

ARG GOES DIGITAL

Conventional X-ray films are produced by the chemical development of exposed film. Digital radiography systems produce images by CR or DR technology. CR systems use a photosensitive phosphor plate that stores a latent image that is processed into a digital image using a laser beam. DR systems produce a digital image like a digital camera. Digital radiography has many advantages over traditional radiography:

Improved image quality. Digital images have a greater contrast range than conventional film, improving visualisation of soft tissues and fine detail, including bone trabeculae and pulmonary lesions (fig. 1). Digital tomography removes unwanted, overlying structures to unmask even more relevant detail (fig. 2). Digital mammography is greatly superior to conventional film mammography for the detection of disease (fig. 3). Post processing of images from the original dual energy acquisition makes lung and rib lesions more conspicuous, improving diagnostic accuracy (fig. 4).



Fig 1 – DR Knee

Lower X-ray dose. Digital systems are much more sensitive than conventional film, producing good images with significantly lower X-ray dose. They also have a much greater dynamic range and so there are fewer repeat examinations for under or overexposure. The greatest benefits are seen in mammography and paediatric imaging.

Shorter examination time. Images are immediately available for checking and reporting. There is no waiting for films to be processed. Images can be sent to referrers electronically as soon as they are on the ARG picture archiving and communications system (PACS)



Fig 2 – Digital IVU Tomogram

No film processing chemicals – No Film! Hard copy of digital images is laser printed with no chemical processing but digital radiography sounds the end of the film era. In future images will be completely electronic.

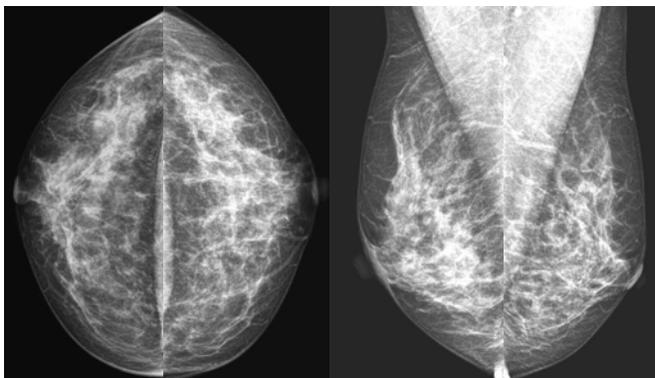


Fig 3 – CR Mammography

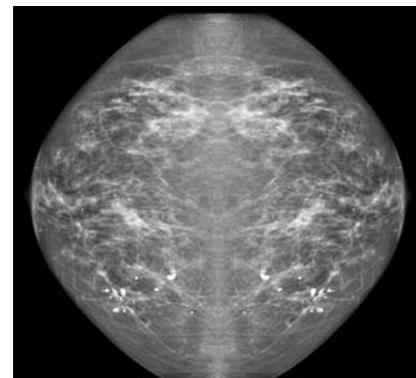


Fig 3 – DR Mammography (Note Calcifications)

Images available on line. ARG has a web-based image viewing system that allows referrers to view their patient's images. Contact the ARG IT manager Ariel Wilson (Ph: 529 4865, Mob: 021 375 416 or Email: ariel@akradiology.co.nz) to get connected



Fig 4 – Standard DR Chest



Fig 4 – Subtract Bones (Lung Detail)

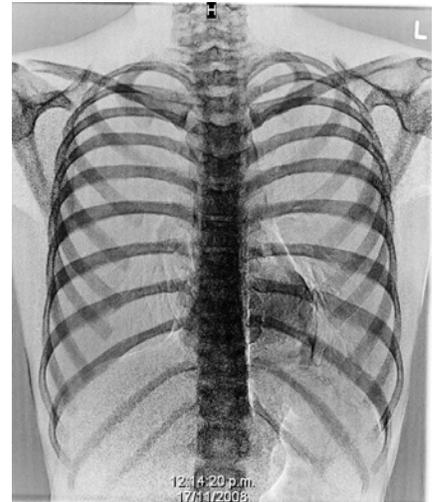


Fig 4 – Bone Detail

At present the ARG has DR systems at 101 Remuera Rd, and Northern Clinic with CR at its Howick, Merton Rd, New Lynn, Queen St, Papakura, Parnell, Pukekohe, Takanini and Ti Rakau branches. The other major branches (Kohimarama, Ponsonby and Royal Oak) will be converted to CR shortly, followed by the remainder in 2010. CT, MRI, Ultrasound and Scintigraphy have always been in digital format.

John Wilson

Ultrasound Scans in Queen Street

Ultrasound scans are now available in Queen Street, central city, together with general xrays.

ARG Queen Street – 4th Floor, Dingwall Building, 87 Queen Street, Auckland Central.

Ph: (09) 357 0515 for an appointment.