



Radiology Informatics Program

Entry Title

The Radiology Informatics Program (RIP) is delivering a statewide radiology service network.

Abstract

This paper will cover:

- The aim – to build a statewide radiology network to support rural and remote facilities to improve patient diagnosis and care
- The issues – limited access to radiologist reports and limited support to rural and remote facilities
- The strategies – to align Queensland Health (QH) with the QH strategic plan to “improve access to safe and sustainable health services”
- The outcomes – outline how facilities who previously had limited or no Radiologist support are now receiving reports in a timely manner
- The future – how the implementation process has been refined and how the RIP are engaging with Health Service Districts for the statewide rollout.

Aim

RIP’s aim is to improve access to safe, sustainable health services in rural and remote Queensland, and improve the workflow of major hospitals’ medical imaging. Through technology, RIP will provide clinicians’ timely access to radiology reports ensuring the highest standard of care for Queenslanders.

Nature of the problem

Approximately 1.4 million examinations requiring images are performed each year in QH. Of these a significant amount are not reported within an acceptable timeframe or not at all. The RIP aims to reduce this. An unreported examination can lead to misdiagnosis, compromised patient care and liability concerns.

While most major facilities have adequate radiology services, many metropolitan, rural and remote facilities do not. Current practice at these sites is to send images via courier to a major hospital with a Radiologist. Due to Radiologist shortage it can take up to two months to receive a returned report. Of 63 rural and remote sites surveyed, 28 sites send less than 5 per cent of images to a specialist for reporting, some send none. (QRiS Survey 2006)

Extent of the problem

The 2005 Forster Review identified that “continuation of the current arrangements for providing medical imaging services is not a sustainable option, and more coordinated and innovative options for providing its clinicians with access to quality radiology services is required” (Foster 2005, pp160).

A statewide survey identified that facilities are independently implementing local solutions. The survey uncovered 42 versions of Radiology Information Systems (RIS) and 15 different Picture Archiving and Communication Systems (PACS).

These different technologies prevent the sharing of information and limit the ability of the clinicians to consult with each other effectively and efficiently about cases. For example:

A rural doctor relayed an incident in which a young female’s vertebral disc had twisted 180 degrees. The practitioner did not identify this and sent the patient home. Some days later a Radiologist found the problem after receiving the images by post. If this had not been picked up she could have been paralysed. This incident reinforces the need for Radiologist reports to be made available electronically in a timely manner.

Strategic Importance

The RIP objectives are aligned to the following QH strategic directions:

Strategic directions	RIP objectives
Improve access to safe and sustainable health services. <i>QH Strategic Plan</i>	<ul style="list-style-type: none"> Improving technology to support specialist services to rural and remote communities through remote diagnostics, consultations, health monitoring and tele-rehabilitation. Building capability for sharing of consolidated patient-centred information across internal and external providers.
Identify alternative ways to provide access to specialised services. <i>QH Strategic Plan</i>	<ul style="list-style-type: none"> Implementing of a statewide tele-radiology service to provide alternative access to services. Implementing of a statewide network to provide access to timely reports allowing major hospitals to provide greater support.
Establish a statewide radiology service network to provide radiology coverage across Queensland Health. <i>Forster Report 2005</i>	<ul style="list-style-type: none"> Completing the radiology network by connecting computed radiography (CR) devices, implementing an Enterprise Radiology Information System (RIS) and deploying a Medical Imaging Transfer System.

Planning and implementing solutions

The chosen solution includes accessing a PACS for all districts without one, for the purchase of a new long-term state imaging archive and to rollout QRIS to all sites without a RIS.

The RIP comprises of three major streams of work:

1. PACS and the long-term state imaging archive

This project defines, develops and implements a tele-radiology network comprising of a PACS and an imaging archive. It is currently working towards contractual negotiations with a preferred vendor.

2. QRIS

There are three major deployments:

- To major hospitals with rural and remote facility reporting capabilities
- To rural and remote facilities
- To a metropolitan site.

The pilot contained two stages and included the following locations:

- Stage one: The Townsville Hospital, Ingham, Charters Towers and Joyce Palmer facilities
- Stage two: Ayr, Bowen, Hughenden, Collinsville, Richmond and The Prince Charles Hospital. An upgrade to The Townsville Hospital PACS.

3. Build Imaging Network (BIN)

The BIN project will connect the Computed Radiography (CR) equipment to the network. This has been financially supported by a federally funded project called Cooeenet@qld. Site cabling and network upgrades are taking place at a range of rural and remote sites.

The team

To achieve results the team worked closely together. This has been achieved by establishing formal processes for informing each other, listening to feedback, providing encouragement and clear governance guidelines. The team places a high importance on open, regular and collaborative communication.

Support and involvement of stakeholders

There has been widespread support from a range of internal stakeholders including QH management, nurses, medical practitioners and Radiologists.

“I can ring up a specialist in Brisbane one thousand miles away and ask them to look at a patient’s images. He or she can pull the images up instantly. We can talk about it and consult about the patient. This is the wonder of a digital system. It is a great system for communication.”

Dr Anthony Lamont, A/Director of Radiology, The Townsville Hospital

Outcomes and Evaluation

The RIP has improved the level of service in rural and remote facilities by building a tele-radiology network to enable images to be sent to radiologists for reporting and for that report to be accessible by the referring clinician anytime in any QH facility.

To date, the results have been outstanding. This can be seen through the quantitative statistics and patient success stories. For example:

- Hughenden Hospital is situated 376kms from The Townsville Hospital. This facility has no Radiologist or Radiographer on site. However in the past month, 32 examinations have been reported on by a Radiologist and an urgent examination was reported and returned to the site within two hours.
- A young child presented at the Collinsville Hospital (approximately 180kms from Townsville) with a neck injury. While they were still in the x-ray room, the images were instantly sent to The Townsville Hospital where they were reported on immediately. The child was air-lifted to Townsville within 3 hours from the time they arrived at Emergency.
- The Townsville Hospital have reported on 7,057 examinations for February 2009, which has allowed them to meet their local performance indicator quota.

Sustaining change

Training is the key to sustaining change. The system users have been given in-depth training during the system rollout. A super user at each site is identified and equipped with the tools to maintain the system and train new staff when required.

The system is currently being maintained by district IT staff. However a need has been identified for a statewide support model to maintain the radiology network. This model is currently being developed.

Future scope

Ten sites have been implemented with the radiology services. In this time, the project team and two private reporters have simplified the rollout process including a streamlined site survey and technical procedures. This has improved the service delivery of the project team and reduced the impact on staff improving acceptance rates. These improvements have also increased the rate at which the project team can deliver the radiology network to new sites.

Engagement has begun with the Gold Coast, Central Queensland and Cape York Health Service Districts to implement the Radiology network to 30 sites within eight months. This is the beginning of the statewide rollout as recommended in the Forster review 2005.

Reference List

1. Foster P,2005, 'Queensland Health System Review' pp160
2. QRIS Site Survey 2006
3. Queensland Health, 2007, 'Queensland Statewide Health Services Plan 2007-2012'
4. Medical Imaging Department Performance, by Exam Group 1-Feb to 28 Feb 2009 Report