



*Please join the Ward of the 21st Century Team,
our partners, and valued stakeholders at the*

W21C Spring Research Retreat:
Building Our Future



Wednesday, May 14th, 2008

8:00 am to 4:30 pm

Rozsa Centre, University of Calgary (Main Campus)

*For more information or to RSVP (by May 7th),
please contact Susan Mide Kiss:*

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Relating Health Care Environmental Design to Health Quality Outcomes: Post Occupancy Evaluation of the Ward of the 21st Century

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Background

- The physical environment has been shown to positively and negatively contribute to workplace and health care outcomes.
- Although technical elements (e.g., lighting & air quality) of the built environment are often examined as outcomes of design, occupant interactions with the health care environment (e.g., functional performance) are not as easily measured or easily used to inform future environmental design decisions.
- Post occupancy evaluation (POE) is an built environment evaluation methodology that examines the impact of the designed environment on human users.

Study Objectives

- Identify functional performance measures or indicators for safety, effectiveness and efficiency that respond to changes in the design of the health care environment.
- Make recommendations for future planning and design evaluation activities of health care facilities.

Methods

- The POE methodology was applied to a newly renovated health care environment, the Ward of the 21st Century (W21C) at the Foothills Medical Centre, Calgary.
- Two phased evaluation: The first phase examined the planning and design process for the W21C to clarify the intention for the W21C design. The second phase evaluated user satisfaction with technical aspects as well as the functional performance of the built environment.
- Data was collected through interviews with designers, planners and users of the W21C, document review, direct observations, administrative data, and environmental surveys.

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Results

Five environmental design performance indicators were developed through an iterative process of collecting and analyzing post occupancy evaluation data using dimensions of the Alberta Health Quality Matrix.

Effectiveness	Efficiency	Safety
<i>Are design elements successfully achieving or attaining results (outcomes), goals or objectives?</i>	<i>How well are design elements (inputs) brought together to achieve results (outcomes)?</i>	<i>Do design elements mitigate risks to avoid unintended or harmful results?</i>

Indicator	Definition
Resources	Environmental design features that ensure adequate service capacity, including amount and access to supplies, physical space, equipment, technology, training, knowledge, expertise and access to staff/people.
Maintainability	The built environment's ability to minimize the need for, or provide ease of, modifications and repairs
Flexibility	The built environment's ability to adapt to or anticipate new or changing requirements and needs.
Privacy	The built environment's ability to support individuals' dignity, and need for integrity and personal autonomy.
Communication	Processes and structures that support the exchange of thoughts, ideas, information and knowledge within the built environment.

Environmental design performance themes emerged from the data highlighting that design elements can contribute both to positive and negative perceptions of the environment:

- Increased access to equipment and technology at the point of care has increased timeliness of patient information, but has decreased overall interaction among staff.
- Increasing available space has improved access to staff (e.g., staff educator, medical teaching staff, allied health staff and unit management). However, the unit layout has increased travel time and overall workload for staff.

- Flexibility with single patient room design accommodates varying levels of medical care (e.g., patient isolation capacity, opportunity for private assessment and consultation). However, when used in overcapacity (i.e., multiple occupants in single patient rooms) single patient rooms cannot ensure privacy and staff report some negative feedback from patients/families.



Photo courtesy of www.w21c.org

- Higher proportion of single rooms increased privacy for the patients. However social isolation concerns were expressed for some patients as well as restricted visual contact between staff creating a feeling of disconnection.

Conclusions and Implications

- Some unique aspects of the planning and implementation process of the W21C contributed to the overall success of the unit's design (e.g., leadership and stakeholder engagement and early and ongoing implementation of design solutions).
- In many ways, the planning and design of the W21C evolved beyond the physical renovation project and the pursuit of the vision for the W21C has continued well after occupancy.
- Environmental design performance indicators examine how well the built environment meets user needs by demonstrating how design elements simultaneously contribute both positively and negatively to functional performance (e.g., trade-offs in design).

- Performance indicators identify trade-offs in design that support ongoing discussions to improve the quality (e.g., effectiveness and efficiency) of the health care environment.
- Post occupancy evaluation translated user satisfaction with the built environment into an understanding of the functional performance of the W21C design. This highlights the importance of integrating POE in the planning and design processes.

