Surprise Findings from Pediatric Medication Administration OSCE Research: It’s Not Only about the 5 Rights!

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Background

Problems exposed in literature:

• Medication administration problems in nursing students (Pauly-O’Neill, 2009)
• Not all hospitals allow students to give meds
• Challenges in giving meds to different developmental levels (Lambton, Pauly-O’Neill, & Dudum, 2008)
• Need for alternate hands-on learning
• Simulation experiences as active participation in structured medication administration experiences
• **Objective evaluation of clinical competence is major challenge in nursing education** (Walsh, Bailey, & Koren, 2009)
  • OSCE as evaluation method
The Simulation Experience: Medication Administration

**Who:** Senior 1 level baccalaureate nursing students enrolled in Nursing of Children and Adolescents

**Where:** Smart Hospital™ on UTA campus

**When:** First day of course
The Simulation

What: 7-hour simulation day consisting of:
• Pre-briefing by lead teacher
• Sample videos of pediatric medication administration
• Four rooms set up for each developmental level:
  • Four manikins/room
  • Infant Colt—Congenital Heart Defect
  • Amanda Pre-School—Asthma
  • Sally School-Age—Cystic Fibrosis
  • Travis Teen—Post-op with Diabetes
• Four small group sessions with pediatric faculty
  • Rotate between rooms
  • ~12-15 students/room (3-4 students/manikin)
• Instructor-led Debriefing
Infant Colt
Amanda Pre-School
Sally School-Age

Preparation by faculty before donning PPE
Travis Teen
Simulation Evaluation

Pediatric Medication Administration OSCE

- Course requirement
- Completed within 1-3 weeks post-simulation
- Calculate and administer oral and IV medications to Infant Colt
- Individual videotapes
- Videos viewed for:
  - Student feedback
  - Reinforcement
  - Remediation
Approved by IRB

Mixed-Methods Study

- **Quantitative:** descriptive research design
  - 207 Senior 1 nursing students (Fall 2010 & Spring 2011)
  - Evaluate competencies from cognitive, psychomotor, and affective domains
  - All videos viewed by 2 raters using 14-item rubric
  - Inter-rater reliability for each item

- **Qualitative:** exploratory focus group design
  - 2 focus groups (10 students/group)
  - Explore affective domain of learning
  - 3 reflection questions
Correct Behaviors: N = 207 students

- 87% reviewed MAR prior to medication administration
- 71% calculated safe doses correctly
- 85% documented on the MAR
- 92% exhibited professional behavior and dress
- 98% correctly explained actions to their infant's "parent"
- 98% approached patient in a developmentally-appropriate way
Correct Behaviors: N = 207 students

- 67% washed hands prior to patient contact
- 75% checked patient's ID band prior to medication administration
- 73% checked patient's allergy band
- 32% cleaned IV port for 10 seconds with alcohol
- 38% flushed IV port with normal saline to assess patency
- 20% attached the IV medication properly
- 83% administered the oral medications properly
Inter-rater Reliability of Checklist Items:
- Kappa and Intraclass Correlation Coefficients
- 6 items with poor-fair inter-rater reliability:
  - Involve affective domain of learning
  - Professional dress/presentation
  - Explanations of medications to parent
  - Developmentally appropriate communications/actions
  - Correct oral medication administration to infant
- 8 items with strong to adequate inter-rater reliability:
  - Involve cognitive and/or psychomotor domains
Qualitative Results

- Audiotapes transcribed verbatim
- Line-by-line analysis for common themes
- Member checking

- **Feelings:** *Loss of control and anxiety*

- **Beliefs:** *No immediate feedback and reaction under pressure* affected OSCE performance

- **Attitudes:** *Safety first* but without a *connection to future practice*

(Cazzell & Rodriguez, in press)
Discussion

- Checklist items with acceptable inter-rater reliability:
  - Can be interpreted as reliable evaluations of student behaviors/competence
  - Involved psychomotor skills
- Difficulty with evaluating affective domain behaviors:
  - Need detailed observable behaviors on checklists
  - Role of raters: assessor or evaluator?
- Importance of Reflection/Debriefing
Implications for Nursing Education

- Repetition of foundational skills throughout curriculum
  - Handwashing/Gloving
  - Cleaning and accessing IV ports
  - Medication math
- Early use of OSCEs in nursing programs
- Need for reflection immediately after OSCE
- Psychometric rigor of OSCE checklists

