

Evidence Based Design of Healthcare: What is it?

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Outline

- What is evidence-based design?
- EBD and fall prevention
- Applying EBD in the Military Health System



Evidence-Based Design is the process of basing decisions about the built environment on credible research to achieve the best possible outcomes.

Center for Health Design

Evaluating the Evidence

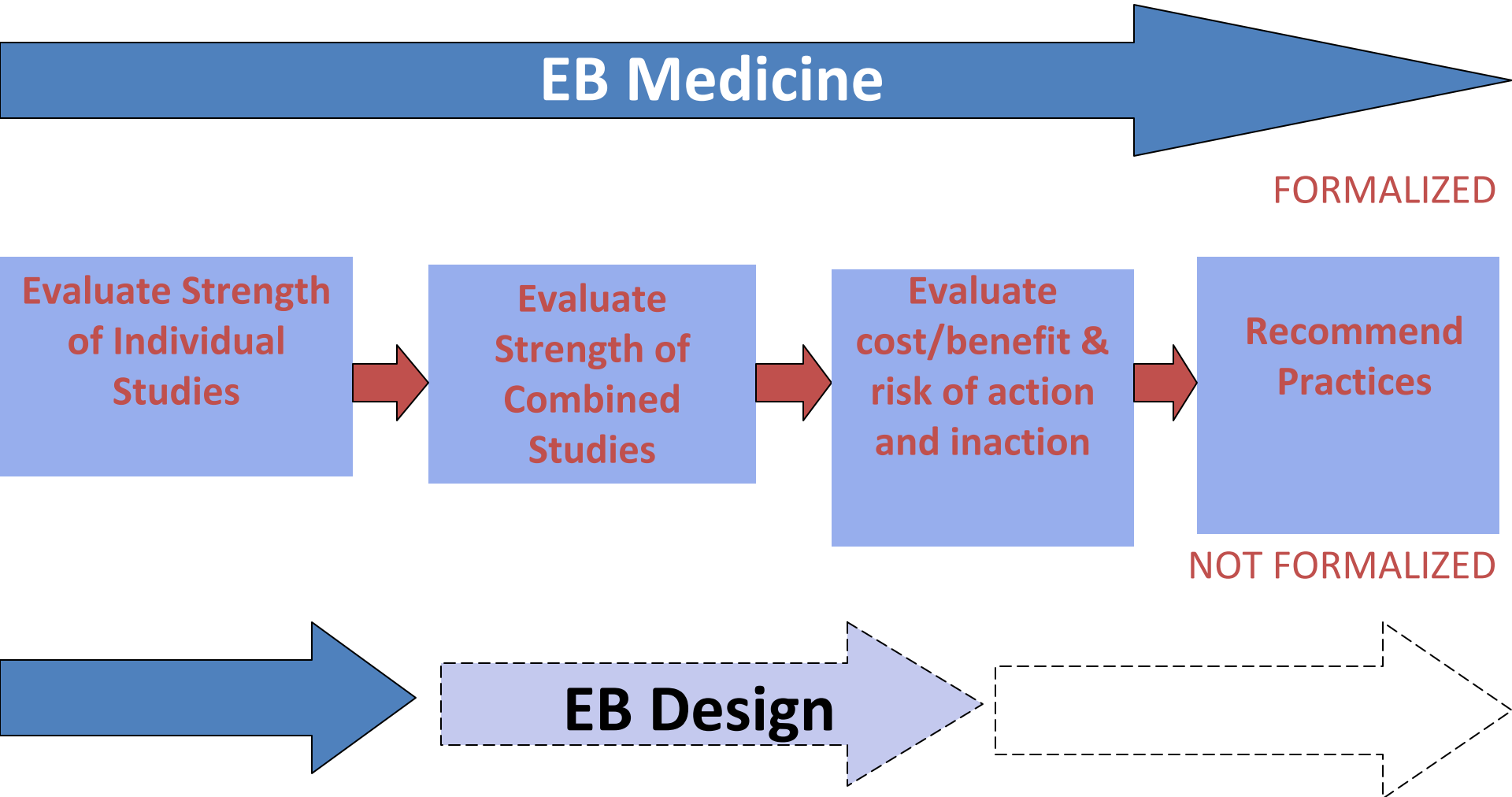


TABLE 1:
SUMMARY OF THE RELATIONSHIPS BETWEEN DESIGN FACTORS AND HEALTHCARE OUTCOMES

Healthcare Outcomes	Design Strategies or Environmental Interventions	Single-bed rooms	Access to daylight	Appropriate lighting	Views of nature	Family zone in patient rooms	Carpeting	Noise-reducing finishes	Ceiling lifts	Nursing floor layout	Decentralized supplies	Acuity-adaptable rooms
Reduced hospital-acquired infections		**										
Reduced medical errors		*		*				*				*
Reduced patient falls		*		*		*	*			*		*
Reduced pain			*	*	**			*				
Improved patient sleep		**	*	*				*				
Reduced patient stress		*	*	*	**	*		**				
Reduced depression			**	**	*	*						
Reduced length of stay			*	*	*							*
Improved patient privacy and confidentiality		**				*		*				
Improved communication with patients & family members		**				*		*				
Improved social support		*				*	*					
Increased patient satisfaction		**	*	*	*	*	*	*				
Decreased staff injuries									**			*
Decreased staff stress		*	*	*	*			*				
Increased staff effectiveness		*		*				*		*	*	*
Increased staff satisfaction		*	*	*	*			*				

* Indicates that a relationship between the specific design factor and healthcare outcome was indicated, directly or indirectly, by empirical studies reviewed in this report.

** Indicates that there is especially strong evidence (converging findings from multiple rigorous studies) indicating that a design intervention improves a healthcare outcome.

Healthcare Leadership

Evidence-Based Design Resources
for Healthcare Executives

Acknowledgements

Multimedia

White Papers

About

Author Bios

Resources

Tell A Colleague

Select White Paper titles for more detailed descriptions, use download links to view.

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1

The Business Case for Building Better Hospitals Through Evidence-Based Design

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Culture Change and Facility Design: A Model for Joint Optimization

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Implementing Healthcare Excellence:
The Vital Role of the CEO in Evidence-Based Design

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4

Maximizing the Impact of Nursing Care Quality:
A Closer Look at the Hospital Work Environment and the Nurse's Impact on Patient-Quality Care

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5

A Review of the Research Literature on Evidence-Based Design

MULTIMEDIA QUICK LINKS

1

EBD Roadmap

2

Business Case

3

Literature Review

WHITE PAPERS QUICK LINK

WELCOME TO THE HEALTHCARE LEADERSHIP PROJECT.

This project provides free downloadable white papers and webcasts designed to support healthcare leaders in becoming aware of and implementing evidence-based design into their building projects. [Learn more.](#)

Funding provided by a grant from the Robert Wood Johnson Foundation

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THE CENTER FOR HEALTH DESIGN.

<http://www.healthdesign.org/hcleader/whitepapers>

Research Opportunities

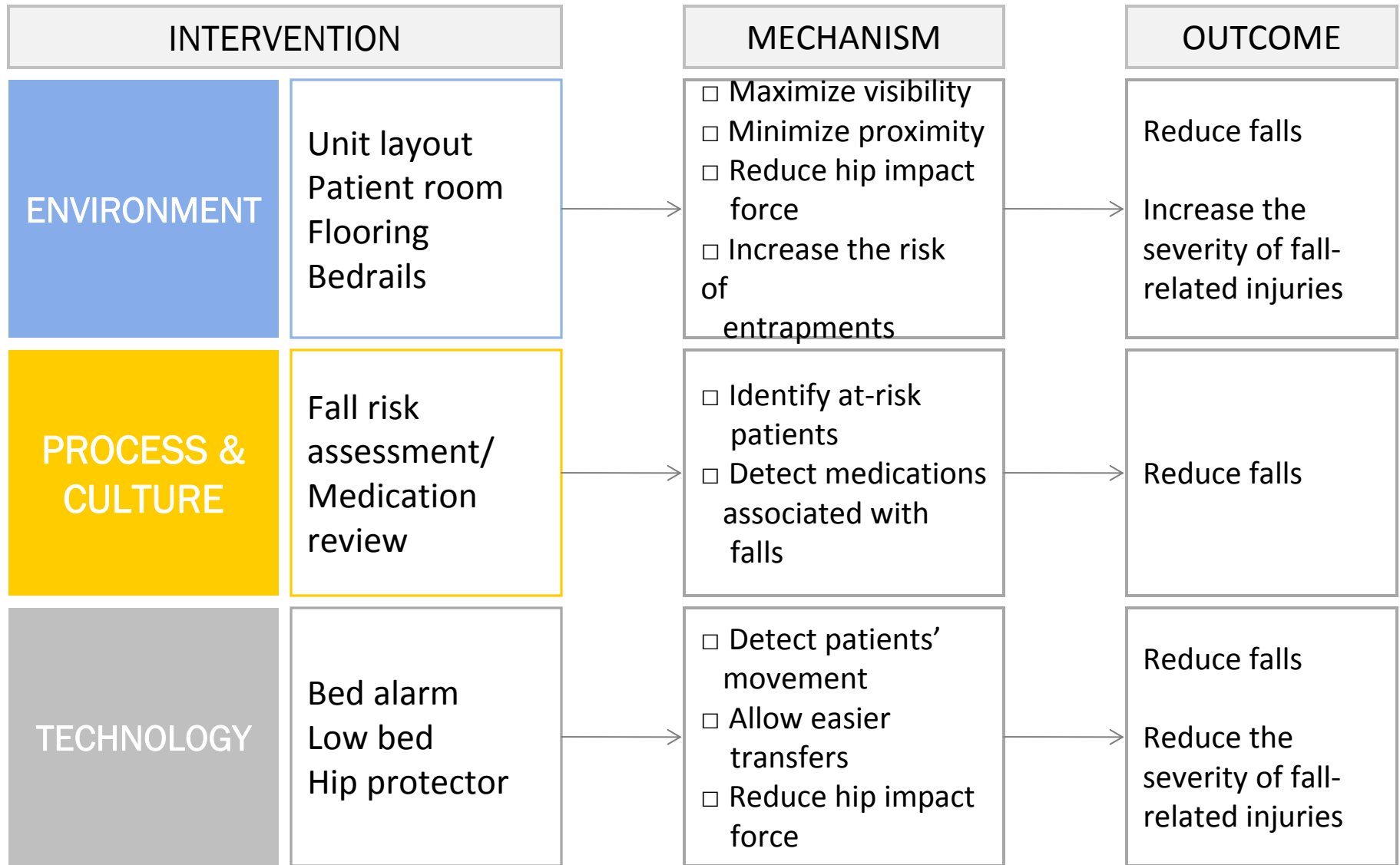
EBD 2.0

1. Build Patient Rooms that Speed Healing
2. Reduce Infections in Hospitals
3. Prevent Falls and Injuries
4. Reduce Medical Errors
5. Increase Health & Safety of Caregivers
6. Use EBD to Hold on to Nursing Talent
7. Create Better Nursing Stations
8. Design Smarter Workplaces

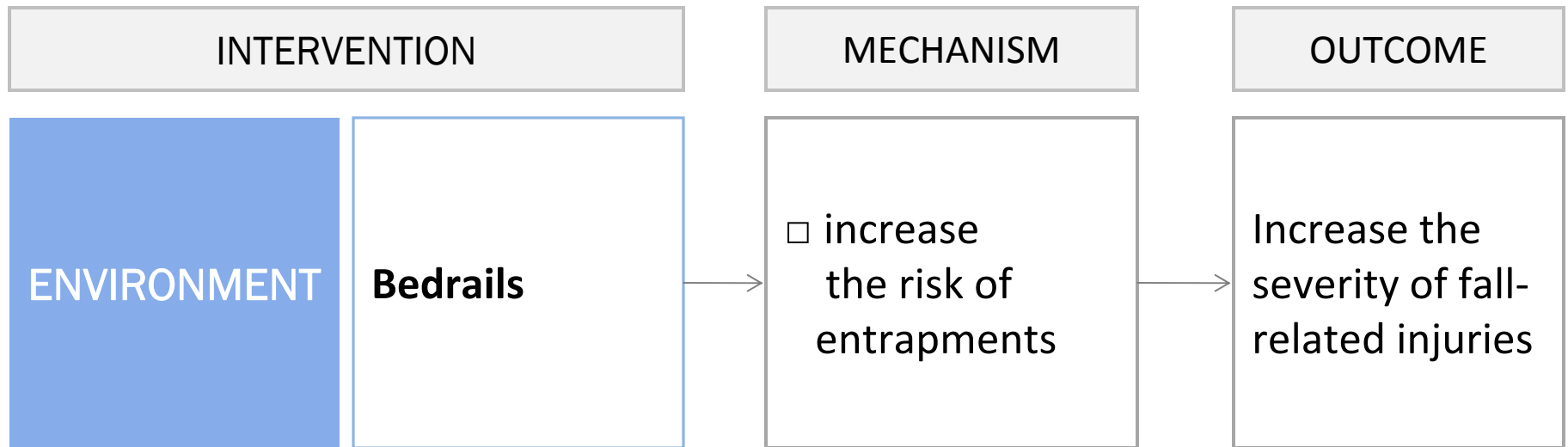
Falls

- Complications no longer reimbursed by CMS
- The most commonly reported harm incident in MHS healthcare facilities
- Cost \$20,000+

Multi-Systematic Model



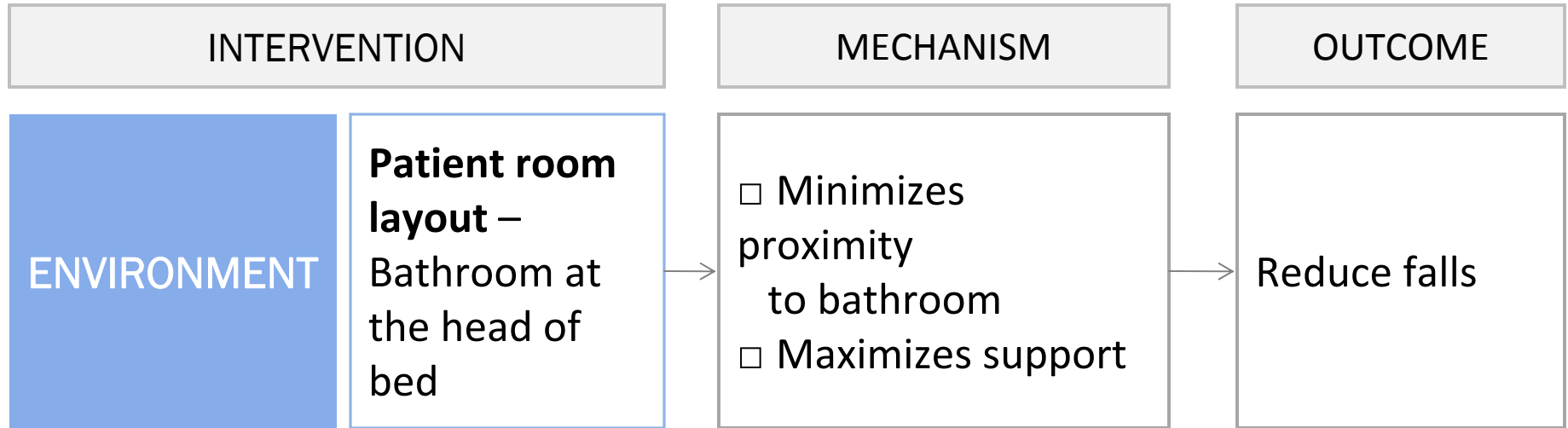
Patient Room Layout



Source: YoungSeonChoi

8/18/2009

Patient Room Layout

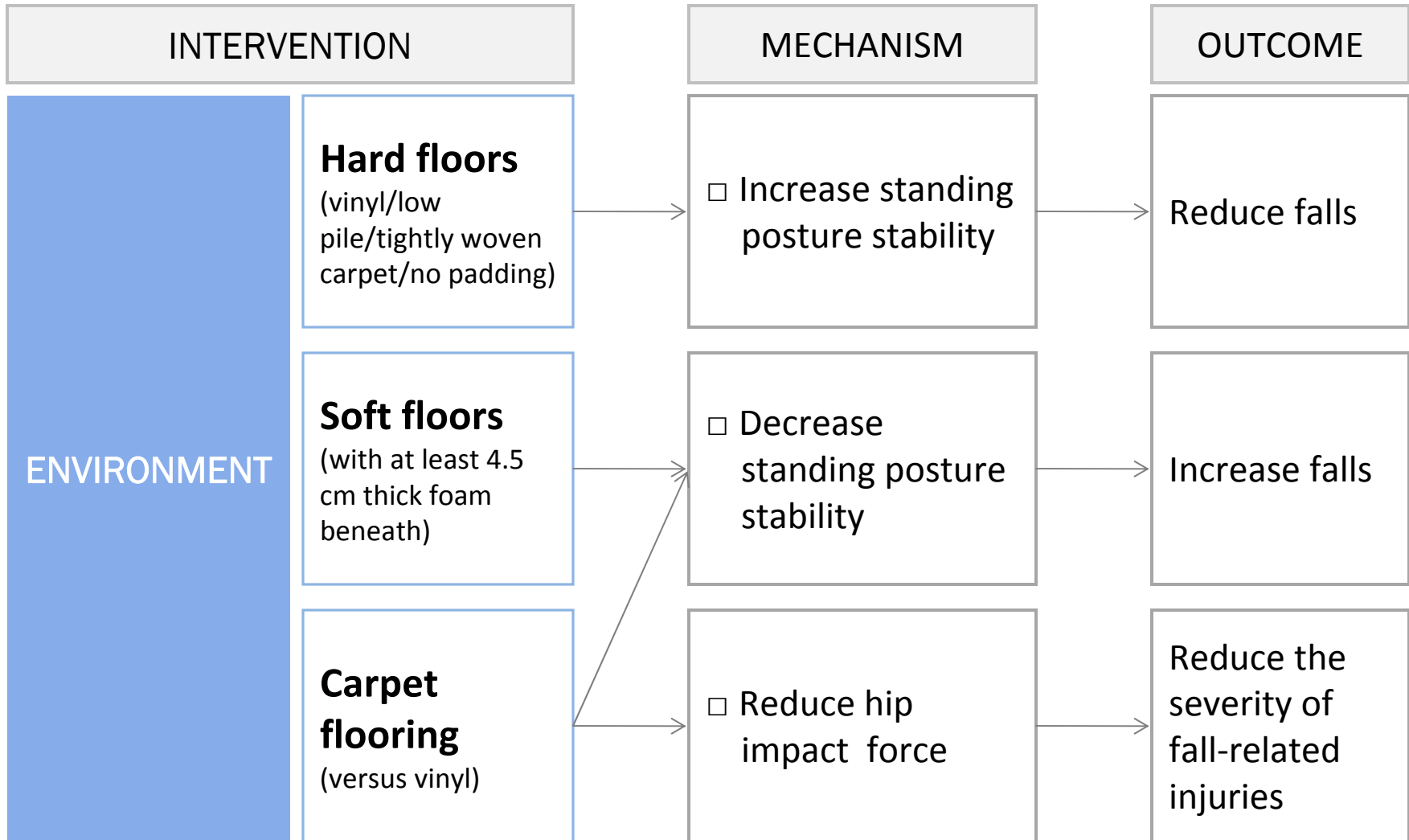


Source: YoungSeonChoi

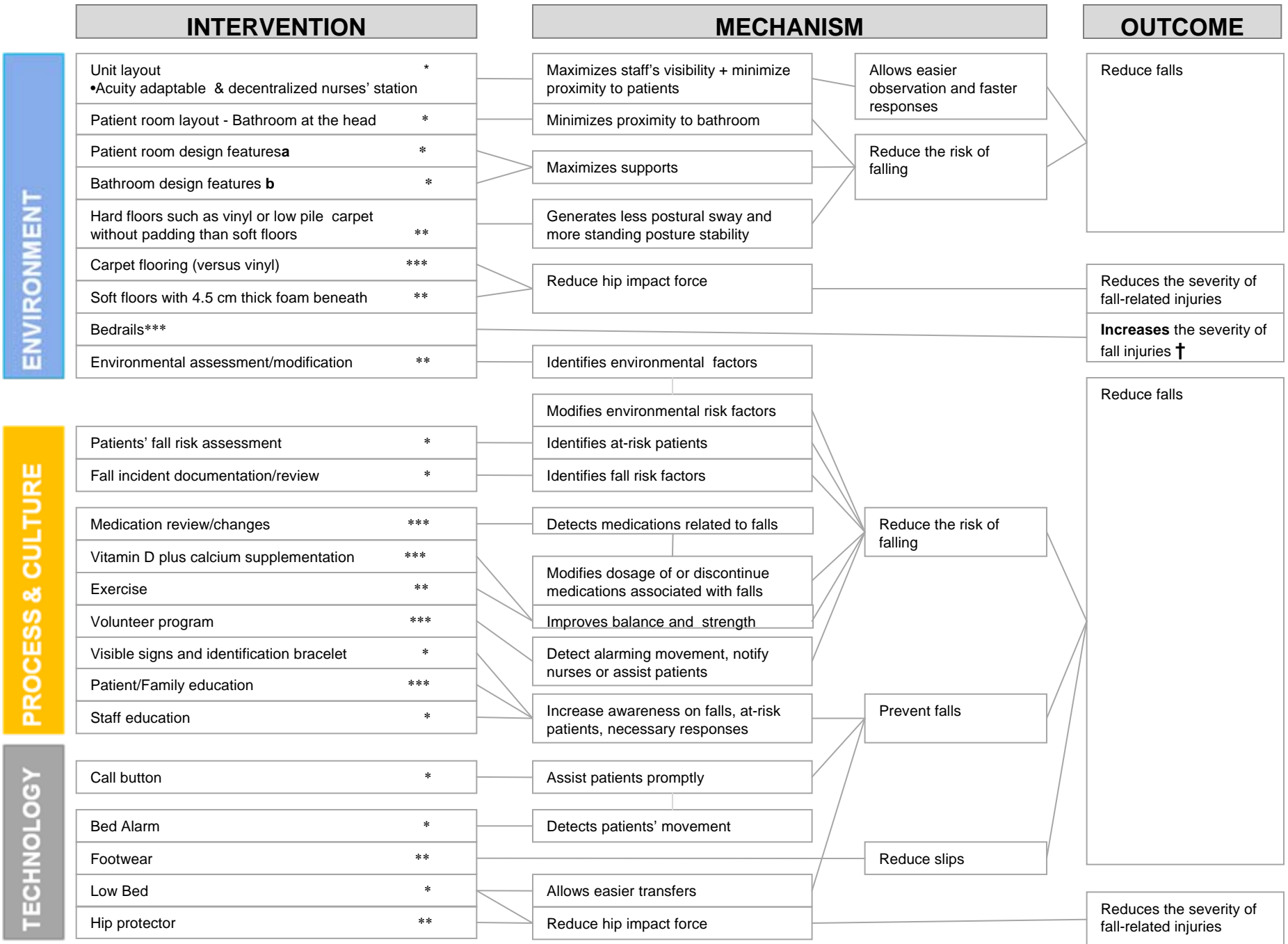
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12

Flooring



8/18/2009
Source: YoungSeonChoi



† Adverse outcomes

The Need

- Over \$4B of construction in the MHS is imminent.
- Evidence-based design (EBD) is to be employed in all new MHS construction and renovations.
- Now is the time to establish baseline measures for:
 - Patient safety (e.g., infections, falls, medication errors)
 - Patient satisfaction
 - Staff injuries (e.g., back and lifting injuries)
 - Staff satisfaction
 - Care coordination (e.g., hand-offs, transfers)
- According to the DoD Patient Safety Center, one of the biggest safety problems in the MHS is patient falls.

Need: Determine the metrics for EBD & how to collect them.

Top Leadership Support



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

1200 DEFENSE PENTAGON
WASHINGTON, DC 20301-1200

JAN 22 2007

MEMORANDUM FOR COMMANDER, NAVAL FACILITIES ENGINEERING
COMMAND
COMMANDER, UNITED STATES ARMY CORPS OF
ENGINEERS

SUBJECT: QDR Roadmap and Evidence-Based Design

As BRAC implementation drives the acquisition of new medical facilities in San Antonio and the National Capital Area, I request that you instruct the respective design teams to apply patient centered and evidence based design principles across all medical MICLON construction projects. A growing body of research has demonstrated that the built environment can positively influence health outcomes, patient safety, and long-term operating efficiencies to include reduction in staff injuries, reduction in nosocomial infection rates, patient falls, and reductions in length of hospital stay. Incorporating the results of this research along with changes in concepts of operations into the design of some of our most significant facilities will allow the Military Health System and the patients entrusted to our care to reap substantial health and system wide benefits for many years to come.

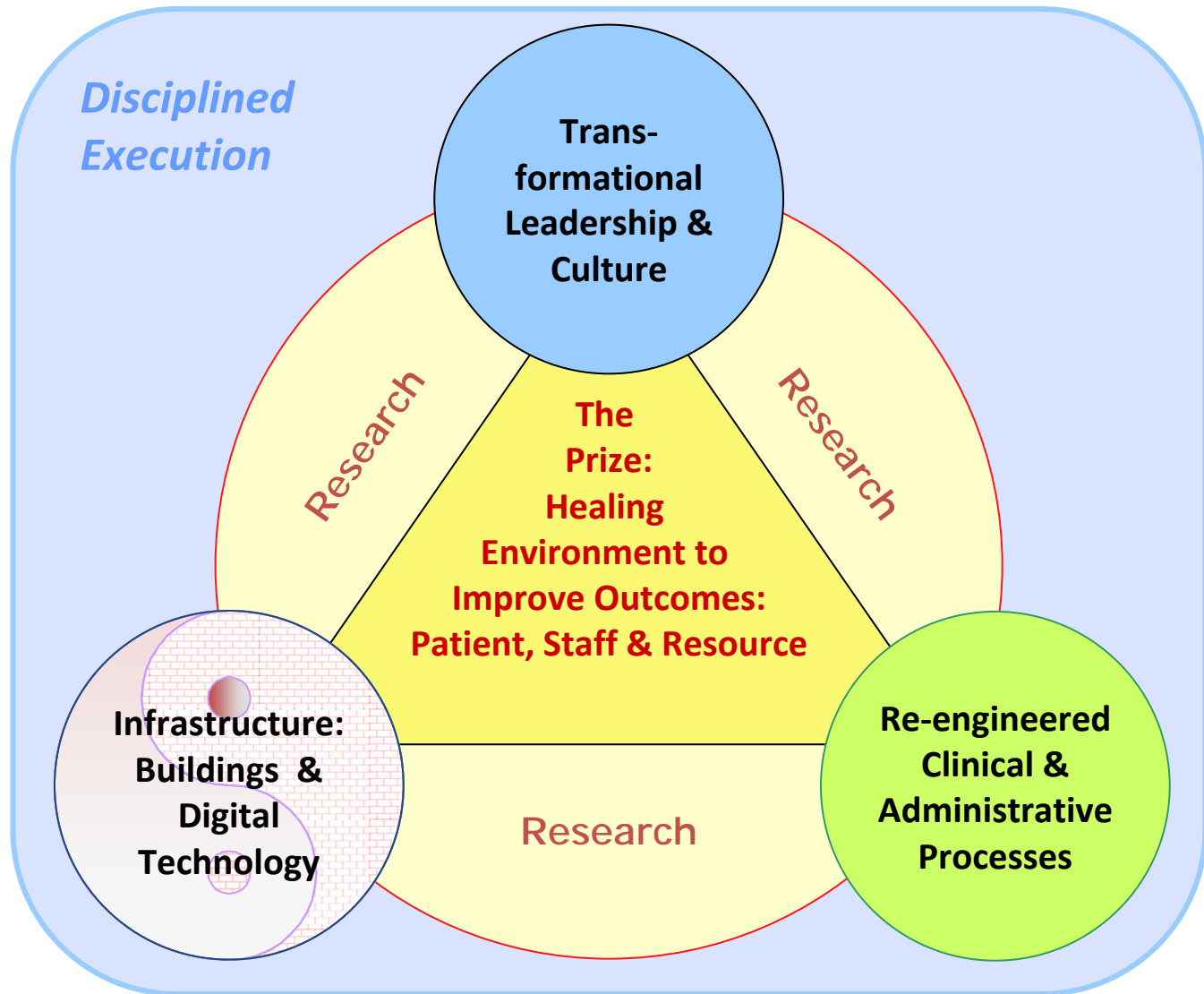
The Military Health System Office of Transformation was established by the Deputy Secretary of Defense to ensure that recommendations from the Quadrennial Defense Review are effectively implemented. QDR Roadmap 17 mandates leveraging and integrating evidence-based medicine with effective patient partnerships to ensure judicious use of resources while promoting healthy individuals and communities. In support of QDR Roadmap 17, the Office of Transformation has assumed leadership of a Tri-Service interdisciplinary team with substantial knowledge of patient centered and evidence based design. This team can be made available to provide any support or guidance that might be required.

My points of contact are COL Keith E. Essen, Deputy Director Army, and Military Health System Office of Transformation and Mr. Clay Boenecke, Chief, Capital Planning Branch, Portfolio Planning and Management Division, TMA. COL Essen can be reached at (202) 762-3098 or keessen@us.med.navy.mil. Mr. Boenecke can be reached at (703) 681-4324 or clayton.boenecke@tma.osd.mil.


William Winkenwerder, Jr., MD

“...I request that you instruct the respective design teams to apply patient-centered and evidence based design principles across all medical Military Construction projects. A growing body of research has demonstrated that built environment can positively influence health outcomes, patient safety and long-term operating efficiencies to include reduction in staff injuries, reduction in nosocomial infection rates, patient falls and reduction in the length of hospital stay....”

MHS EBD Model



Baseline Measures – 9 Areas of Focus

Satisfaction

Safety

Patient	<ul style="list-style-type: none">• MHS Patient Satisfaction Surveys: population-wide• Visit-based ambulatory care patient survey• <i>CAHPS® Hospital Survey</i> is sent to recent inpatients	<ul style="list-style-type: none">• HAIs• Reported falls (and severity of injuries)• Inpatient transfer rates
Staff	<ul style="list-style-type: none">• Staff satisfaction survey	<ul style="list-style-type: none">• Staff injuries• Nursing care hours

Challenge and Opportunity

“We have an unprecedented opportunity now to take the first steps in modernizing many of our key facilities ... We can ensure our hospital designs promote integrity during the clinical encounter, empower our patients and families, relieve suffering, and promote long-term health and wellness. Hospitals that say we care and are not satisfied with anything but excellence”

-- S. Ward Casscells, MD,