



Please join the W21C Team at the
February session of the

W21C Seminar Series

February 5, 2007 from 4:00 to 5:30 pm
Large Education Room, Unit 36, FMC
(Special Services Building)

Seminar Topic:

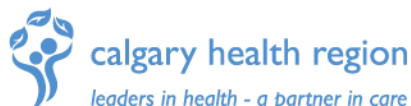
*Relating Health Care Environment Design to Health Quality
Outcomes: Post Occupancy Evaluation of the W21C
(Steve Friesen, Health Systems and Workforce Research
Unit, Calgary Health Region)*

Presentations will be followed by group discussion and a
networking break. Refreshments will be provided.

Together we can achieve our mission to:

**“Innovate, educate and
evolve to create new
paradigms of
health care delivery.”**

Please RSVP by February 1st at:
susan.midekiss@calgaryhealthregion.ca



February 5, 2008



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

External Project Funding provided by the
Health Quality Council of Alberta



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- Evidence based design (EBD) has recently become an important concept in health design
 - “*EBD is a process of applying the findings of credible research to develop concepts that can be tested in the design process to predict or examine their effect on variables of interest*” (Stichler, 2007)
- This evaluation project evolved out of a broader mandate exploring the implications for an EBD approach for health care organizations in Alberta



Investigative Team



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Evaluation Objectives



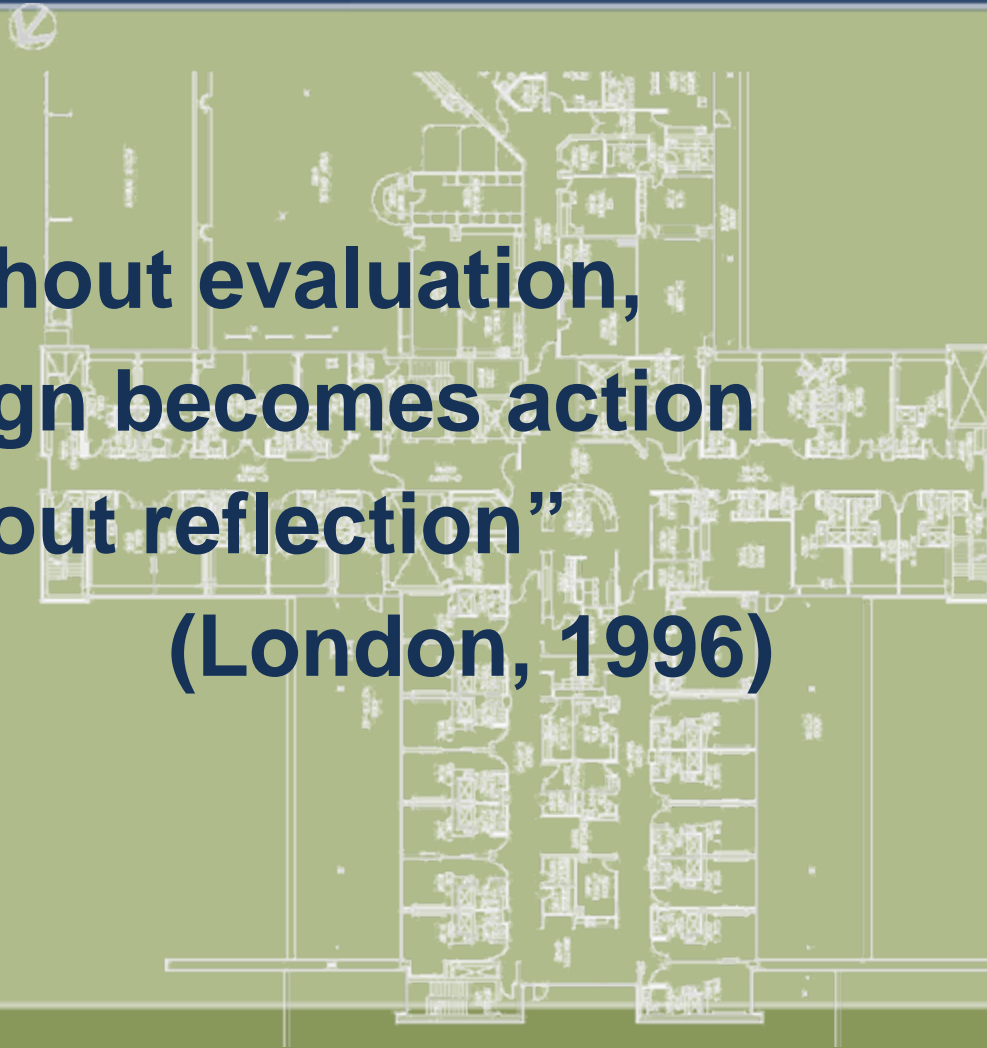
- Determine what environmental **design strategies** affect the delivery of health care and outcomes for patients, providers and the health system
- Identify potential **performance measures** or indicators for safety, effectiveness and efficiency that respond to changes in environmental design
- Make recommendations for **future planning and design** evaluation activities of health care facilities



Design Evaluation



**“Without evaluation,
design becomes action
without reflection”
(London, 1996)**



What is Post Occupancy Evaluation

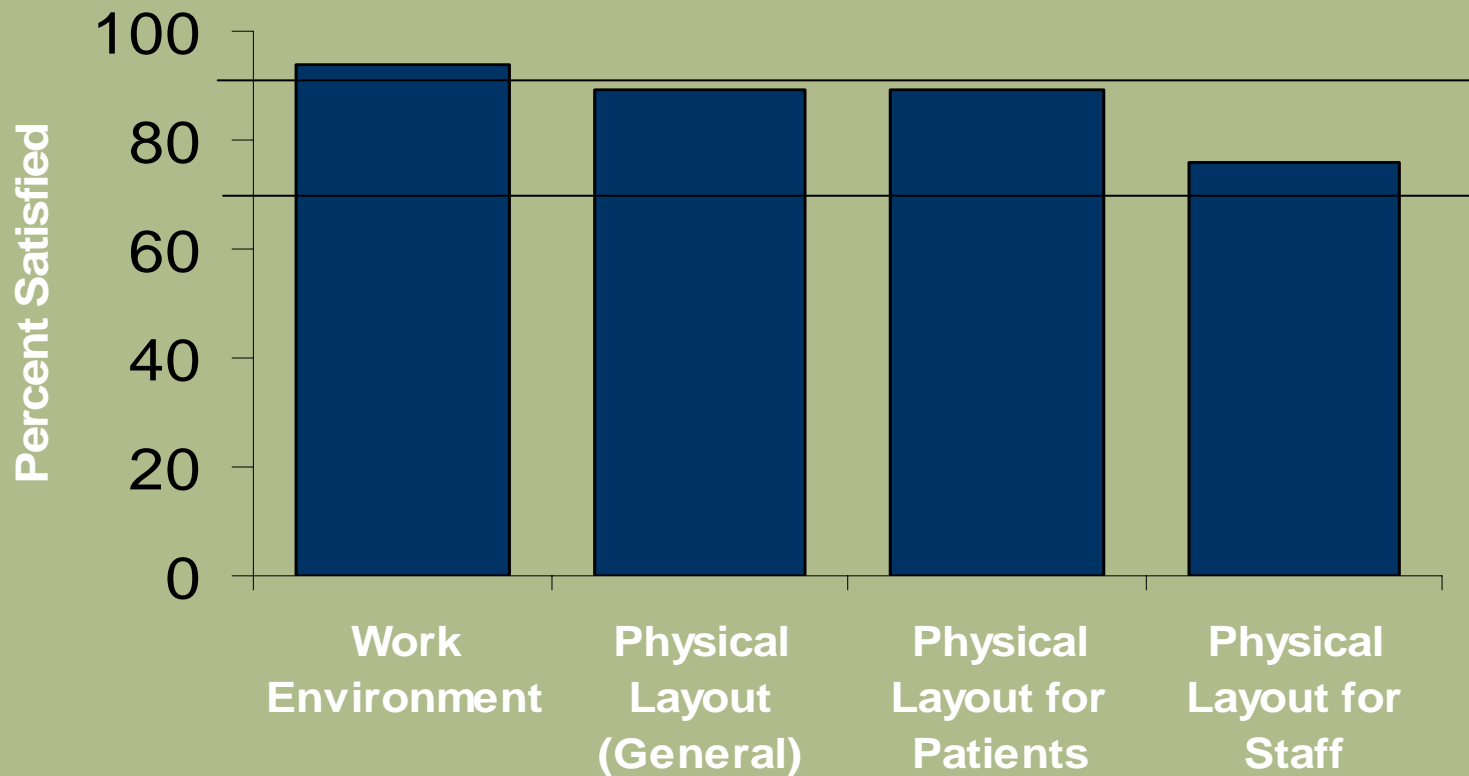
- POE is defined as “*the process of systematic data collection, analysis and comparison with explicitly stated performance criteria pertaining to occupied, built environments*” (Preiser et al., 1988).
- POE compares “*actual building performance with explicitly stated human performance needs*” (Cooper, Ahrentzen & Hasselkus, 1991).



2 Phase Mixed Methods Approach



Survey Results



Iterative Approach



Data collected in **Phase I** identified themes that described the performance of various design elements



Resources
Maintainability
Flexibility
Privacy
Communication



Design performance themes were used in **Phase II** data collection



Design Performance



	Effectiveness	Efficiency	Safety
	Successfully achieving or attaining results (outcomes), goals or objectives	How well are design elements (inputs) brought together to achieve results (outcomes), with minimal expenditure	Mitigate risks to avoid unintended or harmful results
Themes			
Resources	Does design provide for the right resources ?	How well does design provide for the right resources ?	Does design provide resources that mitigate risks and that help to avoid unintended or harmful results?
Maintainability	Does design provide for the right maintainability ?	How well does the design support maintainability ?	Does design provide maintainability that mitigates risks and that helps to avoid unintended or harmful results?
Flexibility	Does the design provide for flexibility ?	How well does design provide for flexibility ?	Does design provide flexibility that mitigates risks and that helps to avoid unintended or harmful results?
Privacy	Does design provide for the right levels of privacy ?	How well does the design provide for privacy ?	Does design support privacy levels that mitigate risks and that help to avoid unintended or harmful results?
Communication	Does design provide for the right communication ?	How well does the design support communication ?	Does design provide communication systems that mitigate risks and that help to avoid unintended or harmful results?



Habitability Framework



Technical- physical characteristics of the built environment that contribute to the performance of basic building systems

Functional- design factors that deal with the fit of the built environment with the activities it was designed to support

Behavioral- design factors that primarily capture the psychosocial aspects of the environment that relate to the perceptions and psychological needs of users

(Preiser, 1984)



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Design Performance



- Staff were satisfied with the equipment on the W21C and felt they had adequate resources to support their roles.
- Patient bathrooms cannot easily accommodate the use of equipment (e.g., commodes, IV poles); the door to the washroom cannot close or it is very awkward for staff to assist patients while maintaining their privacy



Design Performance



- Unique building systems include controlled airflow to patient rooms and the ability for some single patient rooms to be reconfigured (through movable walls). These are important technical features for airborne infection prevention and control.
- Communication improved with increased access to computers. This enhanced access to internet based information and lab/diagnostics information as well as increased the sharing of patient care information across all health providers.



Single Room Design Performance

Staff stated that the patient room design includes appropriate **resources** for the medical treatment of patients (e.g., negative air pressure, medical gases and standardized room equipment). However when the unit is overcapacity the single patient rooms do not ensure **privacy** and staff report some negative feedback from patients/families.

The higher proportion of single patient rooms supports **flexibility** in patient care (assessment and treatment) but negatively impacts staff and patient **communication** (e.g. isolation).



This approach to POE . . .



- Provided a deeper understanding of user satisfaction within the context of **effectiveness** and **efficiency** in addition to safety
- Provided a unique description of performance aspects in the built environment using **performance indicators** - *Resources, Maintainability, Flexibility, Privacy and Communication*
- Highlighted the **interrelationships** between design elements that contributes to overall design performance.



Study Implications



- **Planning & design process learnings**
 - Strong leadership
 - High involvement of user groups
 - Early and ongoing implementation
- **Gaps in current design processes**
 - Lack of evaluation processes
 - Lack of relevant documentation





Establish clear objectives for design

- To prioritize and interpret outcomes

Embed evaluation in design processes

- To support data collection and documentation

Include a participatory design approach

- To engage a range of stakeholders to identify opportunities for early and ongoing implementation of design strategies





Thank You

**Final report will be posted on our website
www.calgaryhealthregion.ca/hswru**