

# Rural communities with direct access to metropolitan technology: Possibility or dreaming?

Stuart Gowland MBChB FRACS and Pat Farry MBChB FRNZCGP

Correspondence to: [gowland@mmt.co.nz](mailto:gowland@mmt.co.nz)

To the outsider, the problems facing rural general practice are significant. Apart from the ever burgeoning cost of the requirements to use expensive technology that besots the metropolitan health system, rural doctors face the tyranny of time and distance, perceptions of isolation and difficulties with recruitment and retention.

A plethora of initiatives have been, or are being, introduced by rural representatives ensuring adequate remuneration, adequate locum cover for time off, and a programme of continuing medical education.

Adequate training for the differing roles of rural practitioners at primary and secondary care level is being introduced for post-graduate doctors. Adequate exposure and training for medical students is slowly starting. Undergraduates are still waiting for a formal course at most medical schools.

The mobile surgical project, funded by the government in 2002 and now funded until 2011, was commissioned to look at ways rural health could be enhanced. The first step in providing an increase in direct benefits to patients was by providing a mobile shared operating room for day surgery. This utilised the communities' own nurses and specialists, known to the community, from their regional centre. Also commissioned were ways to give rural general practitioners (GPs) access to the latest technologies for their patients and the option to significantly change the way they work.

The hope of the project was that not only would the easy availability of the latest diagnostic and therapeutic technologies enhance the services available to rural communities but also, for those interested, a new frontier for rural GPs would be created and excite recruitment.

Introducing any new technology anywhere has two potential inhibitors:

- a. The cost
- b. The training and systems so that people using technology (sometimes occasionally) can use it safely.

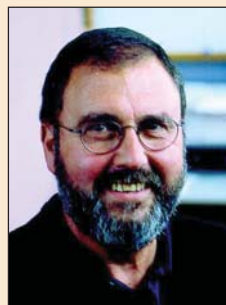
Two underlying themes seem to resolve the dilemma.

## 1. The mobile sharing of equipment to save cost

It is possible to share equipment and facilities that are not needed every day by combining the requirements of several communities or even a whole country. Mobile delivery on a strict schedule and in a planned and notified way can share and make available such big items as an operating theatre or small items such as an echocardiography unit or equipment for colposcopy right on site for the participating community.



*Stuart Gowland is a Urologist in clinical practice and also Director of the New Zealand Mobile Surgical Project. He was awarded the Queen's Service Order in the New Year's Honours list of 2000 for services to medical standards and rural health.*



*Pat Farry has been in rural general practice for 34 years. He is currently director of Te Waipounamu Rural Health Unit at the Dunedin School of Medicine.*

## 2. Advanced video communications to ensure safe use

If advanced technology, traditionally only used in the realm of the specialist, is going to be introduced to rural GPs, then there must be a scope of practice developed, as well as training, credentialing, and regular recertification.

Advanced telecommunications, called teleporting, may hold the answer. This video communication technology, run at the same quality as conventional television and using multiple controllable cameras, creates a much more natural feeling of 'being there' in a video link. Teleporting allows easy electronic collaboration between colleagues as the motion is natural, there is minimal voice delay and multiple cameras can be controlled giving the ability to 'walk around' and 'look around' the venue being visited.

It is hoped support from such collaboration will allow generalist GPs to act as safe specialists, bringing huge advances to the services available to their communities. These collaborations can occur within the country or indeed across the world.

For two years various options have been explored and demonstrated. Often the resolution of a diagnostic problem using a technology at the rural GP point of contact may save three visits to the 'town' specialist for the patient. The rural point

of contact use of a therapeutic technology may likewise have the same logistical implication.

These applications may well generate significant savings for overstretched District Health Boards (DHBs) and it is possible that the appropriate funding would flow to the primary care rural practice.

Examples of diagnostic technology that could be available to rural GPs include:

- general ultrasound
- echocardiography
- colposcopy
- endoscopy
- digital retinal photography
- bone densitometry
- audiometry
- uroflowmetry and urodynamics.

Examples of therapeutic technologies that could be available to rural GPs include:

- GP surgery
- the use of some lasers
- venous sclerotherapy.

To date, GP surgery, general ultrasound, echocardiography, colposcopy and digital retinal photography have been trialed using teleported specialist support.

In December a group of rural hospital doctors completed a postgraduate course in cardiology including targeted training in the basics of echocardiography. It is now planned to complete the credentialing process using teleported collaboration by spe-

cialists to the practice or rural hospital clinics. Annual recertification will also be undertaken, again using teleported specialist site visits.

Teleporting has been used to electronically introduce metropolitan nurses to the rural sector and to give specialist nurse presentations to rural hospitals. Surgeons have been teleported virtually to join the audience of specialist meetings and to attend peer review sessions and also x-ray seminars. GPs can be offered the same opportunities and two examples have been demonstrated of GPs virtually attending meetings but this is able to increase on request.

'Virtual' collaboration and the ability to electronically travel nationally and internationally is hopefully one way to address the perception of isolation that rural recruitment suffers from.

Our primary task as doctors is consultation with and caring for the patient. Health care is humanity and technology should only be seen as an adjunct to patient and doctor interaction. Nevertheless, in a world where technology often dominates it is important that its advantages are available irrespective of geographic location.

## Competing interests

Stuart Gowland is Director of the New Zealand Mobile Surgical Project. Pat Farry: no competing interests declared.

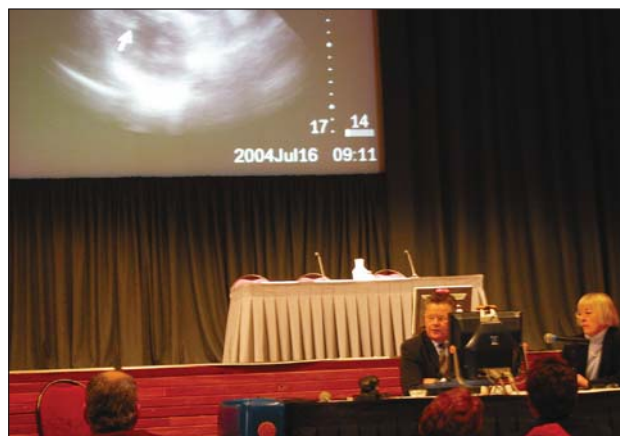


Figure 1. Associate Prof. Gerry Wilkins monitors and discusses transmitted echocardiogram.



Figure 2. Rural GP Tim Malloy performs echocardiography on his patient while transmitting the image in real time to Associate Prof. Gerry Wilkins.