Patient Safety and the Cognitive Work of Nursing: Advances in Nursing Science and Implications for Organizational Support

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Learning Objectives

- Describe current science related to the cognitive work of nursing
- Define stacking and factors influencing it among direct care nurses
- Identify implications for nursing leadership in alignment with AONE Nurse Executive Competencies and the future of nursing and patient safety
Current Science: Patient Safety

• Your chances of dying in a plane are 1 in 3,000,000 compared to 1 in 300 in a hospital (Leape, L., AONE 2010)

• One in five hospitalized Americans experience medical error (King, S., 2009)

• Baggage handling at the airport is more reliable than medical care (Gellinas, 2010)
Current Science: Patient Safety and the Cognitive Work of Nursing

• Patient care safety mandates an understanding of factors influencing nursing and the nursing work environment (Ebright, 2004).

• Current nursing work environment
  – Constant state of attention to the unexpected
  – Requires capacity to perceive multiple perspectives
    • Data input
    • Conditions
    • Alternatives
    • Right decision-making
Major barrier to making progress in safety and quality:

*Failure to appreciate the complexity of work and the invisible work of nursing*
Multitasking is required!

The average nurse completes 100 tasks/shift spending approximately three minutes on each task before being interrupted with other tasks or priorities.

One nurse observed illustrated cognitive shifts or interweaving among five patients 74 times in eight hours.

(Tucker, 2006)
Science Describing the Cognitive Work of Nursing

- Heidegger...Being in Time...Throwness (1927)
- Dreyfus...Expertise and What Computers *Can’t* Do (1979)
- Benner....Novice to Expert (1984)
- Ebright ... Stacking (2003; 2004)
- Haven ... Decisional involvement (2005)
- Potter ... Cognitive shifts (2005)
- Kalisch ... Missed care (2006; 2009)
- Krichbaum ... Complexity compression (2007)
- Weick ... Sensemaking (1993; 1995; 2002; 2006; 2007; 2009)
- Vogus ... Mindful organizing (2007)
- Gittell ... Relational coordination (2009)
Science Describing the Cognitive Work of Nursing

Cognitive Shifts
Interweaving/ shifting cognitively from patient to patient during the conduct of the nursing process... *typically 9 cognitive shifts/hour* (Potter, et.al., 2005)

Missed Care
What’s Missed
ambulation, turning, feedings, patient education, emotional support, hygiene, intake and output documentation, and surveillance

Factors Influencing What’s Missed
Communication
Material Resources
Labor Resources (Kalisch, et.al, 2009)

Complexity Compression
feeling that nurses experience when expected to assume additional, unplanned responsibilities while simultaneously conducting multiple responsibilities (Krichbaum, et.al., 2007)
Mindful Organizing (Weick, 2007; Vogus, 2007)

Hazard Anticipation
- POF
- STO
- RSI

Hazard Containment
- DTE
- R
Relational Coordination

- Shared Knowledge
- Shared Goals
- Mutual Respect
Cognitive Work of Nursing: Blunt-End Sharp-End Framework Guiding Inquiry

Management and Development Organizations

Resources & Constraints

Coordinating Knowledge Mindset Goals

Goals Conflicts Obstacles Hazards Data Behaviors

SEE

Evolving and escalating situations

Adapt Anticipate Accommodate React Cope

Woods, Johannesen, Cook, Sarter, 1994
Factors Affecting Decision Making in the Context of Demanding Situations

- **Strategic factors/goals**: factors that influence how people cope with trade-offs among different goals that conflict (in the midst of uncertainty, risk, and pressure of limited resources).

- **Knowledge**: factors related to the knowledge base that can be drawn on for solving problems in context.

- **Mindset** ... or... the presence of factors that:
  - Govern the control of attention and the management of workload given the ebb and flow of activities (dynamics)

Woods, Johannesen, Cook, Sarter, 1994
RN Stacking

RN stacking is a dynamic decision-making process resulting in care delivery priorities, and is dependent on the ability of the nurse to be mindful and engage in accurate sense-making about clinical and workflow data in the midst of unpredictable and constantly changing situations. (Ebright, et.al., 2003)
RN Stacking Study

Purpose: Develop a knowledge base about RN stacking

1. What do RNs stack?

2. What factors influence RN decisions about stacking?

3. How do RNs manage the stacking process for effectiveness (safety and quality) and efficiency (getting things done)?
What Do RNs Stack?
Nursing Work: The invisible part...mindfulness and sensemaking

- Move patient to new bed
- Signature for narcotics
- New assistant arrives
- LPN she is covering
- Patient risk of falling
- Hang IV for her
- Patient moved up in bed
- Staffing
- Hang IV

13:00
- Gets IV bags, Checks orders in binder
- IV push
- Hangs IV
- Oral meds, topical cream
- Hangs IV
- Planning for new shift
- Checks orders in binder
- Hangs IV
- Hangs IV
- IV push
- Oral meds
- Insulin
- Pain med
- Hangs IV
- Hangs IV
- Topical cream

14:00
- Staffing
- Move patient to new bed
- Signature for narcotics
- New assistant arrives
- LPN she is covering
- Patient risk of falling
- Hang IV for her
- Patient moved up in bed
- Staffing
- Hang IV

15:00
- Checks updates in computer
- Oral meds
- Hangs IV
- Hangs IV
- IV push
- Oral meds
- Insulin
- Pain med
- Hangs IV
- Hangs IV
- Topical cream

16:00
- Staffing
- Move patient to new bed
- Signature for narcotics
- New assistant arrives
- LPN she is covering
- Patient risk of falling
- Hang IV for her
- Patient moved up in bed
- Staffing
- Hang IV

17:00
- Checks updates in computer
- Oral meds
- Hand off assessment
- Narcotic keys
- Checks updates in computer
- Oral meds
- Insulin
- Pain med
- Hangs IV
- Hangs IV
- Topical cream

18:00
- Staffing
- Move patient to new bed
- Signature for narcotics
- New assistant arrives
- LPN she is covering
- Patient risk of falling
- Hang IV for her
- Patient moved up in bed
- Staffing
- Hang IV

19:00
- Checks updates in computer
- Oral meds
- Hand off assessment
- Narcotic keys
- Checks updates in computer
- Oral meds
- Insulin
- Pain med
- Hangs IV
- Hangs IV
- Topical cream

20:00
- Staffing
- Move patient to new bed
- Signature for narcotics
- New assistant arrives
- LPN she is covering
- Patient risk of falling
- Hang IV for her
- Patient moved up in bed
- Staffing
- Hang IV

- Other RN needs binder
- IV pump alarm
- IV pump alarm
- Other RN leaves floor
- Water for patient
- Children on floor
- MD asks to tape down IV
- Pain med request
- IV pump alarm
- Weigh patient
- Other RN dinner
- Wife of patient

Emily Patterson, PhD
VA-Getting At Patient Safety (GAPS) Center
Study Findings: What Were Factors Contributing to RN Stacking Decision Priorities?

- Unpredictability
- Clinical urgency
- Perceived time constraints
- Duration of activity
- Sequence, spacing and timing of events
- Lack of control
- Assigned load
- Quality of work-life
- Expertise
- Licensing constraints
Study Findings: What Were Strategic Factors/Goals Influencing Decision Making?

- Maintain patient safety
- Prevent getting behind
- Avoid increasing complexity
- Appear competent and efficient to coworkers
- Maintain patient/family satisfaction
- Get everything done
- Maintain patient flow
Study Findings: How Did the RN Manage the Stack?

- Defer
- Shed
- Recruit
- Cluster
- Be proactive
- Reorder
- Reduce performance criteria
- Complete
Study Findings: What Was the Influence of Expertise in Managing the Stack?

• New graduate RNs – focusing on routine, linear list
• Experienced RN - redefining the stack, adding to, re-organizing, shedding
• Gaps filling – new graduate vs. experienced RN differences in “tool kit or bag of tricks”
• Movement from reactive to proactive as experience increases – “seeing the day,” avoiding cascades
• Differences in hazard anticipation and hazard containment
• Collaboration
Nursing work environments are considered high hazard settings given the work is cognitively demanding and interdependent, requiring mindful organizing and effective stacking with little margin for human error.

Technology is essential but insufficient.
Implications for Nursing Leadership in Alignment with AONE Nurse Executive Competencies

What can I take away today?
AONE NE Competency: Knowledge of Healthcare Environment/Patient Safety

Needs Assessment Ideas

• Influence of interdisciplinary relationships on outcomes
• Agreement between staff and leadership regarding shared governance – decision-making
• Where my unit or my organization is with high reliability behaviors
• Impact of environment on nursing process and missed nursing care

Instruments Informing Needs Assessment

• Relational Coordination Scale
• Decisional Involvement Scale
• Safety Organizing Scale
• Missed Care
Implementation Considerations

• TCAB (ihi.org)
• Shared decision-making (Havens, et. al. 2005)
• Transition from critical thinking to clinical reasoning in transition (Benner, et al, 2009)
• Practice-Education Partnership (Everett & Sitterding, 2010)
• Interdisciplinary Integration: Rounds (Kramer, 2010)
• Risk Resilience Conversations (Resar et al, 2008)

AONE NE Competencies

• Articulates the link between organizational metrics and national quality initiatives/ metrics
• Academic relationships
• Ensure staff is clinically competent and trained on their role in patient safety
• Supports a non-punitive reporting environment and a reward system for reporting unsafe practices
Implications for Future Inquiry

- What is the relationship between RN expertise, RN stacking and patient safety outcomes, i.e. fail to rescue and never events such as fall and hospital-acquired pressure ulcers?
- What is the relationship between decisional involvement, relational coordination and patient safety outcomes?
- What is the relationship between mindful organizing and patient safety outcomes?
- What is the relationship between relational coordination and RN stacking among nurses experiencing a nurse-defined situation of criticality?
How Might the Nurse of the Future Respond to Patient Safety and Nursing Work?

- Nursing will steer professional ‘identity’ not only to include caring, knowledge, honesty and integrity but also knowledge and commitment to quality and safety (qsen.org)

- Nursing will drive the identification and mitigation of non-value added interruptions

- Nursing will lead the shift from an emphasis on critical thinking in practice to an emphasis on clinical reasoning and reasoning in transition (Benner, et al, 2009)

- Lead design of technology that is RN user-friendly, supportive of nursing work, accessible and mobile
Thank you very much for your attention.

How might we partner to explore, understand and positively influence the cognitive work of nursing and patient care safety?
References

- Batalden, P. and Bate, P. (2005) Harnessing the power of ‘mindfulness’ in Microsystems.