

Inside Story HIGHLIGHTS

From the Pacific Radiology Referrer Newsletter



Pacific Radiology

High Tech imaging shown to increase life expectancy and be cost effective

At Pacific Radiology we have striven to provide high tech imaging because we believe this will provide the best imaging advice possible to solve the patient's clinical problem. However this has often led to concerns about affordability and therefore equitable access, especially if this is available only in the private sector.

We now provide the most comprehensive range of imaging in New Zealand including MRI and most recently PET/CT, neither of which were or are available in the public system. However we encourage our services to be used by public health providers at primary, secondary and tertiary levels. We have been accused that this is because we like new toys to play with rather than a desire for better health and, although empirically it makes sense that better imaging leads to better health, it has been difficult to prove and therefore justify the additional cost. Another concern to us is that often these advances come with a higher radiation dose and this raises the radiation burden on the population. These concerns I would like to address separately.

Firstly the radiation dose of investigation is of current concern to regulatory bodies here in NZ and globally. Due to the explosion in cross sectional imaging subsequent to the introduction of multi-slice CT, nearly half the radiation dose received by the average American is from CT! This is up from 10% 10 years ago. The rest is background radiation which comes from the sky and ground. There is never a zero state; we are all exposed to background radiation. Our job as radiologists is to see the additional radiation burden is as low as possible whilst delivering health benefits from improved diagnoses. Hence all high tech requests are scrutinised by a radiologist to a) apply the minimal dose, and b) ensure the test is reasonable and likely to achieve the desired expected outcome.

The National Radiation Laboratory monitors our radiation usage and requires us to operate the ALARA principle, **As Low As Reasonably Achievable**. We do this by buying top of the range equipment and upgrades as they become available. This has allowed us for example to provide coronary artery CT, and now reduce significantly the radiation dose as new software has become available. We deter frequent repeat studies.

The latest new technique is PET/CT. We have been the sole New Zealand provider of this service for three years and have helped over 1000 patients. This has saved oncology patients from travelling to Australia.

The majority have been funded by DHBs. Is this a wise use of limited DHB funds? Empirically it would seem so. Especially if the use of advanced imaging such as PET/CT decreases usage of other tests such as MRI for which there is a long waiting list at the DHB, and frees up spaces for patients more suited for MRI.

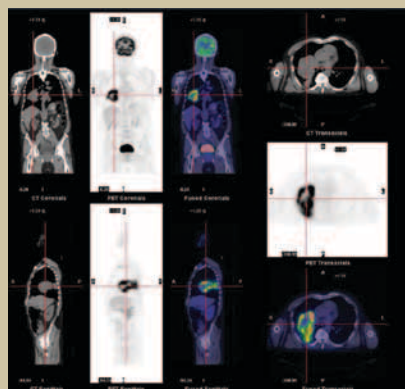
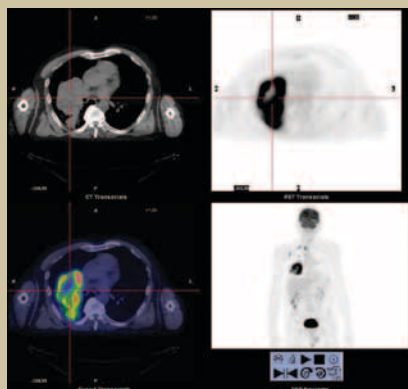
Now there is proof of this from a large study across USA from 1991 till 2004 just published by the National Bureau of Economic Research. In this study which looked at multiple variables including quality of health care, the health care included quality of diagnostic imaging. It was found that life expectancy increased more in states that improved the utilisation of advanced medical imaging. Advanced medical imaging contributed 0.7/year out of an overall 2.4/year increase. Even better, they concluded that advances in medical technology have not contributed to overall rising US healthcare.

We are just starting to see that here in Wellington with PET/CT where its introduction, although costly per procedure, saves money reducing the need for multiple other tests and reducing the need for explorative surgery. We are proud to have effected such a change.

~ Trevor FitzJohn



Trevor FitzJohn



64 yr old male. Stage 1B squamous cell carcinoma right lung maybe surgical candidate if no mediastinal nodes. (PET/CT to help physician decide between surgery and radical chemo/radiation therapy.)

Result:

- 1. Primary lung carcinoma identified.**
- 2. Pulmonary metastases seen in both lungs.**
- 3. Mediastinal, supraclavicular and axillary lymphadenopathy seen.**