

Improving Workplace Learning at the Point-of-Care Through Information Technology

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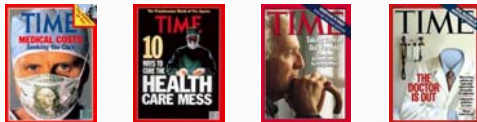


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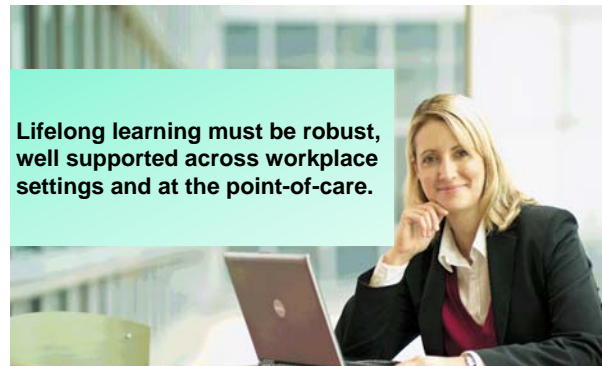
The Healthcare Challenge!



1979 → 1991 → Today

- Health care quality
- Patient centredness
- Safety
- Geographic variation
- Costs
- Use of information technology
- Workforce shortages

Lifelong learning must be robust,
 well supported across workplace
 settings and at the point-of-care.



Purpose of CE and Life Long Learning

- Validating one's own practice and competence
- Gaining new knowledge or skills to apply in the practice setting
- Closing an identified performance gap
- Improving patient care outcomes
- Generating increased professional satisfaction, professional identity; possibly preventing or decreasing burnout

Point-of-Care Learning

- A subset of workplace learning, point-of-care learning is defined as learning which occurs at the time and place of a health professional/patient visit.



Competencies for Quality Health Care

- Evidence-based practice
- Quality Improvement
- Informatics

Crossing the Quality Chasm (Institute of Medicine, 2001)

Ontario MOHLTC PDA Initiative



HealthForceOntario



Information Resources

- RNAO BPGs
- McMaster University Nursing PLUS
- Lexi or Pepid



Nurses have access to information resources via PDAs or Personal Tablet computers

What were the Research Questions?

- Feasibility and usability?
- Frequencies of information use?
- Search and retrieval in Nursing Plus library?
- Determinants of research use?
- Influence on nurses' information needs, job satisfaction, quality of patient care?



Study Methods

Sectors


- Acute care (9 sites)
- Home Care (5 sites)
- LTC (12 sites)
- Primary Health Care
- Corrections (3 sites)
- Surveys
- Interviews
- Reflective journals
- Videotaping (usability)

Sample

- 490 RNs and RPNs

Questionnaires



Study variable	Questionnaire	Cronbach Alpha
Barriers to research utilization	Funk et al. (1991)	.77 - .87
Perceived quality of care	Patient Judgment of Hospital Quality questionnaire (Rubin et al., 1990)	.91
Job satisfaction	Single item (Laschinger & Havens, 1996)	.83
Supportive supervision	Oldham & Cummings (1996)	.91



What were the Findings?

Brand Models as Reported by participants

- Blackberry
- Palm Treo
- HP-iPAQ
- Fujitsu Lifebook
- Sahasra PC Tablet
- Symbol
- Motion C5
- +++

Frequency of Using Information Resources

Resource	Percent Every Few Days or More
Drug dictionary	52
Medical reference information	49
Google	38.7
Nursing+ email alerts	36.1
Search Nursing+ database	29.8
RNAO BPGs	24.7
Laboratory values	23.6
In-house resources	22.9
Calculator	20.9
IV compatibility guidelines	11.1

Satisfaction with the Information Resources

Resource	Satisfaction Mean(sd) (9-point scale)	Ease of Use Mean (sd) (9-point scale)
RNAO BPGs	5.16 (2.2)	5.34 (2.4)
Pepid/Lexi resources	4.95 (2.5)	5.21 (2.4)
Nursing PLUS	4.88 (2.2)	4.99 (2.3)




“The first thing that I was doing with it was the BPGs for RNAO for delirium; making a presentation for the orientation to the ICU and that actually came in quite handy”.

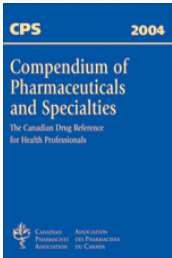


Safer Patient Care for Community

“There are so many new drugs out there, like BP meds, etc, and quite an increasing acuity in the community. This is just right there for you”.



Home Care



Point-of-Care and Decision Support

Point-of-care resources

- “Beautiful for accessing information right away”
- “Comfortable to use in front of patient”. “He didn’t have a problem with that at all. He was quite happy that somebody was able to take an interest in what was going on and how he was feeling at the time”.



What was it used for?

- Seeking Information
- Emerging Themes
 - Best Practice Guidelines
 - Medications
 - Care Protocols
 - Symptoms
 - Lab values
 - Diagnosis

“I was working with a client who had questions about side effects and possible interactions with her many medications. I used my Blackberry to look up her medications using PEPID and was able to reassure her that it was OK to take all of her medications. I also went over what each one was for, so she was aware of the importance of each medications.”

Transforming workplace learning



Evidence-Based Collaborative Practice



Wound Care Protocol

“The resident thought her asthma attack and hoarseness was caused by the antibiotics and wanted to discuss stopping them. It was very important that she stay on the medications if at all possible.She needed to have the reassurance based on evidence that the meds were not causing a respiratory- based adverse effect.”

Peer Support



“I was teaching a fellow nurse on how to access the infection control modules and test. I walked the RPN through on how to use Pepid and we looked up medications (i.e. Lasix, Coumadin).”

I was orientating a new RPN in our long-term care facility and she has a question regarding an injection she was about to give. I was able to look up the requested information at the resident’s bedside...”

“We reviewed the picture on how to complete a task--catheterization, labour and delivery...”

Survey Findings



Change Over Time By Device

Variable	PDA Users T (n~73)	Tablet Users T (n~58)
Nurse barriers	2.3**	0.70
Organizational barriers	2.0*	0.76
Characteristics of the innovation	2.2*	0.59
Communication barriers	1.4	2.2*
Improvement in quality of care	-2.9***	0.92
Improvement in job satisfaction	-3.5***	1.38

*P<.05, **p<.01, ***p<.001

Change Over Time by Sector & Device

Variable	Acute PDA (n~33)	Acute Tablet (n~38)	HC PDA (n~16)	HC Tablet (n~38)	LTC PDA (n~21)
Nurse barriers	-0.1	0.8	3**	1.2	1.8*
Organizational barriers	0.4	0.9	0.4	0.8	2.8**
Characteristics of innovation	0.6	-0.1	2.1*	1.2	1.0
Communication barriers	0.3	1.3	0.3	2.3*	1.2
Quality of care	-1.3	-0.17	0.9	1.21	-3.2***
Job satisfaction	-1.6	0.3	-1.2	0.6	-2.7**

*P<.05, **p<.01, ***p<.001

Frequency of Information Use by Device

Information resource	PDA Mean (n~76)	Tablet Mean (n~54)	T-value
Google	0.9	1.5	-2.4**
Nursing Plus	1.1	1.2	-0.8
Pepid or Lexi	1.3	0.8	3.1***
RNAO BPG	0.9	1.0	-0.6
In-house resources	0.6	1.0	-2.3**

*P<.05, **p<.01, ***p<.001

Usability Evaluation

- Nurses preferred Tablet for **amount of information on screen** (p<.05)
- Nurses preferred PDA for **system speed** (p<.05)



What were the Conclusions?



- Mobile technologies have the potential to reduce barriers to research utilization and improve quality of care
- Results were device and sector specific, with more observed benefits in home care and primary care

How will Nursing Roles look in the Future?

