



Improving Nursing Assessment and Treatment of Dyspnea

Using the Respiratory Distress Observation Scale (RDOS)



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Research Collaborative Partnership

Faculty with dual appointments:

- Professors in graduate programs at Goldfarb School of Nursing (GSON)
- Research / Evidenced-base Practice (EBP) Mentor at Missouri Baptist Medical Center (MBMC).

All research & EBP projects are performed with nurses on the units. This study's Co-PI is a nurse from Missouri Baptist.

- This study was done with nurses on 3 west medical/oncology unit.



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Respiratory Definitions for RDOS Study



- Dyspnea or Respiratory distress occurs when the lungs are unable to function at a level to sustain life.
- Dyspnea** – a person’s awareness of uncomfortable or distressing breathing that *can only be known through the person’s report.*
- Respiratory Distress** – observed behaviors (signs) that suggest that the impaired patient has breathing difficulty and cannot self-report it.

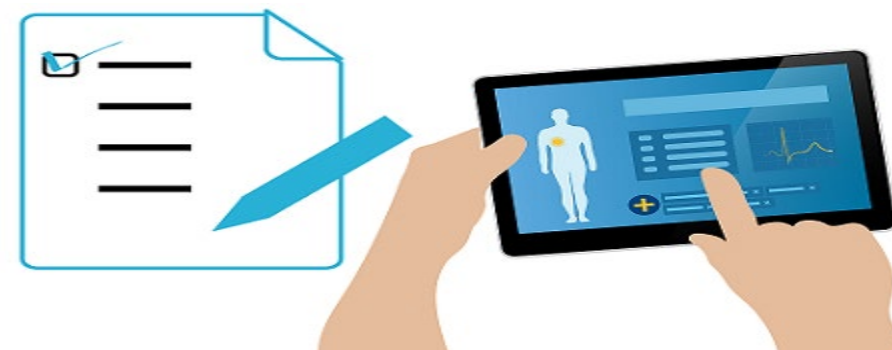




Reporting Respiratory Distress



- Dyspnea is a subjective measurement which involves a self-assessment by the patient; for accuracy, the patient must be able to have a certain level of communication.
 - Ability to **interpret** sensory stimuli
 - Ability to pay **attention** to instructions and **concentrate** to form a report
 - Ability to **communicate** verbally or nonverbally
 - Ability to **remember** previous report
- This evaluation is missed when patients are unable to self-report that they are experiencing difficulty breathing.





Research Study Purpose



- The overall objectives of this study was to learn whether:
 - (1) the implementation of a respiratory assessment tool, the Respiratory Distress Observation Scale (RDOS), would assist nurses in providing improved care for patients who may be experiencing respiratory distress but are unable to self-report;
 - (2) the nurse would performed an intervention if mild to moderate respiratory distress was noted; and
 - (3) nurse's confidence to perform respiratory assessment would improve with use of the RDOS between pre and post study scores.
- Missouri Baptist Institutional Review Board (IRB) approval received on April 18, 2017
- Funding received through the Missouri Baptist Staff/Faculty Research Grant from the MBMC Foundation (\$10,000).





Research Consent Process



- All registered nurses (44) on the 3 West Medical/Oncology unit (32 beds) were asked to participate in this study.
- The nurses had the right to refuse participation and that decision would not negatively affect them.
- A respiratory assessment of all patients is an essential requirement for registered nurses; we felt that the time it takes to complete study materials during their shift were minimal.
- Nurses demonstrated consent to participate in the study by completing a demographic form and 5-Item Confidence scale which measures confidence in skill performance.



Respiratory Distress Observation Scale©

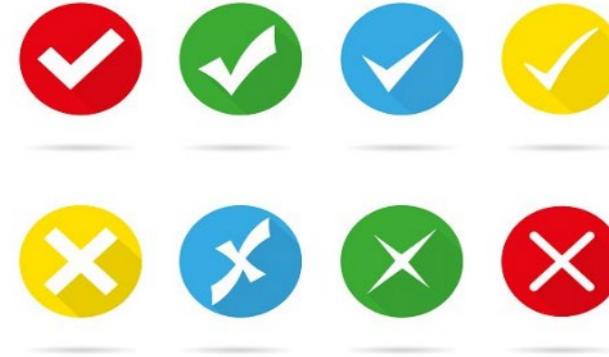
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Variable	0 Points	1 Point	2 points	Total
Heart Rate per minute	< 90 beats	90-109 beats	≥ 110 beats	+
Respiratory Rate per minute	≤ 18 breaths	19-30 breaths	>30 breaths	+
Restlessness: non-purposeful movements	None	Occasional. Slight movements	Frequent movements	+
Paradoxical breathing pattern: abdomen moves in on inspiration	None		Present	+
Accessory muscle use: rise in clavicle during inspiration	None	Slight rise	Pronounced rise	+
Grunting at end-expiration: guttural sound	None		Present	+
Nasal flaring: involuntary movement of nares	None		Present	+
Look of fear	None		Eyes wide open, facial muscles tense, brow furrowed, mouth open, teeth together	+
Total				=



RDOS scoring



- 0-2 = No distress
- 3 = Mild distress
- 4-6 = Moderate distress
> 4 warrants an intervention and a 2nd assessment one hour after the intervention
- ≥ 7 = Severe distress

If the patient **scored 4 or higher**, please indicate whether an intervention was performed in response to the assessment.

_____ Yes, what was it? _____

_____ No Rationale: _____



RDOS Study Stats (back of page)

Nurse ID (2 Digit): _____

Patient Code (3 digit).

All patient Codes will begin with the number R: _____



GOAL:

The outcome goal is for each nurse to complete the RDOS on five different patients.

Nurses will perform RDOS assessments on 5 different patients. The nurse can perform 3 RDOS assessment on each patient. Each nurse is responsible to keep up with the number of patients they have seen and assign them a number as follows:

- 1.Patient #1 – 001
- 2.Patient #2 – 002
- 3.Patient #3 – 003
- 4.Patient #4 – 004
- 5.Patient #5 – 005

Patient # _____

Day of Experience with Patient (Day 1, Day2, or Day 3): _____



STATISTICAL ANALYSIS WAS CONDUCTED BY PATRICK M ERCOLE, PHD, MPH, DIRECTOR OF ANALYTICS AT SANSOM CONSULTING.

ALPHA WAS PRESET AT 5% FOR ALL TESTING OF SIGNIFICANCE. ALL ANALYSES WERE PERFORMED USING IBM SPSS STATISTICS FOR WINDOWS VERSION 25.0.

RDOS Data Analysis Results



Champion Nurse Training

- Six champion nurses were identified by the nurse leaders on their unit and Co-PI Caryn Rosen.
- They completed a 3 hr. Training including an educational packet, background and purpose of the study, explanation of the research procedures, and simulation training.
- Assisted by Dr. Nancy Van Aman, we created and directed two simulation scenarios.
- The champions were divided into 2 groups. Each Scenario was completed by both groups, moving from Scenario 1 to Scenario 2.



Champion Nurses Training Stats



Average RDOS Total scores decreased from Scenario 1 to Scenario 2 (10.17 vs 6.71, $Z = -2.023$, $p = 0.043$).

This was expected because Scenario 2 was intended to have a less severe case of respiratory distress.

All participants rated Scenario 1 as Severe; however, they did not agree on how to rate Scenario 2.

- Mild/Moderate (33%) vs Severe (66.7%).
- In Scenario 2, scores were ≥ 4 and both groups performed an intervention.





Confidence Scale



1. I am certain that my performance is correct

1. Not at all certain
2. Certain for only a few steps
3. Fairly certain for a good number of steps
4. Certain for almost all steps
5. Absolutely certain for all steps

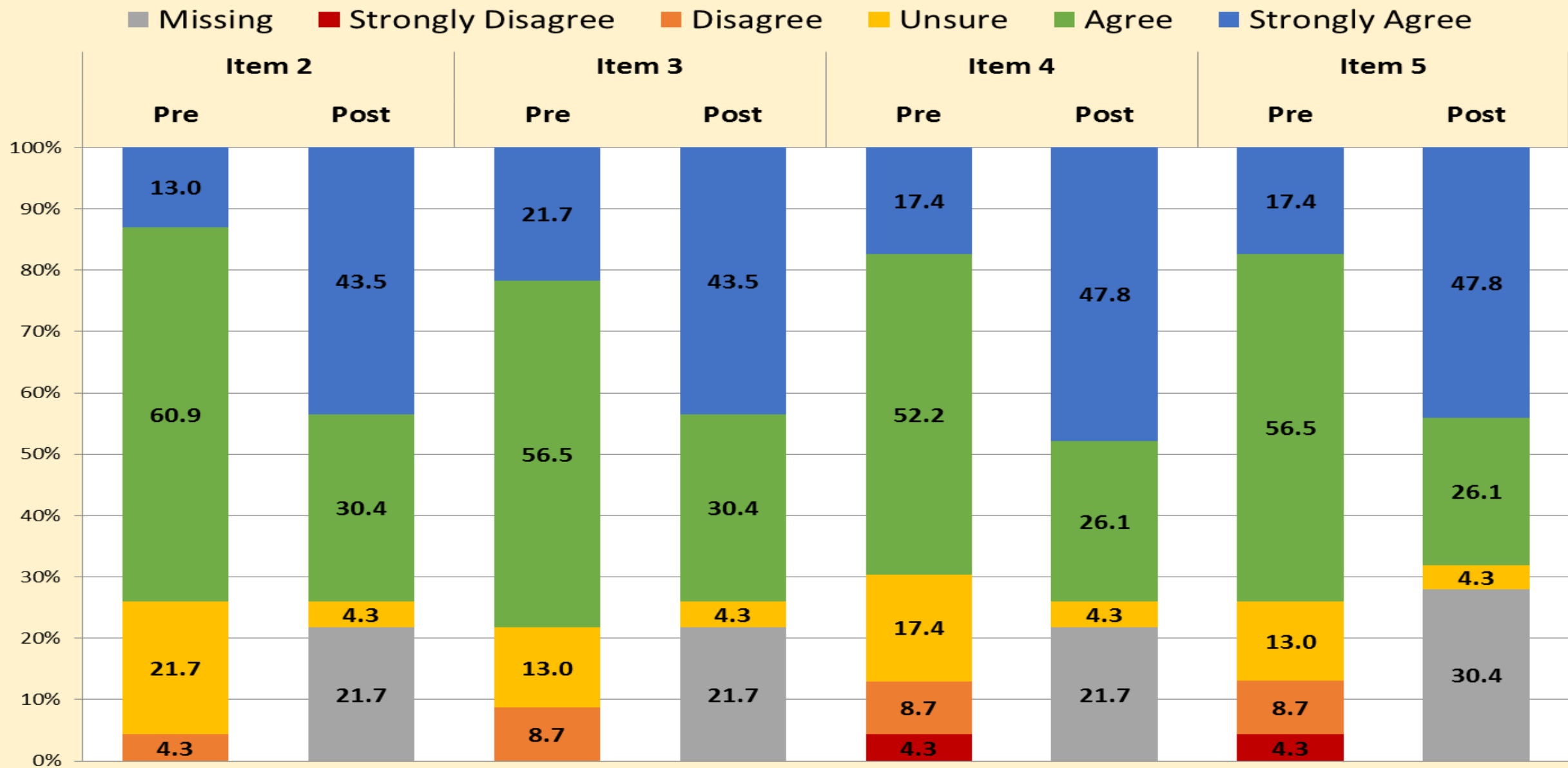
Please complete the following table for the items listed by checking the appropriate box to indicate one response to each item:

Item	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1. I feel that I perform the skills without hesitation.					
2. My performance would convince the observer(s) that I'm competent					
3. I feel sure of myself as I perform the skills					
4. I feel satisfied with my performance of the skills					

(Grundy, 1993)



Confidence Scale Responses (Items 2-5) by Evaluation Period, All Participants





Summary Clinical RDOS Observations



- An Initial Assessment, whether or not it precedes a Follow-up Assessment, begins an Observation.
- Among the 66 individual clinical RDOS received, 46 encounters (69.7%) were Initial Assessments and 20 (30.3%) were Follow-up Assessments.
- Nurse Champions conducted slightly more of the collective Observations (52.2%) alone or with a staff nurse.
- RDOS Total scores are shown to not differ by nurse (champion or participating nurse) for either Initial Assessment or Follow-up Assessment.



Clinical Observations summary by RDOS assessment



	Initial Assessment <i>n</i> = 46		Follow-up Assessment <i>n</i> = 20		Difference		
	Mean	SD	Mean	SD	Mean	Z	<i>p</i> -value
RDOS Total	4.48	2.6	3.65	2.6	-0.83	-3.403	0.001





Aim # 1 Summary

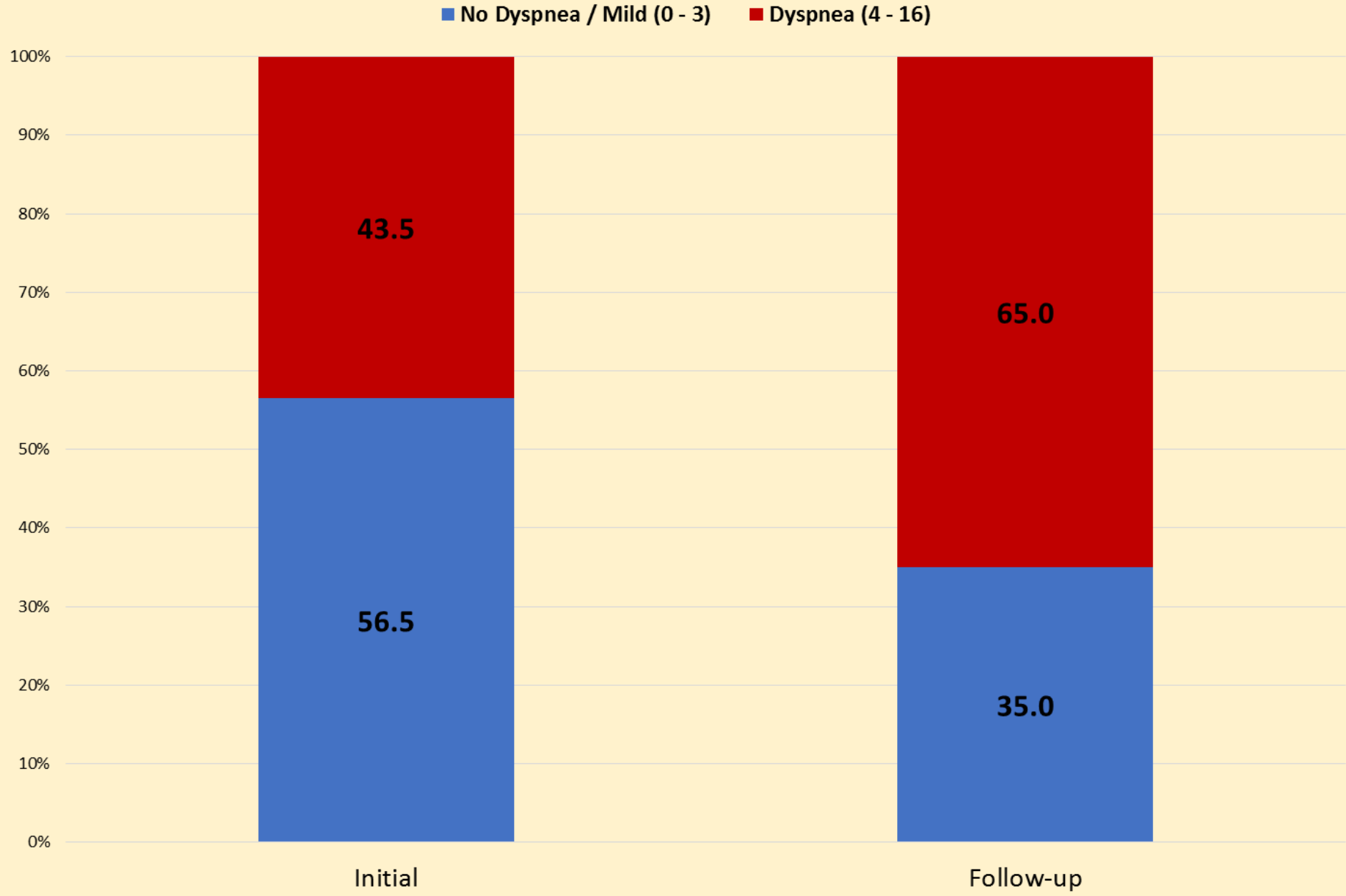
1. To determine whether nurses can effectively use the RDOS in determining presence or degree of respiratory distress.

Results demonstrated that the nurses were able to recognize respiratory distress in patients who were unable to express themselves for whatever reason whether pathophysiologic disease or disorder and/or cognitive impairment.





Clinical Observation RDOS Dyspnea Rating by Assessment





AIM # 2 SUMMARY

2. To learn whether use of the RDOS results in implementation of appropriate interventions to decrease dyspnea



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- Results demonstrate that Initial Assessment of respiratory distress (RDOS score 4 – 16) was associated with the nurse providing an intervention 96.2% of the time.
- The other times the nurses noted that an intervention had been given < 2 hrs prior to their assessment.



Intervention Performed?



Initial Assessment	Resp Distress (4 – 16)		No Distress/Mild (0 – 3)		Difference		
	<i>n</i>	%	<i>n</i>	%	Chi-Square	df	<i>p</i> - value
Yes	25	96.2	1	5.0	38.222	1	<i>p</i> < 0.001
No	1	3.8	19	95.0			

Follow-Up Assessment	Resp Distress (4 – 16)		No Distress/Mild (0 – 3)		Difference	
	<i>n</i>	%	<i>n</i>	%	Fisher's Exact Test	
Yes	3	42.9	0	0.0	0.033	
No	4	57.1	10	76.9		

- The Fisher Exact test is a test of significance that is used in the place of Chi-square test in 2 by 2 tables, especially in cases of small samples.



Limitations

On average, RDOS Total Follow-up Assessment scores decreased from Initial Assessment by 0.83% ($Z=-3.403$, $p=0.001$) because respiratory distress was not assessed and no follow-up required.

Statistical improvement could not be demonstrated since protocol limited Follow-up Assessment to those initially classified with respiratory distress.

Of the 7 patients classified with respiratory distress (RDOS 4– 16) during the Follow-up Assessment, 57.1% did not receive an intervention ($p = 0.033$).

- Follow-up assessment occurred one hour after intervention and timeline for another intervention was too soon.
- Most Follow-up RDOS scores were less than the initial scores.



AIM #3 SUMMARY

3. To learn whether use of the RDOS to provide nursing care results in improved nurse confidence.

Confidence is an important component of clinical nursing practice

The C-Scale demonstrated statistically significant change in the nurses confidence level between the pre-period and post period of the study.





C - Scale Limitations

Item 1. Certain for almost all steps has a large proportion missing: (34.8% in Pre-Period) but mostly Missing in Post-Period (56.5%).



This indicates that many participants may have overlooked the request to circle a response, even during the second evaluation.

We believe this is because the question was noted above the table. If this scale is used again, it should be included in the table.



Nursing Implications

We will be planning a follow-up meeting with the champion nurses to discuss the study's results and their opinion on how well the RDOS performed with patients who were at risk for respiratory distress and could not self-report it.

We will also ask the champion nurses and unit nurse leaders to decide how we will proceed with the following questions:

- If we should incorporate the RDOS into the daily nurse respiratory assessment?
- Should it be used for all patients or just patients classified as palliative care, hospice, or with a history of respiratory distress?
- What type of documentation will be required?



Conclusion

- Patients unable to self-report respiratory distress are susceptible to under recognized and under treated care.
- This is the first known study using RDOS on a regular hospital unit.
- The Respiratory Distress Observation Scale (RDOS) is a reliable tool for assessing respiratory distress when a patient is unable to give a dyspnea self-report on a medical/oncology unit.
- An RDOS score of ≥ 4 demonstrated clinical efficacy as a cut-point to initiate an intervention to improve patient's respiratory status as proven by previous research in the ICU.



Any Questions?



The End