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## Introduction

The Trauma Surgical Intensive Care Unit at Cleveland Medical Center is a 20 bed ICU that treats over 2000 critically ill patients per year. Experienced and specialty trained nurses are essential to the delivery of high-quality care. In 2020 our unit filled all open nursing positions, many with recently graduated nurses. To prepare the new nurses and to integrate them with the existing team, we created a focused code blue education curriculum to supplement the required ACLS/BLS certification. Using the roles of a code blue as content, we created a seven-week curriculum of microteaching sessions with targeted delivery in less than 15 minutes. Participants completed a pretest and posttest ranking their comfort level and team performance performing each task. The curriculum ended with a mock code blue run by participants.

### Figure 1: Micro-Code Teachings

Week 1:	Med Box/Reconstitution of Medication
Week 2:	Assign Roles and Responsibilities
Week 3:	Chest Compressions
Week 4:	Rhythm Identification and interventions
Week 5:	Utilization of Rhythm Box and Defibrillator
Week 6:	Documentation and Closed Loop Communication
Week 7:	Mock Code

## Unit Demographic

### Figure 2: Baseline Education (n=40)

Bachelor of science in Nursing (BSN)	40/40 (100%)
Median graduation year	2018
Median ICU Experience	1 year
ACLS/BLS Certification	40/40 (100%)
Participation in Code Blue	38/40 (95%)
Median number of Code Blues	7

## Overall Results

26/40 (65%) of participants completed both a pretest and posttest. After the curriculum, composite average of comfort level rank increased ( $p = .0001$ ). Participant's perception of team performance in a code improved for Med-box/Reconstitution of medications ( $p = .0032$ ), Document events of a code ( $p = .0236$ ), and Communication ( $p = .0033$ ); overall composite average of perception rank increased ( $p = <.0001$ ).

Figure 3: All participants (n=26)

	Pretest		Posttest		Z-Score	P value
	Mean	Median	Mean	Median		
Personal Comfort	3.85	4	4.05	4	3.85	.0001*
Perception of Unit	3.74	4	4.12	4	5.90	<.0001*

\*Statistically significant  
Analysis by Wilcoxon Signed-Rank Test

## Inexperienced Subgroup Results

The inexperienced subgroup began the course less comfortable performing Med-box/Reconstitution of medication ( $p = .0375$ ), Assign roles ( $p = .0135$ ), and communication ( $p = .0147$ ), with an overall lower composite average of personal comfort rank ( $p = <.0001$ ) compared to the experienced subgroup. The inexperienced subgroup had resolution of all individual role rank discrepancies after the curriculum, but overall confidence remained lower than the experienced subgroup. In addition, the inexperienced subgroup began the course with a lower perception rank of team performance ( $p = .0034$ ) and had resolution of this discrepancy after the curriculum ( $p = .4654$ ).

Figure 4: Inexperienced Subgroup vs Experienced Subgroups

	Inexperienced (n=16)		Experienced (n=12)		U value	Z-Score	P value
	Mean	Median	Mean	Median			
<b>Personal Comfort Level</b>							
Pretest	3.07	4	4.17	4	3488.5	4.36	<.0001*
Posttest	3.93	4	4.08	4.5	4151	2.83	.0047*
<b>Perception of Unit</b>							
Pretest	3.48	4	3.96	4	4105	2.94	.0034*
Posttest	4.04	4	4.18	4	5059.5	0.73	.4654

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Analysis by Mann-Whitney U Test

## Experienced Subgroup Results

The experienced subgroup improved comfort rank for intervention with shock ( $p = .0369$ ) only. Composite average of personal comfort level rank did not change between the pretest and posttest in the experienced subgroup. The experienced subgroup had improvement in perception of team performance in chest compressions ( $p = .0369$ ), interpreting EKG's ( $p = .0418$ ), and communication ( $p = .0126$ ), with an overall improvement in perception rank across roles ( $p = <.0001$ ).

Figure 5: Subgroup Analysis

	Pretest		Posttest		Z-Score	P value
	Mean	Median	Mean	Median		
<b>Inexperienced Group (n=14)</b>						
Personal Comfort Level	3.07	4	3.93	4	3.82	.0001*
Perception of Unit	3.48	4	4.04	4	2.83	.0047*
<b>Experienced Group (n=12)</b>						
Personal Comfort Level	4.17	4	4.08	4.5	1.08	.2793
Perception of Unit	3.96	4	4.18	4	5.36	<.0001*

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## Discussion

1. The curriculum was beneficial for both inexperienced and experienced subgroups.
2. Inexperienced participants improved personal comfort rank performing roles in a code blue and improved perception of team performance in a code blue with the curriculum.
3. Experienced participants had minimal improvement in personal comfort rank, but had improved perception of team performance in a code blue.

## Next Step

- 1 Year Posttest to assess retention of information.
- Incorporation of Code Blue Microteaching with regular orientation of new employees.



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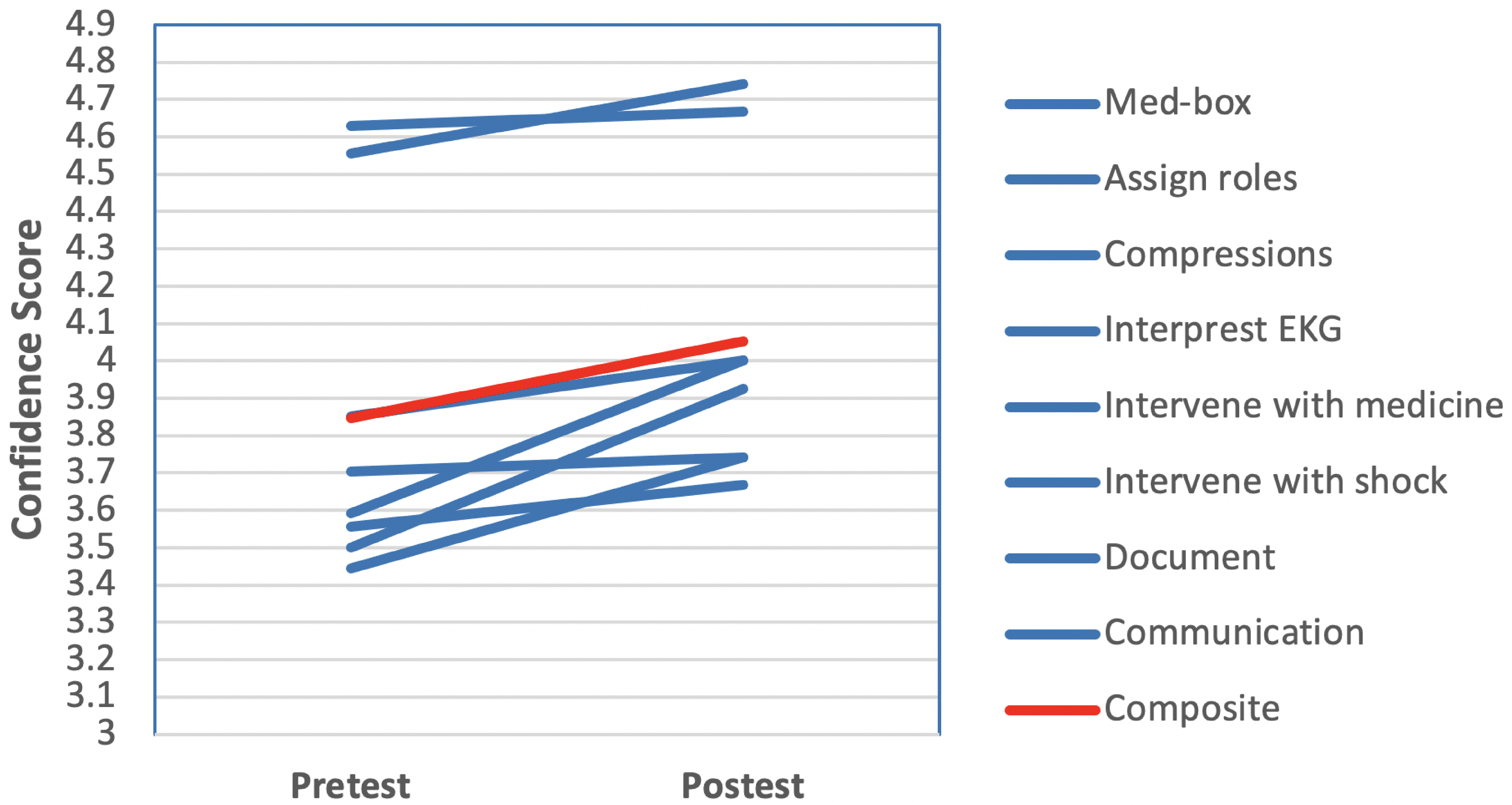
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### Personal Comfort Level



### Perception of Unit Comfort Level

