

The Compelling Strategic and Business Case for Building Safer Healthcare Environments

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Learning Objectives

- Understand the compelling strategic and business case for creating optimal health care physical environments
- Learn how to use a return on investment framework (ROI) to estimate the impact of an evidence-based design innovation

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Three Concurrent Revolutions



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The New Reality requires a New Value proposition

- The new reality
 - hospitals face greater transparency around patient & workforce safety/quality issues
- Progressive hospitals
 - can achieve measurable improvements & operating savings through evidence-based design

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Defining Evidence-Based Design

Evidence-Based Design is the deliberate attempt to

- base building decisions on the best available evidence
- achieve the best possible outcomes for patients, families and staff
- improve the utilization of resources

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Is there a Business Case for building Optimal Hospitals?

Balance

- one-time construction (capital) costs

Versus

- multi-year operating savings and revenue benefits

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How much does constructing and operating an Optimal Hospital cost?

- To answer this, we created the *Fable Hospital*
- It had never been built before - but its components were all based on actual experience in real hospitals
- We analyzed the incremental cost of key design innovations and their annual operating cost impacts

The Fable Hospital in 2004

- Assumed a 300-bed hospital
- In 2004, replacement / new construction cost of an average American hospital = \$80,000 / bed
- Total construction cost of the baseline hospital = \$240 million

Fable's Values & Culture

- Obsessed with quality and safety
- Patient, family and staff friendly
- A good corporate citizen
- Determined to be eco-sensitive
- Willing to benchmark
- Wanting to be held accountable

**Fable incorporated
Evidence-Based Design features**

- Larger, windowed, single patient rooms
- Variable acuity patient rooms
- Decentralized, barrier-free nursing stations
- Hand-washing facilities throughout
- HEPA filters in all patient rooms

Additional Fable design features

- Larger patient bathrooms with wider double door access
- Healing / calming art, music, and gardens
- Private consultation spaces
- Patient education center
- Staff support facilities

What did Fable cost to build?

- We estimated the *incremental* construction cost of each design innovation
- They added up to \$12 million (5%)
- Thus, Fable cost \$252 million to build

What was Fable's Operating Impact?

- The evidence taught us that Fable's design features would *help* reduce undesirable *patient* outcomes
 - infections, falls, room transfers, medication errors, anxiety and stress
- The evidence also taught us that Fable would be a better place in which to work, thus reducing undesirable *staff* outcomes
 - stress and turnover

The Operating Cost of Fable

- We analyzed the operating costs of Fable, based on what the evidence showed us
- We found that it could actually save a lot of money for many years

Fable Hospital: Patient Transfers

- Average cost of one transfer is \$250
- Fable's acuity adaptable rooms helped reduce transfers by 80%
- Actual Pebble Project data from Methodist found a 90% decrease

Fable Hospital: Patient Transfers

Calculation steps

1. 19,466 patient stays
 - with 100% of all patients transferred
2. (# patient stays or 19,466) X (\$250 or cost per patient transfer) = \$4,866,500
 - = total cost of patient transfers
3. If patient transfers reduced by 80%, then \$4,866,500 X 80%
 - = **\$3,893,200** = Annual Savings

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The Fable Hospital: Patient Falls

- Non-litigated average cost is \$10,000 USD
- National median: 3.5 falls/1,000 patient days
- Fable's unit & room design *helped* reduce falls by 80%

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The Fable Hospital: Patient Falls

Calculation steps

1. 300 beds at 80% occupancy
= 240 beds
2. 240 beds per day X 365 days
= 87,600 patient days
3. 87,600 days X 3.5 falls per 1,000 patient days
= 306 falls/year
4. 306 falls X \$10,000 per fall
= \$3,066,000
5. Falls reduced 80%
= **\$2,452,800** annual savings

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The Fable Hospital

- Fewer patient Falls
 - (- 80%) \$2,452,800
- Fewer patient Transfers
 - (- 80%) \$3,893,200
- Fewer Nosocomial Infections
 - (- 4 infections/month) \$80,640
- Reduced Nurse Turnover
 - (-10-14%) \$164,000
- Reduced Drug Costs
 - (- 5%) \$1,216,666
- Annual Cost Savings
 - Total \$7,807,306

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Fable's compelling Business Case

- One time incremental *construction cost* of \$12 million would be recovered through lower *operating costs* within 3 years!
- Business case becomes even stronger if the incremental *revenue impacts* on philanthropy & patient volume are added
- Business case is partially dependent on the particular payment/reimbursement scheme & on who actually incurs the costs & receives the revenue

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Recent trends that further strengthen Fable's Business Case

1. Increasing costs of avoidable conditions
 - e.g., infections, falls & workforce injuries
2. Paying for value instead of volume
 - e.g., "pay for performance" or "reward results"
3. Ending payment for certain types of harm and infections

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**Recent trends that further strengthen
Fable's Business Case**

- 4. Increasing consumer choice & awareness -- mandatory patient satisfaction scores
 - e.g., Medicare HCAHPS
- 5. Increasing litigation risks and costs
- 6. Increased functional capacity of facilities & more efficiency in their use

**Policy Question: If you were the
Prime Minister for a day?**

- How would you change your current hospital construction and operating payment systems to provide incentives and rewards to build optimal hospitals?
- Who should receive the long term financial benefit from *building* hospitals that are optimal for patients, families and staff?
- Who should receive the long term financial benefit from *operating* hospitals that are optimal for patients, families and staff?

The Challenge

- How to move
 - from “light green” dollars (*theoretical* savings)
 - to “dark green” dollars (*actual* savings that show up in someone’s budget that the CFO will support)

**From Ideas to Action: Ask
Question #6**

1. Urgency / Need?
2. Appropriateness of solution?
3. Relative cost per square foot?
4. Overall financial impact?
5. Sources of funds?
6. **Incorporate Evidence-Based Design?**

Become Bilingual

Learn how to turn CEOs, CFOs and Boards into champions for your cause by:

- 1) identifying "light green" dollars
and
- 2) converting them into "dark green" dollars

**Ten Key Steps to implement
Evidence-Based Design**

1. Create a multidisciplinary team & develop a clear vision that includes measurable quality improvement goals
2. Select an architect with experience in Evidence-Based Design & a proven track record of at least one successful healthcare project (EDAC Certification)
3. Identify & select Evidence-Based Design interventions

Ten Key Steps to implement Evidence-Based Design

4. Evaluate current practice and develop a baseline for each, e.g., infections, transfers, employee turnover
 - *develop baseline costs*
5. Set measurable post occupancy improvement targets & get buy in from all key stakeholders
 - *culture change*
6. Incorporate design improvements into capital & operating budgets
 - *approved by the Board ("dark green" dollars)*

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Ten Key Steps to implement Evidence-Based Design

7. Widely communicate improvement targets
 - *internally & externally*
8. Track and report progress
 - *including financial*
9. Continually incorporate new Evidence-Based Design strategies
10. Publish your results!

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Seek EDAC Certification

- Evidence-Based Design Accreditation and Certification
- Educates and assesses individuals on how to base design decisions on credible evidence
- Launched May 7, 2009 internationally
- www.healthdesign.org/edac

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Priority design recommendations to implement anytime

- 1. Install hand washing dispensers at each bedside & in all patient areas
- 2. Conduct a noise audit and develop a noise reduction plan
- 3. Install high-performance sound absorbing ceiling tiles
- 4. Install circadian (cycled) lighting in the NICU
- 5. Use music as a positive distraction during procedures

Priority design recommendations to implement anytime

- 6. Use virtual reality images and artwork to provide positive distractions
- 7. Incorporate social networking spaces or age-appropriate play areas
- 8. Improve way-finding through enhanced signage
- 9. Where structurally feasible, install HEPA filters in areas housing immuno-suppressed patients

Priority design recommendations during construction/renovation

- 1. Build single family patient rooms
- 2. Provide adequate space for families to stay overnight in patient rooms
- 3. Build accessible indoor or outdoor gardens
- 4. Design age appropriate play areas and amenities
- 5. Increase visual access & accessibility to patients (decentralized nursing stations)

Priority design recommendations during construction/renovation

6. Optimize natural light in staff and patient areas
7. Install HEPA filters in areas housing immunosuppressed patients
8. Install effective way finding systems
9. Install ceiling lifts to reduce workforce injuries
10. Reduce patient transfers through acuity adaptable rooms

An ROI Framework

- Learn how to use an ROI framework to measure the economic impact of any design innovation

A Proposed ROI Framework

Using Hospital-Acquired Infections as an example

1. Describe the current scope of the problem
2. Identify your improvement target goal
3. Identify the number of patients & costs associated with hospital-acquired infections
4. Outline specific *clinical & administrative* strategies to reach target goal & identify associated costs
5. Identify specific *Evidence-Based Design* strategies to reach target goal & identify associated costs

Problem Summary and Improvement Opportunity

Outcome	# Cases	Average Cost/Case	Total Cost
Hospital-Acquired Infections			
No Hospital-Acquired Infections			
Difference			

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Estimating Intervention Costs

Intervention	Initial cost	Life cycle cost	Calculations/Comments
Provide 100% single patient rooms		↑ SF with associated housekeeping, energy, replacement furnishings costs	Single patient rooms now the standard but ~ __SF larger, which could ↑ life cycle operational costs
Separate sink for staff in patient room		↑ operational plumbing maintenance costs	Separate staff sinks now standard for hospital construction. There may be minimal ↑ operational costs
Alcohol-based gel devices		Maintenance, replacement, & gel refill costs	Initial cost = total # devices per room x # rooms
Administrative & training interventions		Training costs	Include all incremental operating costs
Total Intervention Costs			

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Revenue Improvement through Cost Avoidance

Outcome Target	Calculations	Cost Avoidance
Decrease HAIs by __% or __ cases	Identify the total # cases to be eliminated Multiply by the average increased cost for patients with an HAI	Expressed in dollars
Total Cost Avoidance		Expressed in dollars

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Return on Investment Equation

Variables	Initial, First Year	Two Year Life Cycle Point	Five Year Life Cycle Point
Total cost avoidance			
Total intervention costs			
Savings			

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Conclusions

Creating optimal physical environments will help organizations achieve their strategic & financial objectives by

- Reducing harm to patients & staff
- Lowering operating costs
- Increasing patient volume

A simple framework can help organizations estimate their return on investment (ROI) of Evidence-Based Design innovations and help overcome economic barriers

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Selected Print References

- Berry, Parker, Coile, Hamilton, O'Neill, & Sadler. (2004) The Business Case for Building Better Buildings. *Frontiers in Health Services Management* 2004; 21(1): 3-21
- Sadler, Hamilton, Parker & Berry. The Compelling Business Case for Better Buildings. In: Marberry (Ed.) Health Administration Press, 2005
- Sadler, DuBose, & Zimring. The Business Case for Building Better Hospitals through Evidence-Based Design. *Health Environments Research & Design Journal* 2008; 1(3) 22-39
- Zimring, Augenbroe, Malone, & Sadler. Implementing Healthcare Excellence: The Vital Role of the CEO in Evidence-Based Design. *Health Environments Research & Design Journal* 2008; 1(3): 7-21
- Ulrich, Zimring et al. (2008) A Review of the Research Literature on Evidence-Based Health Care Design. *Health Environments Research & Design Journal* 2008; 1(3): 61-125

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Selected Internet References

- Nachri & Center for Health Design (2008) *Evidence for Innovation: Transforming Children's Healthcare Through the Physical Environment*.
 - www.childrenshospitals.net and www.healthdesign.org
- Sadler, Joseph, Keller & Rothenberg. Using Evidence-Based Environmental Design to Enhance Safety and Quality, Institute for Health Care Improvement Innovation Series, 2009
 - <http://www.ihc.org/IHI/Results/WhitePapers/UsingEvidenceBasedEnvironmentalDesignWhitePaper.htm>

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