

BUILDING A WORLD-CLASS DIGITAL HEALTH FACILITY

AN INSIDE LOOK AT THE BENDIGO HOSPITAL PROJECT

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The past few years have seen massive changes in the delivery of healthcare across Australia, as new technologies such as electronic medical records (EMR) and tele-health are transforming the way health facilities are being designed and built for the future.

In order to cater for a growing and rapidly ageing population, new build and redevelopment projects are now being designed with IT at their core, in a bid to remain flexible and to deliver best value for patients and staff.

The Bendigo Hospital Project, the largest regional hospital development in Victoria, is incorporating new technology solutions into its design, with the aim to create a world class digital hospital.

Set to open in early 2017, the construction of the new hospital began in 2013 and once complete, will include 372 inpatient beds, 72 same day beds, 10 new operating theatres, a regional cancer centre, an 80 bed integrated mental health facility and a mother and baby unit. A helipad and parking for 1,300 cars will be available as part of Stage 2 of the project, due for completion in 2018.

Despite its grandeur, perhaps one of the most fundamental elements of the new hospital is the integration and roll-out of an EMR and other digital technology systems throughout the facility.

"We are going from predominantly paper driven processes and medical records to a whole new range of ICT technologies, including nurse call single sign-on, real-time location services, unified communications and a digital medical record which will be the stepping stone for the transition to EMR in the new hospital," says Rob McCathie, Program Manager Electronic Medical Records/Information Services at Bendigo Health.

But the project journey so far has not been without its challenges, with the project team having to work out very early on how to design and build a hospital which caters for EMR.

Ahead of **Healthcare Efficiency Through Technology 2016**, Rob McCathie and Charles Burgess, Technology Lead, Bendigo Hospital Project, Department of Health Victoria, explore the team's strategy behind designing a world-class digital facility at Bendigo Hospital and the strategies that need to be considered to design and deliver a facility which caters for new technologies.



Artist impression – Bendigo Hospital Project exterior

Project Vision:

The Bendigo Hospital Project's vision is to provide a world-class digital hospital in a regional environment, underpinned by four ICT pillars – an integrated EMR, Unified Communications, ubiquitous wireless and Real Time Location Services. This vision encompasses the EMR and all core information systems – Nurse Call, Pharmacy, Pathology, Patient Administration System, patient entertainment, building management, menu management, etc. These clinical, patient, management, hospital and building information systems will have robust integration to the four pillars available to them so that Bendigo can digitally innovate patient and clinical activity across the hospital and the community. This will also encompass principles of high availability, high reliability, enhanced mobility and remote access for clinicians in Bendigo Health.

The vision for the EMR is to achieve a single integrated medical record across Bendigo Health, with the opportunity to roll this out across the wider region. During the next two years, Bendigo Health will move from predominantly paper-driven processes and medical records to a paper light environment. This will be a staged transition that will initially commence with a Digital Medical Record (DMR), which will be the stepping stone for the transition to an EMR in the new hospital.

As a result, we're seeking to develop a flexible system with the opportunity to later expand and integrate this with other health services within the Loddon Mallee region, where a lot of hospitals may not have the capacity or funding to conduct an open tender process for an EMR. In general, Bendigo Health will encourage moving away from a siloed information approach towards information sharing, integration and multiple use.

The vendor selection process: choosing an EMR provider

The vendor selection process for the EMR has been quite a long journey. Initially, the project team commenced with a market evaluation and a series of site visits to understand the products available and to clearly define Bendigo Health's requirements for an EMR system. Bendigo Health followed this with an open tender process, including an Expression of Interest and a restricted Request for Tender that incorporated initial screening, desktop evaluations and product demonstrations. It should be noted that Bendigo Health remained open to consideration of either integrated or best-of-breed EMR systems throughout the tender process.

A key part of the tender process was conducting a series of interactive tendering workshops to discuss shortlisted vendors' issues, seek their feedback to the evaluation process and help them better understand what Bendigo Health was seeking to achieve through an EMR system and the evaluation criteria that we would use.

Throughout the whole evaluation process, it was essential to have extensive input from Bendigo Health staff in order to gain widespread agreement on the evaluation outcomes. In total, the evaluation process involved approximately 1,800 clinical staff hours, 2,000 non-clinical staff hours and 20 consumer staff hours.

Bendigo Health is expected to announce the successful EMR tenderer in January 2016.

Planning for seamless integration of EMR

To achieve a digital hospital vision, Bendigo Health needs to be sure that IT is integrated from top to bottom – from the fridges to the EMR and all points in between. We want this integration to be available from day one and to be as seamless as possible and this takes a lot of work.

All IT in the new hospital, from cabling to core systems has been bundled and purchased by RFT and we now have a number of vendor teams implementing different parts of the total environment. The Bendigo Hospital Project has established integration governance, which will continue to run until the hospital opens to ensure we have smoothed out any integration challenges. All vendor teams have regular integration workshops discussing what's going on, how they see their integration needs and how to solve potential integration issues. Bringing this information together is a challenge for Bendigo Health, who are currently developing the integration architecture to map these requirements and identify potential integration issues.

Once we understand the needs of each IT area, they will be interfaced to the integration engine. Bendigo Health, the Loddon Mallee region and the State use a number of integration engines and a number of our core applications also have integration capabilities. Determining the right path to produce a seamless integration environment through all this is also part of the challenge.

Additionally, the integration of the EMR System to other new and legacy clinical information systems, including tight integration between the EMR and the DMR, is very important and is being managed directly by the project team alongside this activity. Both the EMR and DMR Systems selected have excellent architectures and experience to support integration, and emphasise the use of international standards.



Artist impression – Emergency Department staff base

Engaging clinicians and staff in the process

In order to engage staff in the journey, the Bendigo Hospital Project is following a coordinated strategy to encompass the significant change management effort across all disciplines. The strategy is being driven through the Organisational Development area, and considers the implementation plans for all of the various projects in order to unite change strategies, reduce clinician impact and share resources.

The EMR Project saw the importance of developing strategies and engaging with clinical staff in order to drive the changes associated with the EMR system, and have now appointed a Chief Medical Information Officer, Chief Nursing Information Officer and our own Change Officer to coordinate and lead this effort. In addition, all Business Managers across the different services have been appointed as change champions for their respective areas, which will enable the level of change to be identified and tailored to each area.

Bendigo Health is approaching change not only from the personal and behavioural perspective, but also from the structural and social perspective, to ensure change is sustainable. The biggest challenge is ensuring that the overall change is gradual and manageable. This will be achieved by getting clinical staff comfortable with the use of IT through the use of our DMR, before stepping up to the additional functionality provided by the EMR system.

Another key initiative is to embed the impact of the EMR change into the education process for nursing and clinical staff to ensure its ongoing effectiveness once the new hospital is opened. Bendigo Health is co-located and works closely with both Monash and La Trobe Universities within the Bendigo Hospital campus. To enhance learning into the future, Bendigo Health has negotiated educational licences for these universities so that regional students will be exposed to new products and technologies available within the new hospital.

Lessons Learned so far

Whilst a wide variety of lessons have been learned by all participants within the Bendigo Hospital Project, the following four key lessons learned are highlighted:

1

Establish good governance.

It is very important to establish good governance from the very beginning of a project, especially for a complex EMR System that will touch every part of the hospital. Governance has got to be established based on the organisation's strategic direction with clear responsibilities. In Bendigo Health's case, this is being driven by the CEO and CIO.

2

Engage clinical staff early and often.

A big lesson learned is that you cannot have too much clinical engagement. You do not want to get to the point where a product has been selected and clinicians won't use it. It is imperative to capture the input of a wide spread of clinical staff when selecting, designing and testing new IT, such as the EMR. We have conducted workshops at various times and locations in order to capture the input of clinicians who work night shifts and those of visiting medical officers in the regional context.

3

Change management matters.

Establishing strong clinical leadership to drive change across the organisation is also imperative, because the substantial change effort associated with the new hospital's systems are going to affect the way every nurse, clinician and allied health professional works. Appointing a CMIO and CNIO to determine strategies and the centralised management of change across all the new hospital's project teams have been effective measures Bendigo Health has used.

4

Work collaboratively with your vendors.

The EMR tendering process has also highlighted another lesson of collaboration with your vendors. It is important to establish measures that strike a good balance between keeping all vendors individually informed and brought along on the organisation's journey, while ensuring consistent messages are given.



Artist impression – Aerial view of Bendigo Hospital Project

Project benefits

The benefits of achieving the vision of a digital hospital extend from building design, through the patient journey and on to community engagement. The early commitment to a digital hospital resulted in a design free from paper storage and logistics. The implementation of the four pillars will free clinicians to provide care anywhere across the hospital without information technology limitations. Unified Communications will help clinicians to interact, get results and manage workflows via their preferred communication channel. The Real Time Location System will enable Bendigo to develop innovative or efficient workflows across the patient journey.

Bendigo Health believes that the EMR System will allow us to achieve improvements in the quality and safety of care that we can provide to our patients. We have agreed to realise 17 benefits under the categories of service improvement, quality and safety of clinical care and direct financial benefits as part of the EMR Business Case. The benefits chosen strongly align with the strategic direction of Bendigo Health, as well as the Victorian and Federal Governments health policies and frameworks.

For Bendigo Health's clinical staff, we will be aiming to achieve clinical time savings through easier access to clinical information

and integration of this information to reduce the capture of the same information for multiple systems. The introduction of clinical decision support will also conveniently provide best practice information to support the clinical staff's decision making. Patients will benefit through Bendigo Health's implementation of an EMR System through better patient outcomes in length of stay and reduced readmissions. We will also be implementing a patient portal as part of the EMR System to enable better care planning and greater accessibility for the patients and carers to be involved in the care being provided.

In order to ensure the successful achievement of benefits identified, we are currently establishing a definitive Benefits Realisation process to baseline and monitor the ongoing benefits over the life of the project. It will be critical that, in addition to the project resources, Bendigo Health clinical and business leaders invest the time, support and effort to realise the benefit objectives that have been set.



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