

# Internet access in selected aged care services in rural and regional Queensland

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## Abstract.

### Aims

to determine the perceptions of management of change in investment in ICT and internet access in selected residential and community aged care services in regional Queensland.

### Methodology

a convenience sample using structured telephone interviews of senior executives or managers of service providers.

### Findings

participating aged care providers were found to have made significant recent investment in ICT. There was also better availability of access to the internet for staff.

**Summary:** aged care has not generally seen to be a sector that has taken advantage of ICT; that appears to be changing and there is now significant investment in ICT and better access to the internet.

**Keywords:** information technology, computing, internet, aged care, workforce

## Background

There is interest in improving the adoption of ICT to assist in the delivery of care for the frail elderly in Australia [1]. The aged and community care sector in Australia is facing many challenges including rising demands, challenges of workforce availability and skill levels, and the need for providing services across the vast geographical distances. These challenges promote the need to investigate and implement new models of care delivery. ICT infrastructure, aged care applications and internet access are likely to be increasingly critical investments to assist aged care providers to cope with increasing demands and complexity.

In 2009 a telephone survey was undertaken of residential and community aged care service managers across regional Queensland, a geographically large state with particular challenges of distance for serving remote communities. The aim of the research was to explore the level of use of ICT and recent changes that may have occurred in terms of greater availability and adoption. A baseline for the survey was a national survey of nurses and ICT undertaken by the same authors [2], [3]. There was interest in refreshing this previous work to get an understanding of changes that may be occurring in ICT in aged care.

## Ageing

Technology is expected to offer significant potential for assisting societies to respond to ageing populations and associated pressures [4], [5]. Applications of technology include assisting aged people in extending active and independent lives, maintaining consumer productivity, better managing and supporting the care workforce and in delivering and increasing the quality of care in home, community and residential care settings. Globally there is an increasing level of activities, strategy development, research projects, and adoptions of telecare, telehealth, smart homes and assistive technologies by consumers and care provider organisations [6]. Technologies promise an array of benefits including empowering consumers, providing better access to care from home settings, providing relief and support to carers, enabling professional carers better manage demands, and reductions in both hospital admissions and length of stay. [7], [8].

## Technology

There is increasing recognition of the potential of technology to enhance the safety and independence of frail older people, enable access to care services and to extend their ability to remain in lower levels of care such as their own home or other independent living arrangements. Intelligent monitors can keep a continuous watch on vital signs, activity patterns, their safety and security. The technology can monitor indicators of their state of health, provide alerts to events such as falls, and give early warnings of potential problems. Technology can notice changes in activities and alert a carer [9]. Automation is expected to enhance security, safety and independence [10]. This could help improve the quality of care and assist the care workforce in productivity and effectiveness in meeting growing demand and increasing complexity.

There is research and several demonstration models that share the aim of promoting the adoption of ICT for care [11], [12]. In some Australian states there are systems to assist with referrals away from hospital admission to more appropriate care [13]. There are initiatives around most Australian health jurisdictions

for managing Emergency Department demand. Aged and Community Care service providers are actively investigating the use of assistive technologies to ensure effective service delivery and several have pilot projects and partner with universities in research.

An indication of the extent of new technologies available to ageing services and related research is available from leading international research consortia including the Center for Aging Services Technologies [14] and from the Technology Research for Independent Living (TRIL) in Ireland [15]. There is a wide range of innovative technologies; the challenge is in getting them into the hands of the people who would benefit from them.

More research into adoption issues, return on investment, realisation of benefits, integration and interoperability is required to ensure a sustainable system. Current evidence indicates that the level of adoption of technology in aged care services remains low. There appear to be many factors influencing this and these are seen to include awareness, attitudes to technology, design issues, telecommunications capacity, technical support, overall cost and uncertainty that benefits will be realised. This current study was designed to determine if this perception of low adoption was in fact correct in one area of Queensland.

### Methodology

A purposive sample design was employed and a convenience sample of 50 selected aged care facilities were invited to participate. Selection of facilities was initially focused in and around the Queensland regional city of Toowoomba (pop 100,000) but the scope was broadened to encompass much of rural and regional southern Queensland to achieve a desired number [16].

The research team telephoned facility managers who were invited to participate in a 10 minute semi-structured telephone interview. Managers who agreed to participate were then sent the consent form by email or fax for signature and return. Of the 50 facilities that were contacted only three declined. Of the 47 who agreed 30 were interviewed at their convenience. Data collection was stopped at 30 when data saturation had been reached.

Table 1 represents the locations of the 30 facilities that were interviewed.

Table 1. Location of facilities

Location	Interviewed
Crows Nest	1
Toowoomba	9
Oakey	1
Clifton	1
Millmerran	1
Warwick	1
Stanthorpe	2
Point Vernon	2
Pialba	1
Hervey Bay	1
Boyne Island	1
Rockhampton	5
Ipswich	4
Rosewood	1
Riverview	1
Total	30

Organisation structure (Table 2) shows that most of the facilities were not-for-profit and privately owned. Three were community owned and one was a charitable organisation. Only one public facility was contained in the sample. The majority of facilities offered both low and high care.

Table 2. Organisation structure

	Private	Public	Other	Total
Total	25	1	4	30
Profit	3	0	0	3
NFP	22	1	4	27
Independent	8	0	4	12
Part of larger organisation	16	1	0	17
High care	2	1	1	4
Low care	2	0	1	3
Both high and low care	21	0	2	23

The number of residents and nursing staff for each facility are presented in Table 3 along with resident to staff ratios. Total staff includes assistants in nursing, personal carers, enrolled nurses and registered nurses.

Client numbers ranged from 28-193 and staff numbers 21-105. Residents to staff ratios ranged from 0.77-3.85. Using a figure of total staff equates to five full-time staff on duty (when shifts and leave are factored in) resulted in residents to staff ratios ranging from 3.86-19.23.

### Findings

The research found there was investment in new systems in the aged care services that participated.. There were changes in hardware and software as well as in improved internet access for staff.

**Q1. Participants were asked "Over the past three years what changes have been made in your facility in IT with respect to...?"**

#### (i) Hardware and software changes:

Significant changes to both hardware and software were the norm. Only two respondents (one public and one private) stated there had been no changes. A privately-owned facility indicated that they are currently busy working on upgrading their IT services.

Twenty-eight facilities stated that changes had been made in the last three years. Of these twenty-four reported changes in both hardware and software, five to hardware only and one facility indicated they had made changes only to their software. Where respondents identified specific types of hardware or software that had been upgraded these are listed in Table 3.

Table 3. Upgrades that were identified

Type of hardware now available	Number of services
Tablet pc	1
Windows internet services	1
CCTV	1
Type of software now available	
Thin client	2
iCare	6
SERA	1

One other facility mentioned they had introduced Skype allowing not only staff but also their residents to communicate through this technology.

#### Internet Access:

All thirty facilities had internet access. Only five facilities indicated no change to their access. Of these two indicated that everyone had access to the internet and the remainder described varying levels of access to the internet with those in key positions having full access.

Twenty five facilities had experienced change in access in the last three years. The only public facility interviewed indicated that all their staff was now able to access the Queensland Health website with staff in key positions now having total internet access.

For the remaining twenty-four facilities that indicated access to the internet had changed, half of these (n = 12) had restricted access only for management staff, including clinical staff managers and administrative



staff. Nine indicated that all staff had some level of access to the internet and three respondents did not specify the changes made to their facilities.

## Discussion and Conclusion

The aged care sector has not been seen to be a user of sophisticated ICT. That may be changing. This research set out to refresh previous research and to determine the degree of change in investment in ICT in residential and community aged care services in regional Queensland. A convenience sample using structured telephone interviews of senior executives or managers of service providers was undertaken.

The aged care industry is already under pressures which are likely to increase due to demographic change. The industry may need to make greater investments in ICT to assist in coping with these pressures and this snapshot of ICT investment and internet access in remote and regional Queensland indicates that providers are improving their ICT infrastructure, applications and access to the internet. The federal government's National Broadband rollout is expected to be welcomed in rural and regional settings where anecdotal evidence indicates capacity is currently limited. Aged care services in regional, rural and remote locations may be well-placed to derive significant benefits from NBN.

The research found that the aged care providers that participated have made significant recent investment in ICT and there was greater access to the internet. All except one of the facilities in this study were privately-owned and it is this part of the sector in particular that may most benefit from the NBN.

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