Clinical Decision Support Tool to Increase the Diagnosis of Pediatric Acute Respiratory Distress Syndrome to Improve Adherence With Lung Protective Ventilation

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PURPOSE

This study aims to assess the effectiveness of an electronic best practice alert (BPA) in identifying PARDS early and improving adherence to PALICC-2 ventilatory guidelines. By analyzing BPA accuracy and current management practices, we seek to enhance clinical decision support and optimize patient outcomes in the PICU.

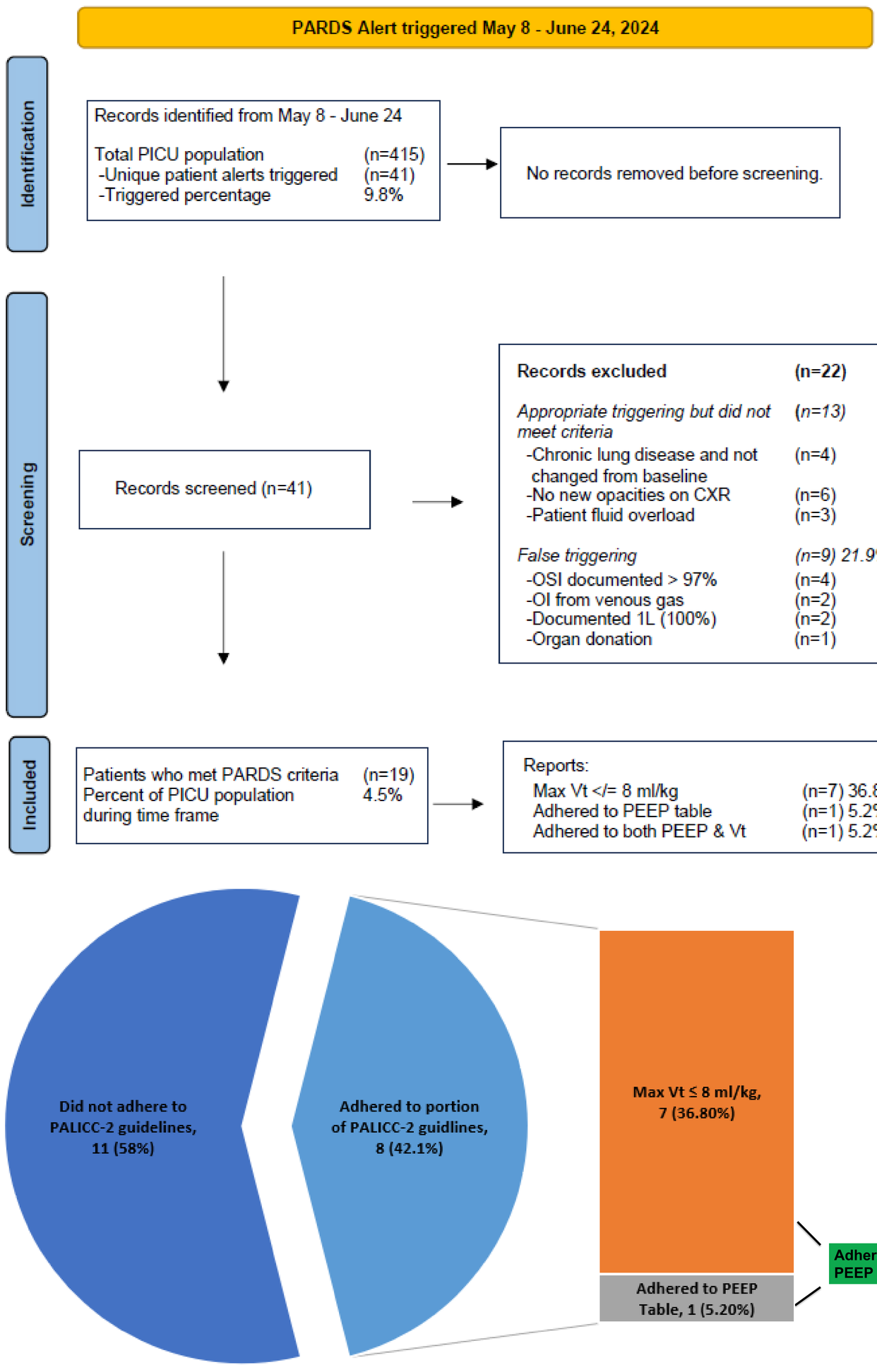
BACKGROUND

PARDS affects 3% of PICU patients with a 17.1% mortality rate. Early recognition improves guideline adherence, while under-recognition risks poor ventilatory management. Clinical decision support tools can aid early detection, enabling lung-protective strategies to reduce morbidity and mortality.

METHODS

Section	Details
Interruptive Alert (BPA) in EHR	**System:** Epic Systems© (Verona, WI) **Trigger Criteria:** - Clinician login: *Critical Care Medicine* - Patient airway: *Endotracheal or Tracheostomy Tube* - Oxygen Index (OI ≥4) or Oxygen Saturation Index (OSI ≥5) - Two consecutive values, ≥4 hours apart, within 24 hours
Silent Implementation	**Scope:** PICU at Children's Healthcare of Atlanta, Egleston Hospital **Timeframe:** Summer 2024 **Clinician Visibility:** *Unseen by clinicians—data captured silently*
Retrospective Chart Review	**Duration:** 47 days **Focus:** Investigating all BPA triggers due to OI ≥4 or OSI ≥5
Validation Process	**Step 1: Accuracy Check** – Ensured OI/OSI were correctly documented by respiratory therapists **Step 2: Exclusion Criteria** – Hypoxemia must not be due to: - ❌ Perinatal lung disease - ❌ Heart failure or fluid overload - ❌ Airway obstruction **Step 3: Radiology Review** – Checked for new unilateral or bilateral opacities on chest X-ray (radiologist interpretation)
Outcome Evaluation	**Primary Goals:** ✅ Confirm accurate **PARDS diagnosis** (PALICC-2 criteria) ✅ Assess compliance with **PALICC-2 ventilatory management guidelines**

RESULTS



Improvements:

- Automate OI/ OSI capture
- Rule: to exclude home vents from alert triggering and exclude organ donation patients
- Outcome: false triggering down from 21.9% to 11%

DISCUSSION AND CONCLUSION

- This evaluation highlights the need to improve early PARDS identification via clinical decision support and enhance compliance with PALICC-2 guidelines.
- Implementing a ventilator order with a PARDS protocol link will enable analysis of recognition, ventilation timing, and outcomes. Addressing false BPA alerts and improving OI/OSI documentation will be key.
- Next, we will launch the BPA to provide real-time CDS alerts, allowing clinicians to initiate the PARDS order set, and ensure/track PALICC-2–compliant ventilation via clinical dashboard

References

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