

eTree – better access!

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Abstract

Access to patient information held by other district health boards (DHBs) has long been a challenge for clinicians and IT departments throughout the country. The government mandate for DHBs to work smarter together, in particular at a regional level has changed the way people think about how IT can support clinicians in their care of patients. While larger regional programmes of work are commencing across the country, HVDHB, in conjunction with CCDHB and Wairarapa DHB have developed a solution that meets clinician needs now, in lieu of a regional instance of core systems. eTree combines the power of three DHBs' clinical portals, enabling clinicians to see patient information held at other DHBs 'at the click of a button'. Early results indicate a "revolutionary" change in clinicians' ability to treat their patients and this change may indeed pave the way for clinical impetus behind regional collaboration efforts.

1. Introduction

A request was received from the Wairarapa District Health Board (WDHB) Information Services seeking access to the Hutt Valley District Health Board's (HVDHB's) Electronic Medical Record (Concerto). The reason for this was that WDHB would be performing some waiting list procedures for HVDHB patients and therefore needed access to their diagnostic results, clinic letters, discharge summaries, eReferrals, and other patient information.

HVDHB currently provides Hutt Valley's general practices and pharmacies access to the HVDHB electronic clinical record via a secure internet connection. HVDHB's initial intention was to provide similar access to the appropriate clinicians at WDHB. However, some innovative thinking by HVDHB IT staff led to the development of an application 'inside' HVDHB's clinical record. This innovation led to development of a simple user-friendly system that provides HVDHB, CCDHB, and WDHB clinicians with secure access to each others clinical record across the central region.

2. How does it work?

From the User's perspective: When a patient is in context (i.e a patient's electronic clinical record at their 'home' DHB has loaded), the clinician can see the DHB's record by clicking open various folders and viewing the range of electronic documents held against that patient. This folder view is commonly referred to as the 'tree view'.

Access to other functionality for the patient (for example creating an Electronic Discharge Summary) is via a range of icons along the context bar. We have added another icon to the context bar that if enabled indicates that there are electronic documents at either one or both of the other hospitals. A click of the icon opens up a list of hospitals that have electronic records for the patient, the clinician then clicks on the appropriate hospital and that hospital's 'tree view' loads. If the icon displays with a red 'X' – no electronic documents are available at the other hospitals.

From a more technical perspective there are three main process involved:

1. NHI List: An initial, one off query to return a list of all NHIs at each remote DHB that have Concerto electronic documents. This list is stored locally on the eTree database. This is so we only display the enabled eTree icon for patients with documents. After this, a scheduled (daily) query runs to update this list with any new patients that have Concerto documents.

2. Create Remote User: The first time a user clicks on the eTree icon a Concerto account is created at the remote DHB. This needs to be done once – for each remote DHB.
3. Return remote data: The integration uses multistep entry point redirection to log the user into the remote Concerto in the background and then display's the remote Concerto's CDV tree in the local Concerto.

3. Security

Authentication is done by sending the remote Concerto a username and password via a Concerto 4.x Security encrypted request to Concerto's Authenticated Login web resource. No plain text passwords are sent by this integration. The credentials to be sent are stored in the local Concerto user's details. These attributes are invisible to the user. Communication between the eTree User Driver, eTree Web App and Rhapsody is over SSL TCP with client certificates used for authentication. Communication between the Rhapsody servers is also over SSL TCP with client authentication. Remote account passwords are 64 characters long and are randomly generated.

3.1. Does access to our data from another DHB get logged?

The short answer is yes. Because the integration actually logs the user into the remote DHB's Concerto, all access to information is recorded in the remote DHB's access log the same way it would if the user had logged in at the DHB.

4. Evaluation

Formal evaluation has not commenced at time of writing this submission, this is planned as part of the PIR to be completed towards the end of November. Additionally, a more formal evaluation will be conducted over the Christmas period.

What is evident already is improved patient outcomes due to access to more patient information:

"Just to let you know I've used eTree on two patients this afternoon coming for acute operations, and got very valuable information from Wellington that wouldn't have been available otherwise. One possibly would have had her surgery cancelled without this information." - Anaesthetics SHO.

Current per week usage statistics:

- Average number of CCDHB Users accessing HVDHB per day = 27
- Average number of HVDHB patients accessed from CCDHB per day = 34
- Average number of documents for those patients read per day = 149
- Average number of HVDHB Users accessing CCDHB per day = 47
- Average number of CCDHB patients accessed from HVDHB per day = 67
- Average number of documents for these patients read per day = 291

We do not feel that we can make any comment on these numbers except to note two points:

1. CCDHB User numbers are lower than HVDHB due to the staged roll out of eTree access across the various role types within Concerto. CCDHB opted to stage the roll out due to the potential influx of activity over the HVDHB & Wairarapa connections by sheer numbers of staff employed (approximately 5000) At time of writing, CCDHB are reviewing the next Concerto role types to release the eTree functionality to.
2. Because CCDHB is the region's tertiary hospital, we expected that access to their records would see the most 'traffic'.

Responses from clinicians have been extremely positive:

"This is the biggest leap forward since electronic referrals" - Consultant Physician

"This is a major advance that will be especially useful for regional services that span several DHBs" - Rheumatologist

"I just want to say how good and user friendly the eTree is" - Nurse Practitioner

"Many thanks and congratulations to you and the IS Team! I have accessed CCDHB records today and it's easy, user friendly and at long last we have easy access to lab results." - Geriatrician

"It's an outstanding result for clinicians" - Consultant Rheumatologist and General Physician

"CONGRATULATIONS!!. This is a huge development and I am sure everyone will join me in loud applause for the hard working, savvy, ingenious IS staff who helped make this happen. It reminds me how lucky we are to work at the Hutt" - General Surgeon

"We are now able to see all of the oncology patients that up till now we always struggled to get up to date information. This is a marvellous improvement thank you - Community and District Nursing

"There is nothing else that has happened in the NZ health system, I believe, in the last decade that surpasses this initiative for its impact on patient safety and quality of service for our patients." Primary Care Liaison

"Really cool! This will help in the ED immensely"- ED Consultant

"A huge thanks to the IT team. E tree is fantastic, it truly is a tool that will result in better patient care, less duplication of tests and reduced health professional frustration."

"It was too easy, where is the hitch? Very good for us radiologists as we can look reports up now." Clinical Lead Radiology

"Just to let you know I've used eTree on two patients this afternoon coming for acute operations, and got very valuable information from Wellington that wouldn't have been available otherwise. One possibly would have had her surgery cancelled without this information...." Anaesthetist.

Negative Responses – none per se. However there are two areas where could have done better.

1. Better communication – specifically around the CCDHB staged rollout approach. Because this was not explicitly communicated,, Nurses and other staff requested access before it was available to them.
2. The other issue was somewhat more unexpected – our Regional Public Health (RPH) unit have jumped on eTree as a wonderful mechanism to follow up on patients right across the region – but Concerto requires a patient to be in context for eTree to function correctly, which means that the patient needs to be on the local DHB's database. Because RPH is regional (ie not just the Hutt area) they have patients that HVDHB does not 'know' about – therefore we can't search for them on Concerto even though they have records at the other DHB's.

We are working to address this issue.

4.1. Unexpected benefits

- Reduced Printing – for each patient transfer between hospitals, various sections of the electronic record (for example Laboratory and Radiology reports) are printed. This now seems to be either substantially reduced or in some cases not done at all.
- Reduced Paper Record requests – anecdotal evidence suggests that transfer of paper records between the hospitals will reduce.
- Increased Collaboration - As a result of the combined efforts of the three DHB's IT teams to get eTree performing at an appropriate speed and in a relatively consistent manner, there has developed a willingness among the teams to share code /suggestions/resources that has assisted each other's Concerto to perform more efficiently. We think that this is a quite fundamental building block for future combined projects.

4.2. The Next steps

- Roll out access to Primary Care (currently looking to pilot at HVDHB). We believe that there may be considerable patient benefit here.
- Expand eTree to other 'Concerto' DHB's. From a HVDHB perspective two DHB's of particular interest are Counties Manakau (we share Plastic Surgery patients) and Nelson-Marlborough (we have patients in this region under our Rheumatology and Plastics services).

5. Conclusion

The e-Tree application is a simple low-cost system that has made we believe, a significant improvement to the treatment of patients within the three DHB's that are using it. The ability to search for and find patient information that is held within other DHBs' systems is a significant development in the way in which the staff at the three District Health Boards are able to provide care to their patients.

The simplicity and ease of use of the e-Tree system strongly supports the case for simple incremental changes to healthcare information technology.