Nursing Students' Clinical Judgement for a Patient in Respiratory Distress

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Introduction

- This presentation describes a study that evaluated the effect of using written clinical reasoning prompts on pre-licensure Baccalaureate nursing students' clinical judgment for a respiratory case study.
- Providing students with frameworks within which to make and reflect upon clinical reasoning and judgments may promote identification and correction of cognitive errors to keep patients safe.

Background

- Patient outcomes depend on nurses' clinical judgment and abilities to recognize and respond to changes in condition (Massey, 2016).
- Each nurse brings unique experiences, skills, and thinking abilities to clinical situations (Carvaho, et al, 2017; Lasater, Nielsen, Stock, Ostrogorsky, 2015; Lunney 2010).
- Nurse educators must teach students to develop their clinical reasoning abilities to make accurate clinical judgments (AACN, 2011; Lasater, Nielsen, Stock, Ostrogorsky, 2015).

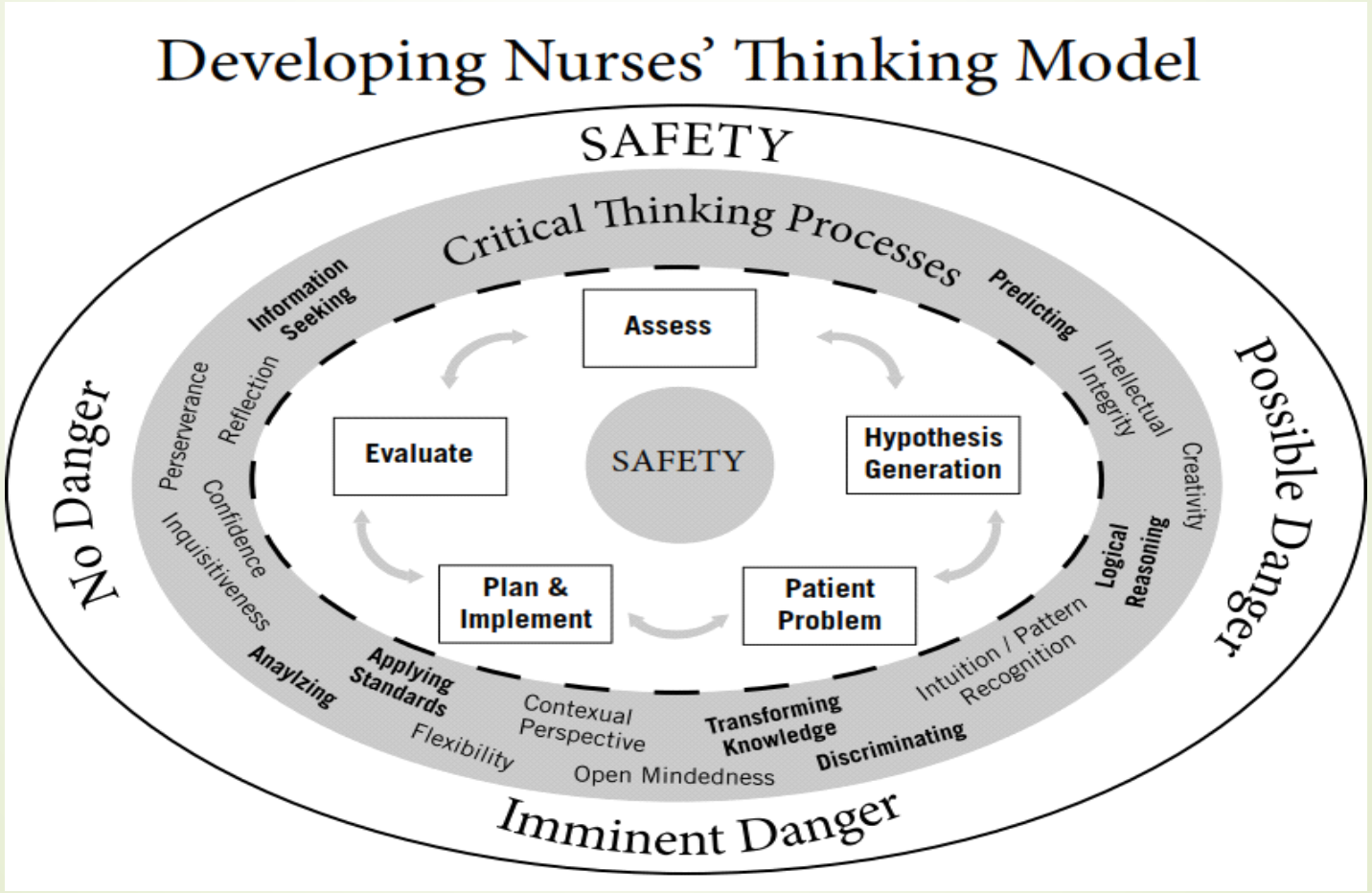
Purpose

- Written Clinical Reasoning Prompts based on the Developing Nurses' Thinking (DNT) model, were tested for respiratory case studies to evaluate the impact on nursing student's clinical judgment.

Clinical Reasoning Prompts (CRPs)

- CRP prompts were developed from the Developing Nurses' Thinking Model
- The Developing Nurses Thinking (DNT) model.
  - Integrates use of critical thinking processes, domain knowledge, and repeated process in the context of patient safety to guide the clinical reasoning process (Tesoro, 2012).

The Developing Nurses Thinking (DNT) Model



Dr. Mary Tesoro DNT Model (2012, 2019)

Methods

- An experimental pre and post test study with convenience sample of baccalaureate nursing students in their second clinical semester from two schools of nursing, one public and one private.
- IRB approval for the study obtained from both schools.
- Randomized control and intervention groups from both schools were given two parallel case studies that portrayed a patient in respiratory distress.

Methods

- Both intervention groups received written CRPs to guide their analysis of the case in the post-test.
- Post test surveys for student's perceptions related to use of prompts, on case study as a learning strategy and prior experience with respiratory patient care.
- Non-parametric test (Mann Whitney U) used for the testing of hypothesis and difference in accuracy of priority patient problem scores and cue recognition between control and intervention groups.

Design

- An experimental, pre and post test design using one set of parallel validated respiratory case studies to measure clinical judgment.
- Independent variable
  - Written clinical reasoning prompts (CRPs) based on the DNT model.
- Dependent variables
  - Clinical judgment
  - Identification the most accurate patient diagnosis/problem
  - Identification of cues from the case study that supported the priority patient problem.

Instruments

- Validated Parallel Case Studies
- Clinical Reasoning Prompts
- Lunney Scoring Method (LSM)
- Post test Student Survey

Lunney Scoring Method

- LSM: 7 Levels (Lunney, 2009)
  - +5, consistent with all cues, priority
  - +4, consistent with many cues
  - +3, consistent with many cues; lacks specificity
  - +2, indicated by some cues; low priority
  - +1, suggested by one or few cues
  - 0, not indicated by any cues
  - -1, incorrect, disconfirming cue(s)

Results

- Sample
  - Convenience sample of 163 students randomized into 35 clinical groups
    - Control group N=73
    - Intervention group N=90

Frequency Distribution of Demographic and Nursing Program Data (N=163)

- Students' age ranged from 18 to 54, *M* = 26.8, *SD* = 6.74.
- There were no significant differences between groups.

Category		Frequency	Percent
Education			
	First degree	78	48%
	Second Bachelor's degree	85	52%
First Language			
	English	113	69%
	Not English	50	31%
Gender			
	Female	127	78%
	Male	36	22%
College			
	Public	93	57%
	Private	70	43%
Curriculum			
	Generic	68	42%
	Accelerated	95	58%

Results

- **Hypothesis** - Use of clinical reasoning prompts (CRPs) based on the DNT model would significantly improve students' clinical judgment was not supported.
- There were no statistically significant differences between the control and intervention groups for problem label, $Z = .734$, $p = .463$ or the total number of cues correctly identified, $Z = .050$, $p = .960$.

Descriptive Measures for Label and Cues				
		N	Mean	Std. Deviation
Control	Pre-test problem label	74	2.9054	2.14009
	Post-test problem label	74	3.1081	2.34414
	Total pre-test cues identified	73	4.27	1.601
	Total post-test cues identified	73	2.8667	2.22953
Intervention	Pre-test problem label	90	2.9556	2.21796
	Post-test problem label	90	3.5667	1.32436
	Total pre-test cues identified	90	4.20	1.508
	Total post-test cues identified	90	2.8841	2.18303
Total	Pre-test problem label	163	3.0244	2.26997
	Post-test problem label	163	3.4573	1.35371
	Total pre-test cues identified	163	4.23	1.546
	Total post-test cues identified	163	4.23	1.546

Survey Results

- Evaluation of Student Perceptions (N=157)
  - 62% - confident in their choice of patient problem
  - 79% - confident in their ability to identify pertinent cues to identify the priority patient problem.
  - 58% - previous experiences caring for similar patients.
  - 86% - intervention group (72/84) identified that repeated practice using the guided CRPs would improve their decision making.

Ancillary Data Analysis

- Because there were no statistically significant differences between control and intervention groups, groups were combined to analyze student problem identification and cues.
- Most students identified that the patient was having respiratory symptoms (scored as +3, +4, or +5), i.e., 70% and 74% of the pre and post test respectively.

Ancillary Data Analysis

- Of these students, 28% and 35% of students in pre and post tests respectively, identified the most accurate patient problem, *Ineffective Airway Clearance* (+5), that implied the intervention of providing the PRN respiratory treatment ordered in the case (Herdman & Kamitsuru, 2014).
- 12% and 6% of students identified problems that would not likely lead to appropriate management or communication of an acute respiratory problem with the team.

Frequency of Scores for Problem Labels

Problem label	Pretest N=163		Posttest N-163	
LSM Accuracy Score	Frequency	Percent	Frequency	Percent
+5	46	28%	58	35%
+ 4	41	25%	37	23%
+3	27	17%	26	16%
+ 2	13	8%	4	2%
+1	0	0	0	0
+0	5	3%	6	4%
-1	31	19%	32	20%

Frequency of Identified Cues

Cues	Pretest N=163	Posttest N-162
	Percent	Percent
1. wheezing	85%	85%
2. rhonchi	73%	69%
3. difficulty verbalizing (while speaking)	43%	44%
4. dyspnea (complaints of shortness of breath)	82%	54%
5. cough	45%	43%
6. unable to expectorate secretions	66%	65%
7. orthopnea (bed high fowlers)	7%	8%
8. rr26	49%	56%

Students for whom this is their First Degree were significantly more likely to get 3 or fewer cues correct on the posttest (37%) compared to those seeking a Second Degree (21%).

		Total Posttest Cues identified									Total
		0	1	2	3	4	5	6	7	8	
First degree	Count	4	4	5	16	18	19	11	0	1	78
	% within education	5.1%	5.1%	6.4%	20.5%	23.1%	24.4%	14.1%	0.0%	1.3%	100.0%
Second bachelors degree	Count	1	0	6	11	17	30	16	4	0	85
	% within education	1.2%	0.0%	7.1%	12.9%	20.0%	35.3%	18.8%	4.7%	0.0%	100.0%
	Count	5	4	11	27	35	49	27	4	1	163
	% within education	3.1%	2.5%	6.7%	16.6%	21.5%	30.1%	16.6%	2.5%	.6%	100.0%

Discussion

- Decision Reasoning Prompts and repeated practice
- Instruction guides for interpretation
- Overall confidence reported in judgments and identification of cues

Discussion

- Student confidence is relevant to nurse educators. Yang & Thompson (2010) found extreme over and under confidence negatively impacted their judgments.
- Students identified the most accurate problem of *Ineffective Airway Clearance* leading to deliver collaborative treatment. This finding is supported by the results of a recent study by Kvenaugh and Szweda (2017).
- Nursing curricula should stress the need for specificity when identifying and naming patient problems to assure appropriate interventions and effective communication with the team.

Limitations

- Number of students
- Define population more homogenously - compare generic students not those with a second degree
- Prior case study utilization

Implications

- Research data on nursing students' clinical judgments is critical to ensure that appropriate content, teaching strategies, and clinical experiences are integrated into nursing curricula to keep patients safe.
- The findings of this study support the need for nurse educators to more actively engage students in the clinical reasoning process and help them to clearly articulate their judgments that will lead to appropriate interventions.
- Validated case studies with instructions that guide decision making can be an appropriate learning strategy.

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Thank you!

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