Understanding aged care workplaces and technological change

Professor Tracey McDonald, RN, PhD, FRCNA
Ms Frances Russell, B.App.Sc.(Biochem), M.Pub.Hlth

RSL LifeCare Chair of Ageing, Australian Catholic University, Sydney Australia

BACKGROUND - DRIVERS FOR TECHNOLOGY UPTAKE IN AGED CARE

Introduction of information technology to services in long-term care is affected by staff proficiency in computer usage and their attitudes towards work re-design	Technological change poses inherent risks of losing valuable employees who find the technology challenge too great and feel unsupported at work	Moving to a computer-based care documentation system that is accredited by government involves sustainability risks re diminishing work quality (user errors) and loss of accreditation for lack of recorded evidence	An electronic data system adapted to existing documentation can reduce transition issues and retain regulatory compliance under the Australian Commonwealth Aged Care Act

Published research focus on telemedicine and reduction of aged care costs overlook issues of impact perceived by employees who are required to implement technology. Impact includes workloads, time management and efficiency, work re-design and clinical outcomes.

Psychological issues in volitional uptake of technologies include the theory of Reasoned Action and the Theory of Planned Behaviour. Successful implementation of information technology in the traditionally 'lo-tech' environment of aged care depends on staff feeling empowered and involved in the change.

AIMS

a. identify management and employee hurdles in implementing computerised information systems in the aged care context;
b. identify staff aptitude and proficiency factors that enhance or impede technology uptake; and
c. examine the effect of a computerised care records system on employee attitudes towards potential impacts on resident clinical outcomes.

METHOD
We used a previously validated tool to survey the attitudes of 250 employees using a computerised care documentation system for 3 years. Response rate 44% (16% males 84% females) which was acceptable as the potential pool of computer users had been overestimated.

Data analysis involved univariate ($p<0.10$) and multivariant (partial $p<0.05$ and F-test >0.10) linear regression to establish the impact of different variables on staff and workload; time; accuracy and regulatory/accreditation compliance; and resident care. Variables with high intercorrelation (>0.60) were combined and re-scaled as either 8 or 15 item scales.

RESULTS
Respondents' perceptions were influenced by their own feelings of control over the computing situation and the comfort is using the software. Respondents feeling personal stress around computers believed the IT system did not really help with workloads, time savings, information accuracy or client outcomes.

Employees feeling empowered in using computers believe the technology impacts favourably on workloads by a factor of 0.49. They also see a positive impact on accuracy of reporting by 0.47. Most significantly, they felt the system improves care outcomes by a factor of 0.81.

Respondents confident in computer usage believe the system improves care by a factor of 0.84. Conversely, respondents feeling stress and pressure using computers believe workloads are impacted negatively by a factor of -0.11; time by a factor of -0.12; and quality of care is impacted by a factor of -0.19. The multivariate analysis results are shown below for the four major areas:

Table 1: Impact on Staff and Workload, Multivariate Analysis

Covariate	Coefficient (β)	p-value	t
Computer experience at work: Secure	0.51	0.000	4.43
Personal control: Empowerment	0.49	0.015	2.50
Stress: Not stressful, frequency & amount [†]	-0.11	0.013	-2.55

[†] Combined covariate due to intercorrelation

Table 2: Impact on Time Saving, Multivariate Analysis

Covariate	Coefficient (β)	p-value	t
Job role - Enrolled Nurse	2.41	0.041	2.09
Personal usage of computers	-0.12	0.009	2.69
Personal decision making - Thoughtful	0.44	0.020	2.38
Computer experience at work - Secure	0.33	0.009	2.69
Personal control - Powerlessness	-0.53	0.02	-2.40
Stress: Not stressful, frequency & amount [†]	-0.12	0.020	-2.39

[†] Combined covariate due to intercorrelation

Table 3: Impact on Accuracy and Regulatory Accreditation, Multivariate Analysis

Covariate	Coefficient (β)	p-value	t
Personal decision making - Thoughtful	0.52	0.005	2.90
Computer experience at work - Secure	0.38	0.003	3.06
Personal control - Empowerment	0.47	0.021	2.37
Stress: Not stressful, frequency & amount [†]	-0.16	0.001	-3.62

[†] Combined covariate due to intercorrelation

Table 4: Impact on Residential Care, Multivariate Analysis

Covariate	Coefficient (β)	p-value	t
Personal decision making			
Thoughtful	0.79	0.006	2.86
Avoidance	-0.69	0.004	-2.98
Attitude to computers - Discomfort & Fear [†]	0.37	0.018	2.43
Computer experience at work - Secure	0.84	0.000	4.12
Personal control - Empowerment	0.81	0.008	2.75
Stress: Not stressful, frequency & amount [†]	-0.91	0.005	-2.93

[†] Combined covariate due to intercorrelation

CONCLUSION

After three years of using the LTC system, computerised care records and online information access have become ubiquitous for managers and clinicians alike throughout the aged care facility.

The success of the transition to ICT systems underwrites the commitment of managers and clinicians to (i) adequate IT resourcing (ii) organisational culture of support (iii) acknowledgement of staff input and innovation (iv) evaluation of outcomes for staff, managers and clients.

Our findings also have implications for recruitment of future staff to the aged care sector where non-technological approaches to management and care are rapidly becoming redundant.

RECOMMENDATIONS

Disadvantages for employees who have little or no personal computing experience in moving to a technology-based reporting system go beyond their own discomfort. The impact of staff attitudes towards and proficiency in using computers on care outcomes and the organisation's ability to meet regulatory and accreditation compliance requirements could also be compromised if these aspects are not well managed. Therefore:

- Employers need to commit to a well-resourced implementation process with ongoing support for the system
- Employees should be encouraged to learn computing and the system at their own pace with full support and coaching from IT staff.

IMPLICATIONS FOR NURSES IN AGED CARE:

Nurses who have opportunities to use computerised care documentation systems can access benefits for themselves, their employers and their patients by developing proficiency in using the technology. If access to computers at work is hampered by poor language and literacy, staff need to be assisted and coached so that they too can feel empowered and valued. Where data entry is performed by nurse assistants, nurses need to oversee the accuracy and appropriateness of information and provide leadership and guidance.

PRACTICE-DRIVEN RESEARCH

In this ground-breaking book, the many issues arising from an ageing population, ageing veterans and community health are explored. Tracey McDonald's 'Practice-driven Research' is an approach that fully involves clinical nurses and carers in striving to understand and improve the work they are doing. The approach was developed and tested in collaboration with clinical nurses, therapists and managers and addresses the issues of relevance and appropriateness of research in solving practical, day-to-day problems within the Aged Care setting.