Geo Factsheet

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The provision of health services in rural areas

Introduction
This Factsheet considers the principles of service provision in rural areas and focuses on the special case of rural health services in MEDCs and LEDCs.

> ***Geographical principles of service provision***
>
> ***Range of a service or good***
> *The range of good is the maximum distance that people are normally prepared to travel to obtain a service or purchase a good. People are not prepared to travel as far to buy a loaf of bread as they are to purchase a tennis racquet. Health services are different in that people are forced to travel to them. The range of a good depends on its threshold.*
>
> ***Threshold for provision of a service or goods***
> *A minimum population is required to support a service. Services such as post offices have low thresholds and are found in smaller central places where there are a limited number of potential customers. In the UK it is suggested that 2500 people are necessary for a doctor. Higher order services such as concert halls have very large thresholds and are found in the highest order central places.*

Recent trends in rural services in MEDCs
In recent years services, including health services in rural areas such as in the UK, have often closed, changed their operating methods in order to survive, been threatened with closure or in some cases they never even existed. Alongside this downward trend in services, rural populations have altered in their size, social composition, age-sex structure mobility and expectations. In particular, since the **rural turnaround**, rural populations are increasing, especially in accessible rural areas. Rural populations contain more aged people than the equivalent urban populations. All of these aspects of rural population geography have an impact on the demand for health services.

Rural health services are increasingly centralised in market towns and large villages in order to cut the costs of providing them. This has major implications for the poor, the elderly, the disabled and other disadvantaged groups who find it difficult to access health services.

Classification of Health Care within the Service Sector
Health care is an example of a consumer service because it is provided on a personal level. The National Health Service (NHS) in the UK is an example of a public service provider. Medical consultations using the NHS are free at the point of delivery although most patients pay prescription charges. Public services provide for social needs such as health or education and in the UK their provision reflects an expectation that communal agencies rather than commercial ones should provide these needs.

Health Care in Rural Areas in MEDCs
Good health is considered by most people to be one of the most important facets of their quality of life. An assumption often exists that rural living leads to better quality of life. However the perception of the 'rural idyll' is one of the reasons that poverty and deprivation in rural areas has been overlooked. General Practice (G.P.s) remains the focal point for health service delivery in rural areas, known as **primary health care**. Currently health care is more than simply the diagnosis and treatment of illness as it involves a partnership between health professionals, social care, welfare agencies and voluntary sectors.

Rurality impacts on primary health care in **two** main ways:
1) *Through patients having particular needs resulting from them living in rural areas*
2) *In how medical services are organised, delivered and staffed.*

There are a number of issues associated with rural health care:-

- ***Patient needs***
  Attitudes to health care can be different in rural communities; farmers, for instance, will be more likely to present themselves to see a doctor at a later stage of an illness compared with urban dwellers, due to a culture of self reliance and a lack of anonymity in the 'rural goldfish bowl'. Stigma can also affect patients, for example farmers seeking help over mental illnesses.

  Illnesses seen in rural populations can differ from those seen in the urban population and doctors with less experience of rural health may find it more difficult to recognise the signs and symptoms of diseases. Examples of these include Orf (a skin condition contracted from sheep and Farmer's Lung (an allergic alveolitis resulting from contact with fungal spores found in hay barns). During the 2001 Foot and Mouth Disease epidemic, G.Ps reported that patients from families affected by the disease needed double length appointments because of issues of rural stress.

- ***Access to health care***
  Access to all types of health care facility is poor throughout most rural areas in both MEDCs and LEDCs. Doctors' surgeries, nurses, pharmacists, hospitals and alternative health care are, on the whole, widely dispersed and, especially for the less mobile sector of the population, often difficult to reach due to the lack of public transport.

  Access to a G.P. via a doctors' surgery is the most essential and most frequently required health facility in rural areas. Relatively few villages have a doctors' surgery and public transport is often poorly suited to the needs of patients and heath care workers alike. Some doctors' surgeries have closed in rural areas and rationalised to fewer locations to build health centres offering modern facilities from which a wider range of health care professionals can work.

  Distance decay studies show that health services are decreasingly used with increasing distance from their location. This is particularly the case for the elderly, women and low-income groups. The difficulties of emergency care are compounded by rural isolation. An example would be the use of thrombolysis in heart attacks. The aim here is immediate hospital treatment but the delay in transfer to hospital in rural areas compromises care and the possibility of administering treatment locally by G.P.s or paramedics is currently under investigation. For rural patients, distances to the nearest District General Hospital (DGH) are usually far greater than urban patients have to travel to access specialist services. This poses problems in terms of both time and cost for many rural patients. Public transport may not be an appropriate means of transport - buses may not run on the days when particular specialist clinics take place. Patients living in the North West Highlands of Scotland can live further from their nearest DGH than London is from Bristol. As new district hospitals have been built, many smaller cottage hospitals and older district hospitals have been closed, causing huge protests of the 'save our hospital' type.

- ***Facilities***
  Some rural communities are served by infrequent doctors' surgeries in makeshift premises. These may be held for example in a village or church hall such as at Ellerdine, near Hodnet in Shropshire, or in the sitting room of a private house such as in Pulverbatch near Pontesbury in Shropshire. Using this type of non purpose-built premises poses numerous problems for the practitioner due to not having any of the facilities of the surgery and often patients need to subsequently attend the main surgery for tests and examinations. Heating, lighting and seating are often inadequate in these types of building.

  Many small cottage hospitals in rural areas have closed and this poses particular problems for the elderly who make up a significant percentage of rural populations and also the disabled. Additionally, a number of rural hospitals have lost acute services such as casualty and maternity services. With limited services, rural hospitals can no longer play the role they have had for years in the community. Efforts have recently been made to restore facilities to some cottage hospitals – for example the redevelopment of Bridgnorth Community Hospital.

- ***Attracting Staff***
  Rural practices often experience difficulty in recruiting and retaining health professionals such as G.P.s. Research in Denmark has shown that a very small proportion of recent graduates wish to practice in rural areas. The lack of other services, such as schools in rural areas, also deters G.P.s from applying for jobs in rural practices together with the lack of privacy for doctors living in the 'rural goldfish bowl' of village life.

  Working in extremely remote rural areas such as the Outer Hebrides also requires a different range of skills than most newly qualified G.P.s, trained in big city medical schools, possess and this reduces the potential number of applicants for posts in these locations. There is greater level of minor surgery, emergency care and casualty work. In areas such as the Lake District, popular for summer holidays, the G.P'.s workload in the summer increases considerably and often necessitates employing extra staff for the summer season only. Attracting a Welsh-speaking G.P. to rural Wales is desirable when often many of the patients registered with a practice speak Welsh as their first language, but this can again creates problems in attracting doctors.

Solutions

- ***Training and staffing***
  More doctors need to be trained to meet the health needs of isolated areas. In Scotland, a Remote and Rural Areas Resource Initiative has been conceived to address this and other issues of rural health provision. In Australia, £25 million pounds has been set aside to fund regional health centres and increases in retention payments (money to help encourage staff to stay in their posts) for G.P.s willing to work in rural areas.

- ***Government Policy***
  The Welsh Assembly is putting almost £1 million into projects that are seen to be vital to improving the health status of Wales. One that is attracting international recognition is the screening for diabetic retinopathy by means of a mobile unit that can visit people in their own community. The Welsh Assembly has a 'Better Health, Better Wales' priority and research into farm accidents is being undertaken by the Institute of Rural Health as part of this programme.

- ***Illness identification***
  The Women's Farmers' Union have developed cards on which symptoms of diseases are outlined. The aim is that farmers may then be more likely to consult the doctor at an early stage of an illness and can take the cards with them to the G.P.

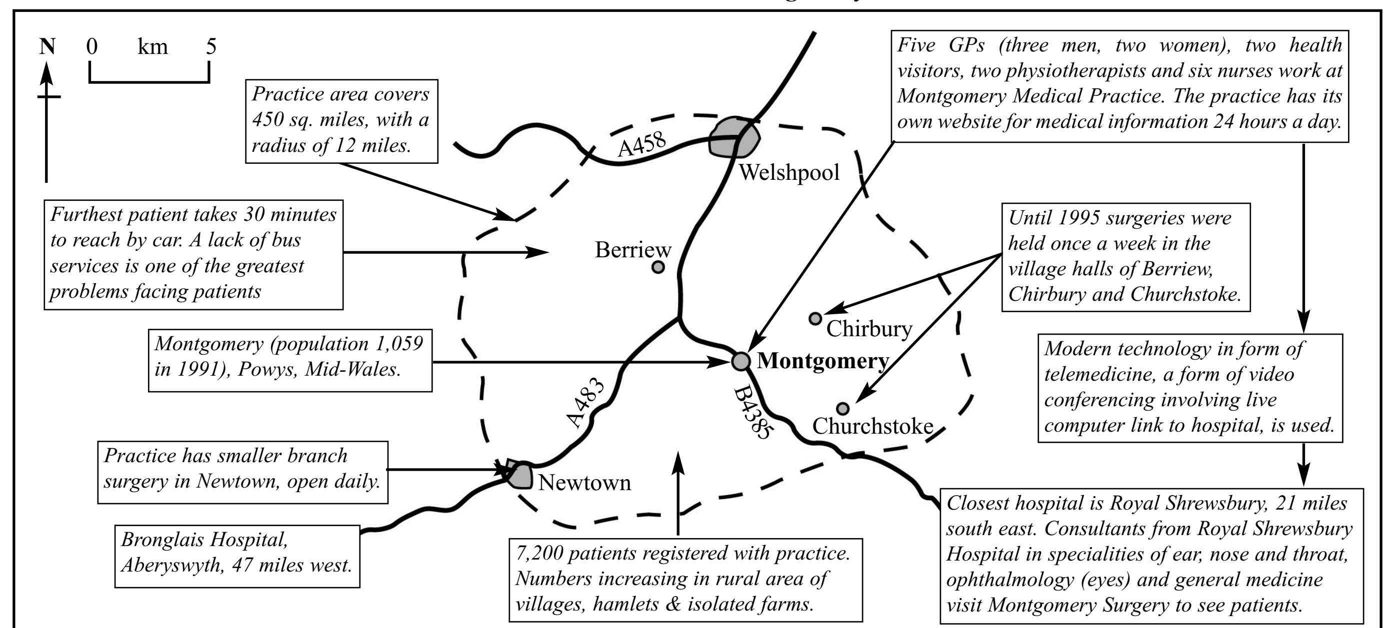
- Provision of rural pharmacies and a range of other facilities at rural GP surgeries.

- ***New Technology (E-health)***
  E-health is the application of modern information and communications technology in the delivery of all aspects of health care. Rural communities are well placed to benefit from the use of these innovative technologies which include 'telemedicine' – the use of live video links from GP surgeries to hospital specialists in assessing patients' conditions.

- ***Community Transport Schemes***
  Community transport schemes do appear to enable more rural patients without their own car to reach health centres. In Powys, Mid Wales, public bus services are supplemented by community transport schemes operated by voluntary organisations, such as the WRVS Social Car Scheme, for those unable to make regular use of public transport so that they can access services such as health.

Case study 1: Montgomery Medical Practice, Montgomeryshire, Mid Wales – health care in an MEDC rural area.

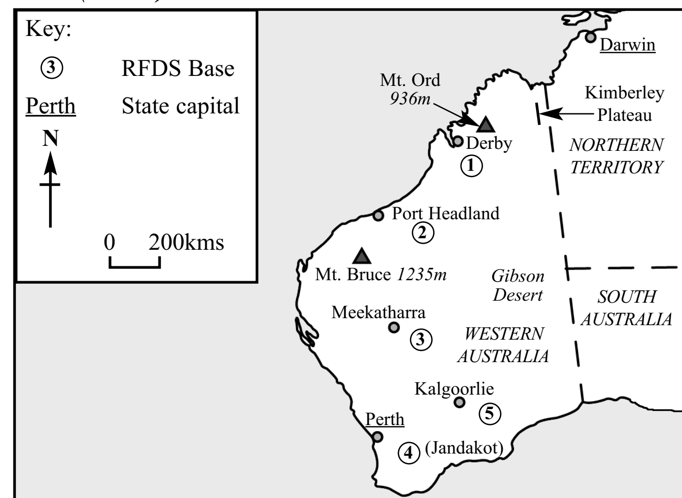
Fig. 1 Annotated map to show the main features of Montgomery Medical Practice.



Case Study 2: Royal Flying Doctor Service (RFDS), Australia - Health care in an extremely remote rural area in an MEDC.

Only 15% of Australia's population live in rural areas but for many the isolation and loneliness of the Australian outback causes terrible depression and in the case of sudden sickness or serious accident, death was often the result. The Royal Flying Doctor Service (RFDS) was established in Australia in 1928 for people living in remote and inaccessible locations who need medical assistance. At present the RFDS has 20 bases and 41 aircraft and, in 1999, 184400 patients were attended by the service. Its work is supported by charitable donations.

Fig. 2 Sketch map showing the location of Flying Doctor Bases (RFDS) in Western Australia.



Nowadays, flying doctor territory starts at about one hour's drive out of most Australian cities. The RFDS is also more involved with the increasing numbers of tourists visiting remote Australian locations.

Derby RFDS base, Western Australia (see Fig. 2)

- *Derby is a small town on the north west coast of Western Australia with a population of around 4,000. It has had an RFDS base since 1955 which serves the northern most part of the state including the Great Sandy Desert and the Kimberly Plateau.*
- *In 1999, 930000 kilometres were flown by planes working for the RFDS*
- *Three doctors work out of Derby for the RFDS and are firstly involved in 'retrieval' work, taking calls from hospitals, aboriginal communities and outback stations. Doctors need to be able to assess patients accurately over the phone and make rapid decisions on which patients to prioritise, whether there might be a problem which might affect a patient flying and whether they need a doctor to travel with them on board the plane.*
- *Patients can be brought to the town's regional hospital which is staffed with a surgeon, obstetrician and paediatrician (specialist in children's medicine).*
- *Patients needing intensive care facilities, burns treatment or orthopaedic care are transferred to a tertiary referral hospital in Perth, a distance of around 3000km and a five and a half hour journey by air.*
- *RFDS doctors based at Derby also travel to remote clinics by plane ('flying clinics') and attend aboriginal medical centres. 201 clinics took place in 1999 in the Derby RFDS area.*
- *Approximately 90% of the patients treated at Derby are aboriginal and have a different way of communicating and interpreting diseases. Much of the medicine is related to tropical diseases and LEDC type health problems.*

Rural Health Care in LEDCs

The inequalities of access to health provision in rural areas in LEDCs are greater than in MEDCs. The nature of the rural-urban continuum in LEDCs is such that rural areas become more remote from urban areas more rapidly than in MEDCs due to poor quality roads and a lack of reliable affordable transport. There are serious shortages in hospitals, doctors, nurses and medicines. LEDC governments have little to spend on public health facilities and frequently a relatively large proportion of what is spent goes to maintain a small number of expensive modern hospitals which are often concentrated in major urban areas.

The rural inhabitants of LEDCs are not being reached by the benefits of modern health care, are often unaware of their disadvantage, are unable to pay for health care and may be reluctant to use the facilities. Many of the poor in the rural areas of LEDCs do not have access to any permanent form of health care. The emphasis in recent years for medical provision has shifted from expensive, over sophisticated Western style medical care to a simple low cost system of Primary Health Care.

Primary health care in LEDCs

The aim of 'Primary Health Care' is to offer an affordable way of preventing as well as curing health problems and that can be made available to everyone. There are many different ways of organising PHC such as:-

- training village health workers to diagnose and treat common diseases and provide family planning services (barefoot doctors)
- supporting and using traditional healers and medicines that are available locally
- providing access to the 200 essential drugs recommended by the World Health Organisation
- ensuring a clean, regular water supply and an adequate diet for everybody.
- immunising against childhood diseases
- educating people so they understand the causes of ill health and can learn about how to lead a healthy lifestyle to avoid illness.

Table 1 illustrates some of the key differences between health care spending and outcome in the MEDCs of the UK and Australia and Tanzania, an LEDC.

Table 1. Selected differences between United Kingdom, Australia and Tanzania

	United Kingdom	Australia	Tanzania
Health expenditure as % GDP (est. 1997)	5.8%	7.8%	4.8%
Rural population as %	10%	15%	67%
% rural population with access to safe water	100%	100%	42%
Infant Mortality Rate	6 per 1000	5 per 1000	90 per 1000
% 1 year olds immunized against DPT	95%	88%	82%
Total Fertility rate	1.7	1.8	5.3

Source: UNICEF
N.B. The DPT immunisation protects against the diseases of diphtheria, polio and tetanus.

Exercise: Summarise the main differences shown by Table 1. What challenges do these differences result in?

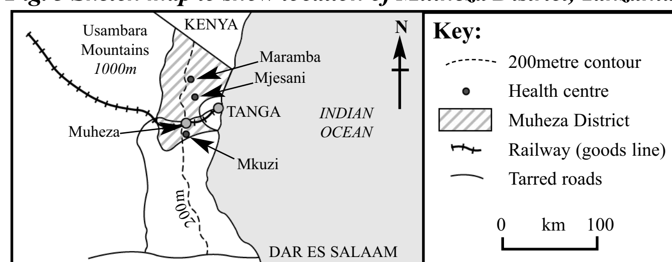
Case study: Health care in Tanzania

Tanzania has been controlled by a socialist government since 1967. Investment in health care has since then been a high priority. The country has played a pioneering role in developing Primary Health Care, a strategy that was adopted because it was cost effective and seen as an appropriate method of addressing the basic needs of the majority living in rural areas where health care had previously been unavailable. Patients have to pay for all elements of health care in Tanzania. In 2000, 67% of Tanzania's the population lived in rural areas.

Rural Health Care in the Muheza District of Tanzania - Health care in an extremely remote rural area in an LEDC

The Muheza District lies in the north east of Tanzania and stretches from the foothills of the Usambara Mountains to the coastal plains (Fig. 3). The district does not reach the coast being separated from it by Tanga, Tanzania's second largest city. The population is rural, poor and agricultural. The population of Muheza Township, the main settlement in the Muheza District, is 56,000. The road from Tanga which passes through Muheza is the only tarred road in the district. The rural population will either walk to obtain health services or travel by bus which many find expensive and time consuming since to reach Muheza may necessitate travelling first to Tanga. There are two rainy seasons when travel becomes particularly difficult, the main one being between March and May with the minor rains occurring in October and November.

Fig. 3 Sketch map to show location of Mulheza District, Tanzania.



The Tanzanian Government have created three layers of health care in Tanzania's rural areas. These three layers of District Hospital, Rural Health Centres and Rural Dispensaries exist in the Muheza District which is fortunate in also having a fourth and most basic level of health care, the Village Health Workers. This level is not part of government policy but is supported largely by Non-Governmental Organisations (NGOs) and in particular the Pontesbury/Muheza Link, a charity based in Shropshire.

1) Village Health Workers (VHWs)

This is the most basic level of conventional health care available in villages and does not receive financial support from the Tanzanian government. VHWs work on a voluntary basis in their own communities and are chosen by the villagers themselves. In the Muheza District the number of active VHWs increased from 7 in 1993 to 90 in 2001 largely as a result of support provided by the Pontesbury/Muheza Link. They receive four weeks initial training which focuses on the treatment of everyday illnesses, such as diarrhoea, as well as on preventative health care and attend an annual refresher seminar. VHWs typically see patients on approximately 3 mornings per week. Drugs are provided on a monthly basis by Community Healthcare Direct, a UK charity. Patients pay 5 – 10 pence to the VHW for consultation and any drugs. Every six weeks the VHWs bring their register of drugs dispensed to the VHW Supervisor who supports them by checking the register and offering appropriate training.

2) Rural Dispensaries

These form the next tier in the organisation of health care in the Muheza District where 40 –50 rural dispensaries exist in village locations. These health posts comprise small buildings paid for by the government but without piped water or electricity. The government pays for the staff – three in each dispensary. Drugs are provided monthly by DANIDA, a Danish governmental aid organisation, but are generally completely used up within the first two weeks. Child immunisations, which are free of charge, take place at the dispensaries which are be the final destinations for vaccines that must be kept at low temperature in a 'cold chain' originating in Europe. The dispensaries may be 4-5 hours walk for some of the population and these distances pose a great problem for the ill. The most remote locations are reached by a mobile clinic using off road vehicles of which two are available in the district. These provide immunisations and growth monitoring for children – recently, during a 3-year period when these mobile clinics did not operate, a measles epidemic occurred.

3) Health Centres

Three rural health centres existed in the Muheza district in 2001. They are located in purpose built premises, each with 20-30 beds and basic laboratory facilities for identifying some conditions such as malaria, in the villages of Maramba, Mjesani and Mkuzi. Although the buildings are now in a reasonable state of repair, at Mkusi there has been no electricity supply for four years and water has to be collected from 1 km away. The government pays for the staff of nurses, midwives and laboratory technicians and a Tanzanian trained doctor has been appointed for Maramba that will soon have an operating theatre. Drugs here are also are provided by DANIDA but patients have to pay for all their health care.

4) District Hospital

Difficult diseases are passed onto the District hospital at Muheza, a government hospital of 210 beds (although 2-3 patients may share these beds). In addition to funding from the government, some funding is also obtained from USPG, a church charity. The buildings are in a sound state of repair and there is an electricity generator, septic tank for sewerage, telephone (unlike at the other levels in the health system) and e-mail. Food is provided but patients pay a weekly charge to stay in the hospital. There are two operating theatres, an obstetric unit and X ray facilities at Muheza. At present there is one European doctor based at the hospital who deals with both medical and surgical problems. Traditional healers are still used throughout the area. This sometimes delays patients obtaining conventional medical help but the traditional healers do have a beneficial effect on some patients and do listen to advice from medical staff.

Conclusion

The ways in which rural health care is organised and the expectations of patients in MEDCs is quite different from that in LEDCs where the emphasis is much more on affordable Primary Health Care. Health care in rural areas in MEDCs is better funded and new technologies are now being used. Rural areas do have common problems, such as access and poverty, but these are far more acute in LEDCs, for example the Aids pandemic, resulting in a much greater challenge for the providers of rural health services. Variations in the extent of problems and ways of attempting to tackle them exist both between and within MEDCs and LEDCs.

Health is just one example of a rural service which needs innovative ideas to overcome the high cost of provision, within a sparsely populated area.

Further Research

Chapter 3 in '*Development and underdevelopment'* – Garrett Nagle

Useful websites

www.rfds.org.au for Royal Flying Doctor Service
www.rural-health.ac.uk for Institute of Rural Health

Acknowledgements
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