Identifying maternity service catchments—a data gathering and mapping exercise

Margaret Rolfe¹, Geoffrey Morgan¹, ARBI Team¹
¹University Centre for Rural Health—North Coast

Aims: To develop and test methods to identify rural maternity services and the number of births in their service catchment areas.

Methods: To develop an evidence-based index of need to support policy decisions on maternity services, we first needed to identify those services and their annual (averaged over 5 years) birth numbers in communities of 1000 to 25 000 people in rural and remote Australia (R2 and above, ARIA). Data were gathered from publicly available sources and from contacts within the Maternity Services Inter Jurisdictional Committee for use with geographic information systems mapping tools. Two rural hospitals in SA were chosen as exemplars.

Initial identification of rural maternity services was based on: published reports by jurisdictional perinatal data collections, health departments’ websites and the AIHW hospital lists, ‘My Hospitals’ website, AMOSS website, ABS birth registrations. Geographic locations were identified from the websites of health departments, and ‘My Hospitals’ and from AIHW hospital lists.

Catchments were identified from the geographic location and GeoScience Australia 1:250 000 road network, where driving speeds were allocated by type of road. GIS methods were used to identify a facility’s catchment using how far you can drive (road based) in 60 minutes in any direction from the facility. Small geographical areas with known estimated population and birth numbers were overlaid onto the catchment area and the area-weighted populations were obtained.

Results: The process and development of these maps is complex. A selection of maternity service catchments based on road travel has been obtained. Their population and birth numbers are averaged for the period 2005 to 2009.

Conclusions: The process of obtaining medical facility service catchments can sound like a straightforward undertaking, however the data gathering that is required in order to undertake this task is not trivial and can be very complex.

Relevance: Even though our research is focused on rural maternity services, their population and birth catchment numbers, this methodology is applicable to other medical service provision areas.

Important points: Data for identification of hospitals with maternity services is widespread. The identification of catchments requires the bringing together of knowledge from many sources, ABS populations, geographical boundaries and birth registrations, state departments of health, road geographical information, AIHW and GIS skills.
This work is based on a Canadian model, this is the first time that catchments for Australian maternity services have been undertaken.