# Improving the Odds on Quality

**6th Annual American Nurses Association**

**Nursing Quality Conference**

**January 2012**

# Medication Administration in the 21$^{st}$ Century:
# A Spoonful of Sugar or a Hard Pill to Swallow?

**Presented by
Bonnie M. Jennings, DNSc, RN, FAAN
Visiting Professor
Nell Hodgson Woodruff School of Nursing
Emory University, Atlanta, GA**

The graphic artistry in this presentation is the work of Stacy Heiner, BSN, Ashland, OR

# Objectives



- ➤ **Explain the complexity of "med administration"**

- ➤ **Examine the feasibility of reducing interruptions during med administration**
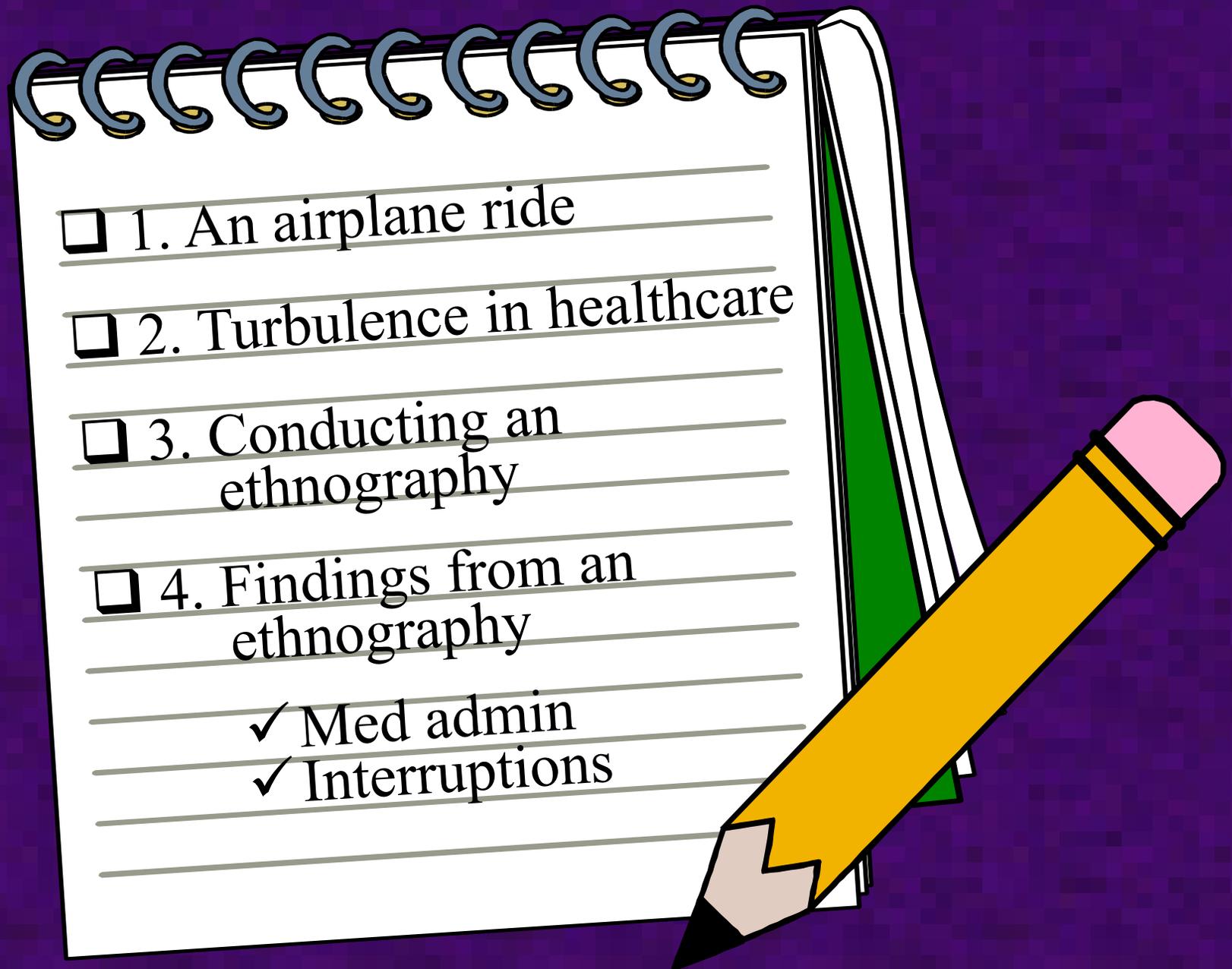
☐ 1. An airplane ride

☐ 2. Turbulence in healthcare

☐ 3. Conducting an ethnography

☐ 4. Findings from an ethnography

✓ Med admin
✓ Interruptions
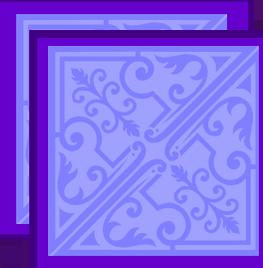
# Welcome Aboard

➢ **Boarding Process**

➢ **Turbulence**

# Boarding Process
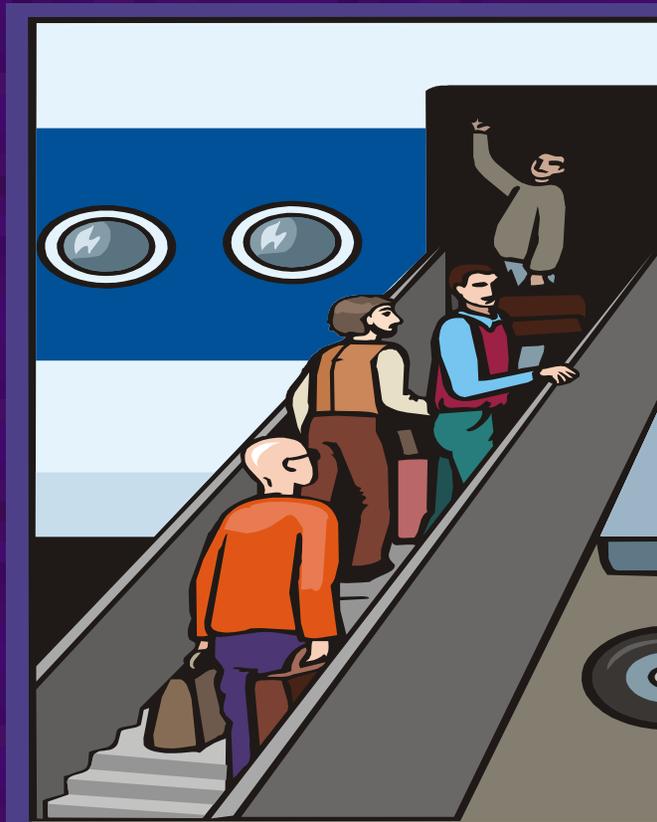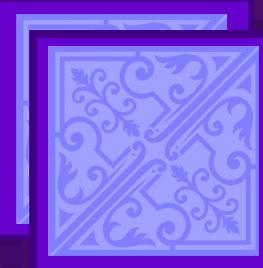
# Boarding Process

- **Patients**
  - **Admissions**
  - **Discharges**
  - **Transfers**

- **Healthcare staff**
- **Nursing shifts**

# Boarding Process

## Nursing Shifts

7A…………………………7P………………………7A

7A………………………………………11P

7A……………3P…………11P…….…7A

7A…………1P……7P

9A  11A  1P

# Turbulence

- **Outside the aircraft**
  - Take your seats
  - Fasten your seatbelts

- **Inside the hospital**
  - Care must continue
  - There are no seatbelts!

# Turbulence

## Studies of Turbulence (T)

- **Salyer (1995):** ↑T, ↓ communication

- **Tillman (1997):** ↑T from Managed Care

- **Boscoe (2007):** ↑T, ↑ medication errors; patients felt less well cared for

Salyer (1995). *JONA, 24*(4), 12-20. Tillman, et al. (1997). *JONA, 27*(11), 15-22. Boscoe (2007). *The relationship between environmental turbulence, workforce agility and patient outcomes*. Unpublished doctoral dissertation, UofA.

# Turbulence

## Studies of Turbulence (T)

- **AHRQ Patient Safety Handbook***
- **Other signs**
  - Noise
  - Equipment/supplies
  - Interruptions
  - Technology

*Jennings (2008) Turbulence.  In Hughes (Ed.), Pt Safety and Quality: An Evidence-Based Handbook for Nurses.  Rockville, MD: AHRQ (pp. 2-193-2-202).

# Turbulence

- Environment/outcome connection → elusive*

- Progress in patient safety**: $C^+ \to B^-$

- We measure what we know how to measure and that may not be what matters most***

*Manojlovich, et al. (2009). *Am J Crit Care, 18,* 21-30   **Wachter (2010). *Health Affairs, 29*(1), 165-173.   ***Jennings (personal opinion).
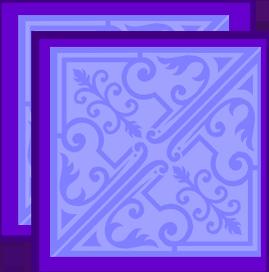
# A Postdoc Adventure*

# Turbulence in the Healthcare Environment
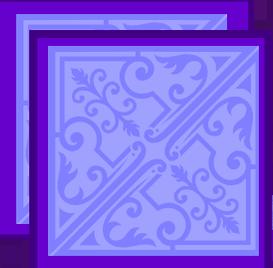
# An Ethnography

- **Participant observation (3 hr blocks):** me and my steno pad/noise dosimeter
- **Formal interviews:** me and my audiotape/paid transcriptionist
- **Documents:** me, informatics, hospital policies, and more
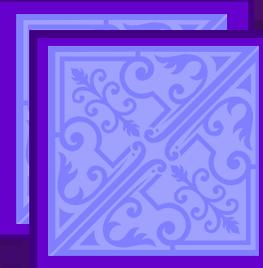
# An Ethnography



*Spradley, JP (1979). *The ethnographic interview*. Wadsworth, Australia., Spradley, JP (1980). *Participant observation*. Wadsworth, Australia.
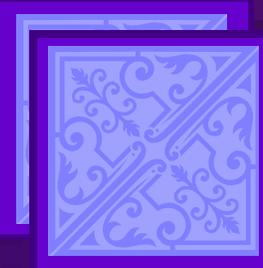
# An Ethnography

## Anticipated Participants

- **Staff from a medical and surgical unit ($N = \sim 150$)**
  - Nursing
  - Physicians
  - Unit clerks
  - Pharmacists
  - Transporters
  - RT/PT/TO
  - Social workers
  - Case managers

  **Patients—in scenes, not the target of inquiry**
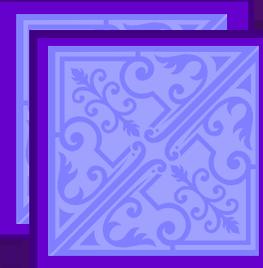
# An Ethnography

## Actual Participants ($N$ = 577)

| | | |
|---|---|---|
| Bedside nurses | = | 298 (N1 – N298) |
| Unit clerks | = | 39 (U1 - U39) |
| Others | = | 165 (O1 - O165) |
| Physicians | = | 75 (P1 - P75) |
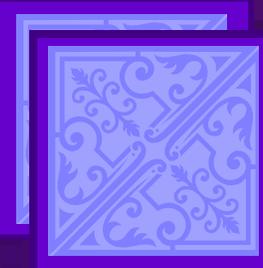
# An Ethnography

## Hours of Data Collection
## Total Study

| | |
|---|---|
| Participant observation | 267 hrs |
| Formal interviews | 29 hrs |
| Document review | TNTC |
| | 296+++hrs |
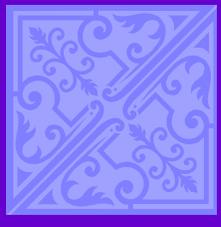
# An Ethnography

## Shadowing

|  |  | UNIT | | | |
|---|---|---|---|---|---|
|  |  | Medical | | Surgical | |
|  |  | Day Shift | Night Shift | Day Shift | Night Shift |
| RN Experience | < 2 yrs | ✔ | ✔ | ✔ | ✔ |
|  | 2-3 yrs | ✔ | ✔ | ✔ | ✔ |
|  | >3 yrs | ✔ | ✔ | ✔ | ✔ |
| LPN |  | ✔ |  | ✔ |  |
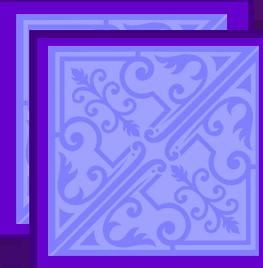
# An Ethnography

## The Gift that Keeps on Giving
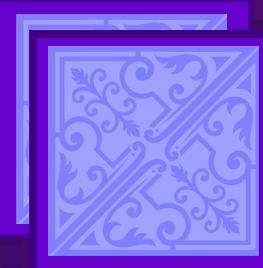
# An Ethnography

I want to acknowledge and thank the staff who allowed me to capture their reality

# Findings

## The Complexity of Med Admin*

- **Temporal structure**
- **Demands**
- **Managing time**
- **Choosing the tools****

## Interruptions***

- **Stopping them**
- **Handling them**

*Jennings, Sandelowski, & Mark (2011). The nurse's medication day. *QHR, 21,* 1441-1451. ** Jennings (in progress).   ***Jennings and Sandelowski (in progress).
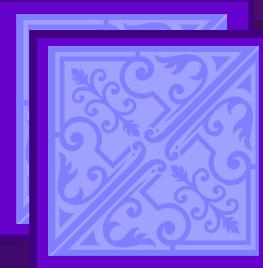
# Med Administration

## Background /Context

## What IS Med Admin?

- **Founded on the 5 (or 6) R's***
- **It's about giving the drugs ordered by physicians and dispensed by pharmacists****

*Potter (2010). In Perry & Potter (Eds.) *Clinical nursing skills & techniques* (pp. 515, 523-524). **Aspden et al. (2007). *Preventing medication errors*. Washington, DC: The National Academies Press.

# Med Administration

## Background /Context
## Elements of Med Admin

| | Verify | Obtain | Prepare | Deliver | Give | Chart | Monitor | Waits |
|---|---|---|---|---|---|---|---|---|
| Aspden et al., 2007 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| Hendrick et al., 2008 | | | ✓ | ✓ | | | | |
| Keohane et al., 2008 | ✓ | ✓ | | | ✓ | ✓ | | ✓ |
| Battisto et al., 2009 | | ✓ | ✓ | | ✓ | ✓ | | |
| Biron et al., 2009 | | | ✓ | | ✓ | | | |
| Elganzouri et al., 2009 | | ✓ | ✓ | | ✓ | ✓ | | |
| Hall et al., 2010 | | | ✓ | | ✓ | | | |
| Westbrook et al., 2010 | | | ✓ | | ✓ | | | |

# Complexity of Med Administration

## The Temporal Structure*

- **Inseparable from other work**

- **Med schedule structured the shift**

- **Meds defined the day: good/bad**

- **Average number of scheduled doses**
  - Medical unit: 25/pt/day + 2 prn
  - Surgical unit: 22/pt/day + 4 prn

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration

## The Temporal Structure*

- **Administration times for scheduled meds**
  - Q4h (02, 06, 10, 14, 18, 22)
  - BID (10/22 <u>unless</u> diuretics)
  - QD (10 <u>unless</u> empty stomach—06, or labs—18)
- **When meds are given**
  - 25% @ 10:00
  - 17% @ 22:00
  - 58% during the rest of the day

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration



## The Temporal Structure*

- **Unscheduled meds**
  - PRNs—pain, nausea, itching
  - STATs—give within 30 minutes

- **Unscheduled meds are interruptions**
- **Blood administration**

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration
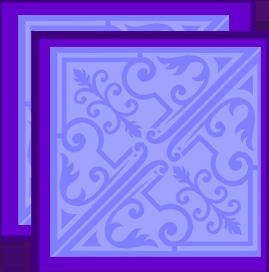
## Institutional Demands*

- The Joint Commission (TJC)
- Laws (e.g., Controlled Substances Act)
- Private organizations (i.e., ISMP)
- National Fire Protection Association

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration
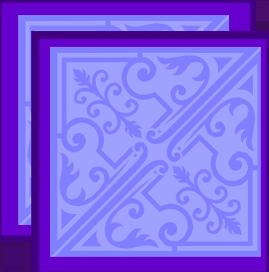
## Institutional Demands*
- **TJC--profiling**
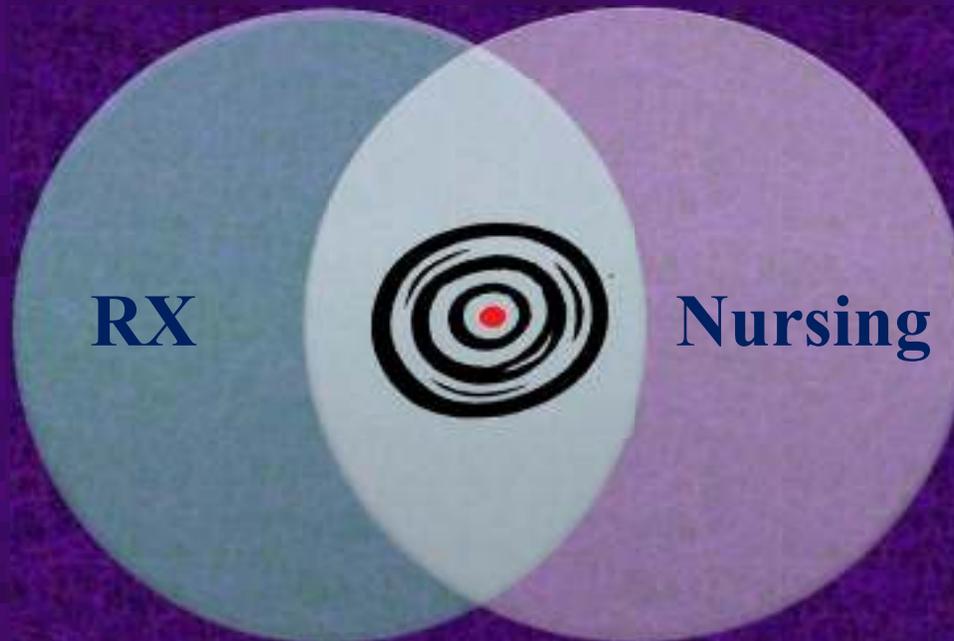
RX     Nursing

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration

## Technical Device Demands*

- "Smart" IV pumps
- Handhelds
- Med admin devices
- Assessment tools
- Automated medication administration cabinets (AMDCs)
- Barcoded medication administration (BCMA)
- Patient controlled analgesia (PCA)
- Glucometers
- COWs
- Mobile phones

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration

## Technical Device Demands*

- **Best of times**

- **Worst of times**
  - "[BCMA] sensitized nurses to the medication schedule in a new way"**

*Jennings et al. (2011). *QHR, 21*, 1441-1451. ** Novak & Lorenzi (2008). Barcode medication administration: Supporting transitions in articulation work. *AMIA 2008 Symposium Proceedings*, 515-519.

# Complexity of Med Administration

## Patient Demands*

- **Physical and mental capacity**
- **Preferences and requests**
- **Age and ability**
  - Number and size of pills
  - Pill by pill
  - Crush meds/mix with applesauce

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration

**Demands of the Physical Environment***



- **Facility age**
- **Clear hallways**
- **Electrical outlets**
- **Number of med rooms**
- **Size of patient rooms**

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration

## Demands of medications*

- **Routes**
  - Parenteral (45%)
  - Oral (42%)
  - Enteral (4%)
- **Reconstituting antibiotics**
- **Giving multiple antibiotics at the same time**
- **Hep-locking or plugging IVs**

*Jennings et al. (2011). *QHR, 21*, 1441-1451.

# Complexity of Med Administration

## Managing Time*

- **Articulation work****
  - Invisible
  - Opposite of routine***
  - Keeps things on track
  - Taken for granted
  - Workarounds as a form of articulation work

*Jennings et al. (2011). *QHR, 21*, 1441-1451. **Strauss (1985). *Soc Q, 26*, 1-19. ***Star (1991). The sociology of the invisible. In DR Maines (Ed.), (pp. 265-283), New York: Aldine De Gruyer

# Complexity of Med Administration

## Managing Time*

- **Sequencing med administration****
  - No pattern
  - Giving meds "on time"
  - Crushed meds—at the end
  - Multiple abx—at the start
  - Reprioritizing***—overcoming operational failures

*Jennings et al. (2011). *QHR, 21*, 1441-1451. **Zerubavel (1979). *Patterns of time in hospital life*. Chicago: University of Chicago Press. ***Tucker & Spear (2006). *HSR, 41*,(3, pt1), 643-662.

# Complexity of Med Administration

## Managing Time*

- **Clustering care*, ***
  - Optimize time in patient's room
  - Consolidate meds

*Jennings et al. (2011). *QHR, 21,* 1441-1451. **Strauss (1988). *Soc Q, 29,* 163-178.

# Complexity of Med Administration

## Managing Time*

- **Multi-tasking**
  - Using mobile phones and...
  - Talking to people during med admin

*Jennings et al. (2011). *QHR, 21*, 1441-1451.
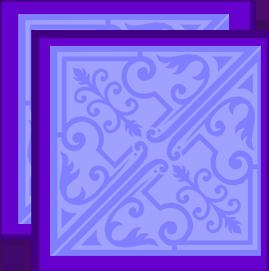
# Interruptions

**Stopping them**

**OR**

**Handling them**

# Interruptions

## Background/Context

## Why Worry?
- **Cognitive stacking** *‡
- **Reprioritizing** **

- **Poor outcomes (?) ***

*Ebright et al. (2003). *JONA, 33*, 630-638. ‡ Potter et al. (2005). *Advances in patient safety: From research to implementation. Vol 1. Research findings*. AHRQ pub no. 05-0021-1 (pp. 39-51). **Tucker & Spear (2006). *HSR, 41*, (3, pt 1), 643-662.

***McGillis Hall et al. (2010). *JONA, 40*, 169-176.
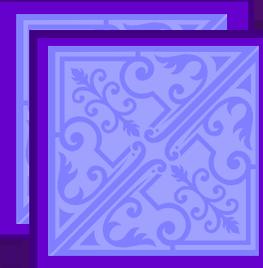
# Interruptions

## Intervention Studies

- **Pape*→AHRQ innovation**
  - Control
  - Intervention A: vest
  - Intervention B: checklist
- **Pape****
  - Fewer distractions after signs posted
- **Relihan*****
  - Pre: 27; post: 11

*Pape (2003). *MEDSURG Nrsg, 12*, (2) 77-93; **Pape et al (2005). *J Cont Ed Nrsg, 3<u>6</u>*, 108-116; ***Relihan et al. (2010). *Qual Safe Health Care, 19*, e52.
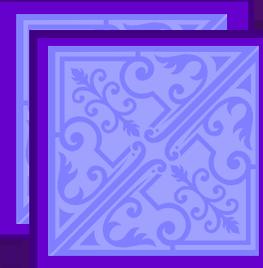
# Interruptions

## Intervention Studies (con't)

- ▪ **Kliger\*—Quiet time**

- ▪ **Anthony\*\*—No Interruption Zone**
  - Pre: .35
  - Post : .21

\*Kliger et al. (2009). *Jt Comm J Qual Pt Safe,* 25, 604-612; \*\*Anthony et al. (2010). *Crit Care Nurse, 30* (3), 21-29.

# Interruptions
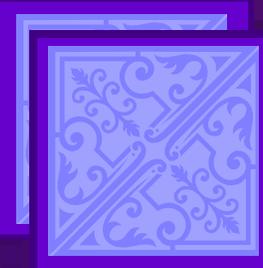
# Interruptions

## The Feasibility of Interventions

- Stopping interruptions

OR

- Handling interruptions

# Interruptions

## Handling interruptions*

- **Expect them**
- **Care process is messy, not linear**
- **Positive features**

*Jennings & Sandelowski (in progress).

# Interruptions

## Handling interruptions

- **Time management**
  - Sequencing med admin
  - Clustering care
  - Multi-tasking
  - Reprioritizing

- **Cognitive management**
  - Memory devices
  - Deep breathing
  - Choosing to stop or continue
  - Visual cues
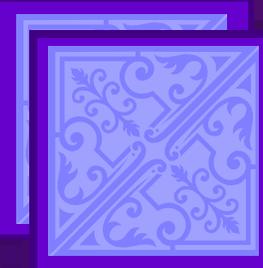
# Med Administration

## Challenges in the 21$^{st}$ Century

- Clinicians
- Administrators
- Researchers
- Educators

# Medication Administration in the 21st Century:
# A Spoonful of Sugar or a Hard Pill to Swallow?

**Presented by**
**Bonnie M. Jennings, DNSc, RN, FAAN**
**Visiting Professor**
**Nell Hodgson Woodruff School of Nursing**
**Emory University      Atlanta, GA**

The graphic artistry in this presentation is the work of Stacy Heiner, BSN, Ashland, OR