

# ADHB's Solution for Radiology Order Entry and Results Signoff

**Dr. Charles Bradfield**  
Auckland District Health Board  
Private Bag 92-189, Auckland 1142, New Zealand  
charlesb@adhb.govt.nz

## Abstract

*In 2007, after an unexpected incidental finding of cancer on x-ray was not seen by the requesting clinician resulting in patient injury, the Auckland District Health Board (ADHB) Clinical Board declared that the organisation should have zero tolerance for this type of error, and requested that priority be given to implementing a Radiology order entry solution.*

*ADHB's Radiology Order Entry and Results Signoff (ROERS) solution is integrated with the clinical workstation, and comprises functionality for electronic orders & sign off of Radiology results by the responsible clinician, electronic reconciliation of Radiology orders with Radiology results, and electronic escalation of unsigned Radiology reports.*

*The solution is being implemented in phases, beginning with a number of simultaneous pilot implementations in September 2009, followed by a progressive rollout to all clinical services once any significant issues identified in the pilot phase have been resolved.*

## 1. Introduction

There has been longstanding concern amongst clinicians that Radiology reports do not always reach the clinician responsible for the patient's care, or for taking the action required for the continued management of the patient. There are many reasons why some Radiology reports do not reach the appropriate clinician, or are not acted upon when they do reach their destination.

In 2007, after an unexpected incidental finding of cancer on x-ray was not seen by the requesting clinician resulting in patient injury, the Auckland District Health Board (ADHB) Clinical Board declared that the organisation should have zero tolerance for this type of error, and requested that priority be given to implementing a Radiology order entry solution. On this basis, the ROERS (Radiology Order Entry & Results Signoff) Project was established.

This Project, instigated as a clinically driven solution to address longstanding problems, has been welcomed by clinicians as a means of accurately tracking the course of the Radiology order and the delivery of the result, providing assurance that the result has been acknowledged and that a clinician has taken responsibility for appropriate action.

It is acknowledged that ordering Radiology tests on-line and reconciling all Radiology reports to requesting clinicians will not speed up the Radiology request process; nor will it force clinicians to follow up with patients. However it will ensure that clinicians reliably receive and acknowledge all Radiology reports.

## 2. Chosen Solution for Radiology Order Entry and Results Signoff

Various options for the Radiology order entry and results signoff solution were considered. The chosen solution is based on Sysmex Éclair and Éclair Orders products, and comprises the following:

- Electronic orders & sign off of Radiology results by the responsible clinician.
- Electronic reconciliation of Radiology orders with Radiology results.
- Electronic escalation of unsigned Radiology reports.
- Integration of the solution within the clinical workstation.

The Sysmex solution was chosen for a number of reasons, including the following:

- The high level of integration possible with the clinical workstation.
- The majority of components of the solution were already in place.
- Relatively minimal development was required to meet the range of functional requirements specified.
- Clinicians were already familiar with the look and feel of the application.
- The solution is supported locally.
- The extent to which the solution is aligned with other regional initiatives. The Éclair results repository is currently used for storing and displaying laboratory and radiology results from across the Auckland region, and clinicians in the three Auckland region DHBs use Éclair to sign off their laboratory results. Éclair Orders is also currently being trialled in CMDHB for laboratory order entry.
- The future potential for Radiology and Laboratory order entry to be combined into a single workflow process.

### **3. Objectives, Benefits and Measures of Success**

The main objective of the ADHB Radiology Order Entry and Results Signoff project is to improve patient care by:

- Improving the quality and effectiveness of the Radiology referral and sign-off process; and
- Reducing clinical risk associated with Radiology results not being signed off.

The benefits of the project and associated measures of success will be:

- Improved patient care, measured by the number of Radiology results signed off electronically, and the number of Radiology results not followed up.
- Comprehensive reconciliation of Radiology orders placed, orders processed and results signed off, measured by reconciling the orders made against unfilled orders, the results received against procedures ordered, and the results received against results signed off.
- Escalation of results where sign off has not occurred within a predefined period, measured by the extent to which the escalation process is successfully applied.

Realisation of the benefits will be measured by the following key performance indicators:

- Reconciliation numbers - the number of unaccounted orders and reports should be zero.
- Absence of cases where unexpected results are ignored or not noted - the number of cases should be zero.
- Escalation numbers - there should be a decline in the number of escalated unsigned reports.

### **4. Implementation Approach**

The ROERS implementation will have a significant impact on all clinicians ordering Radiology procedures due to the introduction of new order entry functionality and associated business processes. To enable effective management of this change the solution will be implemented in phases, beginning with a number of simultaneous pilot implementations and followed by a progressive rollout to all clinical services, once any significant issues identified in the pilot phase have been resolved.

### **5. Outcome**

At the time of writing, the ROERS functionality has been built and delivered, testing is near completion, end user training for the pilot sites is well underway, and go-live for the first pilot site is anticipated to occur in September 2009. This was anticipated to be earlier but unforeseen issues with the project have caused delay. The pilot results and a list of lessons learnt are available in the accompanying presentation.