A Modular PALS Course for Pediatric Anesthesia Providers is Preferred over Traditional PALS Course Format

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Introduction

The AHA 2010 Guidelines for Emergency Cardiovascular Care state, “It is reasonable to consider alternative course scheduling formats for advanced life support courses provided acceptable programmatic evaluation is conducted and learners meet course objectives (Class IIa, LOE B).”1 Staged or modular approaches to Basic Life Support (BLS) and Adult Cardiac Life Support (ACLS) training are documented in the literature.2,3 We developed an experimental, modular course using high technology simulation and anesthesia-relevant scenarios to address cardiac instability, shock, and respiratory compromise in the pediatric patient as an alternative to the traditional full-day refresher course for Pediatric Advanced Life Support (PALS). The purpose of our study was to test feasibility, and satisfaction for experienced anesthesia providers.

Simulation Tools and Scenarios

Cardiac Scenarios

Setting: Operating Room

Manikin: SimBaby (Laerdal, Wappinger Falls, NY)
1. Infant undergoing herniorrhaphy develops supraventricular tachycardia during induction.
2. Infant with intussusception develops ventricular fibrillation after injection of local anesthetic.
3. Infant undergoing herniorrhaphy develops pulseless idioventricular rhythm during induction.
4. Infant with Trisomy 21 develops symptomatic bradycardia on induction.

Shock Scenarios

Setting: Operating Room

Manikin: PediaSim (METI, now CAE, Montreal, Canada)

Respiratory Scenarios

Setting: Peri-Anesthesia Care Unit

Manikin: SimBaby
1. Toddler status post (s/p) tonsillectomy develops anaphylaxis.
2. Toddler s/p surgery develops bronchospasm.
3. Toddler s/p syndactyly repair develops laryngospasm and pulmonary edema.
4. Toddler s/p strabismus repair with depressed respiratory control.

Results

Surveys were obtained from 29 participants (17 physicians, 12 CRNAs) mean age 41.5 years; mean 10.2 years in practice; and mean 5.5 times having taken traditional PALS Update Courses prior to this course. PALS written examination score: 30.28 (out of 33). Two participants scored below 84% and were successfully remediated. All participants satisfactorily completed the scenario-based cases.

Survey responses: 1=lowest through 7=highest

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<tr>
<th>Question</th>
<th>Specificity looking at the COURSE DESIGN (agenda and schedule), what was your satisfaction with the LAST TRADITIONALLY DELIVERED PALS course you attended?</th>
<th>Specificity looking at the COURSE DESIGN (agenda and schedule), what was your satisfaction with the CURRENT PALS program you are completing?</th>
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<td></td>
<td>Mean Score</td>
<td>SD</td>
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A modular PALS Update Course utilizing anesthesia specific scenarios and high technology simulation was feasible to achieve satisfactory outcome results and was preferred over a traditional PALS course format by pediatric anesthesia providers.

References


Conclusion

Pediatric anesthesia providers from an academic children’s hospital would prefer a modular PALS Update course over traditional single day courses they have previously attended.

Methods

A PALS Update course was reformatted to provide four, hour-long, quarterly sessions over a year instead of a single longer session at the delivery with satisfactory results. Each session addressed either respiratory, cardiac, shock, or testing scenarios and utilized high technology manikins simulating anesthesia relevant emergencies. At the completion of the modular course, pediatric anesthesiologists and CRNAs completed a survey that included questions comparing their experience in this course with their last course which was delivered in a traditional single-day format.

Hypothesis

Pediatric anesthesia providers from an academic children’s hospital would prefer a modular PALS Update course over traditional single day courses they have previously attended.