VANDERBILT UNIVERSITY
OWEN GRADUATE SCHOOL OF MANAGEMENT

Safety Culture and High-Reliability: Lessons from Health Care

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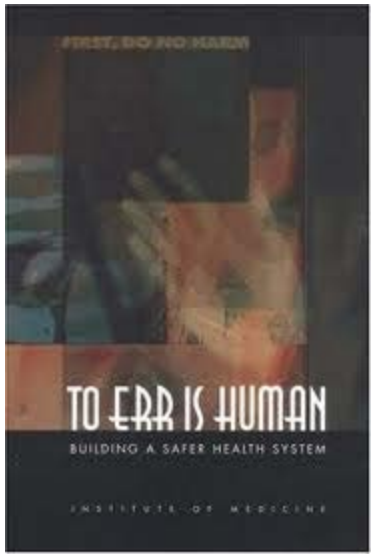
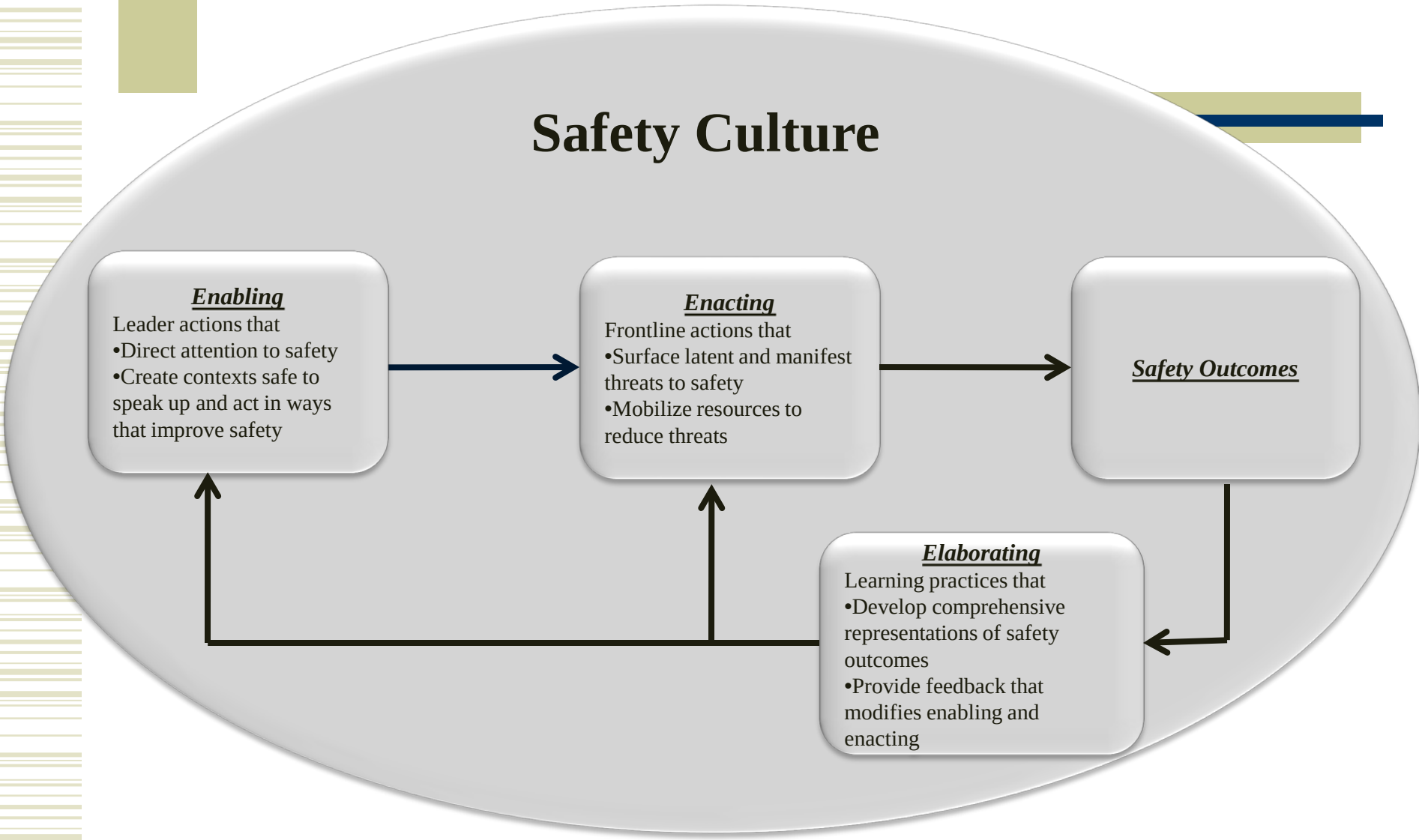
Why Healthcare?

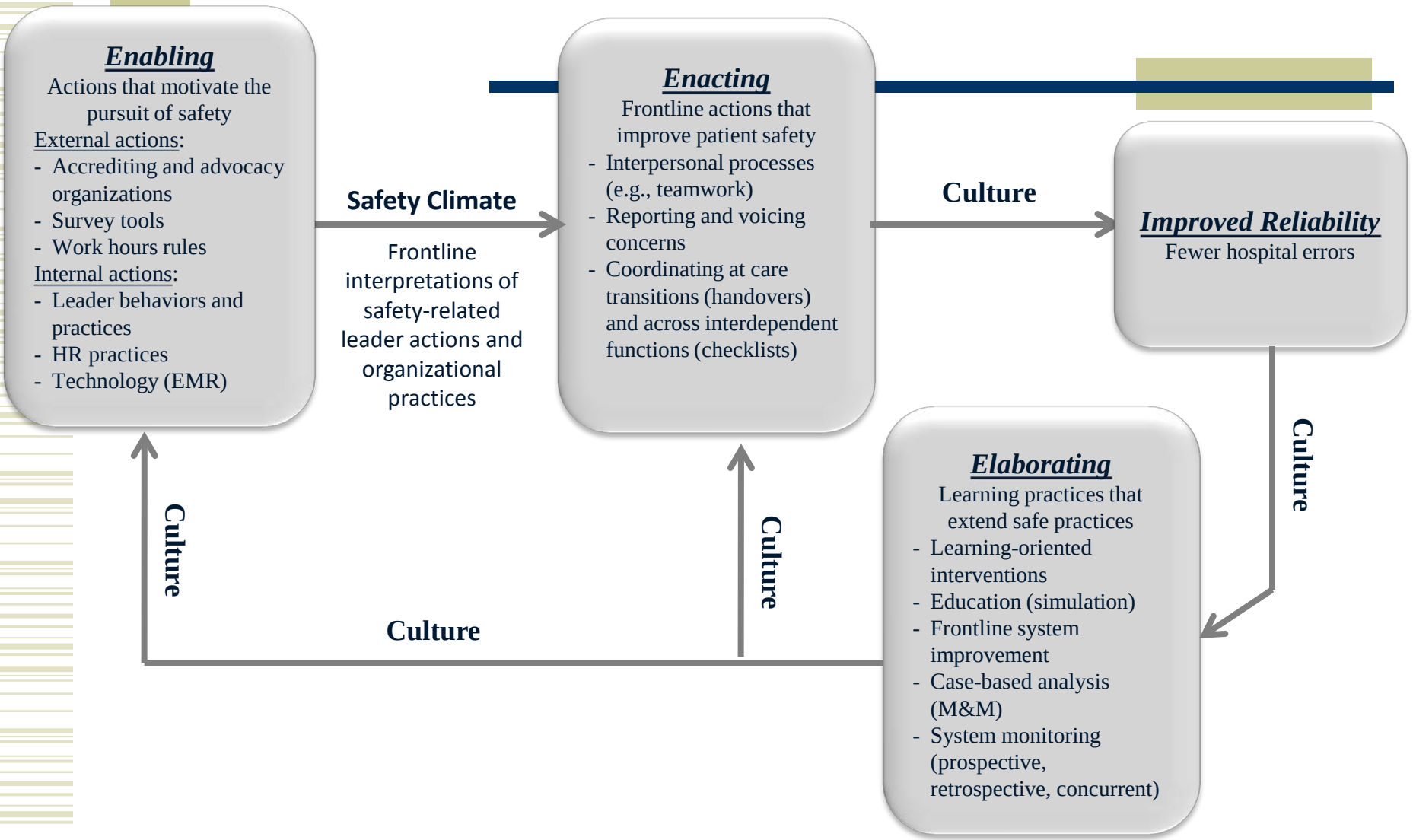


- Reliability a persistent and costly problem
  - 98,000 deaths annually (IOM, 2000)
  - May be significantly higher (Classen, et al. 2011)
- Improvement efforts have yielded little (Wachter, 2010)
  - Despite significant effort (Landrigan, et al., 2010)

Why Healthcare? (cont.)

- Complex
  - Cognitively demanding (Aiken, et al., 2002)
- Dynamic
  - Highly uncertain (Argote, 1982)
  - Numerous exceptions (Tucker, 2004)
- Interdependent
  - Across shifts
  - Distributed expertise (Benner, et al., 1996)


Safety Culture
Enabling
Leader actions that
•Direct attention to safety
•Create contexts safe to speak up and act in ways that improve safety
Enacting
Frontline actions that
•Surface latent and manifest threats to safety
•Mobilize resources to reduce threats
Safety Outcomes
Elaborating
Learning practices that
•Develop comprehensive representations of safety outcomes
•Provide feedback that modifies enabling and enacting


Enabling
Actions that motivate the pursuit of safety
External actions:
- Accrediting and advocacy organizations
- Survey tools
- Work hours rules
Internal actions:
- Leader behaviors and practices
- HR practices
- Technology (EMR)
Safety Climate
Frontline interpretations of safety-related leader actions and organizational practices
Enacting
Frontline actions that improve patient safety
- Interpersonal processes (e.g., teamwork)
- Reporting and voicing concerns
- Coordinating at care transitions (handovers) and across interdependent functions (checklists)
Culture
Improved Reliability
Fewer hospital errors
Culture
Elaborating
Learning practices that extend safe practices
- Learning-oriented interventions
- Education (simulation)
- Frontline system improvement
- Case-based analysis (M&M)
- System monitoring (prospective, retrospective, concurrent)
Culture
Culture
Culture

Where Do We Observe Safety Culture?

High reliability organizations (HROs)

Schulman, 1993

Roberts, 1990; Weick & Roberts, 1993

LaPorte & Consolini, 1991

High Reliability Organizations

- Have nearly error-free operations in contexts that are extremely
  - Complex
  - Dynamic
  - Interdependent

Which Behaviors Underlie Safety Culture?

- Mindful organizing
  - A social practice enacted collectively
    - Not an intra-psychic process (cf. Langer, 1989)
  - Consists of
    - Preoccupation with failure
    - Reluctance to simplify interpretations
    - Commitment to resilience
    - Sensitivity to operations
    - Deference to expertise
  - Mindful organizing allows for the rapid detection and correction of errors and unexpected events

Mindful Organizing Occurs When

- People are
  - Spending time identifying what could go wrong
  - Discussing alternatives as to how to go about everyday activities
  - Developing an understanding of who knows what
  - Talking about mistakes and ways to learn from them
  - Taking advantage of the unique skills of one's colleagues (even if the person is of lower status in the organization)

Measuring Mindful Organizing

Concept	Survey Item(s)
Preoccupation with failure • Chronic wariness of the unexpected	When giving report to an oncoming nurse, we usually discuss what to look out for. We spend time identifying activities we do not want to go wrong.
Reluctance to simplify interpretations • Questioning assumptions and received wisdom	We discuss alternatives as to how to go about our normal work activities.
Sensitivity to operations • Up-to-date knowledge of where expertise resides	We have a good "map" of each other's talents and skills. We discuss our unique skills with each other so we know who on the unit has relevant specialized skills and knowledge.
Commitment to resilience • Deliberate learning from experience	We talk about mistakes and ways to learn from them. When errors happen, we discuss how we could have prevented them.
Deference to expertise • Migrating decision-making to person with most expertise, not most authority	When attempting to resolve a problem, we take advantage of the unique skills of our colleagues. When a patient crisis occurs, we rapidly pool our collective expertise to attempt to resolve it.

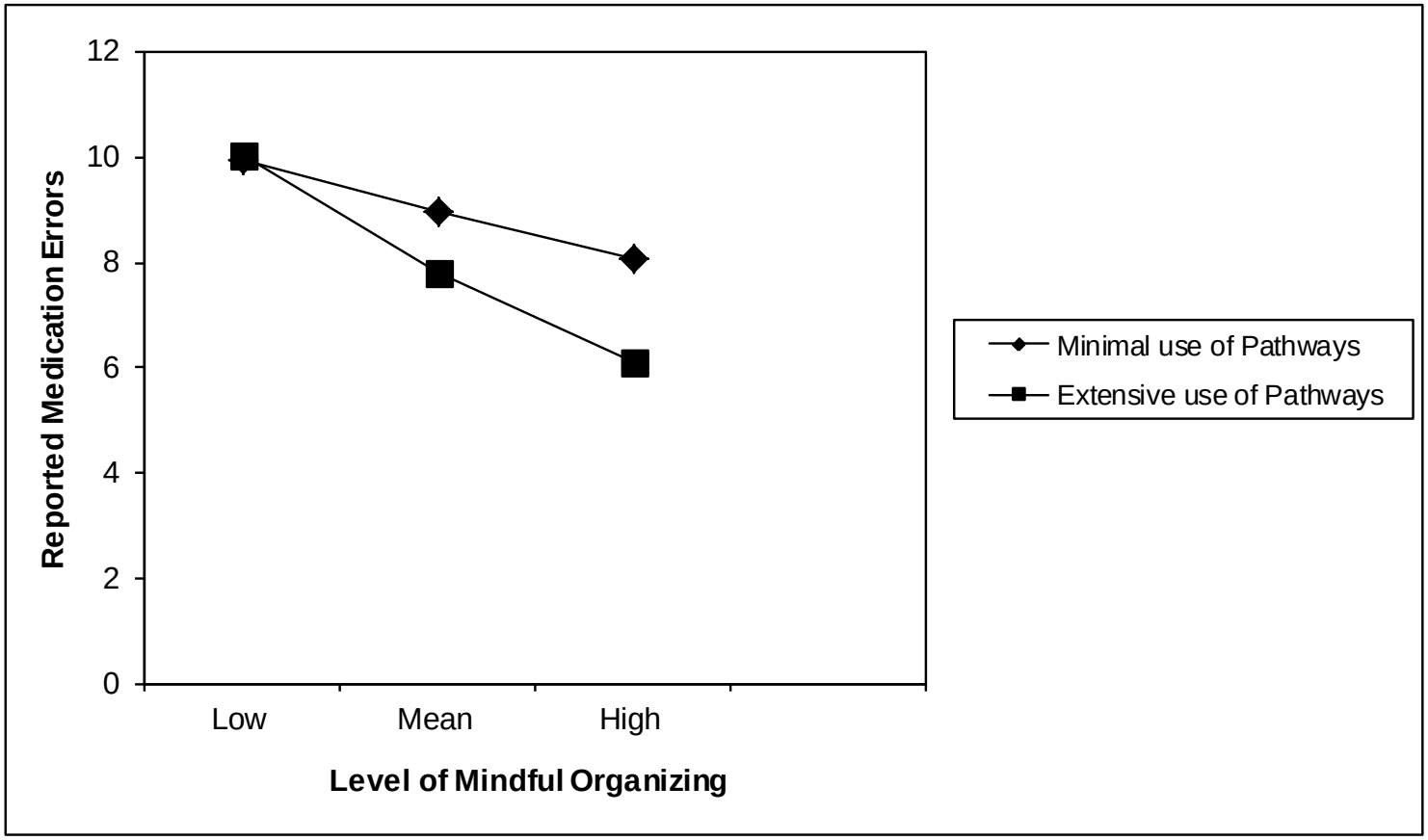
Is Mindful Organizing Associated with Safety?

- 95 nursing units
  - A one unit increase in mindful organizing associated with 35% fewer medication errors
    - 7 fewer errors per year per unit
  - A one unit increase in mindful organizing associated with 69% fewer patient falls
    - 13 fewer falls per year per unit
- 125 nursing units
  - Mindful organizing positively related to manager ratings of safety and quality

Do Other Safety-Oriented Practices Enhance These Effects?

- Mindful organizing doesn't occur in a vacuum
  - Potentially enhanced by complementary practices
- Care pathways
  - Standardization of care according to best practice
    - Structure interactions
    - Build connections (Feldman and Rafaeli, 2002)
    - Facilitate coordination (Gittell, 2002)
  - "The majority of our patients are on care pathways" (Gittell, 2002)

Joint Effects – Mindful Organizing and Care Pathways



What Enables Mindful Organizing?

- HR practices
  - Selective staffing
    - Hiring for interpersonal as well as technical skills
  - Extensive training
    - Preceptor programs, training in interpersonal skills, ongoing informal training
  - Developmental performance appraisal
    - Ongoing, 360-degree, and focused on learning
  - Employee involvement
    - Discretion over work practice
  - Reward suggestions
  - Job Security

How Do HR Practices Help?

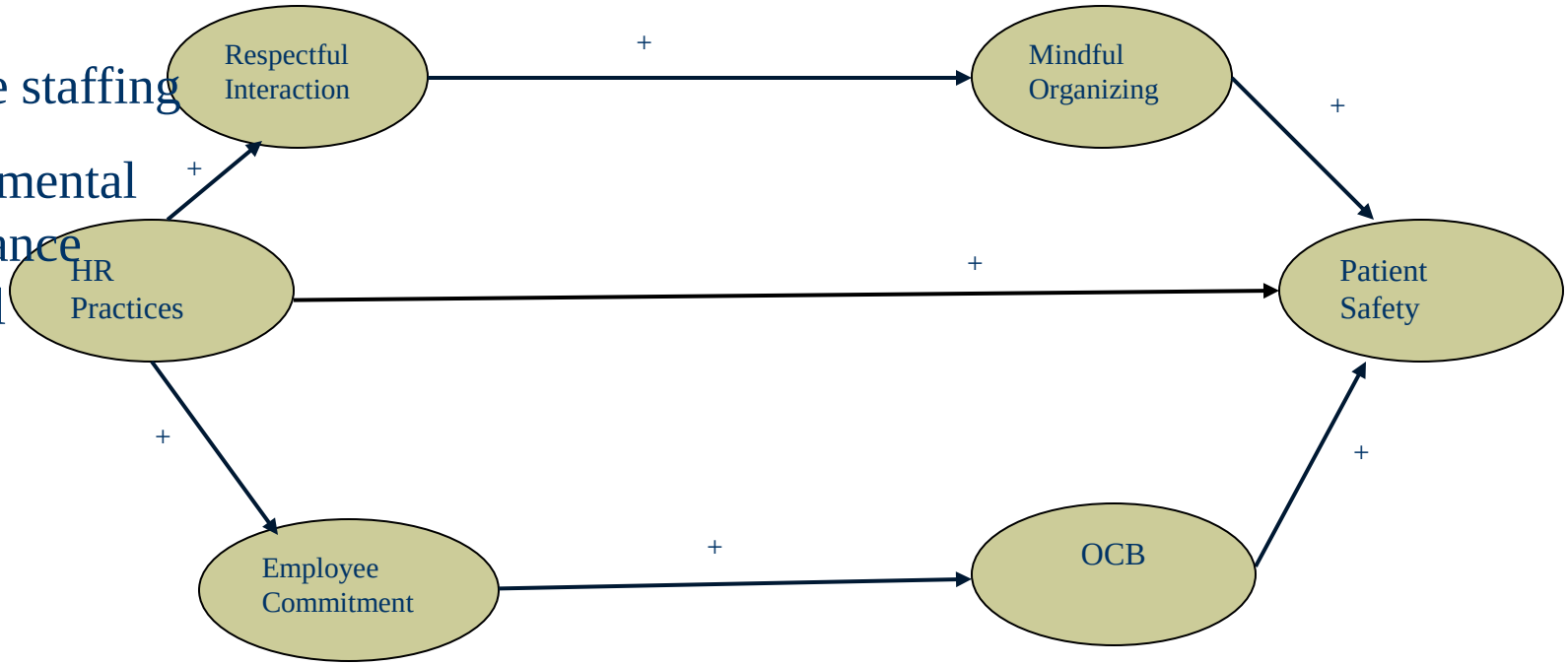
- Through signaling
  - Signaling the behaviors expected, supported, and rewarded
- Signaling about what?
  - How work is to be carried out
    - Developmental performance appraisal and coaching signal the importance of learning and feedback seeking
  - They foster a psychological contract
    - Employees are valued and treated fairly, so they reciprocate and generalize

What Enables Mindful Organizing?

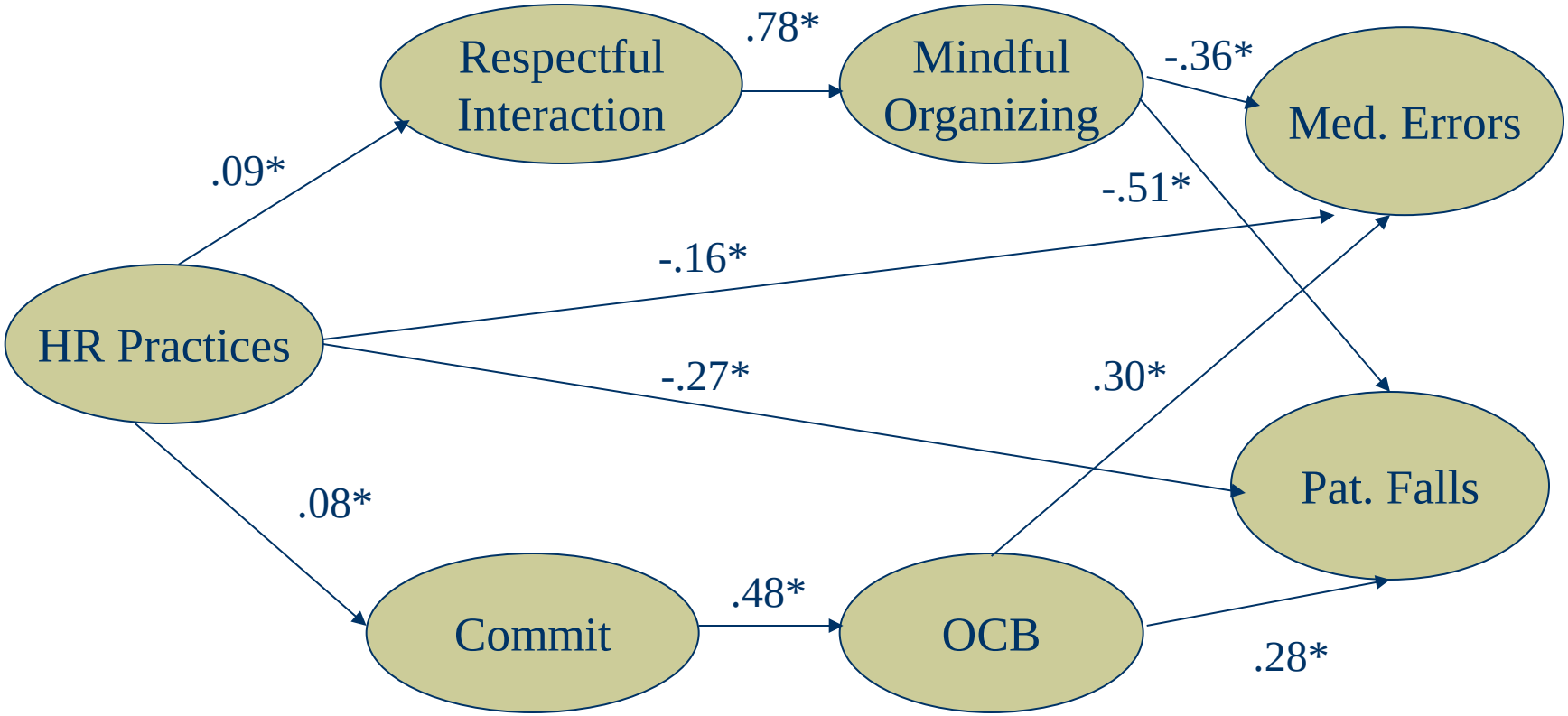
- HR Practices include
  - Selective staffing
  - Developmental performance appraisal

Dyadic interactions – trust, honesty, and self-respect

Capabilities for detecting and correcting the unexpected



Findings



$\chi^2 = 91.05$, df = 12, CFI = .93, SRMR = .053

Conclusions

- Mindful organizing is a distinctive behavioral capability
  - Conceptually and empirically differs from related concepts
  - Uniquely explains performance
- Mindful organizing is associated with reliability
  - Quality and safety across settings
  - Effects are enhanced by complementary practices
- Mindful organizing is enabled by
  - Workgroup professional characteristics
  - HR practices

Back Up Slides

Preoccupation with Failure

- A wariness about what could go wrong
- Questions to ask
  - What are we most worried about?
  - Where are we most vulnerable?
  - What is the “worst case scenario”?

Reluctance to Simplify Interpretations

- Questioning assumptions to develop better ways of working

- Questions to ask
  - What assumptions are we making?
  - Are there data that disconfirm our assumptions?
  - What other assumptions could we make?
  - What are alternative ways to carry out our work?

Sensitivity to Operations

- A shared understanding of current status and where necessary expertise resides

- Questions to Ask
  - Who will be most impacted by our work?
  - Where does the necessary expertise reside?
  - Who needs to be at the table?

Commitment to Resilience

- Regularly reflecting on and learning from outcomes to build group capabilities

- How do we know we need to stop and huddle or debrief?
- What went well? How can we replicate it?
- What went wrong? How can we avoid the same mistakes?

Deference to Expertise

- Decision-making based on problem-specific expertise, not formal authority

- Questions to ask
  - Who has the most experience with this situation?
  - Who has knowledge we need to consider?
  - How will we get their perspective?
  - What barriers will prevent us from drawing upon the appropriate expertise?