

PURPOSE

This quality improvement project aimed to improve cardiopulmonary resuscitation (CPR) team effectiveness, CPR quality, and clinician confidence by implementing and evaluating the CPR Coach role utilizing Rapid Cycle Deliberate Practice (RCDP) Simulation.

BACKGROUND

- Survival rates remain variable due to inconsistencies in CPR performance despite standardized training and American Heart Association guidelines (American Heart Association, 2020).
- Research shows that CPR coaching during cardiac arrest improves adherence to pediatric advanced life support guidelines, but a structured approach to integrating this role into clinical practice is needed (Buyck et al., 2020; Cheng et al., 2018).
- RDCP has been shown to enhance CPR skills through structured feedback and cyclical learning, making it an effective method for implementing the CPR Coach role to improve resuscitation quality and patient outcomes (Hunt et al., 2014; Eppich et al., 2015).
- High-quality resuscitation is critical in the (pediatric intensive care unit) PICU where patient survival depends on consistent performance.



METHODS

Planning

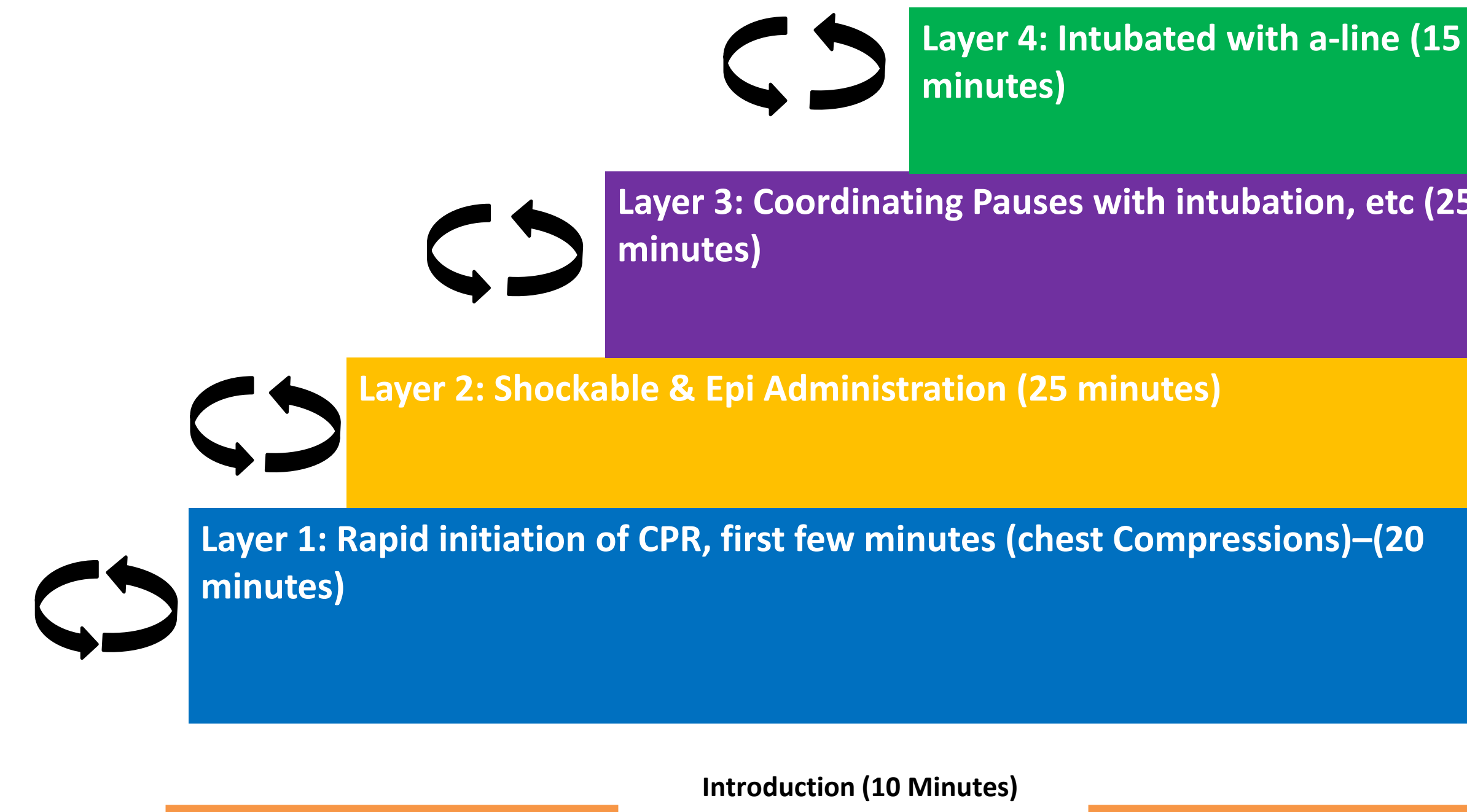
- Baseline pre-data from the Zoll defibrillator from actual PICU events
- Cognitive aids and facilitator guides
- Online pre-course work

Scenario Implementation

- Three-hour tiered RCDP simulation to multidisciplinary clinicians in situ
- Objectives of CPR initiation, rhythm identification, and coordination of interventions
- PICU ergonomics to simulate realistic code events

Evaluation

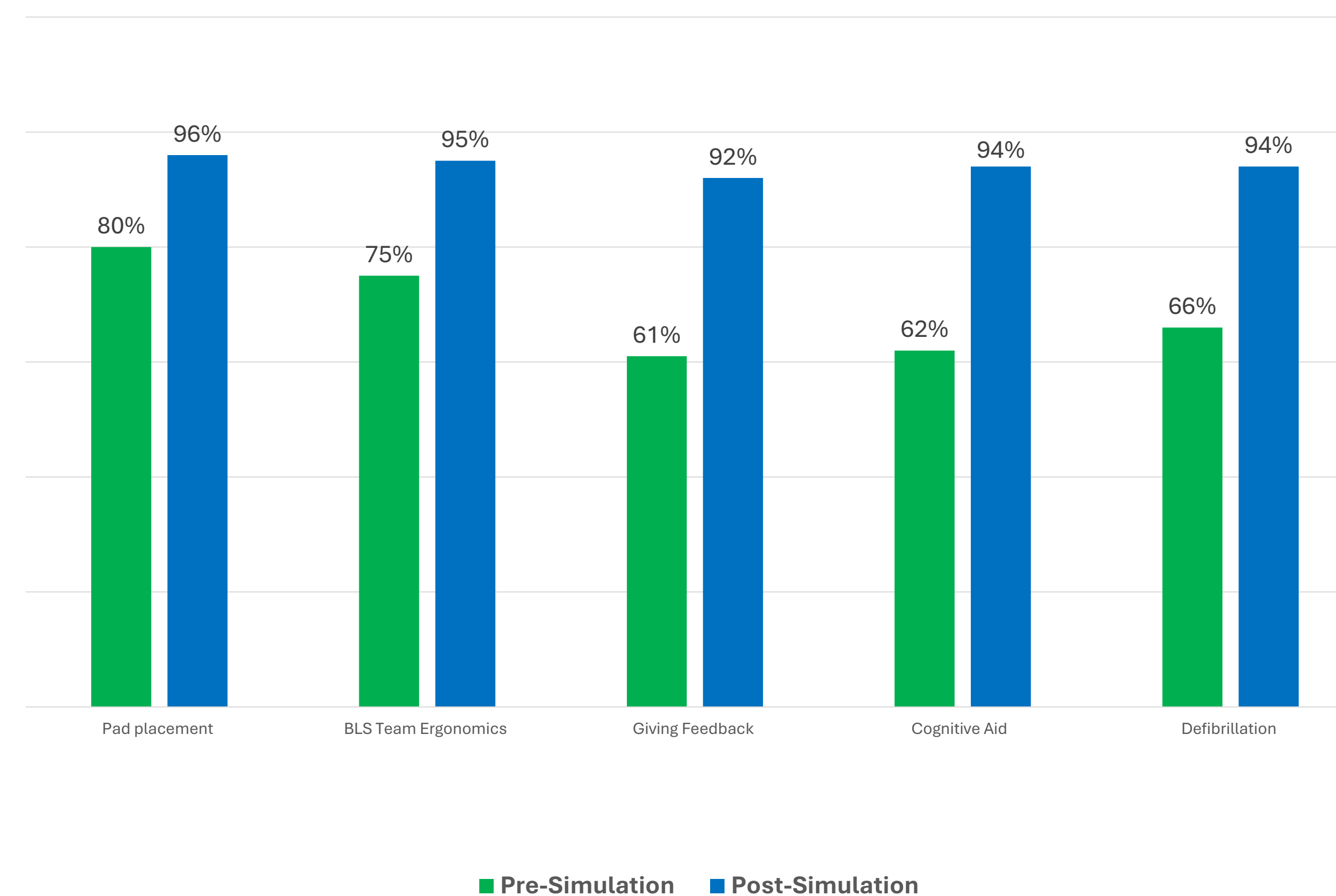
- Depth, compression fraction, and rate compliance
- Post-simulation surveys measuring perceived confidence and knowledge



RESULTS

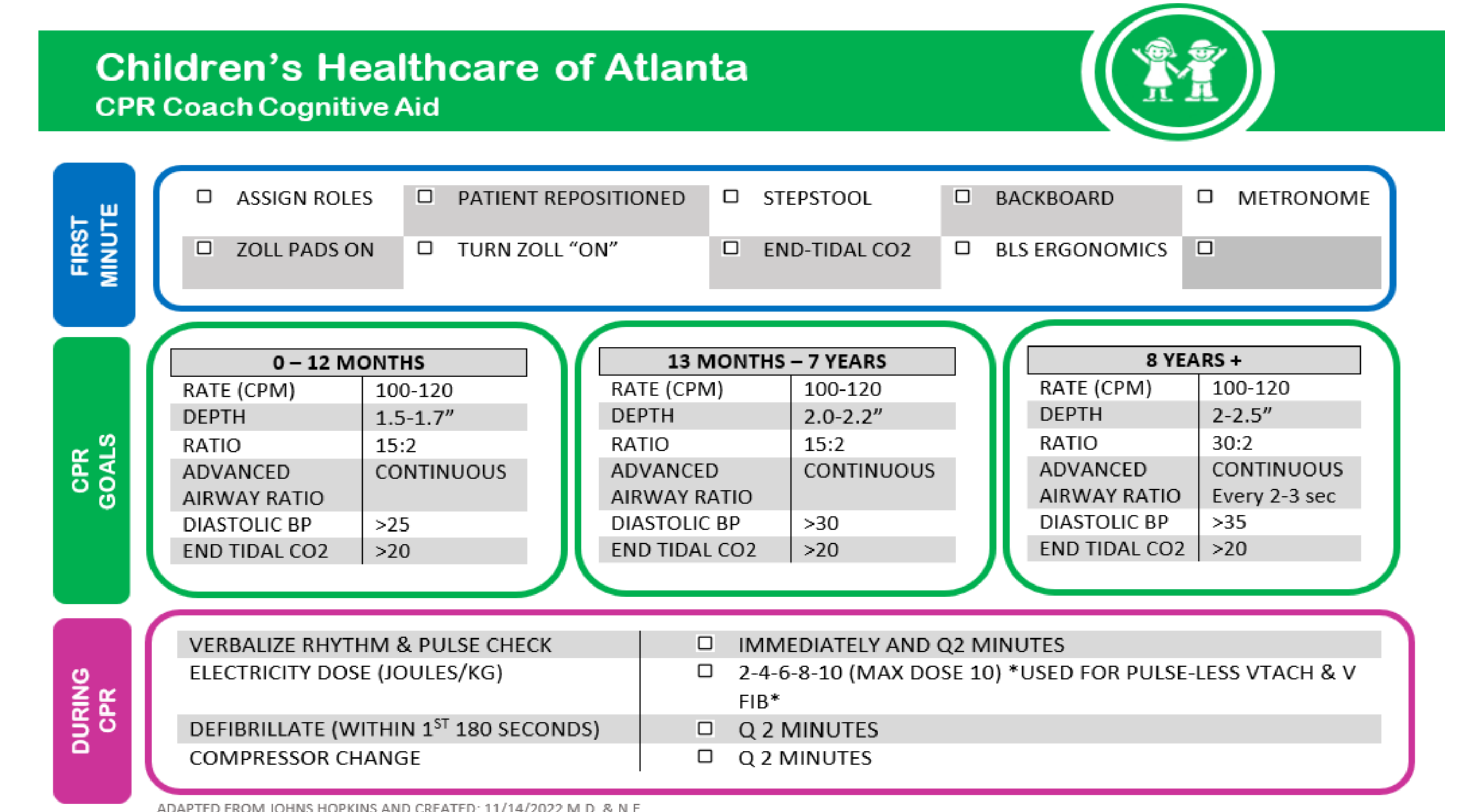
- 17% improvement in overall CPR performance (in target depth, rate, and compression fraction).
- Depth compliance decreased by 6%
- Chest Compression Fraction increased by 11%
- Rate compliance demonstrated a 15% increase
- Six-month survey highlights indicated the following:
 - 77% of CPR Coaches ensured proper pad and backboard placement “every time” or “almost every time”.
 - 85% utilized Zoll feedback during resuscitations to coach their team.

Perceived Confidence Pre- and Post-Simulation



IMPLICATIONS FOR PRACTICE

- Standardizing and integrating the CPR Coach role in the PICU provides a structured approach to improve team coordination and CPR performance.
- RCDP in simulation leads to improvements in performance metrics.
- RCDP simulation methodology fosters better communication and teamwork enhancing team performance during an arrest.
- This tiered progression, flexible training approach can promote widespread adoption of the CPR Coach role within a hospital system.



Children's Healthcare of Atlanta
CPR Coach Cognitive Aid

FIRST MINUTE

- ☐ ASSIGN ROLES
- ☐ PATIENT REPOSITIONED
- ☐ STEPTOOL
- ☐ BACKBOARD
- ☐ METRONOME
- ☐ ZOLL PADS ON
- ☐ TURN ZOLL "ON"
- ☐ END-TIDAL CO2
- ☐ BLS ERGONOMICS

CPR GOALS

	0 – 12 MONTHS	13 MONTHS – 7 YEARS	8 YEARS +
RATE (CPM)	100-120	100-120	100-120
DEPTH	1.5-1.7"	2.0-2.2"	2-2.5"
RATIO	15:2	15:2	30:2
ADVANCED AIRWAY RATIO	CONTINUOUS	CONTINUOUS	CONTINUOUS
DIASTOLIC BP	>25	>30	>35
END TIDAL CO2	>20	>20	>20

DURING CPR

VERBALIZE RHYTHM & PULSE CHECK	<input type="checkbox"/> IMMEDIATELY AND Q2 MINUTES
ELECTRICITY DOSE (JOULES/KG)	<input type="checkbox"/> 2-4-6-8-10 (MAX DOSE 10) *USED FOR PULSE-LESS VTACH & V FIB*
DEFIBRILLATE (WITHIN 1 ST 180 SECONDS)	<input type="checkbox"/> Q 2 MINUTES
COMPRESSOR CHANGE	<input type="checkbox"/> Q 2 MINUTES

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CONCLUSION

Tiered RCDP simulation-based training in the PICU enabled rapid acquisition of skills and mastery in the new CPR Coach role. This improved performance metrics and enhanced patient care during high-risk, high-stake events.

ACKNOWLEDGEMENTS

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