Implementation of a Delirium Screening Tool in a Pediatric Cardiothoracic Intensive Care Unit

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Introduction & Background

- Delirium is a prevalent condition among critically ill children characterized by disturbance in attention/awareness and changes in cognition[1,5].
- Pediatric patients in the cardiothoracic intensive care unit (CTICU) are exposed to several delirium risk factors[1,2,5,6] :

Pediatric Critically ill Cardiac Patients

Mechanical ventilation
Young Age
Developmental Delay
Frequent Nursing Care
High illness severity
Cyanotic heart disease

Narcotics
Benzodiazepines
Vasopressors
Cardiopulmonary Bypass
Limited social interaction
Immobilization

- Pediatric delirium is associated with multiple negative outcomes:

Increased morbidity and mortality, mechanical ventilation time, risk of self harm, falls, refusal of care, longer hospital length of stay, increased hospital costs[1,2,5,6]

- Key step in pediatric delirium management includes screening for delirium with a validated tool. Effective screening requires knowledge of pediatric delirium[4,6].
- **Prior to this quality improvement initiative, there was no formal delirium screening practice at the project site.**

Purpose & Aims

To implement a valid and reliable pediatric delirium screening tool utilized by clinicians in a pediatric CTICU in an effort to enhance staff knowledge and assessment of this condition.

1. CTICU nursing staff will exhibit enhanced knowledge of pediatric delirium, as evidenced by a 30% increase in knowledge evaluation scores.
2. CTICU nursing staff will achieve 80% compliance in delirium screening within 3 months of project roll-out.
3. CTICU nursing staff will achieve 80% compliance in presenting delirium scores during day shift rounds within 3 months of project roll-out.

Methods

- **Setting:** 24-bed pediatric CTICU
- **Design:** Pre- and post- quality improvement
- **Sample:** 56 nurses (pre), 45 nurses (post), 29 nurses (paired); All patients except premature infants or those with deep or unarousable sedation
- **Instruments:** Flaigle et al.. (2016) pediatric delirium knowledge survey[3]; REDCap audit tools
- **Data Analysis:** Paired analyses knowledge surveys; Descriptive statistics of compliance

Intervention

Pediatric Delirium Education
↓
Cornell Assessment of Pediatric Delirium (CAPD) Screening

- Validated for patients 0-21 years, including developmentally delayed patients[6]
- 94.1% sensitivity, 79.2% specificity, 0.94 Cohen's kappa coefficient[6]
- Nurse completes CAPD every shift at 0600/1800

Cornell Assessment of Pediatric Delirium

RASS Score ____ (if -4 or -5 do not proceed)
Please answer the following questions based on your interactions with the patient over the course of your shift:

	Never 4	Rarely 3	Sometimes 2	Often 1	Always 0	Score
1. Does the child make eye contact with the caregiver?						
2. Are the child's actions purposeful?						
3. Is the child aware of his/her surroundings?						
4. Does the child communicate needs and wants?						

	Never 0	Rarely 1	Sometimes 2	Often 3	Always 4	Score
5. Is the child restless?						
6. Is the child inconsolable?						
7. Is the child underactive—very little movement while awake?						
8. Does it take the child a long time to respond to interactions?						
					TOTAL	

Results

Nurse Sample Characteristics

| RN Characteristics	(N = 56)
Highest Nursing Degree, n (%)	
Associate Degree in Nursing	1 (1.8)
Bachelor of Science in Nursing	50 (89.3)
Master of Science in Nursing	5 (8.9)
Nursing Experience Level, n (%)	
< 2 years	8 (14.3)
2-5 years	14 (25)
5-10 years	13 (23.2)
>10 years	21 (37.5)
Core vs. Travel RN, n (%)	
Core	55 (98.2)
Travel	1 (1.8)
CCRN Certification, n (%)	
Certified	29 (51.8)
Not Certified	27 (48.2)

CAPD Percent Compliance
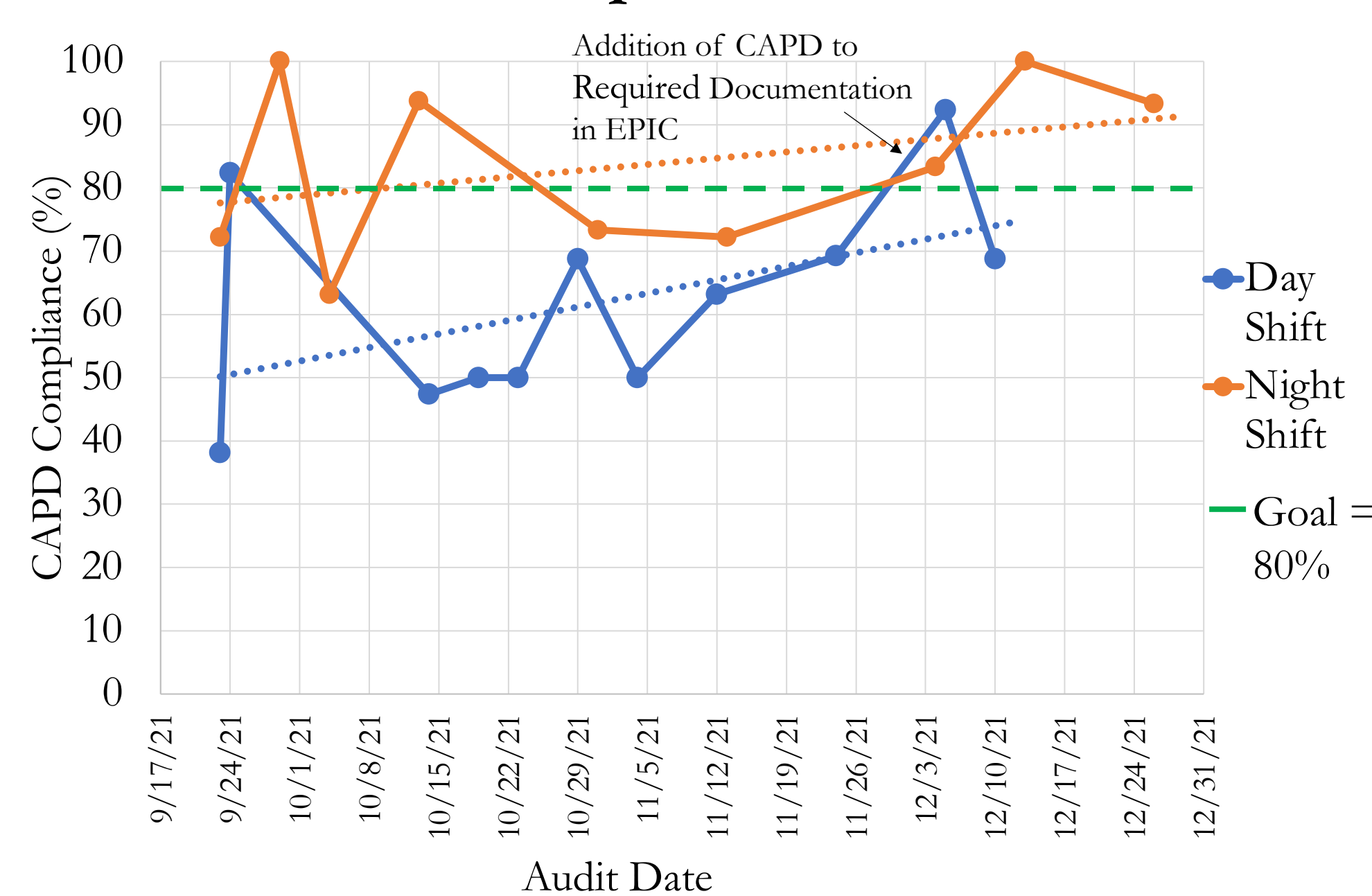
- **Aim 1:** Statistically significant increase in pediatric delirium knowledge among nursing staff (82.35% to 88.23%, *p*= 0.025). Also clinically significant, as increased knowledge improves delirium management[3,4,6]

- **Aim 2:** Average compliance using CAPD was 72.2%

- **Aim 3:** Average compliance with nurse presentation of CAPD scores during interdisciplinary rounds was 80.2%

Pre-Test vs. Post-Test Knowledge Summary Scores

Difference between medians = 1 (*p* = 0.025)
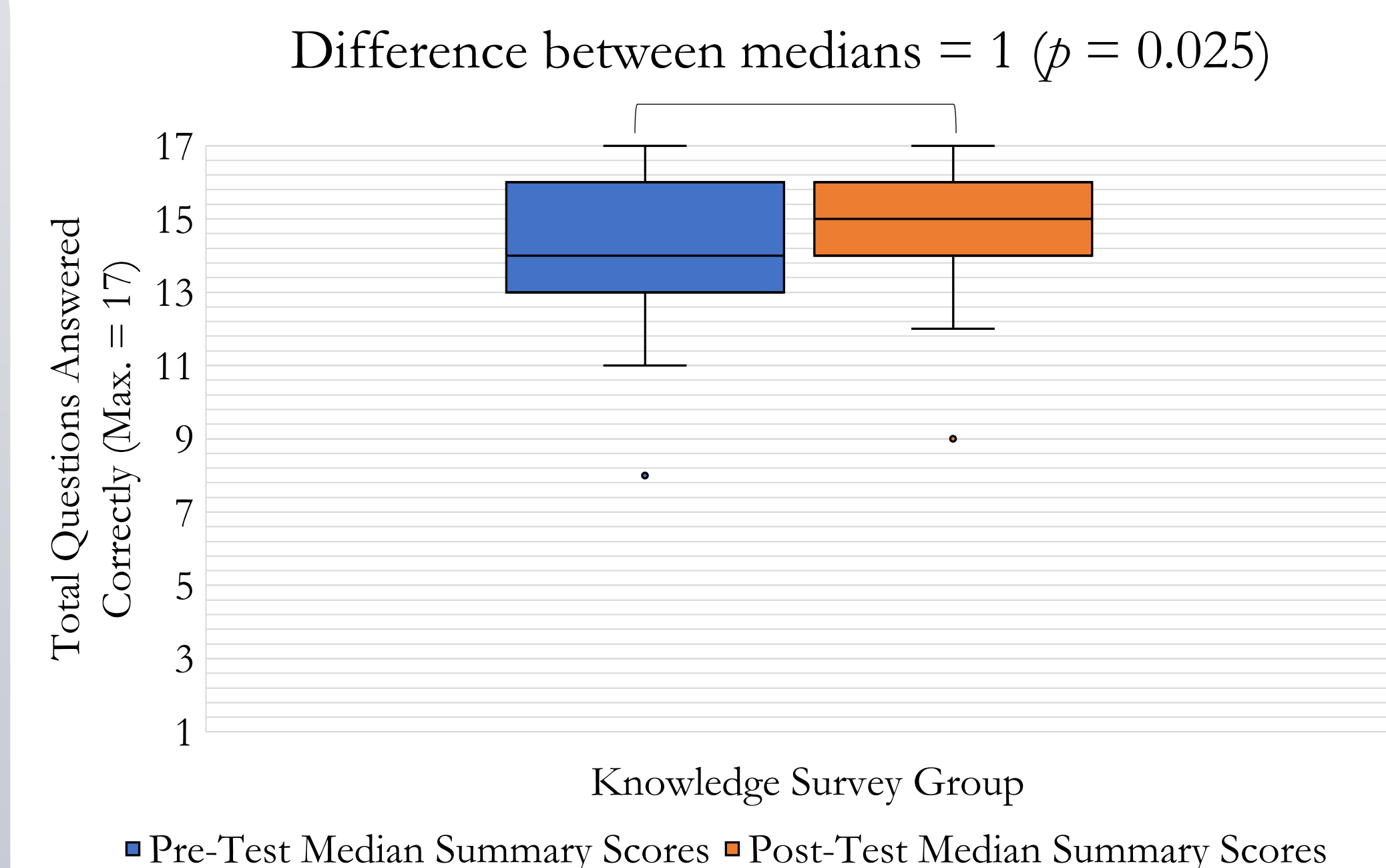
Compliance with Nurse Presentation of CAPD in Rounds
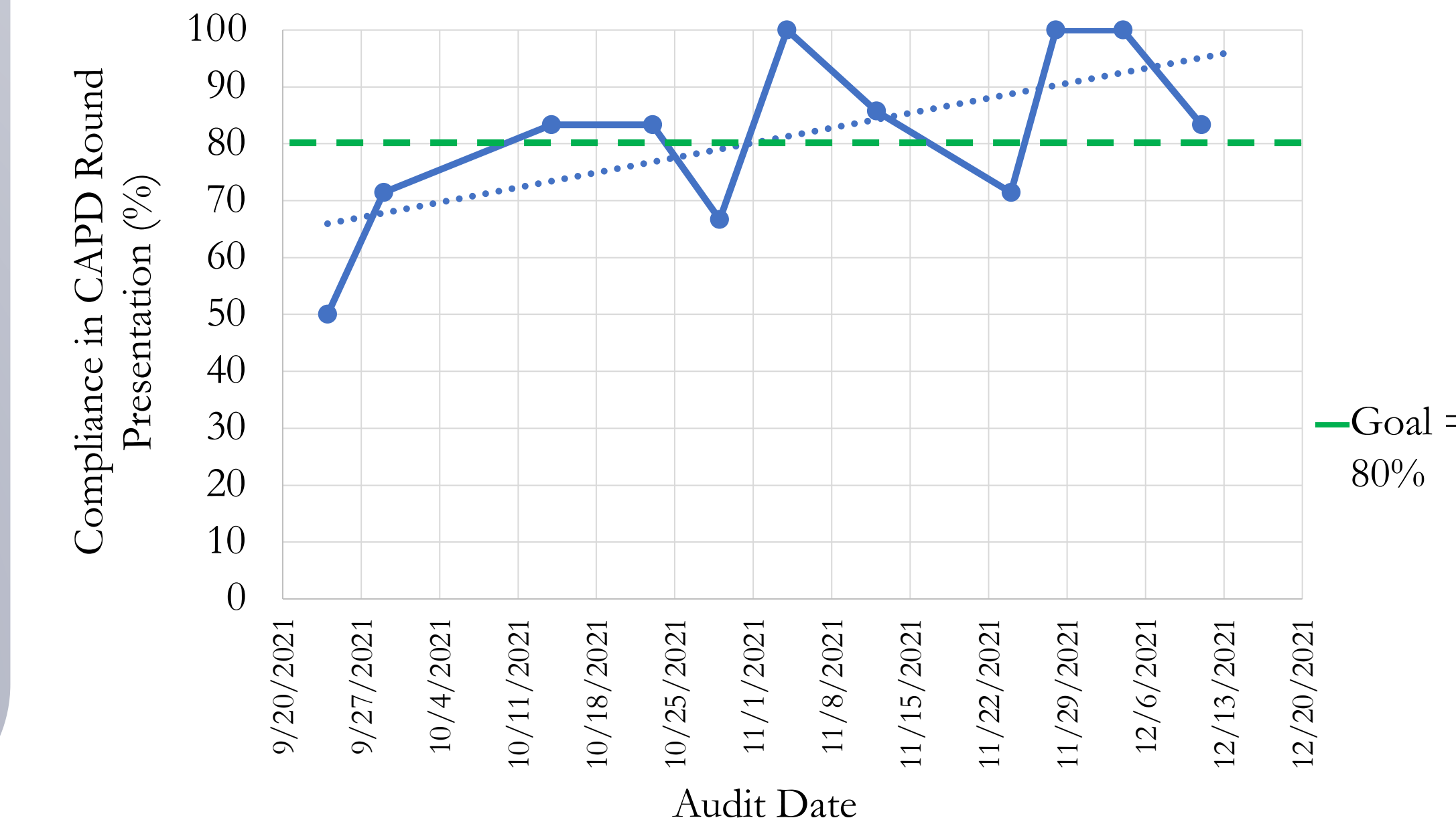
Conclusion

- Project enhanced nursing's knowledge of pediatric delirium and prompted delirium screening, a fundamental step in improving patient outcomes.
- Education and routine interdisciplinary discussion of delirium fosters integration of tool into unit culture.
- There is a need for a validated tool to better assess nursing's pediatric delirium knowledge.
- Future efforts should aim to close screening compliance gap between day and night shift.

Enhance pediatric delirium knowledge

Screen for delirium using the CAPD

Discuss CAPD scores during rounds

Sustainability

- Continued education and compliance audits
- Addition of CAPD into Clinical Practice Guidelines
- Creation of pediatric delirium management algorithm

References

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