

USING GIS TO MODEL ACCESSIBILITY TO HEALTH CARE FACILITIES

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The principle of equal access to health services for those in equal need is one of the guiding tenets of the National Health Service (NHS) in the UK. Nevertheless, health services are inevitably located in particular places, and are therefore more accessible to nearby residents than those living further away. Variations in proximity are, obviously, only one element of accessibility to health services, but the physical difficulties of overcoming distance tend to be particularly important in rural regions. Since the late 1990s, these issues of access have received renewed attention in the UK as part of broader debates regarding social exclusion and the future of rural areas. As a consequence, there have been substantial initiatives to improve aspects of public transport provision, efforts to include an accessibility dimension in measures of multiple deprivation and more thorough monitoring of changes in patterns of service availability.

Alongside this evolving policy context, developments in Geographical Information Systems (GIS) and digital map databases have made it possible to calculate measures of physical accessibility such as travel time in a more automated and sophisticated manner than was previously practical. Another innovation has been the use of GIS to assess accessibility by public transport, taking into account the spatial distribution of bus routes and frequency of services. This paper examines the issues involved in undertaking such accessibility assessments with GIS, using examples from studies of primary health care services in eastern England (e.g. Lovett et al., 2002; 2004). It considers the data usually required, the modelling techniques typically employed, and applications with respect to both facility siting decisions and the assessment of accessibility variations across administrative areas.

References

Lovett, A.A., Haynes, R.M., Sünnenberg, G. and Gale, S. (2002) "Car travel time and accessibility by bus to general practitioner services: a study using patient registers and GIS", *Social Science & Medicine*, 55, pp.97-111.

Lovett, A.A., Sünnenberg, G. and Haynes, R.M. (2004) "Using GIS to assess accessibility to primary health care services", pp.187-204 in R.Maheswaren and M.Craglia (eds.) *GIS in Public Health Practice*, CRC Press, Boca Raton, Florida, USA.