Summary—Digitising public hospitals

Report 10: 2018–19

Queensland Audit Office
Better public services

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Better public services

Your ref:
Our ref: PRJ00190

4 December 2018

The Honourable C Pitt MP
Speaker of the Legislative Assembly
Parliament House
BRISBANE QLD 4000

Dear Speaker

Report to parliament

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled Digitising public hospitals (Report 10: 2018–19).

In accordance with s.67 of the Act, would you please arrange for the report to be tabled in the Legislative Assembly.

Yours sincerely

Brendan Worrall
Auditor-General

Content

Audit objective and scope

The objective of the audit was to assess how well Queensland Health (which includes the Department of Health and the hospital and health services) has planned and is delivering its digital hospitals program and whether it is realising the intended information-sharing and patient benefits.

We assessed:

- whether the plan (from 2014) to digitise Queensland public hospitals was based on robust analysis
- how effectively the program and hospital implementation projects have been managed
- whether the electronic medical record systems are delivering the expected benefits and are being used as expected by clinical staff
- whether the implemented system improves information access and sharing while still protecting privacy.

Scope exclusions

We did not, as part of this audit:

- test the adequacy of mitigating strategies to protect the integrated electronic medical record (ieMR) system and data from cyber threats
- investigate specific clinical concerns with the ieMR solution
- validate whether additional costs incurred by the hospital and health services in implementing the ieMR system were warranted.

Entities subject to this audit

- Department of Health
- Cairns and Hinterland Hospital and Health Service
- Metro South Hospital and Health Service
- Townsville Hospital and Health Service

We also consulted the Children's Health Queensland, Metro North, and Mackay hospital and health services to obtain their views on our lines of inquiry.

Further detail about the scope and approach is in Appendix B.

Reference to comments

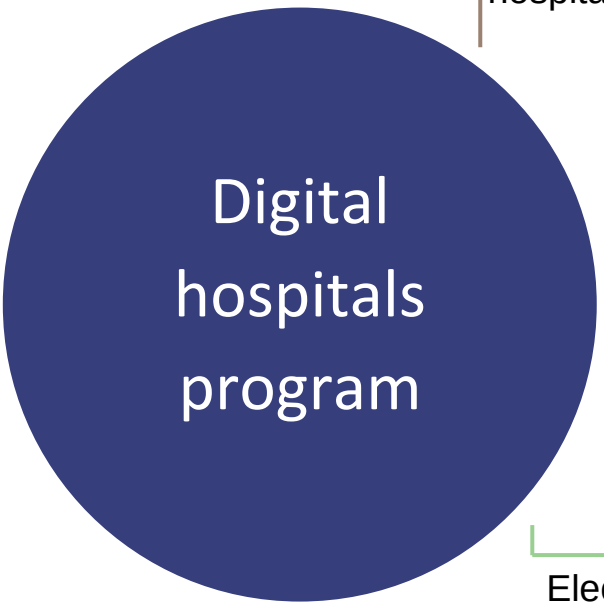
In accordance with s.64 of the *Auditor-General Act 2009,* we provided a copy of this report to the Department of Health and the Cairns and Hinterland, Townsville, and Metro South hospital and health services. In reaching our conclusions, we have considered their views and represented them to the extent we deemed relevant and warranted. Any formal responses from the entities are at Appendix A.

Key facts

The 2016 ieMR program business case aimed to have 25 digital hospitals by June 2020.*

As at June 2018, there were eight hospitals and community health services with advanced digital hospital capability.

The program is being delivered through six funding packages (2011 to 2020).



Electronic medical records provide timely, accessible and legible information about patients at the point of care. This is transforming the health service workforce and how patients receive care.

In 2016, the program was estimated to cost $1.2 billion until 2025.^

**The draft 2018 business case updated the number of sites to 27 hospitals and the time frame for completion to March 2021.*

^ Source: 2016 ieMR program business case.

Introduction

What is a digital hospital?

In a digital hospital, processes are streamlined to create a 'paper light' approach. An electronic medical record is one of many applications that contribute to a digital hospital. An integrated electronic medical record solution allows patients' medical records to be created, stored, accessed, and shared electronically. But other elements of a digital hospital strategy may include automating and integrating biomedical devices, patient administration systems, laboratory information systems, and patient entertainment systems as well as integrating with corporate systems such as rostering and financial systems.

A digital hospital integrates its electronic medical records with its clinical devices, workflows, and processes. This enables clinicians (doctors and other health professionals) to see a patient's medical record anywhere and at any time. This brings together records from clinicians, with data, results, and other key clinical information such as pathology, pharmacy, and radiology reports. It also captures procedural information, and patient-related documents such as consent forms and other legal documents such as advance care directives.

In a digital hospital with electronic medical records, a clinician doesn't have to track down a patient's paper chart when treating them. The electronic medical records provide accessible, timely, and legible information about patients at the point of care. In a digital environment, clinicians can quickly access information from another digital hospital without having to wait for paper records to be sent through. They can also log in remotely and provide advice on a patient without being physically present.

The data captured in a digital hospital can be used to provide real-time information to manage a hospital and wider health service, enhance how patients are monitored, and enhance how medications are prescribed and managed. This should all result in better patient outcomes.

The benefits of digitisation will be realised over time as more and more hospitals increase their digital capabilities. The more advanced the implementation of digital solutions, the more benefits are expected to be realised.

Factors driving the need for digital hospitals

In line with international trends, the Queensland healthcare system is evolving to meet various pressures on health care arrangements. These include an ageing population, the growing burden of chronic conditions, and changing consumer expectations. These are driving the demand for services, resulting in a per capita growth of health services.

An integrated health information system is expected to deliver safer and more effective healthcare at a lower cost than can be achieved with an ad-hoc collection of disparate systems.

Appendix C shows the political, economic, social, technological, and legal drivers for digitising public hospitals.

Queensland's ieMR program

The integrated electronic medical record (ieMR) program has developed through several stages and changes in scope. The government has set a target for twenty-seven hospitals to fully implement the ieMR solution by June 2020 (the draft 2018 business case updated the time frame for completion to March 2021).

The ieMR solution has three levels of capability:

- 'basic' release capability—establishes a core electronic medical record (eMR) to digitise the paper medical record, with document scanning and basic clinical support such as allergy alerts and growth charts
- 'intermediate' release capability—enables electronic ordering and reporting of pathology tests and medical imaging, electronic discharge documentation, structured clinical notes, outpatient scheduling, and integrated emergency, maternity and surgery solutions. This is also known as the 'digital release'
- 'advanced' release capability—extends the solution to include electronic prescribing, medications management, anaesthetics, and research across all modules.

Key program time frames include:

- 2006—the program concept started with the development of an eHealth strategy.
- 2008—the Department of Health defined the program scope.
- 2009—the department released an eHealth implementation strategy and plan, which stated that 'Queensland Health would see the extensive rollout, covering 60 per cent of Queensland Health business, of an integrated electronic medical record'.
- July 2011—the department received approval for expenditure of up to $412 million (capital and operational expenditure) for the establishment and operation of the ieMR system.
- June 2014—the government changed the scope of the program, providing greater focus on the deployment of the ieMR with higher levels of capability at the Princess Alexandra and Cairns hospitals than previously envisaged. The department referred to the hospitals as the 'exemplar' hospitals.
- August 2015—the department published an eHealth investment strategy ($1.26 billion over 20 years) that stated it would invest $376 million in ieMR. (This does not include ieMR costs before 2015 or the cost of operating the ieMR.)
- In November 2016, the Queensland Government supported a business case that estimated the program would cost $1.2 billion. This included building and implementing the solution from 2010–11 to 2020–21 (capital and operational expenditure, including the $412 million originally approved in 2011) and business-as-usual costs from 2021–22 to 2024–25. The 2016 business case projected a potential benefit of $1.89 billion across the in-scope sites from 2015–16 to 2024–25. Cashable benefits made up 12.3 per cent of the total benefits projected.

The program is funded through a combination of appropriation approved by the Cabinet Budget and Review Committee and a co-contribution from hospital and health services (HHSs). The government is delivering the ieMR program through six funding packages from 2011 to 2020.

The department governs the ieMR program through the eHealth Executive Committee, the Digital Hospital Program Committee, and the Project Control Group. All three are chaired by eHealth Queensland, a business division of the Department of Health, and include representatives from hospital and health services. Figure A gives an overview of the committees.

Figure A
ieMR program governing committees

Committee name*	Chair	Accountability
eHealth Executive Committee	Chief Executive, eHealth Queensland	The committee oversees eHealth strategic planning and provides advice to the director-general on planning, prioritising, implementing, and realising benefits.
Digital Health Program Committee	Chief Digital Strategy Officer, eHealth Queensland	The committee provides overarching program governance for the implementation of the ieMR program.
Project Control Group	Chief Executive, eHealth Queensland	The group oversees the implementation of ieMR projects and influences decisions regarding the business and technology direction of implementation.

Note: * These committees are supported by three advisory groups (design, technical, and clinical advisory) and other clinical networks such as maternity and paediatric specialty sub-groups and optimisation groups.

Source: Queensland Audit Office

Transforming health care delivery

The ieMR program is transforming the way Queenslanders receive health care. The department reports that in September 2018, across nine sites that have the ieMR (including seven with advanced release capability and two with intermediate release capability), there were:

- 32 533 unique users with improved access to records at the point of care
- 237.2 million transactions recorded in the ieMR system
- 96.4 per cent of orders across pharmacy, radiology, pathology, and other diagnostic services completed electronically
- 32 583 patient allergies documented.

The statewide program is helping to create a more integrated hospital system by making it possible for hospital and health services across the state to access the same data to improve the efficiency and quality of care to patients.

The ieMR provides the foundation for future transformations in health care delivery, like the ability to gain greater insights and decision support from the system's data to improve the quality of patient care and operational efficiencies.

For example, an ieMR solution can:

- help reduce inpatient length of stay because there is a single integrated source of information
- reduce variation in clinical practices through standardised processes and workflows
- provide the ability to improve how at-risk patients are identified and managed.

We acknowledge the efforts of the department and hospital and health services staff in the ieMR implementations across Queensland hospitals to date.

Summary of audit findings

Planning and implementation

Aligning the strategic directions

The ieMR program is part of a broad program of work designed to meet the department's strategic plan, vision, and objectives for the Queensland health system and is a key component of the department's overall eHealth Investment Strategy.

External reviews commissioned by the department have confirmed that the strategy to digitise hospitals 'remains a sound strategy for building a collective patient health record and repository for research, analytics and further innovation'.

However, the actual cost of developing and implementing the ieMR is higher than forecast in the 2016 ieMR program business case. The higher costs of the ieMR program may have an impact on other planned initiatives if investment needs to be reprioritised.

Developing a business case

The department has developed and completed two business cases for the ieMR program since 2015—the Business Case Digital Hospital Program (September 2015) and the Integrated Electronic Medical Record Program Business Case (April 2016).

The April 2016 ieMR business case clearly described the target state and scope of services for the program. Its stated purpose was to critically examine three options for the future program rollout of the ieMR via benefit, cost, and risk.

However, we identified that the 2016 business case:

- significantly underestimated what it would cost each HHS to implement the ieMR solution. While HHSs are separate legal entities responsible for setting their own budget and monitoring their expenses, some have used the program estimates as a budget guide and have experienced significantly higher costs than planned. Labour costs associated with managing the transformation change are a key area where budgets have been exceeded.
- did not provide information to address potential dis-benefits (which is the term used to describe potential disadvantages) or analyse the risks to achieving the target benefits.
- only included a high-level options analysis. The business case did not include comprehensive information about the costs, risks, and benefits of alternative ieMR options. Due to the size of the state's investment in the program and the time that had passed since the original procurement process, we had expected to see some market testing of alternative options. Some stakeholders consulted as part of this audit remain unconvinced that continuing to use a single vendor for all sites is the best option.

We acknowledge that there are advantages in having a single vendor for all sites. But we also note that it is possible for hospitals with different digital systems to share data.

eHealth Queensland is preparing a business case to the Cabinet Budget Review Committee (CBRC) for the approval of continued ieMR funding, which it expects to submit in early 2019. The updates include lessons learned since the 2016 business case and include a section that analyses dis-benefits.

Program costs

Digitising hospitals involves transformational change. Therefore, accurately forecasting the costs for the program has proved challenging for the program and HHSs. The department provided the HHSs with a desktop estimate of costs. HHSs then needed to forecast their own costs. So far, HHS costs have exceeded the original estimates—particularly the resourcing needed to go into this change. Some of the in-scope hospitals have had to make additional funding requests to cover unexpected additional infrastructure and staff costs.

Some of the reasons hospitals' implementation costs have significantly exceeded budget estimates are because HHSs:

- used more resources than expected because they wanted to minimise disruption to hospital operations and minimise the clinical risk of the ieMR implementation
- spent more on clinical and end use devices because Queensland hospitals aim for higher device density to support a higher quality of care (the business case assumptions were based on the experience of hospitals overseas)
- chose to go beyond the standard build to implement a program of broader digital transformation for their hospital and health service.

The program has identified a funding shortfall for completing the rollout of the ieMR to all the in-scope hospitals and is in the process of developing a revised business case and funding submission. However, it still cannot accurately report what it has cost the hospitals to implement the ieMR. It cannot effectively and accurately monitor the total costs because:

- it does not receive complete financial information from all the HHSs participating in the program
- the department and HHSs do not have appropriate project management software to record and report detailed project costs.

We found that the project costs HHSs were reporting were higher than what the program was aware of. In response to our draft findings, eHealth Queensland conducted a preliminary assessment of HHSs' project costs and found that about 21 per cent of project costs HHSs were reporting did not relate directly to the ieMR program. However, the program advised us that Metro South HHS indicated that their financial records show the reported expenditure for its HHS does relate directly to the ieMR implementation in its health service.

eHealth Queensland recognises that it needs to do more detailed work to determine what HHSs have spent to implement the ieMR solution, so it can accurately report the total program cost.

Recurrent costs

While eHealth Queensland has funded the recurrent costs (costs of maintaining and operating) of the ieMR solution until now, it is still unclear what each HHS will have to pay annually for the ieMR system when the program closes in June 2025. At an aggregate level, the program (May 2018) is forecasting that HHSs will collectively have to fund an annual cost of about $90 million from 2024–25 (for vendor costs, labour support costs and non-labour support costs) based on a service charge which still needs to be finalised.

The 2016 ieMR business case did not indicate how much HHSs would need to pay to support the ieMR solution, which meant HHSs were not fully informed about the operating costs when they agreed to participate in the program. In its draft updated business case (October 2018), eHealth Queensland has still not indicated how much participating HHSs will need to pay in recurrent costs for the ieMR solution.

Program schedule

We found the program has

- an effective process for deciding which hospitals will implement the ieMR solution
- implemented a governance process to ensure the implementation schedule continued its momentum when some hospitals deferred from the planned timing of their implementation.

The program made slow progress between 2007–08 and November 2015. The department reported to us that progress was affected by internal and external factors. Internal factors included the upgrades to hospital infrastructure in preparation for the ieMR solution. External factors included a change of government and an instruction to defer program activity while the Queensland Health payroll program failure was investigated.

The program's momentum has increased since it implemented the first ieMR advanced solution at the Princess Alexandra Hospital in March 2017 (following the digital release in November 2015). There are now seven hospitals and one community health service with the advanced ieMR solution. It has less than two years to implement the solution in a further 19 sites. There is a risk the program's momentum could slow during this time because some of the HHSs scheduled to implement the ieMR solution do not have as strong a financial position as HHSs that have already implemented the solution. This could put the March 2021 revised target date at risk.

Managing value for money

The department negotiated contractual terms in the initial contract to assist in delivering value-for-money outcomes. The contract terms include Queensland Health being offered a price which is no less favourable than the price paid by any other purchaser from the contractor in Australia of similar products and/or services purchased in similar circumstances. The contract also includes volume discounts for 'whole-of-state' volumes.

However, the department cannot demonstrate that it has, and continues to obtain, the best price with the vendor to ensure the state is getting best value for money. While the department's contract with the vendor entitles it to obtain pricing as low as other similarly situated clients, it has not requested this information formally, or performed independent price benchmarking, because it believes the vendor has provided it with the best price. There is no evidence to indicate that the price the vendor offered at the time of the contract extension in 2017 was still the lowest.

Although eHealth Queensland regularly meets with the vendor to discuss performance, there is no evidence that it summarised and analysed the vendor's performance thoroughly before deciding to extend the contract.

The department has limited leverage when negotiating with the vendor when contract extension options are due. This is because the department has not sought alternative ieMR options and shows no indication of doing so. As a result, there is no competitive tension placed on the vendor.

Engaging system users

The program's engagement with one of the exemplar sites (the Princess Alexandra Hospital) was extensive. However, we found some system users outside of the exemplar site who felt their needs were overlooked. As a result, they reported feeling disengaged from the program.

For example, staff at the Townsville Hospital told us the original maternity module of the ieMR system did not meet their needs because the workflows did not align with the hospital's process. They said the program initially appeared to ignore their concerns because they did not affect the exemplar site (which does not deliver a maternity service). Since the design phase, Townsville HHS has been involved in the perinatal data collection optimisation group and it also chairs the maternity sub-committee.

Although some audit interviewees shared concerns about engagement, this does not mean that overall sentiment about the ieMR program is negative. The University of Queensland (UQ) Business School conducted a survey at the request of the department in August 2018 and found, on average, the impact of the ieMR implementation has been broadly positive for three HHSs (Mackay, Metro South, and Children's Health Queensland HHSs) that have implemented it so far. The Townsville and Cairns and Hinterland HHSs did not participate in the survey as they had not implemented the advanced ieMR capability.

Managing risks and issues

While the program has processes in place to manage risks and issues, it has not addressed some key risks and issues identified by system users. For example, it has not addressed the increased cost and effort to produce reports that were available (and necessary for statutory reporting, like emergency department access targets) in legacy systems.

The program has not been able to address some of the issues during the ieMR implementation phase because the focus has been on implementing the ieMR system as per the program timeline. For example, the program is aware that HHSs have not been able to get the information they need from the ieMR system, but they have not been able to allocate sufficient resources to address this gap.

We are aware that some clinicians have raised concerns about the ieMR solution with the director-general of the Department of Health and the Australian Medical Association Queensland. This indicates they saw the need to escalate their concerns above the eHealth program.

To address system users' concerns, the program is working with the Clinical Excellence Division of the department to engage, consult, and advocate with clinical teams to ensure the quality of clinical care. The division was established in 2015 to partner with health services, clinicians, and consumers to drive measurable improvements in patient care. In recent years, it has worked closely with eHealth Queensland to address clinical concerns relating to the ieMR system.

Data access and security

eHealth Queensland has designed sufficient operational controls to ensure data can be reliably exchanged between the ieMR and other systems that are connected. This allows clinicians to access clinical data recorded outside of the ieMR system. In accordance with the approved design, the department has provided clinicians and staff with easy access to patient information in the ieMR.

To mitigate the risks of inappropriate access, HHSs are expected to monitor access logs. They have a process for monitoring potential breaches of user access to clinical records and for taking disciplinary action against staff who use their ieMR access to view clinical records not relevant to their duties. However, this process relies heavily on cooperation from staff assigned the responsibility to review the user access records. It is not fully effective because there is a gap in the monitoring process. The HHSs do not have a process to ensure that staff complete their review of potential breaches of user access to clinical records.

We found weaknesses with the department's password controls for preventing unauthorised access to the ieMR. While the department offers guidelines to staff on best practice for creating passwords, it does not enforce this through preventative technical controls. The department relies on detective controls (an internal control mechanism), which alert it when an ieMR user attempts to guess a password through a high number of unsuccessful attempts. This reduces the likelihood that an account could be misused, which reduces the risk to the department and patients. However, there is still a residual risk. Unauthorised access to a clinician’s account (through a successful password guess) could have significant adverse impacts. The department needs to address this.

We found weaknesses with HHSs’ employee termination processes for ieMR users. The department has a compensating control (if a HHS does not remove a user’s access upon termination) to de-activate user accounts after three months of inactivity. These accounts are linked to clinical data. As dormant accounts (through staff movements) could be exploited by internal users, HHSs should not depend on the department’s compensating control. They need to implement a more timely and effective control to terminate user access for employees who no longer require access.

Benefits realisation

Establishing, measuring, and reporting benefits

The department's 2016 ieMR business case includes 10 benefits. Each of these benefits has a monetary value and six of them also have non-monetary values. This provides a basis upon which the success of the program can be measured.

The program is improving how it manages benefits by engaging with future sites earlier. It is providing more information and tools to enable HHSs to effectively manage benefits at the project level. We observed during the audit that the program's benefits management function has matured through the involvement of the Centre of Excellence (which was set up within eHealth Queensland to provide support to the program). Hospitals now measure their benefits with greater consistency.

The results the program is reporting to Cabinet and central agencies for some benefits are different to those it reports internally (within eHealth Queensland). This is because it uses different time frames (baseline data) for internal and external reporting. Its internal reports include all hospitals that have implemented the intermediate and advanced releases, while its external reports to date have only included benefits data for the Princess Alexandra Hospital. The baselines it uses to externally report the Princess Alexandra Hospital benefits provide a more favourable result than those it uses for internal program reporting.

Realising benefits

The program and HHSs are realising benefits, particularly in reducing unplanned readmission rates and reducing the time it takes for staff to access clinical information. For the three hospitals we audited, we found it is taking longer to realise the benefits than the business case forecast. They are, however, realising other benefits not included in the business case that show the ieMR solution is helping them improve how the hospitals deliver their service and patient safety.

Expected benefits

Hospitals that have implemented the ieMR have not achieved the targeted benefits within the expected time frames.

Of the six benefits the hospital sites are measuring, two benefits (stationery costs and unplanned readmissions) show uniform improvement across all three sites we audited. As at October 2018, the program reported that, in terms of the other four benefits:

- none of the three hospitals achieved the expected benefits for reduction in emergency department length of stay
- only one of the three hospitals (Townsville) achieved the target for inpatient length of stay
- two of the three hospitals (Princess Alexandra and Cairns hospitals) achieved the benefit target for reduction in inappropriate pathology testing
- only one of the three hospitals (Princess Alexandra) reported it achieved the target for reduction in inappropriate diagnostic imaging. The Townsville Hospital is close to achieving the target. The Cairns Hospital is unable to measure this target because it does not have an electronic interface for radiology results and ordering.

Additional benefits

The program has, however, realised some benefits that were not in the business case. The in-scope hospitals include some additional benefits in the centrally-coordinated tracking by the Centre of Excellence. These are all categorised as quality and safety benefits, which supports the view of many hospital staff we interviewed that the ieMR is primarily an investment in quality and safety of patient care.

The UQ Business School identified four major ieMR benefits:

- faster access to records, and more legible records, across the hospital
- automatic controls that make it easy to do the right thing
- more transparency of how the hospital functions
- potential for secondary benefits through business intelligence capability (the ability to use data to gain insights and make decisions). This is particularly the case when the data from the ieMR is aligned to other source systems.

The program has tracked additional ieMR benefits in its reporting. These benefits are reported by HHSs that have implemented the system and are directly related to clinical observations. For example,

- reduction in inpatient falls with serious injury
- reduction in hospital-acquired pressure injuries.

Maximising benefits

The ieMR program scope does not include developing the full functionality for clinical decision support, including the ability to analyse patient data to make better clinical decisions.

Although the Princess Alexandra Hospital has built some capability in using ieMR data to gain insights and make decisions (which is known as business intelligence), there hasn't been a central point to advance the ieMR hospitals' capability in this regard. While the Princess Alexandra Hospital has the budget, resources, and now the expertise to establish the capability, sites like Mackay and Townsville do not have the scale or funding to justify the investment on their own. They have entered into service level agreements with the Princess Alexandra Hospital to use its capability.

We understand the Clinical Excellence Division of the Department of Health has been involved in developing business intelligence capability. However, it has requested more resources to enable it to effectively fulfil this role.

Identifying, monitoring, and managing dis-benefits

Princess Alexandra Hospital is the only site that is actively monitoring dis-benefits. We found other sites did not have a mechanism in place to monitor and manage the dis-benefits of the ieMR program. The Townsville and Cairns hospitals identified a number of them in their business cases and other benefits realisation documents. The program does not provide central support to HHSs to identify, record, and manage dis-benefits.

Audit conclusions

Digitising Queensland's public hospitals is delivering benefits in terms of improving health service delivery and patient outcomes. The hospitals we audited that have implemented the ieMR system are realising some benefits, but at a slower rate than predicted in the program's business case. They are also realising other benefits not envisaged in the business case.

The consistent view expressed by stakeholders is that the ieMR is an investment in quality and safety of patient care. It also builds a foundation to gain further benefits in the future. Recent survey data by the UQ Business School found that, while ieMR users mostly have moderately positive views about the system immediately after go-live, they have more positive expectations about the future.

Learnings to date indicate it will take longer and cost far more to realise the expected benefits than the department forecast. The program is now at a critical junction because it cannot complete implementation in the remaining 12 hospitals without more funding.

To better inform government's decisions about future phases, the department needs to obtain a clearer understanding of the complete cost of implementing the program. The department has recognised it underestimated the costs and is preparing a revised business case. But it needs to do further work to validate what costs HHSs have incurred that directly relate to the ieMR program. It also needs to do further analysis and consultation with HHSs to determine how they will pay for the operating costs of supporting the solution when the program closes in 2025.

To maximise the value of the investment, additional resources need to be invested in developing business intelligence. Not all hospitals have the resources to do this, and the department needs to provide central coordination so all HHSs can use data to improve service delivery.

HHSs we audited demonstrated a commitment to the digital strategy and agreed it would be beneficial to implement the ieMR solution in the remaining hospitals. Opinions differ, however, on whether limiting the ieMR digital journey to a single vendor is the best way forward.

Some stakeholders have questioned whether there has been a strong enough focus on value for money. The program didn't conduct robust analysis of alternative vendors in recent business cases (even five years later, when the technology had changed and more potential vendors existed). Nor has the program focused on ensuring the program is continuing to receive the best price with the current vendor.

The department and HHSs need to strengthen information security. The digital world brings new security risks. The department needs to be more proactive in restricting how users can access the ieMR system, and HHSs need to better manage how they monitor and terminate user access.

Now the program is concentrating on delivering the ieMR solution it has configured, the roles and responsibilities of eHealth Queensland and the department's Clinical Excellence Division need to be reviewed. This will ensure there is adequate focus on delivering the ieMR solution to the remaining hospitals in the program, on managing stakeholder expectations, and on realising the benefits across the system as a whole.

Recommendations

Department of Health and the hospital and health services

We recommend that the Department of Health and the hospital and health services that have implemented the ieMR solution (Note 1):

1. continue to work together to identify the actual cost to date of implementing and operating ieMR. (Chapter 2)

   The Department of Health should:

   - use this information to update the Cabinet Budget Review Committee on the actual program cost to date. The information should form the basis for a more reliable estimate of what it will cost to complete the program and of the longer-term costs of maintaining the ieMR solution
   - in consultation with HHSs, consider whether the level of investment by HHSs to implement the ieMR solution is appropriate.

Note 1: The hospital and health services that have implemented the ieMR solution at varying ieMR stages include the Metro South Hospital and Health Service (ieMR advanced), the Mackay Hospital and Health Service (ieMR advanced), the Children's Health Queensland Hospital and Health Service (ieMR advanced), Cairns and Hinterland Hospital and Health Service (ieMR intermediate), Metro North Hospital and Health Service (ieMR basic), and the Townsville Hospital and Health Service (ieMR intermediate).

Department of Health

We recommend that the Department of Health:

2. completes its refresh of the eHealth investment strategy based on the revised cost of the ieMR program and any impacts it has on the strategy for other programs (Chapter 2)
3. provides the Cabinet Budget Review Committee with:
   - updated timing for the realisation of benefits
   - a balanced assessment of benefits realised (and dis-benefits) across hospitals from all hospital and health services that have implemented the ieMR (Chapter 3)
4. provides greater assurance that it is obtaining ongoing value for money from its ieMR vendor by:
   - investigating options for demonstrating value-for-money pricing, including conducting comparative vendor price analysis where possible
   - assessing and documenting the ieMR vendor's performance across its service contracts, with input from hospital and health services.

   This should occur at appropriate intervals and, at a minimum, before each contract extension decision (Chapter 2).

Recommendations

5. re-visits the governance arrangements for the program as it moves from building, configuring, and implementing the ieMR solution to business-as-usual and optimising the solution

   This should include:

   - re-visiting the focus and roles of the eHealth Executive Committee, eHealth Queensland, and other areas of the department such as the Clinical Excellence Division
   - continuing to obtain an independent review of program benefits periodically. (Chapters 2 and 3).

6. develops and implements an engagement strategy for all current and planned eHealth programs to assess the effectiveness of its engagement with hospital staff and clinicians and the effectiveness of the system implementation (Chapter 2)

   This should include:

   - specific actions, performance measures, and data sources to enable the department to assess how effectively the department engages hospital staff and clinicians
   - gathering information about concerns, risks, or dis-benefits that may inform the program about changes or modifications that need to be made to the program.

7. continues efforts to refine the business intelligence strategy and approach, and rollout solutions to hospital and health services to maximise the benefits from the ieMR implementation at each site (Chapter 3)

8. improves the preventative security controls of ieMR user accounts (Chapter 2).

   This should include enforcing password complexity requirements and implementing a change management process to educate clinicians on appropriate password settings.

Hospital and health services

We recommend that all hospital and health services participating in the ieMR program:

9. report regularly on their total ieMR project costs and broader costs associated with their digital transformation (separated from ieMR costs) to eHealth Queensland as well as to their own hospital and health service boards (Chapter 2)

10. improve their employee termination processes to ensure they promptly remove an employee's ieMR access when an employee or temporary staff member terminates their employment with their hospital and health service (Chapter 2)

11. implement a process to monitor whether reviews of inappropriate user access to ieMR patient data are completed (Chapter 2)

12. report dis-benefits to the program so the program can learn from these and if necessary, modify the solution or implementation approach (Chapter 3).

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T: (07) 3149 6000
M: qao@qao.qld.gov.au
W: qao.qld.gov.au
53 Albert Street, Brisbane Qld 4000
PO Box 15396, City East Qld 4002

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