geographical data in their comprehensive analysis. The study could have importance outside Q, regarding on how they will do their analysis.

In countries and areas around the world with a low population density and large geographical area with long travel distance, the problem of health care centralisation is well known. It seems to be cost-effective, but in fact little is known from large-scale studies. In the case of pediatric intensive care, I come from a country with many similarities as Q approximately the same population, and a large area in an elongated country more than 2500 km from north to south. At present we do not have specialised ICUs for other than neonatal intensive care, that means no pediatric ICUs with exception of th capital where about 20% of the population lives. In the rest of the country, pediatric Intensive care is given in the larger general ICUs, mainly in University hospitals, and som large central hospitals. We still find the evidence for centralisation to one centre (which would be wise given the poulation) to be weak. Try to find other references than the one from 1991, which is definitively outdated. With the rapid evolution of telemedical assistance, with a lot of interesting data coming from other parts of Australia, such evidence could be more difficult to establish today.

I write this just to give the investigators at this stage an alternative strategy. To do a comparison with two models: one based on your present model, maybe with even more centralisation. The another with a decentralised model, bringing the critically ill child to the nearest adult ICU for initial stabilisation and evaluation, then a secondary transfer when medically indicated. Gathering all your data, it could be built into your model, including the economic one. In your background discussion, you already take up some important limitations with the decentralised model, so these thoughts should not be new to you.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare I have no competing interests