

## Volume 9 - Issue 5, 2009 - Cover Story: Patient Access to Medical Imaging

### The Impact of Geographic Barriers to Patient Access Australia, New Zealand and the South Pacific

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Providing an effective, comprehensive radiology service to any given community means taking into consideration many factors, not the least of which are the geographical challenges involved. Within the Australia, New Zealand and Pacific Island area, these challenges are very significant and require creative and innovative solutions by the radiologists and technologists, but particularly by managers and department administrators.

#### Access to Medical Imaging: Australia

In considering the management of medical imaging services in Australia, it may be helpful to begin with an overview of how these services are structured within the Australian healthcare system, given that the country has a population of 21 million people, with most situated around the fringe of an island continent larger than the United States or Europe, with a largely uninhabited interior.

Medical imaging services are provided either by public, hospital-based facilities (government-funded and managed) or by private providers. Australia spends 8.8% of GDP on healthcare compared with Germany (10.7%) and the UK (8.2%) (2005). Public hospitals generally provide high level care including transplant services, in addition to Accident and Emergency (A&E) facilities, which can include air retrieval by helicopter or in association with the Royal Flying Doctor Service from more remote areas. Funding of public hospitals comes from the national government via state governments who manage the services and facilities locally, Australia having six states and two territories.

Patients undergoing imaging services in public facilities pay no fees, but gaining access other than in an emergency can be lengthy. Private radiology accounts for more than 60% of imaging services provided nationally, and whilst fees for these examinations are subsidised by the national Medicare rebate scheme, patients are usually required to make a co-payment, which can be significant in the case of CT or MRI examinations. The government is usually very reluctant to increase their rebates even in line with cost of living increases. It is anticipated that this situation will get worse with the current global financial crisis.

Private radiology is carried out at dedicated outpatient clinics as well as in private hospitals. The range of services /modalities in the private sector equals or even exceeds that in the public system with the latest technology readily available including multi-slice CT, 3T MRI, PET and SPECT/CT, coronary and general angiography, digital mammography, 4D ultrasound and DR and CR general radiography. PACS is now very commonplace in the larger private groups.

#### Trends Show Move Towards Corporate Radiology Services

Whilst private radiology in Australia was initially established by partnerships of radiologists, there has been a strong move since the mid 1990s to move towards corporatisation with the majority of private radiology services now in the hands of very large corporate groups including Sonic Healthcare, I-med and Primary Health Care. Some of these groups also include pathology and general practice and have international links. There has also recently been a trend for re-emergence of smaller radiologist-owned practices, which follows the U.S. practice model.

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## Access to Medical Imaging: New Zealand

Due to their geographical closeness and long history of working together, it is interesting to make some brief comparisons in the delivery of radiology services between Australia and New Zealand. Both spend a comparable proportion of GDP on healthcare and have a similar public/private sharing of the profession with New Zealand having a more 50:50 share of examinations. There is also less corporatisation of private practices in NZ. The Royal Australian and New Zealand College of Radiologists represents radiologists in both countries but NZ has its own very effective Institute of Medical Radiation Technologists. NZ has less issues relating to delivery of medical imaging services to rural areas as it is a smaller country, about the size of Italy, albeit spread across two islands. Teleradiology is well adopted to support communities in outlying areas.

## Remote Operators & Flying Doctors Cover Remote Areas

Recruitment and retention of staff for remote areas is a challenge and some creativity and compromise is necessary to ensure a high level of access and care. Experienced nursing staff in outlying regions are often trained and formally recognised as "remote operators", enabling them to carry out simple radiographic procedures. In some areas these nurses are also trained locally in basic ultrasound and equipped with portable units so they can provide obstetric care to indigenous families in outback communities on their regular visits to local communities many hundreds of kilometres from larger rural towns.

Flying doctor services may be called upon to land in very remote areas on makeshift airstrips, cattle stations or on dirt roads. Indeed, some very large stations which cover areas larger than some small countries have their own x-ray and surgical equipment on site because of the distance from medical aid and difficulties of access when heavy rains and flooding occur. In these cases, x-ray images and patient photographs taken with digital cameras have even been sent by email to seek medical advice.

## Case Study: Remote Services in Alice Springs

My own management experience includes providing trained staff, equipment maintenance and weekly radiologist attendance for over 20 years for the hospital in Alice Springs in the very centre of Australia over 1,300 kms from the nearest large city. In addition, we provided similar services to Broken Hill, a well-known outback mining town 500 kms from our city practices. Both locations had multi-slice CT, ultrasound and mammography modalities.

Alice Springs hospital supports a community of over 25,000 with a huge remote catchment area. A radiologist is flown in every Monday and out on Friday evenings and supported by high quality teleradiology which also provides support for weekend trauma cases, which in turn may require urgent air retrieval by the flying doctor service that has a large base with four aircraft at the local airport. These evacuations require a four-hour flight to major hospital facilities.

The hospital itself is very well equipped and the radiology department includes multi-slice CT, mammography, the latest ultrasound technology, and general CR rooms. Despite its remoteness, it has the busiest emergency department per capita in Australia. It sees over 120 patients per day with significant road trauma due to its remote location and the presence of road hazards such as kangaroos, emu, camels and wandering cattle. Covering on-leave staff and ongoing training, necessitates a regular locum supply. Radiologists with special skills such as paediatrics or intervention are rotated regularly or as needs dictate and they also provide educational talks and clinical review sessions during their week's stay. Many patients, including overseas tourists, have had their lives saved by the use of teleradiology and air ambulance retrieval.

## Remote Teleradiology Reporting

Many rural sites now include teleradiology links to support sites that are usually provided by the practice/hospital supporting them or via a third party contract. There are now several dedicated teleradiology companies within Australia offering this service to cover times when no radiologist is in attendance or to sites with no visiting radiologist. Rural sites can ensure ongoing continuing education opportunities for their technologists by accessing programmes provided and accredited by the Australian Institute of Radiography and by their employing Practice Group. Video conferencing is also a very useful tool to ensure that staff are not disadvantaged by their relative isolation.

## Access to Medical Imaging: The South Pacific

Whilst considering Australia and New Zealand, it is also worth a brief look at the South Pacific, as both countries provide significant medical support to this unique region, which is spread over hundreds of thousands of kilometres. The region is mainly centred around Fiji, which boasts the Fiji School of Medicine and the University of the South Pacific. They run degree programmes in medicine and radiography for the region. There are many small island nations spread across the Pacific, with a small number of doctors nurses and radiographers, and only very few radiologists. The radiologists are generally trained in New Zealand or Australia and supported by teaching hospitals and universities from these countries.

The International Society of Radiographers and Radiological Technologists (ISRRT) also supports this region and in conjunction with the Western Pacific Region of the World Health Organisation (WPRO) has run programmes on quality assurance and also film interpretation for radiographers, x-ray operators and nursing staff who work on the many outlying islands with minimal or no access to radiology facilities. Attempts at installing teleradiology systems to support these locations are limited due to poor telecommunications.

