Does Australian state location influence MRS practitioners’ access to and use of the internet?

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Abstract The internet is an important information resource used by health practitioners to access the most current health and medical information. In Australia, the public health system is managed and operated independently at state and territory level and this raises the potential for differential access to the internet to exist within workplaces across government boundaries such as Australian states. This paper examines the effect of Australian state on access to and use of the internet by comparing medical radiation science (MRS) workplaces in Queensland and Victoria.

Survey design was used to collect data. In 2007, a questionnaire was sent to 1067 Australian MRS practitioners in Victoria and Queensland, with a response rate of 31.1%. The results show that internet access within workplaces varied across and within Australian states. Victorian practitioners in the public sector reported the highest level of internet connectivity within their workplace with 64% of practitioners reporting internet access on all workplace computers compared to 13% of practitioners employed in the public sector in Queensland (P = 0.000). Victorian practitioners in the public sector also reported greater use of the internet (P = 0.000) and valued it higher as a resource for updating their professional knowledge (P = 0.011) than their colleagues in the public sector in Queensland. Approximately one-third of practitioners employed in the private sector in both Queensland and Victoria reported internet access on all computers in their workplace (P = 0.885). There exists a digital divide within MRS workplaces which must be addressed so regardless of state or health sector of employment, practitioners can avail themselves of current health and medical information made available through the internet that supports them in staying up-to-date with the changing knowledge base of their profession.

Keywords: access, internet, medical radiation science, professional learning, lifelong learning

Research

While the internet offers many resources that support professional practice, factors limiting health practitioners’ access to the internet have been identified. Recent Australian studies demonstrate that access to the internet in the workplace is not universal among health practitioners with access to the internet affected by size of workplace (small, large), type of work environment (teaching, non-teaching), geographic location (metropolitan, non-metropolitan), health sector, profession and area of specialisation within a profession. Access restrictions that exist within departments include the use of passwords to restrict access and lack of time during work hours to search and read information.

In Australia, the public health system is managed and operated independently at state and territory level and this raises the potential for differential access to the internet to exist within workplaces across government boundaries such as Australian states. While none of the reviewed Australian literature examined the effect of Australian state on access to the internet, research from overseas has shown that within the public health sector, access to the internet varied across government health boundaries of state and health region. This paper examines the effect of Australian state on access to and use of the internet by comparing Medical Radiation Science (MRS) workplaces in Queensland and Victoria.

Method

In April–May 2007 a four-page questionnaire, a letter describing the purpose of the study, and reply-paid envelope were mailed to 1067 Australian MRS practitioners holding registration with the Medical Radiation Technologists Boards (MRTB) of Victoria and Queensland. The sampling method was a 20% random sample of the Victorian MRTB Register (537 practitioners) and 50% random sample of registrants with addresses publicly available on the Queensland MRTB Register (530 practitioners). Due to funding constraints only one mail out was undertaken.

The questionnaire was developed following a critical review of the literature and interviews with 28 academic and clinical practitioners to establish issues relevant to the MRS profession. The questionnaire included demographic information and questions...
related to internet access within the workplace and use of the internet for updating professional knowledge. Questionnaire data were entered into SPSS 15.0® (Chicago, IL, USA) and descriptive and inferential statistics were used to analyse these data. Percentages were used to describe survey findings. The collected demographic data allowed cross tabulations to be performed on geographic health region to determine if associations exist. Differences between groups were examined using \( \chi^2 \) analysis and when there was an SPSS warning for small cell size Fischer’s exact test was performed. A \( P \)-value less than 0.05 was the level for statistical significance used throughout the analysis. A number was assigned to each questionnaire as the data was entered into SPSS. This number is used in this paper when comments from questionnaires are reported (Qnumber). This research gained ethics approval from the University of Wollongong.

### Results

Of the initial 1067 surveys mailed to MRS practitioners registered in Victoria or Queensland, 39 were excluded due to incorrect addresses. A total of 320 usable questionnaires were returned from clinical practitioners. After eliminating the excluded surveys of 39 ‘return to sender’ the response rate was 31.1%. This response rate although not high, is greater than other recent surveys of Australian MRS practitioners (14.5–27.6%). The number of responses for individual questions is provided in the results section below. Demographic data analysis showed the percentage of respondents was similar for gender and area of specialisation to the Australian Health and Community Services Labour Force data and respondents were split fairly evenly between the public and private health sector with 50.4% of respondents from Queensland and 55.1% of respondents from Victoria employed in the public sector. A more detailed discussion of the demographics of the respondents is provided elsewhere.

### Access to the internet

Access to the internet in MRS workplaces in the public and private health sectors is shown in Figure 1 and differences in internet access exist both within and across the Australian state boundary. Victorian practitioners in the public sector reported higher levels of internet connectivity within their workplace than

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Table 1: MRS practitioners’ ease of access to the internet within the public and private health sectors in Queensland and Victoria.

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<th>Not easy</th>
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<td>Victoria (n = 102)</td>
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<td>Queensland (n = 63)</td>
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<td>Victoria (n = 83)</td>
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Figure 1: Computers with internet access in MRS workplaces in the public and private health sectors in Queensland and Victoria.
their colleagues in the private sector (Fisher’s exact test = 43.586, \(P = 0.000\)). In Queensland, MRS practitioners in the private sector reported higher levels of access to the internet in their workplace than practitioners in the public sector (Fisher’s exact test = 10.885, \(P = 0.026\)).

Difference in internet access across Australian states was significant for practitioners in the public health sector (Fisher’s exact test = 96.295, \(P = 0.000\)) with 64% of practitioners in Victoria (\(n = 103\)) reporting internet access on all workplace computers compared to 13% of practitioners in Queensland (\(n = 62\)). Approximately half (47%) of Queensland practitioners employed in the public health sector reported internet access was restricted to computers in Offices. Queensland practitioners in the public sector who identified internet access in their workplace as being limited to computers in offices wrote comments on their questionnaire, identifying additional issues that further restricted their access to the internet. Their comments included “Not allowed to use [the internet] though” Q10, “only if recognised site – do not have access to web only govt site” Q59, “Qld Health only” Q151 and “Access is password controlled” Q143.

The reduced physical access to the internet in workplaces in the public sector in Queensland is mirrored in a lower rating for ease of access to the internet in their workplace (Fisher’s exact test = 73.124, \(P = 0.000\)). Nearly half of Queensland practitioners reported either no access (20%) or their access to the internet was not easy (26%) compared to just 3% of Queensland practitioners who reported never undertaking an internet search to update their professional knowledge compared to 6% of practitioners in Victoria.

The difference in frequency of internet searches undertaken by MRS practitioners employed in the private sector in Queensland (\(n = 64\)) and Victoria (\(n = 80\)) was not significant (\(P = 0.421\)).

Use of the internet

The frequency of internet searches undertaken by MRS practitioners is shown in Figure 2 and differences in frequency of internet searches exist both within and across the Australian state boundary. Victorian practitioners in the public sector, with their higher level of access to the internet reported higher frequency of internet searching than both their Victorian colleagues in the private sector (Fisher’s exact test = 13.148, \(P = 0.010\)) and their Queensland colleagues in the public sector (Fisher’s exact test = 27.878, \(P = 0.000\)). Two-thirds of Victorian practitioners reported undertaking internet searches daily or several times a week compared to 26% of public sector practitioners in Queensland (\(n = 66\)). One-quarter of Queensland practitioners reported never undertaking an internet search to update their professional knowledge compared to 6% of practitioners in Victoria. The difference in frequency of internet searches undertaken by MRS practitioners employed in the private sector in Queensland (\(n = 64\)) and Victoria (\(n = 80\)) was not significant (\(P = 0.421\)).

Value of the internet as a resource for updating professional knowledge

The value MRS practitioners attribute to the internet as a resource for updating their professional knowledge is shown in Figure 3. In the public sector, Victorian practitioners (\(n = 96\)) with their higher level of access to and use of the internet also rated the internet higher in terms of its value as a resource for updating their professional knowledge than their Queensland colleagues (Fisher’s exact test = 12.054, \(P = 0.011\)). In the private sector, the difference in value practitioners attribute to the internet was not significant across Australian states (\(P = 0.653\)).

Discussion

This research shows that differences in access to the internet within MRS workplaces exist both within and across Australian states. In the public health sector difference in access to the internet across state boundaries was statistically significant. Queensland practitioners in the public health system typically have fewer computers with internet access in their workplaces than their Victorian colleagues and in Queensland internet access was com-
monly restricted to computers in offices. Indeed, nearly half of all responding Queensland practitioners employed in the public health sector considered their workplace access to the internet to be difficult or non-existent. Limiting internet connectivity to computers in offices may also reduce the access Queensland MRS practitioners have to the Clinicians Knowledge Network, a major web-based resource available to health practitioners employed by Queensland Health.20

Victorian practitioners employed in the public health sector with their higher levels of internet access, performed internet searches more frequently \( P = 0.000 \) than their Queensland colleagues and also placed higher value on the internet as an information resource for updating professional knowledge \( P = 0.000 \). In contrast, in the private sector where physical access to the internet within workplaces was more similar, the difference in frequency of internet searches and the value practitioners attribute to the internet as a resource for updating their professional knowledge were not statistically significant across Australian states.

Levels of internet access in the public and private health sectors was also shown to vary across the two states studied. In Victoria, internet access within MRS workplaces was higher in the public sector whereas in Queensland internet access was higher in the private sector. This finding demonstrates that internet access within MRS workplaces in Australia is complex in nature and there is a need to collect data from other states and territories in Australia to obtain a more comprehensive understanding of issues affecting MRS practitioners’ access to the internet.

It is interesting to note that in Queensland where the higher level of internet access existed in the private sector, the difference in the frequency of internet searches performed between the private and public sector was not statistically significant \( P = 0.250 \). This indicates that factors other than physical access to the internet contribute to the frequency of internet searches performed by MRS practitioners. Comments written on the questionnaire by Queensland practitioners employed in the private sector included “Not allowed to use internet during work” Q193 and “the time to access is very limited (work–load dependent)” Q92. These forms of organisational restrictions to limit health practitioners accessing and using the internet have been reported in other recent Australian studies.9,12

Access to professionally relevant information resources in the workplace supports practitioners in meeting their professional learning needs. Learning needs may generate spontaneously during work21 such as uncertainly with a pathology or implant device where the practitioner may need to locate information before proceeding with their diagnostic examination. Other learning needs are created by organisational or professional issues such as the introduction of new technologies or applications of technologies, project or research work, protocol development as well as formal study and require practitioners to access and use professionally relevant information. Indeed, each of the current professional drives of recognising or mandating that practitioners continue to update their professional knowledge,22,23 increasing practitioner involvement in research24,25 and utilising evidence based practice26-31 (EBP) necessitate the need for MRS practitioners to have access to and use information sources that contain the multidisciplinary knowledge base of the profession.

Conclusion

The internet offers immediate access to the most current health and medical information and has been identified as an important information source for health practitioners generally3,9,11,12,30,31 and also within the MRS profession.3,9,11 This research shows access to the internet in MRS workplaces is not uniform across or within Australian states and the internet-enabled information super highway is not readily accessible to many MRS practitioners. This digital divide must be addressed so regardless of state or health sector of employment, MRS practitioners can avail themselves of current health and medical information made available through the internet that supports them in staying up-to-date with the changing knowledge base of their profession.

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