

Efficiency and Effectiveness of Hospital Services: High-value Equipment

Tabled 25 February 2015

The Auditor-General provides assurance to Parliament on the accountability and performance of the Victorian Public Sector. The Auditor-General conducts financial audits and performance audits, and reports on the results of these audits to Parliament.

On 25 February 2015, the Auditor-General tabled his performance audit report, *Efficiency and Effectiveness of Hospital Services: High-value Equipment*.

Background

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- In this audit we looked at how effectively and efficiently imaging services are being managed.
- Increasing pressure on the operating budgets of public hospitals means it is important to examine whether we are getting value-for-money services.

We are planning a series of audits over the next few years looking at efficiency and effectiveness in public hospitals.

In this audit, we looked at how effectively and efficiently imaging services are being managed.

In Victoria, as in other jurisdictions, there is increasing pressure on the operating budgets of public hospitals.

Given this pressure, it is important to examine whether we are getting value-for-money services.



This audit focused on two of the most expensive pieces of medical equipment—CT and MR scanners. This slide shows an MR scanner.

CT stands for computed tomography. MR or MRI stands for medical resonance imaging.

These machines are used to diagnose, manage and treat medical conditions. They do this by taking high quality images of internal tissue and organs. They are able to assess underlying medical conditions that cannot be seen in any other way. They do this by taking many slices of images (using X-rays in the case of CTs, and radio waves in the case of MRs) which computers can then assemble in many different ways. These are powerful machines.

Scanners are important because they allow us to diagnose conditions and illnesses with greater precision, to inform treatment options and to monitor treatment outcomes. Use of these machines has increased significantly over the years. In Victoria, Medicare data on outpatients alone indicates that over the past decade we've seen a 188% increase in MR scans and an 80% increase in CT activity.

Scanners are also expensive—they cost between \$1 to \$3 million to buy, and up to \$180 000 to maintain each year. These costs are regardless of whether these machines are used a little or a lot. This means that they should be used as intensively as possible as it can help drive down the cost per scan.

Focus of this audit

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1. **Effectiveness:** Are CT and MR scanning services being adequately planned for?
2. **Economy:** Are value-for-money imaging services being provided?
3. **Efficiency:** Are CT and MR scanners being used optimally within and across hospitals?

As mentioned earlier, the focus of this audit was on the effectiveness, economy and efficiency of the management of this high value equipment in public hospitals.

We looked at whether:

- CT and MR scanners are being adequately planned for
- value-for-money imaging services are being provided
- CT and MR scanners are being used optimally within and across hospitals.

Audit scope and approach

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- Department of Health and Human Services (DHHS)—health system manager.
- Health Purchasing Victoria (HPV)—the central purchaser.
- Baseline survey of all health services, scanner utilisation data from 15 large health services.
- Site visits to six large metropolitan and regional health services.

The audit included:

- The Department of Health and Human Services (or DHHS), which is responsible for system level planning and policy development, along with the funding and regulation of health services, and
- Health Purchasing Victoria (or HPV), which has a mandate to help health services achieve value-for-money in the procurement of equipment and services.
- It also incorporated health services. Our consultation with health services included:
 - a baseline survey that 83 health services responded to
 - an intensive examination of scanner utilisation from 15 large health services (over 469 000 scans) and
 - site visits to 6 large health services (four in the metropolitan area and two in regional areas) to examine the management of CT and MR scanners.

Key messages

CT and MR scanners are expensive to buy, maintain and operate.

CT and MR imaging services are increasingly important for diagnosis and treatment in public hospitals.

CT and MR scanners are not being managed effectively, economically or efficiently across Victoria.

There are missed opportunities for improving access to, and reducing the costs of, imaging services in our health services.



CT scanner.



MR scanner.

Our key findings were:

- CT and MR scanners are expensive to buy, maintain and operate.
- CT and MR imaging services are increasingly important for diagnosis and treatment in public hospitals.
- CT and MR scanners are not being managed effectively, economically or efficiently across Victoria.
- There are missed opportunities for improving access to, and reducing the costs of, imaging services in our health services.

Ineffective planning at hospital and state level

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DHHS does not consider imaging services in its planning or collect basic information to be able to do so.

Poor medical equipment asset management means health services cannot identify what their future imaging needs would be over the longer term.

Ineffective planning means that it is unclear if and how future demand for imaging equipment in Victoria can be met.

The first area we looked at was planning.

We found that planning for imaging services at the hospital and state level is ineffective.

The department does not collect key information on medical imaging equipment—such as the location, number and associated costs across the state—or on services provided, such as wait times.

This is despite major areas of health, including cancer, cardiology and neurology, relying heavily on imaging services.

This means the department's decisions about funding for imaging services are made without any understanding of the potential competing needs. This has led to much longer waiting times for MR imaging services in some areas compared with others.

The average wait time for an MR scan for public patients across the state is 30 days. On the other hand, wait times for CT scans are relatively low, ranging from zero to seven days.

We also found that none of the six public health services visited had an asset management plan that included imaging equipment.

This means that although future demand is set to increase, it is not clear at either the health-system or health-service level how that demand might best be met.

Health services do not consistently deliver CT and MR imaging services cost-effectively.

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- Equipment, staff and other operating costs vary widely between health services.
- Revenue generated by imaging services varies widely between health services.

There is substantial scope to improve how health services deliver these services and at what cost.

We also looked at the COSTS of CT and MR scanners and the REVENUE they generate.

We found surprisingly wide variation between the health services audited. Health services do not consistently deliver CT and MR imaging services cost-effectively.

Comparison between health services was a challenge as each operates differently. We had to exclude some costs and revenue to ensure a comparable analysis.

Equipment, staff and other operating costs varied widely between health services. For example, the average cost to read an MR scan in 2012-13 was \$66 in one health service compared to \$175 in another nearby health service.

Revenue from CT and MR imaging services also varied widely. For instance, one health service generated twice as much revenue as another metropolitan imaging service (\$3.4 million vs \$6.9 million), even though they are of similar size.

Across the six health services, 2012–13 CT imaging services ranged from an annual surplus of \$2 million to an annual loss of almost \$3 million.

The profit of public MR imaging services in the same year ranged from an annual surplus of around \$1 million to a loss of just under \$942 000.

Collectively, this means that there is substantial scope to improve how health services deliver these services and at what cost. HPV, in its central procurement role, can help health services to achieve the best value outcomes in the procurement of CT and MR imaging services.

Wide variation in the use of CT and MR scanners

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- Health services do not always maximise the availability and use of CT and MR scanners.
- Health services do not routinely compare their scanner efficiency internally or benchmark utilisation against other health services.
- This makes it difficult for health service managers and the department to know whether costly imaging equipment is being used optimally.

CT and MR scanners are not consistently used efficiently.

We also found wide variation in the ways in which CT and MR scanners are used.

We found that health services do not always maximise the availability and use of CT and MR scanners. For example, some hospitals operate scanners for a shorter time during the week than others. One hospital has increased its efficiency by overhauling its appointment scheduling.

Health services do not routinely compare their scanner efficiency internally or benchmark utilisation of scanners against that of other health services. Yet we found significant differences across health services. For example, the highest performing CT scanner did 39 times the number of scans as the lowest performing CT scanner. Likewise, busy MR scanners did 27 times the number of scans as lower performing MR scanners. Health services currently do not have the information required to be able to compare their own efficiency with other health services.

This makes it difficult for health service managers and the department to know whether costly imaging equipment is being used optimally.

This means that CT and MR scanners in health services are not being used as efficiently as they could be.

Recommendations

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		Accept	Page
That the Department of Health and Human Services:			
1.	collects, analyses and uses key information on CT and MR imaging services to inform resource allocation decisions and better coordinate services across the state	In principle	17
2.	more rigorously and transparently assesses the proposals for funding submitted to its Medical Equipment Replacement Program, and clearly documents its decision-making processes	✓	17
3.	develops a shared referral system to better coordinate public health services' imaging departments and reduce wait times for public outpatient magnetic resonance scans	Noted	17
7.	develops a data repository to enable public health services to understand and compare its CT and MR scanner utilisation.	In principle	38

We made 8 recommendations, that are aimed at improving how imaging services are planned for and delivered.

The four recommendations to DHHS were aimed at improving data collection and sharing to inform planning and to enable DHHS, as system manager, to better coordinate imaging service provision across the state.

DHHS has fully accepted the second recommendation.

It has only accepted the first recommendation in principle, undertaking to develop a Victorian atlas of CT and MR scanner services by the end of 2015. It has accepted the seventh recommendation in principle, committing to do a feasibility study as a first step in establishing a data repository for health services to better understand and compare their CT and MR utilisation performance.

DHHS has noted the third recommendation but has committed to work with health services to improve referrals across health services.

Recommendations – continued

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	Accept	Page
That public health services:		
4. develop and apply medical equipment asset management practices consistent with Department of Treasury and Finance better practice guidelines	✓	17
5. review all available options for new and existing imaging services, as a priority, so that the purchase of CT and MR imaging services achieves the best value for money.	✓	25
8. analyse and use key information about the utilisation of their own and other health services' CT and MR scanners to maximise utilisation.	✓	38
That Health Purchasing Victoria:		
6. assists health services to achieve the best value outcomes in the procurement of CT and MR imaging services.	✓	25

We made three recommendations to public health services. These were aimed mainly at encouraging better procurement and asset management practices around imaging and analysis of data to inform utilisation of scanners.

We recommended that HPV fulfil its mandate to assist health services to achieve best value outcomes in procuring CT and MR services. This has been accepted by HPV.

Future VAGO audits

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A follow-up audit on this topic will be conducted to determine whether and how agencies have addressed the recommendations.

This is the first in a series of VAGO audits examining the efficiency and effectiveness of public hospital services.

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Contact details

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For further information on this presentation please contact:

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